NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS.

Technical Memorandum No. 108.

THE WORLD'S AIR TRANSPORTATION SERVICES.

Data as to Passengers, Mail, and Goods Carried by American and European Transportation Services.

Prepared by
Office of Aeronautical Intelligence,
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FILE COPY
To be returned to
the files of the Langley
Memorial Aeronautical
Laboratory.

June, 1922.

C O N T E N T S.

Belgium

Czecho-Slovakia

Denmark

France

Germany

Great Britain

Holland

Italy

United States

General,
Air Mail Service,
Aeromarine Airways.

Miscellaneous.

1. Belgium.

COMMERCIAL AVIATION IN BELGIUM.

The comparative statistics of the S.N.E.T.A. in 1920 and 1921 show a considerable increase in air traffic.

The service was initiated July 1, 1920, or the Brussels-Paris line, in conjunction with the "Compagnie des Messageries Aerienne, (C.M.A.), and on the Brussels-London line in conjunction with the Handley-Page Company, Ltd. In 1921, the service was continued on the Brussels-Paris line in conjunction with the C.M.A., on the Brussels-London line only till October 1 and on the Brussels-Rotterdam-Amsterdam line till May 1, with the C.M.A.

Route	Trips made 1920	Trips made 1921	Passengers 1920	Passengers 1921	Packages kgs. 1920	Packages kgs. 1921
Brussels-Paris	177	344	160	640	481	5,008
Paris-Brussels	179	355	153	706	1270	10,961
Brussels-London	131	240	168	426	684	2,527
London-Brussels	132	234	142	329	2243	2,483
Brussels-Amsterdam	---	227	---	374	----	6,164
Amsterdam-Brussels	---	220	---	337	----	3,173
TOTAL	619	1,620	623	2,802	4,678	30,316

(From "Bulletin Documentaire de la Societe Nationale pour l'Etude des Transports Aeriens", May 15,1922).

The following table shows the air traffic at the Brussels Airdrome during the months of June, July, August.

	June	July	August
Number arriving	122	143	159
Number departing	122	138	153
Number of passengers	565	869	836
Parcels received	508	458	?
Weight in Kg.	2689	2452	2360
Parcels sent	427	578	?
Weight in Kg.	2042	1987	1750

(From "Luftfahrt", December, 8, 1921).

COMMERCIAL AVIATION IN BELGIUM.

The Société Nationale pour l'Etude des Transports Aériens was founded in November, 1919, with a capital of 4,000,000 francs, largely subscribed by various Brussels banks.

Besides the London, Paris and Amsterdam services, the S.N.E.T.A. operates airplanes during the summer between Brussels and Ostend, and between London and Ostend.

The Ligne Aérienne Roi Albert (L.A.R.A.) in Africa is managed by a subsidiary of the S.N.E.T.A. entitled "Comité d'Etudes pour la Navigation Aérienne au Congo"(C.E.N.A.C.). This line covers a distance of 1095 miles along the River Congo from Kinshasa to Stanleyville. The first section is from Kinshasa to Gumbe (365 miles) with an intermediate stop at Bolobo, 190 miles beyond Kinshasa. The second edition is from Gumbe to Lisala (390 miles) with stops at Coquillaville and Mobeka. The last section, