

**Aviation -
Landing
fields &
flying routes**

THE AIRCRAFT BOARD

WASHINGTON

January 4, 1917

OFFICE OF THE CHAIRMAN

Mr. Carl G. Fisher, Presdt.,
The Alton Beach Realty Co.,
Miami, Florida.

Dear Mr. Fisher:

Replying further to your letter of December 26th,
I understand that you have accepted the chairmanship of the
sub-committee of the National Advisory Committee for Aero-
nautics, which has to do with landing fields for aerial routes
and is to be related to the Civil Aerial Transport Committee.
Permit me to congratulate you upon your new official
responsibility and to express the hope that you may succeed
in accomplishing the result for which you have so long been
striving.

With best regards, I am

Very truly yours,

666
J

CONFIDENTIAL

File No. 300
Sec. - Sec.

SEVENTH NAVAL DISTRICT
HEADQUARTERS SECOND SECTION
MIAMI FLA. MAY 14, 1917.

Mr. Carl G. Fischer,
Indiannapolis, Ind.

Dear Mr. Fischer:-

It is possible that the department may decide to establish headquarters for period of war at Miami. Would you consider lease to government for that portion of your property used by Mr. Curtiss last winter, together with buildings thereon? If so, at what price?

I ask this information in anticipation of possible inquiries from Commandant of this District as I have already reported this site as a very favorable place to establish Section Headquarters.

I would ask you to treat this communication as strictly confidential.

Yours very truly,



Section Commander,
U. S. N. R. F.

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L

If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.

WESTERN UNION TELEGRAM

NEWCOMB CARLTON, PRESIDENT

GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
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RECEIVED AT 21-23 NORTH MERIDIAN ST. INDIANAPOLIS, IND. ALWAYS OPEN

371C JZ 58 GOVT

WASHINGTON DC 622P JULY 10 1917

CARL FISHER

1309

INDIANAPOLIS IND

AT MEETING OF AIRCRAFT PRODUCTION BOARD TODAY RESOLUTION PASSED
 AUTHORIZING YOU TO SELECT PART OF REPRESENTATIVES NEWSPAPER AND MAGAZINE
 WRITERS INCLUDING ASSOCIATED PRESS AND UNITED PRESS AND VISIT UNITED-
 STATES AVIATION FIELDS SUGGEST YOU ALSO VISIT UNIVERSITIES WHERE
 TECHNICAL COURSES IN AVIATION ARE BEING GIVEN PLEASE WIRE ME

HOWARD E COFFIN CHAIRMAN AIR-CRAFT PRODUCTION BOARD

653P

4004
7-10-17
dm

Address reply to
CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
WASHINGTON.

.....DIVISION

July 12, 1917.

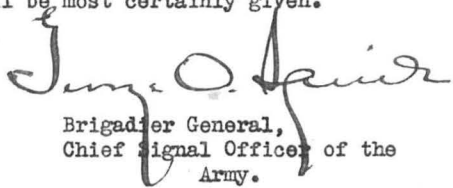
Mr. Carl G. Fisher,

Indianapolis, Ind.

Dear Sir:-

It affords me great pleasure to take this means of expressing my approval of the project you are now undertaking of mapping and marking emergency landings for cross country aviation flights. The necessity for this action has been known to this office for months but the great amount of work devolving upon this office in connection with the development of the Air Service of the Army has prevented us from attempting what you are now doing.

The emergency landing fields which you are marking and mapping will be of great value and will be in the interest of saving lives, and it is hoped that citizens who have suitable fields will realize the importance of what you are doing and the aid they can give the Government in cooperating with it. It is quite probable that many of the fields mapped and marked by you may never be used for an emergency landing but it is necessary to have a large number of them in the interest of safety to aviators. Any assistance which the Aviation Section of the Army can render you will be most certainly given.


Brigadier General,
Chief Signal Officer of the
Army.

July 16th, 1917.

Mr. Howard E. Coffin,
Advisory Board of the Nat'l
Council of Defense,
Washington, D.C.

My dear Coffin :

I tried to call you on the telephone before I left Washington, but as you are undoubtedly aware, it is very difficult to get ahold of you; it is also difficult to get Mr. Hitchcock.

Anyway, I had definitely made up my mind that I wanted to think the matter over before submitting you a picture of the best thing that I could think of at the present time for the publicity plan, and just now, without any real flyers, we would have to go on the future and this is rather dangerous to do.

By a prearranged plan we could show, for moving picture work, the men coming out of the factories at the Packard, Hudson or Marmon Plants - a picture of the men who are now working on aviation motors. We could get the machine at Dayton to make some flights with American flags attached and drop a few smoke bombs to add something spectacular to the flight. We could arrange to have this machine at Dayton fly over a good sized building or barn which could be blown up at the proper time - but I am afraid of these plans. They are not real and it would call for some explanations or criticisms.

The publicity story, in my opinion, is vitally necessary for the further and continued support of the people - but possibly a very much better picture can be made in the next few weeks. It may be wisdom to wait two or three weeks, as you suggest in your telegram of the 14th.

I only learned of your telegram of the 10th on my return to Indianapolis. Under separate cover I am writing you regarding the signals to be used for emergency field markings.

Yours very truly,

CSF:R

July 16th, 1917.

Mr. Howard E. Coffin,
Aircraft Production Board,
Washington, D. C.

My dear Coffin :

I have already secured forty-eight first class landing fields between Indianapolis and Richmond and will be ready to send the marking gang out within the next few days, as soon as I can get the trucks, ladders and painters assembled.

Just now, however, the most important thing is to decide absolutely on the plan of marking which will be standard throught this country. I find that a great many people who have more or less authority, more or less ingenuity and considerable interest in the matter, have just as many different ideas as to the proper marking to be used. Some of these ideas suggest everything from painting the entire barn red, white and blue, to painting the tops of the corn that hasn't yet reached maturity in the fields.

I have given the matter some thought, and from experience in aviation and ballooning I am satisfied that the plan I suggest is the best thing that has so far been submitted - and if you and your Board agree to same, I wish you would immediately go on record authorizing this set of signals to be used and standardized and recognized as such by your Department. Then I will immediately proceed to see that these signals are recognized as standard throughout the United States.

It is going to be possible to get the co-operation of various patriotic communities to do a good part of this work in laying out the various routes over the country - and I have in mind that we may be able to mark the Lincoln Highway clear across the country ; but it certainly will be confusing if a man in New Jersey who wants to mark a few buildings gets up a code of signals of his own and if a man in Illinois has a different idea on signals. The amount of paint to be used and labor attending thereto is an item of great importance.

Therefore, please O.K. the proposed plan - and please note that arrangements have been made for adding from time to time special signals, such as straight marks, crosses, circles or letters of the alphabet. From time to time it will be necessary to add to our instructions on some particular roofs, and the particular markings I have in mind and hold in reserve, can be used for new ideas in signals.

Yours very truly,

CHEF:R

Air route

July 16th, 1917.

Mr. C. F. Kettering,
c/o The Delco Company,
Dayton, Ohio.

Dear Mr. Kettering :

I just returned from Washington yesterday, where I met Mr. Squiers, Mr. Sother, Mr. Coffin and Mr. Waldon, and received letters from them, copies of which I am enclosing you.

I am now having an automobile fitted out with telescoping ladders for painting purposes. I already have one car on the road and have secured forty-eight good sites between Indianapolis and Richmond. I propose to take over the work from Indianapolis to Rantoul, Illinois, and to secure the assistance of some young Army Engineers for this work; also from Indianapolis to Detroit - and if you can make proper arrangements there for assistance, we will somehow, between us, try and take over the job between Detroit and Dayton.

I have been giving a good deal of study to roofs and markings for the past week, and in my estimation the plan you suggest is not good for this reason : that some of the most desirable roofs to mark are old and it would be a tremendous expense to use white lead paint in the quantity which you outline. It would also take a great deal of time to do the work, and at a height of 10,000 feet, I am inclined to believe that the marking you suggest would not be as quickly and instantly intelligible as numerals.

There are three signs that we must be able to put on any barn top, namely : the number of the landing field, an arrow pointing to the landing station, and reserving for one corner of the barn a separate marking to indicate the size of the field or the length of the gliding possibilities afforded. For instance : one long dash, which would be approximately 3' wide and 8' long, would mean 1500 feet gliding surface. One dash and one round dot, the dot to be approximately $3\frac{1}{2}$ ' in diameter, would mean 2000 feet or more of gliding surface. One large circle, approximately 6' in diameter, would indicate that to be the best available field for two miles. These signals could be indefinitely continued, as the particular wants of the aviators may suggest.

For the reason that we will have to add other signals to these roofs, I think the numbering system preferable. I think each leg of each course should be numbered differently. For instance : the numbers between Indianapolis and Dayton will probably amount to ninety-five stations - the numbers between Dayton and Detroit will amount to about the same. I would

Mr. C. F. Kettering. #2.

under no circumstances advise the use of three numerals for stations, for the reason that this adds 33-1/3% of labor, of the use of space afforded, and to a large extent adds to confusion in reading the numbers. I would advise that where any particular leg, say such as the Lincoln Highway from New York to San Francisco, be numbered, that the numbers be used up to 99, and then start over again. I would also advise that suitable markings be put at each State Line, as per copy enclosed, a long waving line.

I am having these signals reduced to blueprints and will send a copy in the next few days for your consideration.

Yours very truly,

CGF:R

P. S. I saw Vincent's new motor - and it is a beauty. It is wonderful, the speed with which this motor was gotten out. I am in hopes the balance of them will come thru quickly.

If it is possible to make arrangements for some of these special machines to be thoroughly tried out this Winter, I would like to see some of them bro't to Miami : I have a very good hangar and landing place there, either for water or land machines. These are the buildings which Mr. Curtiss erected and I took off his hands when he moved into the Everglades. The buildings, however, have been much improved : floors have been put in where only sand existed previously; the buildings have been painted, toilet facilities have been added, and otherwise the place has been made thoroughly first class and up-to-date.

C. G. F.

July 16th, 1917.

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C. G. F.

FLYING FIELDS -
LOCATION, SIZE & EQUIPMENT

It is suggested in this article that not less than 35 flying fields of not less than 300-acres in size be selected under the following general conditions :

The fields should have approximately 300 acres and be practically square, so that in any one direction there is 3000 feet of open landing space. These fields should be located within one mile of an interurban or steam railroad, on a hard road, near a center of population of about 50,000. These fields should be practically level and with a well established drainage system or one that can be easily connected with a surrounding drainage system. It will be necessary to have telephones, electric lights and good water on the fields ; the water can either be secured by the extension of pipe mains or from a driven well supply. The surrounding country in at least two general directions for a distance of 50 miles should have at least 10% suitable topography for emergency landings.

It is suggested that each field should have hangar storage for thirty machines, and a repair shop or hangar known as a repair hangar large enough to accommodate six machines. It should also have a machine shop - 50 x 60 - equipped with the following :

- 1 small B-B lathe.
- 1 small hand forge.
- 2 small grinders.
- 2 small drill presses.
- 1 small lattice storage room for extra equipment, tires, etc.
- 1 small planer.
- 1 small hand saw.
- 1 small circular saw all machinery to be

handled with electrical motor equipment.

SUGGESTIONS ON AIR ROUTES,
SIGNALS AND MAP-MAKING

Aerial highways with both ground maps and air maps are both desirable and necessary under the present conditions of intensive preparations for the mobilization and training of a very large number of aviators for actual war service.

It is a necessity that the beginner in making his first attempts at cross-country flying should follow a well defined highway on each side of which, at intervals of not more than three miles, are located landing fields, and that the same are marked permanently on house or barn roofs so that the beginner in difficulty may immediately select from the best fields available one which can be used for landing.

It is necessary that the routes for beginners should be confined within a district 100 miles long and should be so laid that they will avoid passing over the larger cities but instead will pass around them, following a well defined road, always with emergency landing fields in close proximity.

It is desirable that in well established flying districts repair or terminal fields should be located within 125 to 150 miles of the Mother Training Camp. These repair or terminal fields should have not less than 75 to 100 acres and should be exceptionally good fields for starting as well as landing; they should be outfitted with a small building either on the field or immediately adjacent thereto in which a reasonable number of emergency parts could be stored. These repair or terminal fields should be under the care and supervision of one man, who would see to it that at all times during training of student airman, the field is kept in good condition and the parts, gasolines and oils entrusted to the caretaker's watchfulness should be ready for use at any time.

11

Emergency landings along a beginners' highway should be from one and a half to three miles apart on either side of a well defined road, and these well

defined highways should not be left by the beginner until he has passed a certain amount of training and been given official permission to leave these designated routes.

It is highly desirable and necessary that the Weather Bureau of the United States co-operate to the extent of furnishing such information as the Aviation Department may desire, and that the Map Making Departments of the United States Government shall also co-operate in getting out special maps of the territory to be used for flying purposes, incorporating in these maps routes and signals both for ground and air conditions, such as the Aviation Department will receive and segregate.

In all sections where beginners are being trained, it is desirable that all emergency landings should be shown on the maps and numbered, beginning at #1 and passing not above #99 in any one section, so that at no time would more than two numbers appear as a number to be read. It is desirable that the Aviation Department shall immediately adopt the following series of numbers and signs which shall be used, until ordered changed, both for emergency landings for beginners and for the guidance of advanced students in cross-country flights, and for all map readings :

- Blueprint #1 .. Illustrates markings for emergency landings for beginners. The "Special Signals" shown may be used for turns and other purposes.
- Blueprint #2 .. Illustrates section of sample map.
- Blueprint #3 .. Illustrates the map marking of a town or village of less than 10,000 population.
- Blueprint #4 .. Illustrates the marking of all terminal or repair fields.

Blueprint #5 .. Illustrates the map marking of a city of 10,000 population or more. The letter in this marking is to designate the state and the figure to designate the city. The figure should be assigned with reference to the population of the city. To illustrate : Cleveland is the largest city in Ohio. If the letter "A" designated Ohio, the sign for Cleveland would be "A-1". Cincinnati would be "A-2", etc. When the marking is that of the capital city of the state, the letter should be in red. Thus - Columbus Ohio would have the signal "A-3", with the "A" in red. The airman should carry a list of all cities of 10,000 population or over, in each state, arranged and numbered for ready reference.

Blueprint #6 .. Illustrates a night landing illuminated by flare signals which shall be kept on hand in liberal quantities at all terminal or repair stations, and ready for service on such nights as may be selected for long distance cross-country night flying, and on such occasions shall be kept burning from sunset until daylight, as per special instructions. (See Book of Instructions, Page #27.)

It is desirable that all maps shall be made in ribbon sections, covering a zone in width of not more than 50 miles and approximately 500 miles in length; that these maps shall have an approximate scale of 5" per 100 miles. It is not desirable that other than capital cities be named on these maps. It is desirable only that principal highways, railroads and rivers be shown : no attention need be given interurban, street car lines, small creeks, county lines or bridges.

In the building of the maps by the Government, it is desirable that the first page of the map be devoted to instructions in map reading; that the second page be devoted to signals adopted by the Aviation Board and illustrations thereof; the third page be devoted to the numbering of the different map zones and an alphabetical index thereto; that each map of a zone shall be in sections as described and shall consist of a completed package, substantially bound, not to exceed $4\frac{1}{2}$ " wide and 9" long. If it is that desirable by this Board to order these

maps to be erected on reels, this will not interfere with the construction and binding of the maps as herein described.

It is that necessary that automatic flashing signals for guidance of aviators by night shall be maintained in the principal cities enroute on cross-country routes. These signals should operate on the general principles of the Morse code and should flash out a letter and number corresponding to the map marking for that city. These signals should be maintained by the local Board of Trade, City Councils or City Government at their own expense during the period of the War. A letter signed by the President of the United States, making a patriotic appeal to a city to maintain and guard this signal, would doubtless achieve this purpose quickly. The signals should be uniform in all zones and used in all parts of the United States by an order of the Aviation Department. Each signal should be so located that repairs can be quickly made at any time and should be under the supervision of a watchman continuously when in operation. Signals in all zones should be kept continuously in operation at night when cities in specified zones are to be on the routes to be used at the prescribed times, these orders to come from the departmental chief from time to time, as necessity dictates. At all other times, the signals may remain erected and in good working order but not in operation.

Special inserts and special instructions in map reading or for zone conditions may be issued at any time and forwarded to departmental commanders for distribution among airmen and to be added to their route book.

July 23rd, 1917.

Mr. S. D. Waldon,
Air-Craft Production Board,
Washington, D. C.

Dear Mr. Waldon :

I am enclosing you herewith copy of a blueprint of proposed signal devices to be used on barn and house roofs. Special signals can be used for special instructions which may come up from time to time.

I now have a truck completely equipped with ladders and tackle : the painters will go on the road this week and in about ten days will complete the route from here to Richmond. We have about seventy landing stations.

A complete map will be issued within the next two weeks. We thot best to turn north from the National Road, five miles east of Indianapolis, proceed to Ft. Benjamin Harrison and from the Fort come west to the Speedway. This avoids flying over the business district of Indianapolis, which I am sure is the correct thing to do.

I wish you would advise me if you wish a route laid out from Indianapolis to Detroit and from Dayton to Detroit. If so and if you will place me in charge of this job, I will enlist the services of several other people in Detroit, Toledo, Ft. Wayne and one or two other prominent cities, and see that the job is completed. I expect to go from here to Rantoul, which will take at least five weeks. If you give me charge of the entire job you can see that it will be necessary for me to enlist other interests in order to have all of the marking, routes and maps completed by October or November.

I will send you some photographs of completed markings within the next week or so.

Yours very truly,

CGF:R

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Address reply to
CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
WASHINGTON.

.....DIVISION

July 27, 1917.

Mr. Carl G. Fisher,
Indianapolis, Indiana.

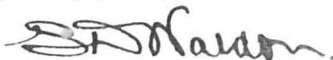
My dear Mr. Fisher:

I am promptly in receipt of your letter of July 23rd, regarding marking the routes between Detroit, Indianapolis and Dayton, and other places.

I understood that Kettering had marked some barns and found great difficulty in finding them when up in the air. I would suggest that you go over to Dayton and see the marking that Mr. Kettering has done and then arrange with Howard Rhinehart to take you up in the air so that you could tell for yourself how efficient it is.

There is no question but that the way the flyers are starting out from Dayton to Columbus, Chilcoathe and other places they are going to be visiting Indianapolis and Detroit long before you can get the route marked. I have been trying to stir up the fellows in Detroit about marking the route to Dayton, and would suggest that you write to E. W. Lewis of the Timpken Detroit Axle Co., William Metzger, Roy D. Chapin and Mason Rumney of the Detroit Steel Products Company about this. I think you are starting another one of those great big jobs that is going to become exceedingly important over night.

Very truly yours,



AIRCRAFT PRODUCTION BOARD

SDW/R

July 30, 1917.

Mr. S. D. Waldon,
Aircraft Production Board,
War Department,
Washington, D. C.

Dear Sir:-

Replying to yours of the 27th --

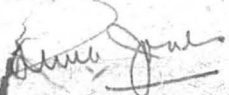
I already have an outfit on the road and some thirty stations marked. The barns are marked on both sides of the roofs; it is much easier to find them when both sides are marked than when only one. The angle of vision although you may be directly above the barn, will give you the lettering on one side very much easier than on the other. Lights and shadows play an important part.

The matter, I understand, of marking barn roofs is considerable expensive. A great many of them are old and five gallons of paint at \$2.50 per gallon, will just about do the job in some cases.

While I have had no particular experience in sighting roofs from an aeroplane, I have had considerable experience in sighting roofs from balloons, and I think the marking plan that I have submitted to you is the best that can be had.

Yours very truly,

C.F/ AMJ



CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L

If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.

WESTERN UNION TELEGRAM



NEWCOMB CARLTON, PRESIDENT

GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

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Day Message	
Day Letter	Blue
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RECEIVED AT

47BFS 30 GOVT

WASHINGTON DC 144P JULY 31-17

MR CARL FISHER

INDS

CAN YOU BE WASHINGTON ON IMPORTANT MATTER IN WHICH YOU CAN
BE OF GREAT ASSISTANCE COME PREPARED TO STAY SEVERAL DAYS

HOWARD E COFFIN

128PM

CLASS OF SERVICE DESIRED	
Fast Day Message	<input checked="" type="checkbox"/>
Day Letter	<input type="checkbox"/>
Night Message	<input type="checkbox"/>
Night Letter	<input type="checkbox"/>
Patrons should mark an X opposite the class of service desired; OTHERWISE THE TELEGRAM WILL BE TRANSMITTED AS A FAST DAY MESSAGE.	

WESTERN UNION TELEGRAM

NEWCOMB CARLTON, PRESIDENT

Receiver's No.
Check
Time Filed

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

Indianapolis, Ind., July 31, 1917.

Mr. Howard E. Coffin,
Care of Defense Board,
Washington, D. C.

Am leaving for Washington five forty five tonight.

Carl G. Fisher.

Prepd-Chge C.G.Fisher Personal.

August 6th, 1917.

Mr. George O. Squiers, Brigadier General,
Chief Signal Officer of the Army,
Washington, D. C.

Dear Sir :

In addition to the information which I am handing you under separate cover, regarding air routes, signals and map making, it has occurred to me that there is a vital work in connection with the Aviation Department which probably has not been taken up at this time for the reason that aviation, to both the Department and our Government, at this particular time and under War conditions, is practically new and that we are now undertaking to train a very large number of aviators, to create a large number of landing fields and hangars, and to maintain and handle enormous quantities of machinery, repair parts, tools, etc.; that a great deal of this work and organization does not come under the regular rules that could be used from the general rules of procedure as practiced in the Army, and that we are arriving rapidly to the point where it would be necessary to mass large numbers of men, machines, mechanics and equipment, and that it is necessary to have text books and instructions carefully thot out and prepared, on such subjects as the following :

Motor care and motor oils.

Use of tools and the use and equipment of tool boxes.

Equipment of each cantonment and equipment of each hangar.

Number of mechanics and their tool allotment to each hangar.

Books of instructions to both mechanics and to airmen.

A system of inspection before and after flights by mechanics and a system of their check marks being checked before and after flights.

Instructions on map books, goggles, their storage, care and equipment; work benches, style and design that will be standard.

Flare signals - the storage, care and use of same.

Mechanics' examinations and diplomas.

Shipment of wrecked machines - and the ordering, building, delivery and care of carriers for wrecked machines.

The airplanes which will be used by our Government are of necessarily a much finer and lighter construction than any other equipment known to the Governmental service in the field. There is a very great desire on the part of thousands of desirable mechanics to become affiliated with the air service, and it is possible - and will be for some time - to select the very pick and cream of mechanics for this work, and careful selection should be made. Where the ordinary oil will do for the army truck, it cannot be used for airplanes : where the ordinary rough and tumble method of using hammers and parts of barbed wire fences for repairs to the army truck, this cannot be used for the airplane. The Department cannot be too careful in

preparing for repair work machine shops that will be protected from dust and dirt and that will be kept clean to a very high standard; where the oils used for lubrication and also for power will be subject to care and more than ordinary intelligent handling; where the system of installation of machines and their testing is more than ordinarily carefully done.

If a start is not made now, tending to a complete organization for handling five to ten thousand of these machines, five to ten thousand aviators and about ten to fifteen thousand mechanics, to say nothing of the large amount of equipment - then I am of the opinion that each Commander of each Mother Training Cantonment and of each individual hangar unit, will have more or less his own ideas of procedure on all sorts of subjects, from the class of oil to be used to the type of materials for repairs, to checking such repairs, shipment of parts, etc, etc. This can only result in very great confusion, tremendous expense to our Government, loss of valuable time and possibly the loss of valuable lives and machines.

In my estimation it is well worth while and highly desirable that these various subjects be reduced to writings which can be corrected and which, while they cannot be correct in the beginning, will be a big start for the quick organization and handling of these large units with the least possible friction.

If you have not already had this in mind and taken care of this part of the organization, I will be very glad to take the matter up with you farther at your convenience, if you so desire.

Very truly yours,

GCS:R

CLASS OF SERVICE DESIRED	
Fast Day Message	
Day Letter	
Night Message	
Night Letter	
Patrons should mark an X opposite the class of service desired; OTHERWISE THE TELEGRAM WILL BE TRANSMITTED AS A FAST DAY MESSAGE.	

WESTERN UNION TELEGRAM



NEWCOMB CARLTON, PRESIDENT

Receiver's No.
Check
Time Filed

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

August 9th, 1917.

Howard E. Coffin,
Aircraft Production Board,
Washington, D. C.

Will be at Rantoul Field tomorrow Friday evening to witness test ~~of~~ of night signals by the National Reflector Company. In Washington Monday.

Carl G. Fisher,

Prepaid.

Airfields

August 20th, 1917.

Mr. W. F. Durand, Chairman,
National Advisory Com. for Aeronautics,
Washington, D. C.

Dear Sir :

For your records, this is to advise that up to and including the present date we have secured the loan of sixty (60) emergency landing fields between the Indianapolis Motor Speedway of this city and Richmond, Indiana, and have sixty stations properly marked. Our working crew will no doubt reach Dayton, Ohio, within eight days. I will forward for your records a few photographs within the next few days.

These stations are located about one mile apart along the National Road, which is practically an air-line between this city and Dayton - and for the beginners who attempt cross-country flights, they are frequent enough to offer a landing at any time under almost any emergency. I do not think it advisable on the rest of our routes to have these landings marked as frequently as we are using them on this short leg of the course, for the reason that it takes a great deal of time and is quite an item of expense to mark the roofs in such large numbers and as frequently as we are doing in this particular stretch of territory.

I had a talk with Mr. Coffin just before I left and he advised that I proceed immediately to place the night signals according to schedule shown you, between Indianapolis and Dayton - and after these are installed and we have a chance to try them out, we can then be in a better position to make minor changes for future routes.

It is necessary to secure publicity and assistance from the local newspapers in order that the cities and towns where we expect to put up these night markings will co-operate at their own expense. I am satisfied that the patriotic cities between Dayton and Indianapolis will co-operate to such an extent that we can set an example, and that after we have this route once in operation we can then easily extend the routes in any direction we desire, without expense to the Government.

Very truly yours,

CGF:R

August 21st, 1917.

Mr. Howard E. Coffin,
Aircraft Production Board,
Washington, D. C.

Dear Sir :

Under separate cover I am sending you a copy of the Indianapolis News of yesterday evening. From this publicity I already have received two long distance telephone calls from two cities between here and Dayton, both of which had held meetings of their local Council and decided to call me by telephone and agree to put up the night lights which we may select.

The largest Electric Light Company here in the city has agreed to furnish all the power necessary for lights on the dome of our State House, and these will be very high powered. I estimate that the lamps to be used here in Indianapolis will cost about \$1200 and the power will probably cost \$250 or \$300 per month to operate. The city Board of Trade have guaranteed me the lamps for Indianapolis. I have no doubt that we can secure these lights and their installation between here and Dayton without any cost to the Government.

It is very difficult, as you may know, to hold newspaper writers to facts - and yesterday's article is no exception. However, I would like to have you look over the article and advise me if there is anything in it that is objectionable for further use. In my judgement, these articles of what the Aviation Department is really doing are of great benefit. They help our semi-patriotic people to feel better and they help spread the general idea that the Government is on the job and getting somewhere.

Kindly drop me a note as soon as possible, and if you can, advise me of the location of the other Aviation Fields, which will help me greatly in considering the laying out of routes.

You will notice in the article to which I refer that I am naming Mr. Squiers as Chief over the work that I am doing. If, however, this is a mistake, kindly advise me by other Department which you would rather have as Chief over my work.

Yours very truly,

CGF:R

CLASS OF SERVICE DESIRED	
Fast Day Message	<input type="checkbox"/>
Day Letter	<input type="checkbox"/>
Night Message	<input type="checkbox"/>
Night Letter	<input type="checkbox"/>
Patrons should mark an X opposite the class of service desired: OTHERWISE THE TELEGRAM WILL BE TRANSMITTED AS A FAST DAY MESSAGE.	

WESTERN UNION TELEGRAM

NEWCOMB CARLTON, PRESIDENT

GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

Receiver's No.
Check
Time Filled

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

January 22nd, 1918.

Brig. General George O. Squiers,
Chief Signal Officer of the Army,
Washington, D. C.

I am offering free of charge to Colonel Clark my polo field and water front for a temporary flying place for the Engineering Department this Winter. All that I ask is that the property is maintained and returned to me in the condition in which it was taken. As I understand from Colonel Clark the regulations do not permit the Government to spend any money on borrowed property, all maintenance, runways, et cetera will have to appear as rental for the property. Cant you arrange to handle this differently as I do not wish to be on record as charging the Government rental for this property ?

Carl G. Fisher.

Prepaid.

August 23, 1917.

City Council of Eaton,
Eaton, Ohio.

Gentlemen:

I have recently been appointed a member of the Airplane Mapping Committee of the National Advisory Committee on Aeronautics, and it is a part of our plans to immediately create maps and markings to be used by aviators in cross-country flying, both night and day.

The first route in America will be between Dayton, Ohio, and Rantoul Illinois, and it is necessary that we have markers on the highest building in each city on the route and in each small hamlet. We wish to have these lights for night flying so they may not be more than ten miles apart at any one place. We have made such experiments that we have decided, on this first leg of the route, to use searchlights from the highest building, and stated pointing in the air at an angle of twenty degrees.

It is the idea that the larger cities such as Dayton, Richmond, Indianapolis, Danville and Champaign, Illinois, will use a cluster of four searchlights, two reds and two white; the smaller cities to use two white searchlights. It is expected that the cities along the route will contribute the cost of these lights and their maintenance as a patriotic assistance to the Aviation Department.

The cost of the lamps installed, will vary according to their size and power, from \$250 for one pair of lamps installed, say, in a town the size of Centerville, Indiana, up to and including \$1200 for a set of four lights installed in a city the size of Indianapolis. The current consumed in these lamps will vary from \$20 to \$350 per month. However, it is not necessary that these lights be constantly in operation. It will probably be several weeks before the first night trips are attempted and it will be necessary to have these lights in operation only when cross-country flights are made or maneuvering is done at night.

A representative of the writer's will call upon you in a very few days with blue prints and any other information you may need, and with the expense of the lamps marked in accurate figures so that the various cities may select the style of lamp which they are willing to erect and maintain. It is, of course, desirable that each city should erect and maintain as powerful a light as they feel able to pay for. It is the idea of the aviators in flight to follow as nearly as they can a compass course and avoid the exact centers of the cities so that in the event of a forced landing they will not be compelled to land among city buildings. For this reason a powerful light allows the aviator to keep directly on his course and still avoid the centers of the cities by passing over the outskirts.

August 23, 1917.

City Council of Danreith,
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CORRECTION

**THIS DOCUMENT
HAS BEEN
REMICROFILMED
TO ASSURE LEGIBILITY**



*The Information and
Image Managers*

August 23, 1917.

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City Council of Eaton, Ohio. #2.

Already several cities have advised me that they are willing to erect these lamps and maintain them during the time they may be necessary for these maneuvers. Several cities have decided that they will operate their lights continuously each night from 7:00 until 11:00 as an attraction to the citizens and as a mark of patriotism. The expense of operating these lamps from seven until eleven is not excessive, and as this is the first leg of cross-country flying to be laid out in the United States, I am in hopes that all of these cities along the route will co-operate quickly.

We have arranged with an electric company of Indianapolis to make the installation for us at a fixed price. However, local electricians can do the work just as well, according to the specifications and blue prints that will be furnished. The installation costs will vary from \$35 for the smaller pair of searchlights in the small villages, up to \$250 for the larger outfits to be used in the larger cities. This installation cost is, of course, governed by the amount of wire necessary and fastening to searchlight brackets.

Will you kindly let me hear from you by return mail?

Very truly yours,

CGF-ED

August 23, 1917.

City Council of Danreith,
Danreith, Indiana.

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OCF-ED

August 23, 1917.

City Council
of
Cambridge City, Indiana.

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Very truly yours,

CGF-ED

August 24, 1917.

Mr. Reginald Sullivan,
City Comptroller,
Indianapolis, Indiana.

Dear Sir:

I would like to request, on behalf of the Airplane Mapping Committee, a sub-committee of the National Advisory Committee for Aeronautics, that the City Council of Indianapolis appropriate \$700 for the purchase of signal lighting equipment to be used for night aviation route markers.

The first leg of the first route to be marked is between Indianapolis and Dayton and the current for these lamps is now being provided for in most of the principal cities. I have no doubt but that the current and signal apparatus will be provided in all of the cities between Dayton and Indianapolis within a very short time.

Inasmuch as this lighting system is a necessary part of night flying maneuvers, and inasmuch as all departments of the Aviation Board are using every effort to complete their various duties within the shortest possible time, I would like to see Indianapolis one of the first cities to complete its equipment.

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CGF-ED

September 22, 1917.

Mr. Howard Coffin,
Munsey Building,
Washington, D.C.

My dear Sir:

You will probably be interested to know that we have completed the marking of fields, some 135 in all, between Eaton, Ohio and Rantoul, Illinois, almost on an air line. The smaller fields comprise twenty acres and the large fields, sixty acres. These fields were carefully selected and are from one to three miles apart, and are located within one mile of a main traveled highway.

We have completed at the Indianapolis Motor Speedway, two hangars and an observation tower the tower being lighted with flood lights for night landing. We have let a contract for a set of lights to be placed on the Prest-O-Lite building, which as you will remember is located across the street from the Speedway.

We have made contracts and are now erecting a series of lights at every good sized town, and a very large number of small towns between Eaton, Ohio and Rantoul, Illinois, a distance of 220 miles. We will have these lights in operation in twenty days if we can secure all of the material, of not, it will take thirty days to finish the job. We have a regular contract which we execute with the city, a copy of which is herewith enclosed. The cities buy the lights and the electric light companies furnish the power free of charge.

The lights we have selected are very powerful, although quite inexpensive, each individual lamp costing \$16.50 without globes. The small towns purchase two lamps and a stand, which, together with the installation charge, amounts to about \$90. The next size larger towns purchase four lights, making the cost about \$150, and the larger sized towns install six lights. These lights are raised to an angle of twenty degrees, so that an aviator flying at a height of 1800 to 2000 feet can look squarely into the light at a distance of three or four miles.

We have made tests of the lights here, and have been able to see them without any trouble whatever on smoky cloudy nights, at a distance of seven miles, and they could be faintly seen, as in comparison with a caboose light, at a distance of ten miles.

It is very inexpensive to operate these lights, and we are now

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out a plan whereby the lights will be on and off as per schedule, which will allow the aviator to always check his landing field and distinguish it from the city lighting markers..

I do not know how much night flying you expect to do, but within the next thirty days we will be prepared to receive flyers at the Indianapolis Motor Speedway at night or by day, from either Rantoul or Dayton and the flyers can go by either day or night routes without fear of being lost.

It seems to me that we should have one large landing field of at least one hundred acres between Indianapolis and Rantoul, and one landing field of this size between Indianapolis and Dayton. In order to get these fields it would be necessary to make some arrangements with the farmers and give them a bonus of a certain amount per year to keep the field in grass, and they should be furnished with lights that could be used at any time they were notified of night maneuvers.

A great many of splendid fields that we have selected this year will probably be in wheat next fall. It is not possible to find many communities or cities that will go to the expense of furnishing and maintaining a good sized landing field, while nearly all of the cities will readily agree to an expense of \$200 or \$300 for lights.

If this route, after trial, is found satisfactory, we can extend it in any direction thought necessary, and it would be quite feasible to have lights put up clear across the continent on the Lincoln Highway and the Dixie Highway, which would give us one route East and West and one route North and South, however, it would be a matter of considerable expense to secure landing fields along these routes - the expense would be in proportion to the distance between landings.

If you have any new ideas on this subject, I would be pleased to hear from you.

Very truly yours,

CGF-ED

August 29, 1917.

Mr. Howard Coffin,
Mansey Building,
Washington, D.C.

My dear Coffin,

The City of Indianapolis has voted \$700.00 for the purchase of lamps which will probably be placed on the Fletcher Building. We have found that the use of buildings such as the monument or the State House is not practical as they are hard to get to and flat top office buildings are much more practical.

We made some tests last night with a X-Ray lamp with a 250-watt globe, which we were able to see very clearly and plainly a distance of four miles. This light could be picked out instantly from among thousands of other lights in the city. We erected the lamp on my water tower which is four miles from the center of the city, then we located ourselves in the tower of the Merchants Bank Building in the center of Indianapolis - this tower is about 200 feet tall and we could look down over the entire city. In a measure we were in the same position as a flying airplane would be, except that an airplane traveling higher up would have a much better view. We were able to pick the red light out at once. Tomorrow we are going to erect it on a railroad building which is seven miles from the city and I am inclined to think that we can pick the light out instantly at that distance.

We have decided that the white light is not as practical as the red one for the reason that there are so many other white lights and it is confusing to pick out instantly one certain white light from among thousands of others and it is no trouble to distinguish the red light from any number of white ones.

Very truly yours,

CGF-ED

October 13th, 1917.

Lieut. R. W. Schroeder,
Signal Corps Aviation School,
Rantoul, Ill.

Dear Sir:-

I have yours of recent date and contents noted: I was at the Speedway the other day when you passed over. I noticed that you were having quite a hard fight with the wind.

I realize that the marking of roofs along the route between Rantoul and Dayton is not all that it should be. However, when you take into consideration that I have had absolutely no assistance from the Government in this work except the fact that they gave me a commission on the Airplane Committee and the job to complete as best I could. All expenses in connection with this work have been borne by myself individually. It would be very easy to select an one hundred acre field and make arrangements for a canvass cross one hundred fifty feet in length to be placed on same, which would be easily seen ten miles in the day time, but such arrangements would call for maintenance expenses and considerable initial expense.

We have between Rantoul and Dayton over one hundred markings, and follow generally the most direct route between Dayton and Rantoul. From Eaton, Ohio, to Dayton, Ohio, practically nothing has been done, for the reason that Mr. Kettering of Eaton, Ohio, promised to have his men do the job. We ran into quite a next of pro-germans at Eaton who were not willing to lend any assistance, but Mr. Kettering thought that he could straighten this matter up by carrying the numbers from Eaton east to the Dayton field which is a distance of about twenty-five miles.

I think you will find that you have quite a job picked out for yourself in marking a route. For instance, after you have decided on a very practical barn to mark you have to find out who owns the barn. Sometimes it is two or three miles and sometimes ten miles or one hundred miles to the owner. The man on the farm often can not give his consent. Sometimes the man is in town and the woman will not give consent for this work. Sometimes the roof of the barn is so old that it would not pay to paint it and if you figure out that some of the barn roofs take at least two gallons of paint, for a number and paint is heavy, and you have to have a ladder, and then you have to have climbers, and altogether I am afraid you will find it quite a job. Besides that, there is certainly no reason why pilots should have to do this work.

FR.

I am in hopes some of these days to make the trip between Rantoul and the Speedway or between Dayton and the Speedway, so that I can see for myself just what sort of numbers and locations would be of the greatest advantage. I have made a great many trips in spherical balloons but have had only a limited experience with airplanes.

You may be interested to know that last night we tested out a new revolving and tilting search light at the Speedway, which can be seen under favorable conditions for about fourteen miles. I will have this machine set up and in operation on the Great-Lite building immediately south of the Motor Speedway, and as our flood lights will all be in position within a week, together with the marking lights on the Speedway landing, I would then like, as soon as I can advise both Rantoul and Dayton, to have some of your experienced men come over here and pass your opinion on these arrangements.

It is, of course, perfectly easy to make arrangements to flood four hundred acres with light and to put up lights that can be seen twenty miles distance in any direction, but it is not possible for me to set them up personally and in making arrangements with the cities along the routes it is quite necessary to make such arrangements in cost of equipment and in the maintenance of equipment that the cities can afford to cooperate and that they will cooperate quickly.

Our markings for night trips between Rantoul and Dayton are much better than the markings for the day trip. In fact, when I get through with the job, I do not see how a man can be lost at night between the two cities.

Can I expect to have you and some of your officers here within the next week or ten days, when I notify you that the lights are ready?

Yours very truly,

CGP/AM

Apply rates

October 22, 1917.

H. E. Talbot, Jr.,
Dayton Wright Airplane Company,
Dayton, Ohio.

My dear Mr. Talbot:-

Complying with your request of a few days since to give you a summary of equipment used between Dayton and Rantoul for night airplane aviators, will say, after making thorough study of various colored lights and various types of lights we selected a red light, high powered, made by the National X-Ray Company of Chicago, which can be purchased very economically, namely, \$16.50 each, without the globe, \$2.50 a piece for 500 candle power globe. Automatic flashing boxes can be purchased to use in connection with these lamps for about \$60.00. The lamp is practically water and storm proof, can stand considerable rough handling, and equals anything we have tried costing many times this cost.

In the various tests that we have made we have discovered that a red light of low candle power is much easier located in a field of white lights than one particularly high candle power white light would be easy to select from a large number of other white lights. This red light is so much more powerful than any other light used in railroad signalling or automobile tail lights or other lights that are liable to be seen at night by an aviator. There is practically no possibility of confusion. The fact that these lights are placed on buildings at an angle of about twelve degrees upward makes it comparatively easy for the aviator to pick out this light at a distance of from seven to ten miles under favorable conditions. The light can be seen easily at six miles, even under quite unfavorable conditions, such as heavy smoke and rain. With these lights located on the route between Dayton and Rantoul about every fifteen miles apart it will be comparatively easy for an aviator to follow this course, especially since we are now establishing a safety zone line on both sides of the main route.

I will explain that we have selected a tier of cities about twenty miles north of the main route and these cities will erect three of these red lights twenty feet apart, all pointing south. Since three red lights in a row are only found north of the course immediately the aviator knows that he is north of the course and must go back south. A tier of cities on the south of the main course will erect two lights in each town, about twenty feet apart. These lights will point north, and since there will be no lights on the main course located in this manner it will immediately give the aviator the information that he is south of the main course and must go back north.

You must bear in mind that in making arrangements for these signal lights we must always present to the city an economical lamp purchase bill, and also an economical maintenance account and electricity for the light, and we believe that we have now worked this plan out very thoroughly and economically.

According to the blue prints furnished you, all landing fields are marked with a flasher box in connection with the lamps so that an aviator may not possibly mistake a landing field signal.

However, to have sufficient landing fields for night routes there should be at least one landing field of at least 1600' square, which is something less than thirty acres, at least every fifty miles of the course, - and thirty-five miles apart would be much better. These landing fields should be fixed with the flashing signal to attract the aviator, and there should be a fixed signal on the ground to show the center of the field, to show the exact center of the field, with a small building, approximately 12' x 14', for the supply of gasoline, and other small supplies necessary for this class of work. It will be necessary in order to secure these fields, first, to have a considerable fund available for making contracts with the owners of these fields to continue them in clover, grass or oats for a period of the War duration; also a contract with the owner to change the canvas markers on the field during snowy weather, and to maintain the lights and to in other ways be responsible for the supplies and equipment entrusted to him. In some instances a very favorable contract can be made with the farmer for a period of three years at as low as \$150 a year; the farmer to have the right to, at his own risk, have pasturage in these fields. In my estimation, pasturage is no added danger. The approach of an aviator always drives all of the stock to one corner of the field, allowing the aviator plenty of room. With an allowance for lights, markers and maintenance of \$600 a field some very splendid landing fields could be secured. This would allow for the erection of a small supply building, a canvas marker and the contract with the owner of the field. In this particular case, only one years contract with the owner is included in this estimate. If the field is to be used for three years it will be necessary to add \$300, which would be a complete cost of \$900, so that it would be properly marked and properly maintained so that it could be found day or night. It is a comparatively easy matter to secure the co-operation of cities in putting up fixed markers for night routes, but it is not practical, as a rule, to make an arrangement with the city for a landing field.

I enclose you herewith a copy of the contract that we have signed up with the various cities who have assisted us in the Dayton-Rantoul lighting plan.

On next Tuesday evening representatives from some thirty-five towns will be at the Indianapolis Motor Speedway to see the lights in operation and make agreements with us for installing and maintaining the north and south markers referred to in the former part of this letter.

If you desire any further information on this matter will be pleased to hear from you.

Yours very truly,

CGE/RH

October 26, 1917.

Mr. Howard Coffin,
U.S. Aircraft Production Board,
Washington, D. C.

Dear Mr. Coffin:

I finally secured the co-operation of every city between Dayton and Mantoul in erecting night markers. A large percentage of these markers are up and the balance will be placed within the next two weeks. We have been held up on account of shortage of red lens, which makes it impossible for the National X-Ray Company of Chicago to ship those lamps to us promptly, but for this delay in materials we could have completed the route some four weeks ago.

This gives us a series of lights on an average of every fourteen miles between Dayton and Mantoul, Illinois, that can be seen ten miles under favorable conditions and eight miles under unfavorable conditions, such as rain and smoke. These lights are inexpensive in first cost, in maintenance and electric current consumed. They are easily distinguished from the ordinary switch light, automobile tail light or interurban signal light. Where wanted, the lamps are supplied with a flasher box which enables flashing signals the same as light houses now use, and you will notice by the map I am sending you under separate cover, that we have arranged certain towns with these flashing signals. We held a meeting here a few days ago, calling representatives from eight towns north of our main route and eight towns south of the main route, asking them to put up emergency guide lights, which will direct an aviator back to the main route in case he should be blown off by a cross wind or should stray from the proper course. We have completed two hangers at the Indianapolis Speedway, a series of flood lights and our local lights will be in place so that we can receive at any time night flyers at the Speedway.

I have suggested in previous letters that we should be able to make permanent arrangements with farmers for at least two landing fields to be lighted between Indianapolis and Dayton and at least two landing fields between Indianapolis and Mantoul. I have sent letters suggesting the size of these fields and the general equipment of them. In fact, I have written a great many letters and have received very few answers from any one in the Aviation Corps that would express to me either approval or disapproval of the work I am doing. I have also submitted to Captain Bagley to you, to Mr. Blair and to Colonel Durand my best ideas of a field marker for day work and now I am sending in a map for night work. These maps, if they are adopted, or if the principle I submit is, in your estimation, the proper one to use, should be imposed on a correct Government map and issued in strips.

Mr. Howard Coffin.

The work I have done has taken practically all summer. It has cost me personally several thousand dollars and the cities have donated in the purchase of lamps and current, several additional thousand dollars.

I have submitted these lamps to several aviators and also this system of marking for day work and lighting for night work. As this system of marking and lighting is quite new it may be necessary to make some changes, particularly in the night lamps. We are now experimenting with a green light to be used in connection with the red light for certain guidance markings.

The particular thing I would like to know from your department is what further other work in this line you have in contemplation and if you wish me to assist in it. I have some very important business calling me to Miami on the first of November. I am leaving, however, in this office Mr. Myers, my secretary, with full information and full details of the work. He has been on the job all summer, and his organization that can carry out and complete this work. If you wish this route to extend from Indianapolis to San Antonio or from Bastopol to San Antonio it can be done. It is no great trouble to have the cities donate the lamps, the cost of the installation and current. Some few towns will undertake to secure emergency landing fields. If the Aviation Department desires to extend these routes it will be necessary first, to furnish me with additional authority and credentials and to furnish me with funds for carrying on the work. It takes entirely too much time and individual expense to go further with these routes as I have been doing this summer. If time is an object the Government can well afford to pay reasonable prices for contracts with farmers for well located landing fields and do so in a more expensive and permanent manner.

I am enclosing you also a blue print of a canvas marker, which has great advantages in being striped green on one side and pure white on the other. During the winter months and on a winter field this marker can be turned over where snow is a back ground. All other times the marker is easily seen against brown stubble or dead grass.

It is expected that within the next two weeks a trial night flight can be made between Dayton and Indianapolis, which will enable the aviators to more properly pass on the system of lights we have erected.

Will you kindly let me hear from you by return mail and please answer the several subjects referred to in my letter. In other words, advise me what you think of the work done and if you want more of the same kind of work done and where.

Yours very truly,

GCP/AH

WAR DEPARTMENT
AIRPLANE ENGINEERING DEPARTMENT
SIGNAL CORPS, U. S. ARMY
LINDSEY BUILDING

DAYTON, OHIO
November 6, 1917

From: Airplane Engineering Dept.

To: C. G. Fisher, Miami, Fla.

Subject: Your Movements

1. I am credibly informed that you are on your way to Florida for the winter.
2. Do you think that because you have painted all the barn roofs between Dayton and Indianapolis you have finished the war?

Howard Marmor

HCM:RMM

air to man

T

November 9th, 1917.

Captain Howard Marmon,
Airplane Engineering Department,
Dayton, Ohio.

Dear Howard :

I have yours of the 6th : Since you didn't write me a letter while you were abroad, I suppose you think now you can write me three or four little dinky lines and square matters. Also - since I am a civilian, I can tell you to go plumb to hell.

Jim and Johnny went fishing today :
The weather is beautiful.

Will send you under separate cover a map of the lighting system for night work between Dayton and Rantoul. I left Myers on the job to get a few little details completed. The outfit should be completed all the way thru within the next ten days or two weeks - just as soon as the light companies can furnish us the lamps.

I have a lot of work to do down here this Winter. I couldn't even go fishing with the boys, but hope to get things straightened up in the next thirty days.

Do you imagine you will be able to get down and look over this aviation outfit ? Write me once in awhile how things are coming. It looks to me like things are coming terribly show. Are they ?

Yours very truly,

CGF:R

Indianapolis Motor Speedway Company

Maintaining Greatest Race Course in the World

Indianapolis

November 12, 1917.

Mr. Carl G. Fisher,
Miami, Florida.

Dear Mr. Fisher,

Under separate cover, a set of blue prints is being mailed to you. Please note that No. 10 is the latest corrected map of the lighting route from Dayton, Ohio to Rantoul, Illinois. You will observe that the signals on the main course are flashing while those on the guiding lines are to be fixed, using red on the south and green on the north.

After a test for the light colors, the writer was very thoroughly convinced that the green light is not only practical, but is superior to the red light so far as brilliancy and distance is concerned, and for this reason it was adopted.

A test was also made with slow flashing and rapid flashing signals, and I believe there is no chance to mistake these signals.

Mr. Esterline states that there is no question but that a green light can be seen very much farther than a red light, and he claims that this has also been shown by some very exhaustive tests that have been made by the Pennsylvania Railroad Company.

With the blue prints that are being forwarded to you, you will find one showing the type of light that is to be used in the side guiding lines which the Sanborn people are in position to furnish at \$68.00. I have been over the cost of these outfits with Mr. Sanborn, and the price charged for the same seems to be very fair and certainly cannot be objected to by the towns we are trying to interest.

Blue prints, agreement forms and purchase order blanks have been forwarded to all of the places where we hope to establish these lights, and before long we should be getting some definite results. Up to this time assurances have been received of the co-operation of the towns as follows: Liberty, Indiana; Rushville, Indiana; Connersville, Indiana; Morristown, Indiana; Franklin, Indiana; Rockville, Indiana; Montezuma, Indiana; Hoopston, Illinois; Attica, Indiana; Lebanon, Indiana; Winchester, Indiana and Middletown, Ohio.

Up to this writing no signed contracts or orders have been received. Towns not mentioned in the above list have not indicated their intentions, and in all probabilities, before this matter is completed a personal visit will have to be made to close up the matter.

MANAGEMENT

C. G. Fisher
A. C. Newby
E. H. Wheeler
J. A. Allison

ADDRESS ALL CORRESPONDENCE TO INDIANAPOLIS MOTOR SPEEDWAY COMPANY AND NOT TO INDIVIDUALS

Indianapolis Motor Speedway Company
Maintaining Greatest Race Course in the World

Indianapolis

November 12, 1917.

C.G.F. No. 2.

Any suggestions that have occurred to you since leaving Indianapolis will be of great help in getting this work completed, and the writer trusts that his action in the selection of light colors and the type of equipment will meet with your approval.

With very kindest personal regards in which Miss Dallenbach joins me, I am,

Very truly yours,



TEM-ED

MANAGEMENT

C. G. Fisher
A. C. Newby
F. H. Wheeler
J. A. Allison

ADDRESS ALL CORRESPONDENCE TO INDIANAPOLIS MOTOR SPEEDWAY COMPANY AND NOT TO INDIVIDUALS

WAR DEPARTMENT
AIRPLANE ENGINEERING DEPARTMENT
SIGNAL CORPS, U. S. ARMY
LINDSEY BUILDING

DAYTON, OHIO

November 13, 1917

From: Airplane Engineering Dept.

To: Carl G. Fisher, Miami, Fla.

Subject:

Dear Carl:

In a way, things are going pretty damn slow. This comes a good deal from the fact that it is a new job for the Government, the organization has so many weak links in it and no programs are ever laid out and stuck to long enough to get any where. This particularly applies to the airplane stuff, and it would really make you weep if you had to follow the ins and outs of it.

The motor stuff is in pretty good shape, as the Liberty Motor got such a wallop behind it in the start that nobody could head it off with a new program. It is proving to be a very good motor, quite comparable to the best that is made abroad, and a good deal easier to make. The Navy has had some samples of it in some of their flying boats, and are very pleased with it.

We have the first American-made battle type of airplane here in Dayton, and have been flying it for a couple of weeks with a Liberty Motor in it, and getting very good results.

The Liberty Motors will be coming out in production from one of the plants this month. I think there will be motors piled up way ahead of planes. Vincent and I think we see an opportunity to butt in on the plane stuff enough to get some real production drawings out on the DH-9 and get them started.

C.G.Fisher
11-13-17

-2-

If the progress you see, sitting on the outside looking in, annoys you, you ought to be on the inside trying to get out. I haven't any idea that I will be able to get anywhere until we are all canned.

Yours very truly,

Howard

HCM:RMM

WAR DEPARTMENT.

November 13, 1917.

From : Airplane Engineering Department.

To : Carl G. Fisher, Miami, Florida.

Subject :

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(signed)

C o n f i d e n t i a l .

November 16th, 1917.

Mr. T. E. Myers,
Indpls. Motor Speedway,
Indianapolis, Indiana.

Dear Myers :

I have your last map #10 : the difficulty I see with the lay-out you have is that your entire string of lights are flashing six second intervals. It is impossible for a man to tell whether he is going around a four-light cluster or a six-light cluster, according to this lay-out. It is impossible, in other words, for him to tell the difference between Cambridge City and Knightstown - each has a four-light cluster and each flashes six seconds. You see, for instance, if Knightstown was flashing at three second intervals, it would promptly check up Knightstown; Greenfield would be alright and Cumberland; then Indianapolis would take care of itself. When you get out to Brownsburg or, say, Jamestown, there should be three second flashes. If a man drops off the route at Jamestown, see Rockville and heads north, there is no way that he can see the difference between Crawfordsville and Waynetown - no possible way. If Crawfordsville was flashing three seconds, he could locate it immediately - or if Waynetown was flashing and Crawfordsville fixed - but there must be a difference in the flash in order that a man may positively check up his position.

*So work this over, and before making any further adoption, let me see the plan. I think the adoption of two green lights on the north, is alright - but I don't agree with you on this flashing. In every town we should be able to regulate the flashing. We can add one green light facing east, say, in the first fifty miles from Dayton, and in the next fifty miles we can add one green light facing west. This might straighten out the situation very much, but we must have some way of telling the difference in the various cities.

I enclose you herewith copy of a letter received from the Aero Club of America. Do not send them the #10 map which you sent me as they could immediately check up this error. You might send them one of our previous maps, and in the meantime you might get out an article on the work we have done, and send it down here; I will check it over and we will send it on.

Mr. T. E. Myers. #2. November 16th, 1917.

I should like to see an itemized expense account of the lamp which wants to be sold for \$68.00. There is one thing you must be very careful of, and that is to see that anything we advise any city to purchase must be priced at the lowest possible figure that can be made. Because cities show a willingness to help out the Government is no reason in the world why those cities should pay five cents more for an article than the lowest possible price. We must be real close buyers - closer buyers in purchasing for these cities than we would even be in buying for ourselves. I can't for one minute see sixty-eight dollars in this outfit when I know that the \$16.50 lamp - which was the red one - is practically as good as the green lamp.

We are having a very fine time. Jim and Johnny have caught so many fish that all you have to do is stick a fish pole in their faces and they start to run. They absolutely don't want to see another fish.

With best regards to everyone, -

Yours very truly,

CGF:R

November 16th, 1917.

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Indianapolis, Indiana.

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We are having a very fine time. Jim and Johnny have caught so many fish that all you have to do is stick a fish pole in their faces and they start to run. They absolutely don't want to see another fish.

With best regards to everyone. -

Yours very truly,

CCF:R

November 20th, 1917.

From : Carl G. Fisher.

To : Capt. Howard Marmon,
Airplane Engineering Department.

Subject : Aviation Progress.

Dear Howard :

I have yours of the 13th : It certainly makes me sick to see the way the airplane outfit is coming on. Why in the name of hell they don't take over the Marmon Plant and the Packard Plant, kick the automobile business out of both these plants and go to it, I can't understand. Certainly the Government pays a sufficient price for everything else they buy to be able to afford to pay your company for its reputation and the Packard for theirs. Instead of building new repair stations and everything new, why don't they take plants that are already in operation, with grate fires and an office force already installed, and go to it ?

I get so damned mad sometimes that I want to take a club and start for Washington or some other place where I can do some good, and yet when I sit down and survey the situation, I can't imagine a single place at the present time where I could get in and do anything more than kick. I have been trying to be patriotic.

They have now started to fill up part of the Bay down below here and build an aviation cantonment. By the time they get the place filled and drained, this year will be gone. There is plenty of ground available that they could have had at half the price they are paying for this damned mud hole. Write me once in awhile.

Yours very truly,

CGF:R

Indianapolis Motor Speedway Company

Maintaining Greatest Race Course in the World

Indianapolis

November 21, 1917.

Mr. C.G. Fisher,
Miami, Florida.

Dear Mr. Fisher.

You will find enclosed herewith pencil sketch of the route from Dayton, Ohio to Rantoul, Illinois, on which some changes in the signalling scheme have been made - these along the lines suggested in your letter of November 16. Blue lines are drawn around the towns where the changes are to be made that you may easily pick them out.

Please note that at Cambridge City the writer has indicated that the lights are to be green and red, flashing alternately at six second intervals. Crawfordsville has been changed so that all six lights are to be green and to flash at six second intervals. Danville will flash red and white alternately at six second intervals.

Assuming that the flyer will always be able to locate Indianapolis on account of its size and the fluttering light at the landing at the Speedway, the separate and distinct signs at Cambridge City, Drawfordsville and Danville, Illinois, will give a definite location to the flyers at distances of approximately fifty miles.

The combination of red and white lights alternating at Danville may not just meet with your approval because of the objection to the white light but the writer felt that inasmuch as the white light was flashing alternately with a red light there would be very little, if any, danger of confusing the white light with street lights, automobile lights, etc., that burn steadily.

With regard to your suggestion that we might have some of the lights along the main route fixed, this was not followed for the reason that it seems to me that there is too much chance of confusing the fixed light on the main route with the fixed lights we are using for side markers, unless we could use an entirely different color than red or green, and no other color seems practical.

After making careful inquiry, it would seem that the scheme of trying to signal by different time of the flasher box is dangerous, the principal reason being that the flasher is

MANAGEMENT

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Indianapolis Motor Speedway Company

Maintaining Greatest Race Course in the World

Indianapolis

C.G.F. #2.

operated by a motor and as the voltage varies so much according to the load, the speed of the motor is very often affected, and at the time of a peak load a flasher set for three seconds might be flashing at six or even greater second intervals, which could not help but be very confusing. Then again, after looking at a flasher going at three and six seconds, it seems to the undersigned that it would be very hard indeed to detect the difference in time, especially to a man quite some distance in the air, and having a great many other things to do.

It may be that my selection of towns for the individual signalling will not just meet with your approval, and in this event will you please mark in this sketch any changes in location which you may desire.

The thought occurred to me that at such stations as Richmond where six light outfits are employed we might use red and green lenses together for a fixed signal, but upon investigation, it seems that the two colors would fuse and the flyer would not be able to detect the same until he was very close, perhaps too close to be of any service to him. Therefore, this idea was abandoned.

Reports today give the information the the appropriation to buy the lights for Newcastle will be taken up and decided upon at the next council meeting, which will be December 3.. The mayor of Pendleton advises that the matter is being considered by their council and will probably be passed very shortly. In Lafayette the resolution was referred to the Council of Defence and definite action will be taken there at their next Council meeting which will be the first Monday in December. The mayors of Anderson and Muncie have not presented the matter to their councils, but have assurance that they will be taken up at the next meeting of those bodies.

I am working on the article for publication requested in your letter of November 16, but as writing newspaper articles is one of the hardest things I have to do, it is not ready at this writing but I hope to forward it to you shortly.

Upon receipt of the pencil sketch with your notations for changes, a corrected map will be completed.

With very kindest regards, I am,

Very truly yours,

T. B. Myers

MANAGEMENT

C. G. Fisher
A. C. Newby
F. H. Wheeler
J. A. Allison

TEM-ED

ADDRESS ALL CORRESPONDENCE TO INDIANAPOLIS MOTOR SPEEDWAY COMPANY AND NOT TO INDIVIDUALS

Aviation

November 22nd, 1917.

Mr. David Beedroft,
The Class Journal Company,
New York City.

Dear Dave :

I have yours of the 19th : I am not Chairman of my Committee except when I am in a hurry - the Chairman of my Committee is Mr. Durand. The scope of committee work is to first completely mark a route between Dayton, Ohio, and Rantoul, Illinois, for student aviators for night flying. This we accomplished by marking about 120 barns along the National Road and main connecting roads between Indianapolis and Rantoul. The barns were marked by number, with an arrow pointing to the most desirable landing field. The use of these landing fields was donated by farmers along the Route. It was quite a job to mark the barns but they were finally completed and they are of considerable assistance to aviators in going back and forth. Several trips have already been made. The general public seems to think that an aviator can leave a point like, say, Dayton, Ohio, with a compass, night or day, and hang his mark on the outstretched arm of the statue of Indiana in the center of Indianapolis, without trouble. This, however, is not the case : wind driftage is a big factor - and while I don't think it is the proper thing to say so, in almost every trip that has been attempted so far, the aviators have wandered from fifteen to fifty miles out of the road. One reason for this is because their machines were low powered, as training machines usually are. Another reason is that in our particular part of the country there are small towns or hamlets about every eight or nine miles, with hundreds of roads in all directions : it is almost impossible to pick a direct course and it is impossible to rely absolutely on the compass.

If our aviators are to be of greatest value on the other side they must become accustomed to night flying - they should be able to fear and to understand all the conditions of night flying in this country - and for this reason we have established a system of night markers so that an aviator may become accustomed to the heavens, the winds, the driftage of night flying and check himself up with our markers until he is an expert.

I have made several recommendations to the Government for additional fields to be properly equipt with supplies and a night marker of canvas that could be white on one side and green on the other and which, during snow-y weather, could be changed or turned over. These markers are portable and will last a long time, and while they cost about \$80, they are cheaper in the long run than any I have seen. Up to the present time I have had no

Mr. David Beecroft. #2. November 22nd. 1917.

approval of these markers by my Committee or any authority to create special landing places : all the work so far I have done on my own hook and at my own expense, which I am quite glad to do.

Of course this information to you is confidential. Just now the Aero Club of America and quite a number of other communities are interested in both day and night markers - and what I am trying to do is to create a standard of marking so that an aviator trained in Texas will recognize a mark that he sees in Indiana, and one from Dayton will recognize a marker he sees in Pennsylvania, day or night. I have given considerable thought and spent considerable money in making investigations and in the trial of various lamps and equipment, and I feel certain that the Route between Dayton and Rantoul has the best equipment available - and while it may be necessary to make a good many changes in the signals, those that we now have are the best that we can figure out as a starter.

I am expecting at most any time to have a report of the night route or a night trial. We have flood lights and landing lights at the Speedway and have cleared out the center of the grounds, and have already had some visitors from both Dayton and Rantoul. Now that they are erecting a very large repair cantonment for motors and airplanes on the Speedway grounds, just south of the Prest-O-Lite Plant, there will probably be additional activity around Indianapolis.

Will be glad to give you any further information I can, if you are interested.

Yours very truly,

CGF:R

December 18th, 1917.

Capt. Howard Harmon,
c/o Airplane Engineering Department,
Dayton, Ohio.

Dear Howard :

What in the devil is the matter with you fellows that you can't write letters ?

I hustled around and got a price on rebuilding the aviation building for you : then I finally got the loan of a good tent which in my estimation would be very satisfactory so you could keep the machine right on the polo field and all the repair work could be done in John's machine shop, which is next door to the aviation building. We hurried and put a pipe line in there, with toilets, and cleaned the place all up, and have been waiting for you to answer - but since you are in the Government service, it isn't unusual for you to do things this way. You talk a hell-of-a-lot about going somewhere and doing something, and nothing happens.

Yours very truly,

CGF:R

NATIONAL ADVISORY COMMITTEE

FOR AERONAUTICS

Munsey Building.

Washington, D. C.

December 20, 1917.

Mr. Carl G. Fisher,
Indianapolis, Ind.

Dear Mr. Fisher:-

The Executive Committee of the National Advisory Committee for Aeronautics, at its meeting on November 15, 1917, established a Committee on Civil Aerial Transport, of which I am Chairman. This committee supercedes the former Committee on Aerial Mail Service and has broader scope and functions. Its functions will include in addition to those formerly exercised by the Committee on Aerial Mail Service the problems connected with the application of aircraft to civil purposes, the utilization of military airplanes and aviators after the war for such purposes, and co-operation with similar organizations of other nations.

At the Executive Committee Meeting on December 11, the growing prominence of the general subject of flying routes and landing fields was discussed and also the question of jurisdiction over these subjects as between the Civil Aerial Transport Committee and the Airplane Mapping Committee of which you are a member. The action taken was to the effect that as between the two committees, activities relating to the locating of landing fields and the mapping of aerial routes come within the scope of the Civil Aerial Transport Committee, and that the duties of the Airplane Mapping Committee are principally those connected with the development of means for mapping the surface of the earth for aircraft.

As a step toward intelligent organization for the vast amount of work to come before the Civil Aerial Transport Committee, I was authorized to form a Subcommittee on Landing Fields, to have jurisdiction over this particular phase of the work, the mapping of aerial routes, etc.

For the present I have in mind appointing a Subcommittee on Landing Fields consisting of yourself as Chairman, and Messrs. S. S. Bradley of the Manufacturers Aircraft Association, H. F. Talbot of the Dayton-Wright Airplane Company, and W. W. Montgomery, lawyer, assisting the Aircraft Board.

I will be very much gratified if you will accept appointment as Chairman of this proposed Committee, and if you have others in mind who would be of special service to the committee, I will be glad to add them.

I am holding up the official appointment of the committee awaiting your reply.

Very truly yours,
W.F. Durand,
Chairman,
Civil Aerial Transport Committee.

December 27th, 1917.

To W.F. Durand, Civil Aerial Transport Committee.
Washington D.C.

I will be very pleased to accept your appointment
as per your letter of December Twentieth and give you every
assistance I can.

Carl G. Fisher.

Prepaid.

December 20th, 1917.

Mr. W. F. Durand, Chairman,
Civil Aerial Transport Committee,
Washington, D. C.

My dear Mr. Durand :

I have your letter of the 20th, which arrived this morning - Christmas Day. I will be very glad to accept the appointment to which you refer and to assist you in every way that I can.

Just now I am calling a meeting of all the farmers in southern Florida, for this coming Saturday afternoon, to meet in Miami so we can get together and take up the matter of intelligently raising castor beans in order to get the supply of castor oil needed for the airplane motors. I will have this work off my hands and turned over to a local Committee here of the Chamber of Commerce just as quickly as possible. Probably another weeks time will get the matter straightened up.

I want to confidentially say to you, Mr. Durand, that the greatest trouble I find in giving assistance to the Government is the lack of authority to do anything. For instance - I enclose you herewith copy of a letter I received from the Equipment Department regarding assistance in securing castor oil. You will notice that in this letter I am asked to co-operate but I am not given any authority to do anything except after considerable delay. Now the first thing that I can do is to get publicity in our local newspapers about the meeting of all prominent farmers in this part of the country, talk the matter over and see how many would be willing to raise castor beans. Then I must submit this to the Department at Washington before I can go further. It seems to me that if the Department at Washington have any confidence in my ability to assist them, they should tell me that they are willing to pay \$3.50 a bushel, and that they are willing to advance sufficient funds for me to create a committee here, and with these funds, contract with the farmers for quantities of these beans, advance the funds to reputable farmers for an immediate investment in farming implements necessary, seeds, fertilizer, etc, so that quick action could be had. Of course, the Government would have to take some chances that I would use good judgement in the use of these funds - but if they have any confidence in my being able to assist, they must take such chances in the use of funds.

If this were a business proposition which I was handling in my own factory, if we needed castor beans, I would select one of my responsible men, tell him to go down to Florida where the land is

Mr. W. F. Durand. Page #.2. December 25th, 1917.

available, get the farmers together, make the proper contracts, and advance from \$5000 to \$10,000, with suitable restrictions and contracts, to get the castor beans and get them quickly. This question I would settle in my own office in thirty minutes, select the man and have him on the train going to Florida, and inside of two weeks we could have the contracts closed up, the ground planted, and castor beans being raised.

I again want to call your attention to the map box which I sent in some time ago: If it is desirable to have a map box at all, either in this size or any other size, and if the committee wish me to go ahead with this matter, then I certainly must have some approval on the box or they should give me some idea of the map box they want, and I will immediately get out plans, blueprints and bids. This will cost the Government nothing, but they will be ready when they want to order these boxes quickly.

I am submitting you under separate cover a blueprint of a portable marker I have erected on my polo field down here, and a description of same.

Yours very truly,

CGF:R

December 26th, 1917.

Mr. Howard E. Coffin,
Aircraft Production Board,
Washington, D. C.

Dear Coffin :

I haven't written you for a long time because all the letters I write you are answered by some Secretary who advises me that you are too busy to write. However, I hope you can give this letter some personal attention.

Just before I left Indianapolis I completed the marking of the students' training route between Dayton and Rantoul. It is a very good route to follow - there are plenty of landing spots and student aviators with a good machine should have very little trouble. The markings for the use of aviators for practice work at night were more difficult and it was quite some job to get the various towns to invest in the lights, which cost them on an average of \$200 per city. The current consumed is donated by the cities and the various electric light companies, and is a relatively small item.

We have completed the landing field at Indianapolis and have the flood lights in shape - and in fact, we have in my estimation, a thoroly practical and first class route for aviators to practice flying at night. I have advised the Department in three different letters that there should be one or two additional 50 or 60-acre landing fields between Dayton and Indianapolis, and one or two additional landing fields between Indianapolis and Rantoul, where flood lights are available for night practice work, but have had no authority to go to the expense of making contracts to secure these lights.

The most serious thing I am up against now is, that the various cities are commencing to feel nervous : they want to know why, after the flood lights are all installed and everything is ready, that we don't get any aviators over the route. Of course the weather conditions have been against us lately and the new Liberty Motors are not out in quantities so that the aviators care to make a trip of this kind at night.

From my conversations with foreign aviators, it is very necessary in their estimation that our aviators should have night practice work under as safe conditions as possible. Will you kindly advise me, when in your estimation, you think they will be able to make night flights between Dayton and Indianapolis and Indianapolis and Rantoul ?

Mr. Howard E. Coffin, Page #2. 12/26/17.

Just now I am calling meetings of the farmers in the locality and giving what assistance I can in producing large quantities of castor beans so that you may have plenty of castor oil for your motors. We have fine ground here and the farmers are interested, and we can deliver the goods if we can get enough seed from the Government, and I think we can.

Yours very truly,

CGF:R

WAR DEPARTMENT
AIRPLANE ENGINEERING DEPARTMENT
SIGNAL CORPS, U. S. ARMY
LINDSEY BUILDING

DAYTON, OHIO
December 28, 1917

From: Airplane Engineering Dept.
To: Carl G. Fisher, Miami, Fla.
Subject:

You poor fish! I see no reason why we should waste our time satisfying your curiosity, and the mere fact you ran around some is not to be regretted, as it probably kept your mind from evil thoughts.

In the meanwhile, we have ordered a few airplanes with Liberty Engines in them to be shipped to Miami, and have sent our distinguished emissary, Mr. Caleb Bragg, to turn in an official report on you and the whole joy-ridden place. It is not known whether you would be a desirable neighbor for the Government, and we await with interest Mr. Bragg's report on the subject.

By the way, I wish you had my job for two weeks - I bet you'd lose forty pounds.

Yours very truly,

Howard

P.S. Production motors are being delivered off the tools. They weigh about 750# and could be stuck in the little boat to grind out 400 HP continuously - about 1/2# of gasoline per HP hour. Don't you wish you had pull enough to get a couple of them for a boat?

THE AIRCRAFT BOARD
WASHINGTON

January 2, 1918

Mr. Carl G. Fisher, President.
The Alton Beach Realty Co.,
Miami, Florida.

Dear Sir:

Permit me to acknowledge for Mr. Coffin,
receipt of your letter of December 26th, which I
shall have pleasure in placing before him at the
earliest opportunity.

Very truly yours,

JAP*T

January 2nd, 1918.

From : Carl G. Fisher.

To : Capt. Howard Marmon, Airplane Engineering Department.

Subject : Aviation Development at Alton Beach, Florida.

Dear Howard :

I have yours of the 28th : Mr. Bragg has been here and left. When you fellows first talked about coming down here to test a couple of motors, I supposed you would be here about a week and go home - but when Bragg arrived I discovered that he wanted to make a regular branch of the outfit here and keep it going for the next two or three years or for the duration of the war.

I wrote Vincent a letter and explained to him that I would be very anxious to help out the Engineering Department, and the use of a couple of planes here for a week or ten days would not tear up my Polo Field to such an extent that I could not easily get it in shape this Summer - but if they are going to make a regular business of testing these machines and the new models down here, it is going to be necessary to spend considerable money on the field.

There isn't a single field in the South that is worth a damn for testing purposes. The Navy has spent two or three hundred thousand dollars down at Coconut Grove, and it will be two years before it will be fit to make a landing without digging up the sand. I have gone to a great deal of expense in building up my Polo Field - probably have \$25,000.00 invested in it, as all the muck and clay had to be hauled from the Everglades and all the grass planted by hand - and as I wrote and estimated to Vincent, it is necessary to keep the clay, water and muck coming on these fields in order to keep them hard. If at any time this attention is discontinued, the field will go to pieces very quickly.

The Government has spent several million dollars on aviation fields and hasn't one now that is any good for work at this time of the year in the South, and I outlined a contract which I think will protect me from having the field entirely ruined, and at the same time give the Government the best flying field there is in the United States, and keep it that way.

I secured a very good buy in a hangar for five machines. It is too bad that Vincent hasn't more authority to go to a job without so much red tape.

Anticipating that the Government will accept the proposition which I made them, I have started this morning to haul muck and clay, but I don't expect to cut down my trees until I get a wire that they are coming. It takes a mile of pipe to take care of the additional ground wanted and to get enough water to the soil to make the grass step along.

I certainly wish I had a pair of the motors to which you refer. Am in hopes, after the War is over, I will be able to get a pair - if I have enough money left to buy a two cent stamp for an appealing letter.

Yours very truly,

CGF:R

P. S. The old Curtiss hangar has had a floor put in and a toilet, and the office has been fixed up so that the place now looks respectable. I told Bragg he could use these without charge, but he seemed to prefer a new garage which I have built that is within a block and a half of the Polo Field : it is about 45 x 150 feet, concrete, two stories in front, with a six-room and bath apartment on the second floor. It would make a very beautiful shop but it is a brand new building and I told Bragg they will have to rent this if they want to keep it for any length of time. If you fellows want to come down here for a week or ten days or two weeks, fooling with a couple of machines, you are welcome to use anything I have, but if you are figuring on wearing out the property, buildings, etc, I am going to charge you rent for them.

S. G. F.

January 2nd, 1918.

From : Carl G. Fisher.

To : Capt. Howard Harmon, Airplane Engineering Department.

Subject : Aviation Development at Alton Beach, Florida.

Dear Howard :

I have yours of the 28th : Mr. Bragg has been here and left. When you fellows first talked about coming down here to test a couple of motors, I supposed you would be here about a week and go home - but when Bragg arrived I discovered that he wanted to make a regular branch of the outfit here and keep it going for the next two or three years or for the duration of the war.

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Yours very truly,

GDH:R

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G. G. F.

WAR DEPARTMENT
U. S. ARMY
SIGNAL CORPS, EQUIPMENT DIVISION
AIRPLANE EXPERIMENTAL ENGINEERING
DEPARTMENT
McCOOK FIELD

ADDRESS REPLY TO
COMMANDING OFFICER

DAYTON, OHIO
January 7, 1918

From: Captain H. C. Marmon, McCook Field, Dayton, O.

To: Carl G. Fisher, Miami, Fla.

Subject: Colonel Clark

1. My boss, Lieutenant Colonel V. E. Clark, will be leaving New York the latter part of this week for Miami, Fla., with reference to the aviation test field. He is going to try to go to Key West from New York by boat.
2. Colonel Clark is in the early thirties; he is a graduate of Annapolis; was in the Navy a while; then transferred to the Army and up to the fore part of this year, was the whole aviation of the U. S. Army. He knows more about airplanes than any one else in the United States. He and I were together in Europe this summer, and I am extremely fond of him. You will find him, I think, a regular he fellow.
3. If you have any of your scooters running, and fail to show him Cat Cay and Bimini, and fail to work him to death having somebody play tennis with him, I will not use my influence in trying to get you some Liberty Motors at the earliest possible date.
4. Colonel Clark is boss of all aviation engineering.

Yours very truly,

Howard

HCM:RMM

P.S. incidentally he is boss of the southern field, where ever it is established

MANUFACTURERS AIRCRAFT ASSOCIATION INC.



GENERAL MANAGER

501 FIFTH AVENUE
NEW YORK

TELEPHONE 3246 VANDERBILT

January 10th, 1918.

Mr. Carl C. Fisher,
% The Alton Beach Realty Co.,
Miami, Florida.

Dear Mr. Fisher:

I am advised by Dr. Durand of the National Advisory Committee for Aeronautics, that I have been named a member of a Subcommittee on Landing Fields and Flying Routes of the Committee on Civil Aerial Transport, and that you have been named as Chairman of this Subcommittee.

I recently have been giving some attention to this subject in connection with Mr. Harold F. Talbot, of Dayton, Ohio, and while the subject is a comparatively new one to me, is one of which I am exceedingly interested and I hope that my connection with the work of this Subcommittee may be helpful.

The Manufacturers Aircraft Association, Inc. have recently proposed to the Signal Corps that possibly some of our facilities might be made use of by them in making aerial maps for military or training purposes. In this connection I have had a number of interviews with Officers of the Signal Corps and the Engineering Corps and we are now in receipt of a proposition from General Black of the Engineering Corps, indicating the manner in which we may co-operate with them. I also had a recent conference with Lieut. Col. Engle of the Photographic Division of the Signal Corps, I gather that there is some lack of coordination or understanding in these two Divisions. I propose to see both of the above officers again at an early date and also to have some farther talk with Dr. Durand on the subject.

In the mean time I shall wait your advice with great interest and beg to remain,

Yours very truly,

A handwritten signature in dark ink, appearing to read 'H. G. ...', is written over a horizontal line. The signature is fluid and cursive.

SSB:VB

January 11th, 1918.

From : Carl G. Fisher, Miami, Florida.

To : Capt. Howard C. Harmon.

Subject : Colonel Clark and aviation development, Miami, Florida.

Dear Howard :

I am very glad to know that Lieut. Colonel V. E. Clark will be in Miami soon, with reference to the aviation testing field. I am particularly delighted to hear you say that he is well posted on aeroplanes and aviation. I was just beginning to believe that we have very few people in the Army and Navy Department, at least very few that I have run into, who knew very much about them.

We have three or four trucks burning up the Bridge hauling muck and clay, getting the field ready, and if I had had an O.K., we could have had the hangar all completed.

I hope the Colonel will decide that it is necessary to have you down here once in awhile to look over things.

Yours very truly,

CGF:B

THE DAYTON WRIGHT AIRPLANE CO.

DAYTON, OHIO

U.S.A.

DIRECTORS
H. E. TALBOTT
ORVILLE WRIGHT
C. F. KETTERING
GEORGE H. MEAD
H. E. TALBOTT, JR.

January 12th, 1918.

OFFICE OF PRESIDENT

Mr. Carl Fisher,
c/o The Alton Beach Realty Co.,
Miami, Florida.

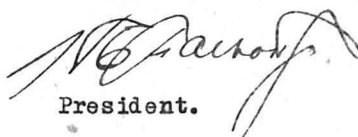
Dear Mr. Fisher:-

I enclose herewith copy of letter received from Mr. W. F. Durand, also, copy of my reply.

The success, I believe, of this committee depends entirely upon the co-operation we receive from the powers in Washington.

If there is anything I can do at any time in connection with this work, would be very glad to have you advise me.

Yours very truly,



President.

HET-JR/RMcG

January 12th, 1918.

Mr. W. F. Durand - Chairman,
Committee on Civil Aerial Transport,
Munsey Building,
Washington, D.C.

Dear Sir:-

I accept, with pleasure, the tendered appointment to the newly established Subcommittee on Landing Fields and Flying Routes of the Committee on Civil Aerial Transport.

I trust my presence on this committee will be of value and I sincerely appreciate the appointment.

Yours very truly,

President.

HEM-JR/RMcG

January 9, 1918.

Mr. Harold E. Talbott,
c/o Dayton-Wright Airplane Co.,
Dayton, Ohio.

Dear Sir :-

Pursuant to resolution adopted at the last meeting of the Executive Committee of the National Advisory Committee for Aeronautics, I have the honor to tender you herewith appointment as a member of the newly established Subcommittee on Landing Fields and Flying Routes of the Committee on Civil Aerial Transport. The other members of the Committee on Landing Fields and Flying Routes are for the present Messrs. Carl G. Fisher (Chairman), S. S. Bradley, and W. W. Montgomery.

Mr. Fisher's address at present is c/o The Alton Beach Realty Company, Miami, Florida.

Very truly yours,

(Signed) W. F. Durand,

Chairman,
Committee on Civil Aerial
Transport

V*S

January 16th, 1916.

Mr. H. E. Talbot, Jr.,
Dayton-Wright Airplane Company,
Dayton, Ohio.

Dear Mr. Talbot :

I have yours of the 12th : I wrote two or three letters on this subject last Summer, and am enclosing you copies of these letters.

I would like now, however, to prepare a new brief on the subject, and in order to get it as thoroly and as quickly as possible, I would like to have you write me your ideas on the following questions :

Which, in your estimation, would be the most desirable section of Central United States to establish a Flying Route first ?

Length of the Route ?

Approximate size of landing fields and distance they are to be separated ?

Whether in your estimation this first route should combine a considerable section of flat country together with a reasonable section of mountainous country ?

Also an approximate idea of the expense per field that we should recommend to the Government as necessary for this work ?

The copies of the letters that I have written previously on this subject will give you some idea of my ideas along this line last Summer. There must be some important points that I have overlooked that some of my Committee will catch up and make it possible for the completed brief on the subject to be thorough.

Yours very truly,

CGF:R

LANDING FIELDS AND FLYING ROUTES
COMMITTEE OF THE
CIVIL AERIAL TRANSPORT COMMITTEE

CARL G. FISHER, CHAIRMAN

Miami, Florida.
February 7th, 1918.

Mr. S. S. Bradley,
Manufacturers' Aircraft Association,
501 Fifth Avenue, New York City.

Dear Mr. Bradley :

Answering your letter of the 10th : I submitted a sample map to Captain Bagley and Major Durand, some time last May, covering the Route between Dayton and Rantoul, Illinois. Apparently this map was not complete enough for the wants of the Signal Corps, as I have heard nothing more about it.

Answering your letter of the 28th : It occurs to me that on account of the population, value of lands and number of buildings, that it would be very much easier to create the first route between, say, Dayton and Rantoul, Illinois, or between Dayton and Washington, rather than between Washington and New York or New York and Boston. A good many mistakes will probably be made in the selection of the fields for the first route : at least a good deal of experience is to be had. The value of the lands in the West is comparatively light, and it would be very much easier for me, for the reason that I have been over the route eight or ten times in creating the present route, and considering the fact that two very important fields are located at Dayton and Rantoul. We already have over a hundred emergency landings marked : most of these fields are between 20 and 35-acres : none of the fields individually are marked : none of the fields carry supplies and none of them are kept under an agreement with the owner. It is possible to quickly finish Route #1 by selecting eight or ten fields and making contracts with the owners to maintain these fields in grass or oats, and to maintain markers on same. This could be done at a minimum expense and can be accomplished quickly.

I have a secretary and working organization in Indianapolis who have had considerable experience, and after this route has been completed, we could quickly transfer them from Dayton to Washington or from Washington to New York.

I am of the opinion that very good fields could be had and maintained at \$500 per year, which will include the maintenance of a portable marker and the maintenance of a night light. I have given a great deal of time to this work and I am just wondering, as possibly you are, whether the Government will grant to our Committee the privilege of going ahead with this work and vote us sufficient funds with which to do it.

It is not possible in New York state or in Massachusetts or in any part of Pennsylvania that I am acquainted with, to secure fields the size of 1500 x 4500 : this size field would mean a field more than a quarter

of a mile wide and five-eighths of a mile long. There are very few places in the Eastern or Central States where there are more than 80-acres in one field - and I am of the opinion that 1500 x 2000 feet, with proper approaches of course, makes a very good landing field, particularly if the landing field is maintained in good condition with the proper turf. I have talked to a good many student aviators and have seen a good many of them land: I have seen them land here every day. I think that 1500 x 2000 is sufficient size - at least, this size must be considered if we are to get fields that are now in existence, at a reasonable price. If we are to try and start out and get fields 1500 x 4500, it is going to be very expensive - and it is going to be much more difficult to get these fields at any sort of reasonable expense between Boston and New York and New York and Washington than it will be in the Middle West.

As a starter, in order that our Committee may make a report, I am suggesting the following:

That we create a route between Dayton and Rantoul, Illinois, with landing fields approximately 2000-foot square and practically level, with good turf; that we lease these fields from the owner under an agreement to maintain these fields in clover, timothy, rye or oats; that the plantings and crops be handled under an agreement to be created, which shall specifically state the treatment of the ground for the crops, and unusual care in leveling and preparation of the ground; that each of these fields shall be furnished with a portable canvas marker, which shall be green striped on one side and white on the other, made of canvas with proper fastenings, and which in summer time shall be maintained by the owner of the field or lessor with the white side showing against the green background of the field, and which shall be maintained by the owner or lessor in the winter time, when snow is on the ground, with the green side up; that each field shall be supplied with a small supply station or building, approximately 12 x 14 x 8, in which shall be kept supplies, hereinafter considered - these supplies to be billed to the owner, lessor or caretaker of the field, and printed blanks given him which shall be signed by aviators using any of these supplies; that the night marker to be decided upon shall be maintained at all times on these landing fields at the expense of the lessor, owner or caretaker; that these fields shall be located, if possible, fifteen miles apart between Dayton and Rantoul, Illinois; that they shall be immediately located and created under the sanction of the Government and by the Landing Fields and Flying Routes Committee.

And then I would suggest that some trials be made over these fields and that the Landing Fields Committee prepare a Report for the Signal Corps and receive further instructions for the extension of these fields between Dayton and Washington, Washington and New York, New York and Boston.

I realize that it may be more of a protection to the coast to have these fields located between Washington and Boston, but inasmuch as our actual machines and flyers are not now ready for protective work, I would suggest, and do urge, that the first complete route go from Dayton to Rantoul, that immediate reports be sent in to the Signal Corps, and from

Mr. S. S. Bradley. Page #3. February 7th, 1918.

our experience, it will be possible then to more carefully estimate our expenses and demands for the more important defensive routes - if you wish to class them as such - from Washington to Boston, etc.

Of course, if it is possible at a minimum expense to extend the size of these fields from 2000-foot square to 2000 x 4500, I would be heartily in favor of it.

Kindly let me hear from you.

Yours very truly,

CGF:R

March 23rd, 1918.

Captain Howard Maxson,
Lindsey Building,
Dayton, Ohio.

My dear Howard :

This will introduce Mr. Fred Harris, who has had considerable experience here at Miami in the flying game. I am satisfied that Mr. Harris would be a very valuable man for you to have at Dayton, in some capacity where you want some good judgement and management ability.

Please have a talk with him and I am in hopes you can find a berth for him with you.

Yours very truly,

CGF:R

WAR DEPARTMENT
U. S. ARMY
SIGNAL CORPS, EQUIPMENT DIVISION
AIRPLANE ENGINEERING DEPARTMENT
MCCOOK FIELD

ADDRESS IN DUPLICATE TO:

DAYTON, OHIO.
March 25, 1918

From: Major Howard C. Marmon
To: Mr. Carl G. Fisher, Alton Beach, Miami, Fla.
Subject: General

Dear Carl:

Some of the enthusiastic members of the Signal Corps thought I could build up a factory, design an airplane and get it built, ready to fly, in a couple of months. I have not been able to do it, and the airplane in question is now within a day or two of its first trial flight.

Had it been ready in February, it would have been essential to get it far enough south to keep it in the air, and get warm weather conditions. It is a pity that it was not possible to do this with some of the production machines, as they are just now beginning to run into some troubles that could have been anticipated had some hot weather testing been done. However, the planes were not done, and it was impossible to do it.

We certainly want to be prepared to have this work organized and started next winter before the winter comes on, as this past winter has been a heavy handicap in getting certain work forward. However, we now have hot weather here, and are doing a great deal of flying. It will interest you, as soon as you come north, to come over here and see what we are doing.

Has anybody taken up with you the matter of rent for the field you fixed up at Miami for engineering purposes in the winter?

Incidentally, this has been one H--- of a busy winter, and no fishing!

Yours very truly,

Howard Marmon

March 31st, 1918.

From : Carl G. Fisher.

To : Major Howard Marmon.

Subject : General.

Dear Howard :

I have yours of the 25th : Enclosed I am sending you a few kodak pictures which will give you some idea of the improvements on the property since you were here - marked on the back, as follows :

#1 - Picture of a mile of wall near the Bay front, with some good looking gates, etc - and we are planting vines to them.

#2 - Picture of Harry Stuts' new home on the Bay front, which I sold him while he was here.

#3 - Herb Duckwall's house - just before it was completed.

#4 - Newby's house before it was finished.

#5 - A part of a scene at the new swimming pool, showing Dutch windmill.

#6 - is 'yours truly' in the second part of a Squirm Dive : in this dive you must go into the air, and when you strike the water, be completely turned around facing the spring board.

#7 - The new Club-House down in the keys where we have our own electric light plant, ice plant, etc.

#8 - Wake of the new Shadow V : this is some sea boat.

#9 - Is your old friend, Perc Cavill.

We continue to have splendid weather here - and I have completed one of the prettiest little flying fields you ever saw in your life. It is covered with Bermuda grass and is as green as a velvet carpet. We have put several thousand yards of muck and clay on the field and we have a tough turf, so that you can land on it as often as you like without tearing it to pieces.

Yours very truly,

CGF:R

Carl G. Fisher
Miami Beach, Florida

POSTOFFICE ADDRESS:
BOX 64, ROUTE 1
MIAMI, FLORIDA

April 8th, 1918.

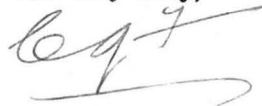
Major Howard Marmon,
Lindsey Building,
Dayton, Ohio.

Dear Howard :

I will be home next Tuesday : In the
meantime, can you write me and tell me if you have
any expectation of flyers between Dayton and Rantoul
practicing at night ?

Yours very truly,

CGF:R



1st Ind.

HCM: RMM
Hq. McCook Field, Dayton, Ohio, April 15, 1918
To: Carl G. Fisher, Indianapolis, Indiana

1. Practice what?

Howard E. Marmon
Major, S.C.U.S.A.

Aviation

May 7, 1918.

Col E.A. Deeds,
Washington, D.C.

My dear Mr. Deeds,

Thanks for your letter of April 29.

On two separate occasions I have taken this matter of marking up with the commanding officer at both Dayton and Rantoul, but never found them to be very enthusiastic to attempt any cross country flights and particularly not interested in night trials. Some of the under officers were interested in night trials as soon as they felt they had motors that were reliable. I find an inclination among some of the flyers to discredit the markings and just recently statements have been made to me by some of them that they could take a map of the country and go any place they wanted and they did not need markings. This, however, I know is not the case as some of the best flyers we know have, have been lost in trying to get back and forth - back to Rantoul particularly.

I am going to send Col. Jones a sample of the canvas marker as soon as it can be made up, and I think they will want to use these between Washington and New York.

It has been on my mind for some time that someone should refute some of the statements that are being made by a lot of critics in regard to the Signal Corps. I am working on an article now which I hope to have completed within a few days, but before doing anything with it I will submit you a copy, and if you think it all right for me to cut it loose, I will be glad to do so.

I do not give an eternal dam for an investigating committee regarding any of the work that I have been connected with, and I think that the criticisms that are now being so freely passed about tend to disorganize the Signal Corps and it takes all the heart and spirit out of the engineers who are almost wearing their lives away in trying to get results. Some of these critics talk about building ten thousand aeroplanes in about the same comparison as they talk about building ten thousand patent churns or ten thousand folding go-carts.

However, I do not care to butt into this game if it will embarrass the Signal Corps or if it will do no good.

Upon receipt of the article referred to above, you might wire me what you think about releasing it.

CARL G. FISHER
INDIANAPOLIS

Amation

Colonel E. A. Deeds,
Signal Corps,
Washington, D. C.

My dear Colonel Deeds:-

I spent a big part of last night reading report of recent investigation in Washington, and you can imagine that some of this information was particularly interesting to me, particularly the statement that the flying field at Miami cost the Government \$40,000 and that the night route in Indiana cost the Government \$40,000.


If there was the same proportion of misinformation and mistakes and confusion in the building of the report that existed in the report on the Miami field and this route here, then an investigating committee might be inclined to make very grievous errors in locating trouble. The experimental field at Miami, which as you know, has cost the Government a total for the hanger and the preparations of the field less than \$14,000, is in my estimation one of the best fields for this particular purpose that the Government could get, and certainly they have a great deal for their money considering that the rental of \$1.00 a year, and that the upkeep on this field would be very nominal.

The expenses of the night flying route through Indiana and Ohio were principally taken care of by the cities along the routes, and while all my figures of cost have been forwarded to Miami where I am going myself in a few days, as I remember, the cost of the night flying route complete was only about \$3,000 and on two different occasions I have been told by flyers that these lights have saved possibly a serious crash - perhaps death.

As you know, I did not ask the Government to relieve me of any expense which I incurred in establishing the night flying route. I never sent the Government a bill for the route and only at their request made twice in writing, so I really don't see where you should be criticising this matter. If there is anything further that I can do to help you establish the truth, please don't hesitate to call on me.

Yours truly,

CGF/z



C O P Y

August 21st, 1918.

EXPENSES OF AERIAL ROUTE -

BY

CARL G. FISHER - INDIANAPOLIS, INDIANA

<u>1917</u>		
July	7	John Bookwalter - Pay-roll. \$ 75.00
	16	John Bookwalter - Pay-roll. 50.00
	28	John Bookwalter - Pay-roll. 125.00
	31	Sargent Paint Co. - Paint for markers. 39.05
	31	Fisher Auto Company - Rec Truck \$772.00
		Sold truck (1918) <u>770.00</u>
		Loss on truck used one year. 2.00
	31	Fisher Auto Co. - Tire, Gas, Oil, etc. 115.79
Aug.	4	John Bookwalter - Pay-roll. 73.00
	15	John Bookwalter - Pay-roll. 57.00
	18	John Bookwalter - Pay-roll (adv.) 200.00
	24	John Burnstead - Labor. 25.00
	25	John Bookwalter - Pay-roll. 100.00
	25	Sargent Paint Company - paint. 239.99
	31	Prest-O-Lite Company - labor on searchlight- 3.02
	31	Fisher Auto Company - Gas and Oil. 9.09
	31	Central Auto Top Co. - Repairs to truck. .50
Sept.	6	Western Union Telegraph Co. - telegrams. 79.20
	10	John Bookwalter - Pay-roll. 100.00
	12	Bookwalter-Ball Printing Company. 7.00
	17	Gibson Company - Auto Supplies. 12.25
	17	Sargent Paint Company - paint. 60.47
	21	V. A. Longacker Company. 69.50
	24	Western Union Telegraph Company. 2.80
Oct.	31	National Map Company. 2.50
Nov.	10	Sanborn Electric Company - searchlight. 50.00
Dec.	4	Fisher Auto. Company - repairs to truck. 13.03
	11	Fisher Auto Company - Repairs to truck. 1.75
 <u>1918</u>		
May	1	Esperline & Angus - Tracing for signals. 2.29
June	28	Indpls. Tent & Awning Company - markers. 56.00
	29	Leon Barritt - Aviation Night Maps. 89.78
	30	Prest-O-Lite Company - demonstrating lights. 3.75
	30	Prest-O-Lite Company - blueprints. 4.40
	30	Sanborn Electric Company - lights. 190.00
	30	Indpls. Motor Speedway.
		Eight flood lights & installation. 512.69
		Maps, blueprints, photos, telegrams. 31.76
		Traveling Expenses - W.O. Lee and T. E. Myers. 54.67
Aug.	15	Sargent Paint Company - Paint. <u>10.20</u>
Total \$ 2,468.48		

OK

Jan

August 24th, 1918.

From : Carl G. Fisher, Indianapolis, Indiana.

To : Colonel E. A. Deeds, Signal Corps, Washington, D. C.

Subject : Night Flying Course from Wilbur Wright Field, Dayton, by way of Indianapolis, to Rantoul, Illinois.

Dear Sir :

In June, 1917, the suggestion was made in Washington by the Aircraft Board that a short experimental, well-marked Night Route might be desirable for the training of American aviators in night flying. As a member of the Landing fields and Flying Routes Committee, I took up this work at this time and established the Dayton-Indianapolis-Rantoul Route, as per maps which have already been furnished you.

The course has a total of fourteen (14) flashing units and eighteen (18) fixed units : these lights are installed on the tops of the most prominent buildings in each city or hamlet, and the lights are elevated fifteen degrees so that an approaching aviator from any direction, when riding at 2000 feet in the air, looks directly into the light, at a distance of six miles. The lights are plainly visible on fair nights for a distance of ten miles, and on cloudy, foggy or rainy nights, a distance of five to seven miles.

The various cities and hamlets along the Route were asked to donate the cost of the lamps, the platform for the lamps, the automatic motor and the wiring : these costs ranged from \$68.00 for the smallest size, up to \$250.00 for the largest size - which is a six-light cluster, flashing unit. The electric current for the operation of the lamps has been donated by the various City Councils, electric railways or commercial clubs. The total cost of the lamps and installation, as paid by the various cities, is approximately \$4,124.00. The marking of the bars and other expenses of the day route, in connection with the traveling and incidental expenses of the night route, bring the total cost of miscellaneous expenses on the Dayton-Rantoul Route to \$2,468.48. This latter item was paid by the writer.

The Course was completed last November and maps and full information were sent to the various cantonments in this vicinity - but the first Night Flight made over this Route was on Monday, August the 12th, by Brigadier General Charles Lee, accompanied by Captain

Colonel E. A. Deeds. #2. August 24th, 1918.

Dayton-Rantoul Route.

Fitz Morris, both of the English Royal Flying Corps. The start was made from the Wilbur Wright Field at Dayton, at five minutes of eight, and a perfect landing made at the Indianapolis Motor Speedway at nine thirty-two. Brigadier General Lee complimented the Route highly, and stated that at no time was he in danger of losing his way.

I have suggested in previous correspondence with the Aircraft Board, that four additional landing fields on this Route - two between Indianapolis and Dayton and two between Indianapolis and Rantoul - each landing field to be supplied with a battery of four flood lights, would add greatly to the factor of safety in night training. These additional flood lights, including elevated stand, weatherproof, would cost approximately \$500 each; a lease for a suitable landing field would approximately cost \$500 per year.

Some of the cities along the Route, where these lights are established, patriotically burn them every night - other cities keep them turned off except upon request from this office. On two different occasions, the lights burning at Greenfield, twenty miles due east from Indianapolis, have been of great assistance to aviators coming to Indianapolis from Detroit. On both occasions the aviators were about twenty miles off their course and darkness was coming on fact, when the lights at Greenfield, flashing at six second intervals, were observed, and from this location they quickly made their way to Indianapolis, landing at the Speedway.

Since the successful flight of General Lee, some interest has been shown in the Route by our own flyers, but up to the present time, to our knowledge, the flight made by General Lee is the first cross-country night flight over this route or in America.

I will be very glad to turn this route, complete, over to Government officials at any time they are willing to take it over - or if the Signal Corps wish to maintain this route and make additions thereto, I will be very glad to continue to donate my services in making this route more complete and in extending same, if that necessary.

Respectfully,

CGF:R

August 24th, 1918.

From : Carl G. Fisher, Indianapolis, Indiana.

To : Colonel E. A. Deeds, Signal Corps, Washington, D.C.

Subject : Miami Flying Field for use of Experimental Department
of the Signal Corps.

Dear Sir :

In January, 1918, Colonel J. G. Vincent requested information regarding a landing field for the use of the Signal Corps, to be used immediately. After negotiations, as per copy of correspondence herewith, Colonel Clark and Caleb Bragg visited Miami and approved the completion and changes made in a polo field belonging to the Alton Beach Realty Company, of which the writer is President and owner.

Some thirty thousand dollars had been spent on this polo field prior to the arrangements made with Colonel Clark and Mr. Bragg. Since all soil in southern Florida is of a light loam and sandy mixture and not suitable for a flying field without the addition of other materials, it was necessary to haul several thousand yards of muck and clay to this field, and to lay about two miles of small pipe to this field for irrigation purposes, so that after the muck and clay had been mixed with the sand and loam, a very heavy and tough growth of Bermuda Grass could be grown on the field to protect the soil from becoming loose.

This field was leased to the Government at a dollar per year, together with sufficient ground for a good sized hangar, which will hold four DeHaviland planes or six smaller planes of the Bristol fighting type. This hangar is the most complete of any hangar I have seen at the various cantonments : toilets and wash stands for the men are provided; also facilities for bunking eight or ten men in the hangar.

The hangar is connected to a concrete and stucco machine-shop and tool-house, size approximately 35 x 100 - with a second story barracks, size approximately 35 x 40. This building is fitted with lockers, running water, small tool room, shower baths, and some steel lockers.

The total cost for the improvements to the grounds was - \$6,733.50 : the total cost of the hangar was \$6,800.00 : the maintenance of this field will be approximately \$2500 to \$3000 per year. About 200 small trees were cut and two streets closed to give additional landing facilities to this field.

CGF:R

Respectfully,

August 27th, 1918.

Lt. Col. E. Lester Jones,
Room 253 Union Station,
Washington, D. C.

Dear Colonel Jones :

Replying to yours of the 24th : I have just made out a list of the total expenses of the day and night Route and forwarded it to Colonel Deeds, a few days since, on his request : also a short statement of particulars.

I think that you and Colonel Deeds must have the Flying Field at Miami in mind as an expense of \$40,000.00. Before arrangements were made with the Government, I had spent about \$30,000.00 on this Polo Field. I turned the field over to the Government on a lease of one dollar per year, and the total expense to the Government in connection with the Field was a little over thirteen thousand dollars, which included the building of a hangar and improvements to the soil to make it suitable for flying purposes. The Field, however, if duplicated would cost something over forty thousand dollars at this time.

A good deal of expense and time was put in on the creation of the Night Route here which does not show on paper. For instance - the traveling expenses of several assistants in going back and forth over the Route, calling on the various Boards of Trade, seeing the electric light companies in the various towns located between Dayton and Rantoul. No charge was made for these expenses except those which were made by assistants who were hired from time to time to help out. We had the services, gratis, of the General Manager of the Electric Light Company of Indianapolis, who made several trips for us : also, the Secretary of the Light and Power Company of Indianapolis gave probably thirty days of his time, gratis, to this work. In short - we tried to make of this Night Route a patriotic affair, and we asked as many people as we could possibly get to donate their time and services.

As a part of the Day and Night Route, which does not appear on paper in any statement rendered, are the hangars, side-walks, removal of fence, etc, which were donated by the Indianapolis Motor Speedway. The hangars, side-walk, fence, labor, etc, on the Indianapolis Motor Speedway books would probably amount to fifteen or eighteen thousand dollars : this includes the removal of about 15 large trees and about 100 small trees; the leveling and rolling of about 100-acres of ground; the removal of a half mile of fence; the removal of several telephone poles and several markers on the Speedway, several small stands, several toilet buildings; the building of about 350-feet of new fence; the construction of two hangars with concrete floors; the construction of 150' of sidewalk eight feet wide; the building

Lt. Col. E. Lester Jones. #2. August 27th, 1918.

of some parts buildings and a gasoline house. These expenses were borne by the Indianapolis Motor Speedway. If you wish to take them into account as a part of the Dayton-Indianapolis-Rantoul Route, you would have a total cost of something over \$30,000.00.

We had fourteen airplanes in here last Friday at the Speedway : this included the British flyers under Brig. General Lee.

If there is any further information, kindly advise.

Yours very truly,

GGF:R

158

WAR DEPARTMENT
OFFICE OF THE DIRECTOR OF MILITARY AERONAUTICS
WASHINGTON

Sept. 5, 1918.

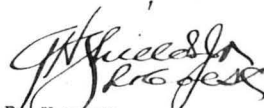
From: The Director of Military Aeronautics.

To: Mr. Carl G. Fisher, Indianapolis, Ind.

Subject: Night Flying Course - Dayton, O., to Rantoul, Ill.

1. The bill you submitted for \$2,468.48, covering expenses in connection with the laying out of the night flying course between Dayton, O., and Rantoul, Ill., has already been taken up for the proper action. We understand that this covers all expenses for which the Government is responsible.

By direction of Major General Kenly.


F. R. Kenney,
Colonel, Air Service,
Executive.

ELJ.EGJ

6

LANDING FIELDS AND FLYING ROUTES

COMMITTEE OF THE
CIVIL AERIAL TRANSPORT COMMITTEE

CARL G. FISHER, CHAIRMAN

September 30th, 1918.

From : Carl G. Fisher, Indianapolis, Indiana.

To : Major General W. L. Kenly, Director of Military Aeronautics.

Subject : Cross-Country Training Manoeuvres in Indiana.

My dear General Kenly :

Thanks for your assistance in furnishing airplanes for our Liberty Loan propoganda in Indiana. I will have a report prepared in the next few days and send to you, which will explain the visits of some ten different aviators in groups of one to four, calling on some fifty different cities in Indiana, making successful landings and allowing several hundreds of thousands of people in Indiana to come in close contact with aerial activities.

Now that we have approximately fifty first class marked emergency landing fields in Indiana, I would like to suggest for your consideration the use of these fields immediately this Fall by aviators from the surrounding training camps, having, if you wish, Indianapolis as a headquarters - leaving from Indianapolis every morning in groups of two to six machines each, for visits to these various locations, as it may be decided upon, and furnishing at the end of a weeks activities of this kind a complete report to you of just what you can expect at this time from the aviators we are now furnishing the Government.

The picture I am trying to convey to you is, I find, rather difficult to express clearly. At the present time we have a large number of aviators who are dependent almost entirely upon mechanics for the most trifling repairs or adjustments. We also have a large number of aviators who find it quite difficult to follow a given route, even when furnished with maps. Our compasses are more or less to be depended upon, as you are no doubt aware. A certain percentage of our aviators, I am satisfied, can leave Indianapolis every day in the week, call on various points in the State, and return in a minimum amount of time with a minimum amount of trouble - and if that necessary, can diverge from one landing field to another, stop, report and return to Indianapolis with a minimum amount of trouble.

Wouldn't it be interesting to you to have a complete detailed report of the exact particulars and a chart showing you the very great difference between the ability of a number of aviators; showing you the troubles that are experienced with a given number of aviators taken from their home base, where they must depend upon themselves to cover a given number of miles in a specified time ?

We had, as an illustration, four aviators leaving here recently to call on six cities during the day. Two aviators had minor troubles

Major General Kenly. #2. September 30th, 1918.

which should have been taken care of immediately by the aviators themselves but which were not taken care of as efficiently as was to be expected. A great many aviators are dropping in here constantly with various flying records, between Rantoul and Indianapolis : occasionally some of them find it necessary to land for more complete directions. We have had several aviators leave Indianapolis for Dayton and make Dayton by way of Cincinnati. On the other hand, we have had two aviators arrive at the Indianapolis Motor Speedway with a Curtiss training machine, in good condition, from Kelly Field, Texas.

The particular point I am trying to make, General Kenly, is that probably you do not get a real picture of the ability of the aviators we are turning out or a real picture of the very great difference in the quality of our aviators, or of the little troubles that hold them up in flying cross-country, and the fact that our aviators are not having enough experience in cross-country flying.

With the large number of marked fields we have in Indiana, as per map enclosed herewith, and considering the splendid terrain of Indiana for flying purposes, I believe that a weeks flying record along the lines I have suggested would be of great interest to you, and it might give you some ideas for an improvement in the present training plans, which I think could be considerably improved to greatly benefit the aviators and to hasten the method by which we complete their training and the furnishing of trained aviators for the other side.

I would be very glad to hear from you.

Yours very truly,

CGF:R

SIGNAL CORPS AVIATION SCHOOL
CHANUTE FIELD
RANTOUL, ILLINOIS

FROM: 1st.Lt.R.W.SCHROEDER,

TO: Mr.Carl Fisher,

SUBJECT: AIR ROUTES

DEAR SIR;

In our flights between Rantoul and Dayton, the following may be of interest to you, Major Hanley and I left Rantoul Sunday Sept.29,last, ina very strong wind about 30 mile an hour, we flew southeast and picked up the Big Four tracks just west of Danville Ill. following these tracks to Indianapolis the first number that I saw was #12 I then knew that I was on the right route, which by the way made me feel very thankfull to you, because traveling a 105 mile an hour at 6,000 feet we would soon be lost I am sure, and would have to land to inquire our way however on the east side of Indianapolis I was unable to locate any numbers for good many miles,the first number I saw east of Indianapolis was #46 I then knew once again that I was on the right route, with another thanks to Mr. Fisher but sorry to say out of Richmond, Ind. I could find no more numbers so we were lost till we past over Cincinnati,0, I then went north on the Miami river to Dayton, 0.

If I could make this trip again I could arrange to mark these bad places so that other Pilots could go through with ease, I believe the best way to mark these routes would be by Airplane, for instance I could go about 5 miles and land,paint the number and proceed, the route would then be correct from a Pilots point of view, we could carry a mechanician who could paint, also paint,brushes and a small extencion ladder, this would be ideal, and I believe you could arrange to have this done, I would like to be detailed to do this work as I would like it.

The reason I did not stop at the Speedway to see you was on account of the low test gasoline I got at Cumberland,Ind., the moter was only turning up 1100,while it should turn 1200 rpm. I had a diffucalt time to climb out of the field at Cumberland, so I want you to not feel bad of your dissapointment and I trust that some day again I may be able to pay you an air visit, thanking you many times for the great help that you have been to me and the rest of the Pilots.

Sincerely Yours;

First Lieutenant,

R.W. Schroeder

A.S.;S.O.R.C.

November 25th, 1918.

Major Howard Marmon,
c/o Nordyke and Marmon,
Indianapolis, Indiana.

Dear Howard :

Now that the War is over, why don't you make good and have a vacation ?

I will send you under separate cover in a day or two "A Little Journey to Altonia", which was built for me by Jack LaGorce. I consider this some booklet ; Like the Jew with the gold plated collar button - it cost me at least sixty-five cents - and if you don't think it is better than any of your Marmon catalogs, please send it back to me postage prepaid.

Why don't you get quite a bunch of you fellows from Dayton who are overworked, and run down here ? Jim has his 75-footer and I have my boat, and we will take you all fishing and go to Bemini. If, however, you do decide to come down soon and expect to go to Bemini, for God's sake write to everybody in authority in Washington that you know and see if you can get some of the red tape unwound which now separates Bemini from Miami as much as Africa is separated from Turkey.

Yours very truly,

GGF:E

✓ 11/25/18

NORDYKE & MARMON COMPANY

ESTABLISHED 1851

INDIANAPOLIS, IND., U.S.A.

IN REPLY REFER TO

December 4, 1918.

Mr. Carl G. Fisher,
Alton Beach,
Miami, Florida.

Dear Carl:

I am just in receipt of the booklet entitled "A Little Journey to Altonia", which Jack LaGorce manufactured for you.

While I will not agree that anything will compare with our MARMON catalogues, I will admit that it is some book. It makes me tingle to get back there.

I received my discharge from the Army a few days ago and am back at the factory, where I will have to stay for a little while until we find out what is going to happen.

Yours very truly,

Howard Marmon

HCM:H

Washington, D. C.

Supply Section
Real Estate

WAR DEPARTMENT
OFFICE OF THE DIRECTOR OF MILITARY AERONAUTICS
WASHINGTON

January 18, 1919.

From: The Director of Military Aeronautics.

To: Alton Beach Realty Company, Miami Beach, Florida.

Subject: Cancellation of Lease.

1. Under the terms of paragraph eight (8) of that certain lease dated April 26th, 1918 by and between C. G. Edgar, Colonel Signal Corps, for and in behalf of United States of America, and Alton Beach Realty Company, whereby 20 acres of land in Dade County, Florida, were leased to United States of America as an Aviation Landing Field (all the terms, stipulations and agreements of which said lease were renewed by renewal lease dated July 1, 1918 between the same parties):-

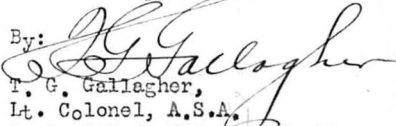
Notice is hereby given as of date January 28, 1919, that the said lessee, United States of America, will thirty days after said date, quit, relinquish, abandon and give up the said premises described and set out in said lease.

2. All payments of rental will cease and terminate on February 28, 1919.

3. It is requested that acknowledgment be made of receipt of this notice.

For Major General Kenly:

C. G. Edgar,
Colonel, A.S.A.
Chief of Supply Section.

By: 
T. G. Gallagher,
Lt. Colonel, A.S.A.
Asst. Chief of Supply Section.

For and in behalf of said lessee,
United States of America.

SUGGESTED LOCATIONS FOR FLYING FIELDS.

It is desirable that flying fields should be so located that during the severe Winter months the fields located in the North may move their ^{equipment} ~~machines~~ and aviators to fields located where flying and instructions may continue thru the heaviest Winter weather, and that as the Spring and Summer seasons open up, these same machines, or others, and same aviators may redistribute themselves to the best advantage over the fields in the North where the weather conditions are most advantageous.

In addition to the fields already in commission, it is suggested that there be located not less than the following :

3	fields	in	Georgia.
2	"	"	northern Florida.
2	"	"	Alabama.
2	"	"	Mississippi/
1	"	"	Louisiana.
2	"	"	Texas.
1	"	"	Oklahoma.
1	"	"	Missouri.
1	"	"	Iowa.
2	"	"	Illinois.
2	"	"	northern Indiana, another field in

Michigan and an additional field in northern Ohio and one in southern Florida. This distribution will leave a sufficient number of flying fields along the Coast for the use of flying boats, as well as land machines, and will leave the bulk of the training to be done in the interior, near the center of population, and will allow during the heaviest Winter weather the movement of equipment and aviators to the southern fields.

It is suggested that the Aircraft Board should take immediate steps to complete the specifications as outlined in this article, and designate the purchase and final selection of all of these fields to a Committee of not more

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Aerial highways with both ground maps and air maps are desirable as well as a necessity under the present conditions of intensive preparations for the mobilization and training of a very large number of aviators for actual war service.

It is a necessity that the student airman in making his first attempts at cross-country flying should follow a well defined highway on each side of which, at intervals of not more than two miles, are located landing fields, and that the same are marked prominently on house or barn roofs so that student airmen in a difficulty may immediately select from the best fields available one which can be used for landing.

It is necessary that these routes for student airmen should be so laid that they will avoid passing over the larger cities but instead will pass around them, following a well defined road, always with emergency landing fields in close proximity.

It is desirable in well established flying districts that repair or terminal fields should be located within 125 to 150 miles of the Mother Training Camp. These repair or terminal fields should have not less than 75 to 100 acres and should be exceptionally good fields for starting as well as landing: they should be outfitted with a small building either on the field or adjacent thereto in which a reasonable number of emergency parts could be stored. These repair or terminal fields should be under the care and supervision of one man, who would see to it that at all times during training by student airmen the field is kept in good condition and the parts, gasolines and oils entrusted to the caretaker's watchfulness should be ready for use at any time.

Emergency landings along a student airmen's highway should be from one and a half to three miles apart on either side of a well defined road, and

these well defined highways should not be left by the student airman until he has passed a certain amount of training and been given official permission to leave these designated routes.

It is highly desirable and necessary that the Weather Bureau of the United States co-operate to the extent of furnishing such information as the Aviation Department may desire, and that the Map Making Department of the United States Government shall also co-operate in getting out special maps of the territory to be used for flying purposes and incorporating in these maps routes and signals both for ground and air conditions, such as the Aviation Department will receive and segregate and place at the disposal of the Map Making Department of this Government.

It is desirable that all student emergency landings should be shown on the maps and numbered, beginning at #1 and passing not above #99 in any one section, so that at no time would more than two numbers appear as a number to be read by the student airmen. It is desirable that the Aviation Department shall immediately adopt the following series of numbers and signs which shall be used, until ordered changed, both for student emergency landings and for cross-country highway flights, and for all map readings :

- Blueprint #1 .. Illustrates markings for student airmen emergency landings.
- Blueprint #2 .. Illustrates section of sample map.
- Blueprint #3 .. Illustrates the marking of a village, population of such village to be shown in small circular number. The population, however, will be in thousands only, up to and including 9000.
- Blueprint #4 .. Illustrates the marking of a village with a population between 10,000 and 100,000.
- ~~B~~Xeprint #5 .. Illustrates the marking of a village between 20,000 and 100,000 population.
- Blueprint #6 ... Illustrates the marking of all terminal or repair fields.

- Blueprint #7 .. Illustrates electric signals which shall be placed on the principal and highest building in each city of 10,000 population or more, enroute on long distance air routes.
- Blueprint #8 .. Illustrates flare signals which shall be kept on hand in liberal quantities at all terminal or repair stations, and ready for service on such nights as may be selected for long distance cross-country night flying, and on such occasions shall be kept burning from sunset until daylight, as per special instructions. (See Book of Instructions, Page #27.)

It is desirable that all maps shall be made in ribbon sections, covering a zone in width of not more than 50 miles and approximately 500 miles in length; that these maps shall have an approximate scale of 5" per 100 miles. It is not desirable that other than capital cities be named on these maps. It is desirable only that principal highways, railroads and rivers be shown : no attention need be given interurban, street car lines, small creeks, county lines or bridges.

In the building of the maps by the Government Depart, it is desirable that the first page of the map be devoted to instructions in map reading; that the second page be devoted to signals adopted by the Aviation Board and illustrations thereof; the third page be devoted to the numbering of the different map zones and an alphabetical index thereto; that each map of a zone shall be in sections as described and shall consist of a completed package, substantially bound, not to exceed $4\frac{1}{2}$ " wide and 9" long. If it is that desirable by this Board to order these maps to be erected on reels, this will not interfere with the construction and binding of the maps as herein described.

It is that necessary that signals for night flying shall be placed in the principal cities enroute on cross-country routes, and that these signals shall be erected by the local Board of Trade, City Councils or City Government at their own expense and shall be maintained during the period of the War by these same bodies, as described. The signals which will be uniform in all

zones, will be used in all parts of the United States by an order of the Aviation Department. Signals in all zones will be lighted and kept continuously lighted when cities in specified zones will be on the routes to be used at the prescribed times, these orders to come from the departmental chief from time to time as necessity dictates. At all other times the signals may remain erected and in good working order but without burning night lights.

Special inserts and special instructions in map reading or for zone conditions may be issued at any time and forwarded to departmental commanders for distribution among airmen and to be added to their route book.

48

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AREA OF U.S. SUITABLE FOR AVIATION CENTERS



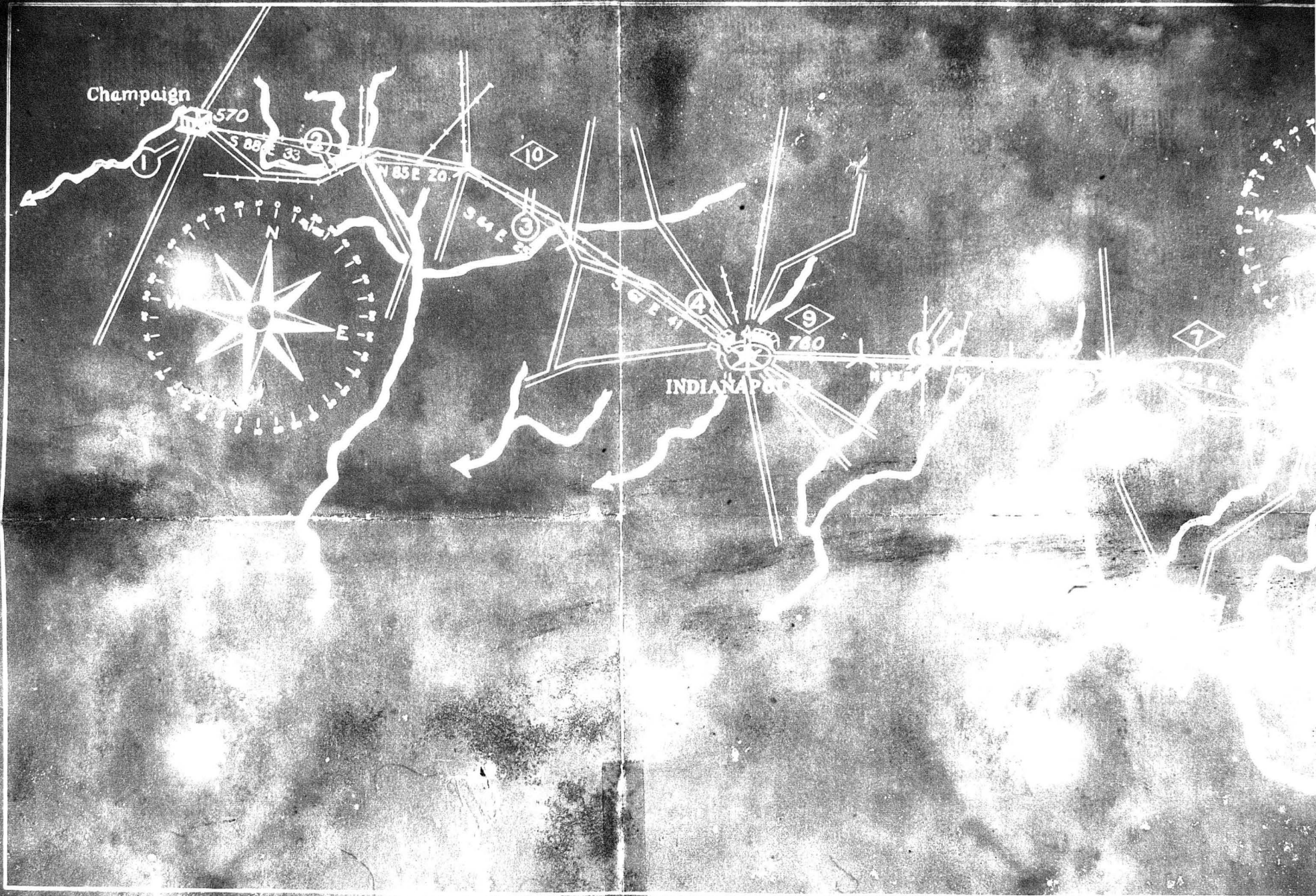
All temperatures below this line average over 38°F. for the months of Dec. Jan. and Feb.

Over 12 mi. per hr.
100 FARTHER NORTH

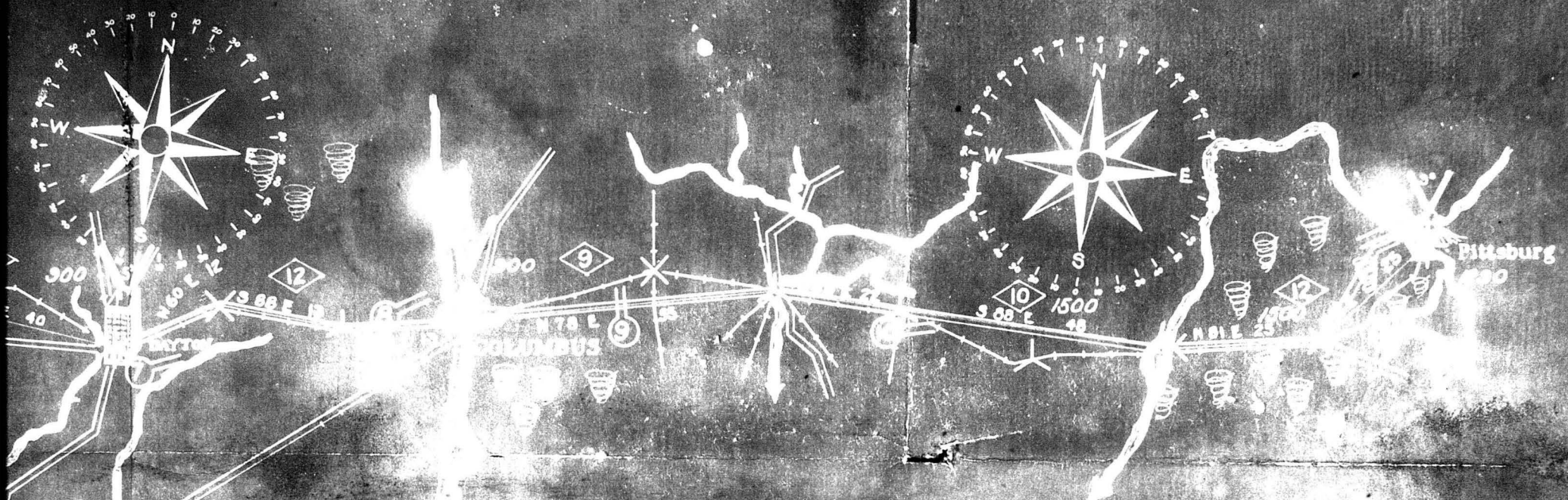
Over 10 mi. per hr.

PERMANENT AVIATION CENTERS

Average over 10 mi. per hr.

















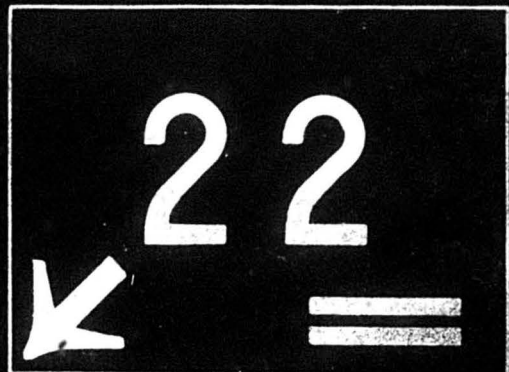
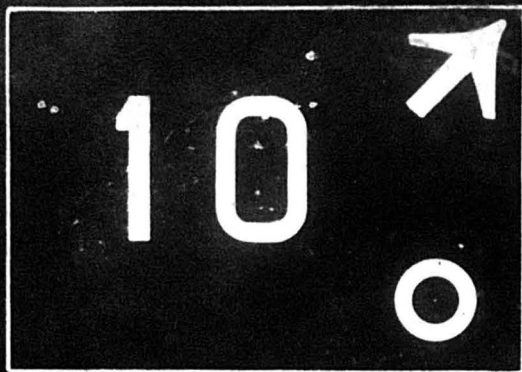




**AIR ROUTE MAP
CHAMPAIGN, ILL. TO PITTSBURG, PENN.**

SCALE IN MILES TO 1 INCH

- | | | | |
|---|--------------------------------------|---|---|
|  | Main roads |  | Course and distances in miles |
|  | Railroads |  | Landing fields |
|  | Road and railroad
(near together) |  | Air wharfs |
|  | Cities over 500,000 |  | Flying elevation in thousands |
|  | 100,000 to 500,000 |  | City identification flashes with time interval
(red and white every 3 seconds) |
|  | 50,000 to 100,000 |  | Elevations of ground in feet at hill tops. |
|  | 10,000 to 50,000 | | |
|  | less than 10,000 | | |



SPECIAL SIGNALS

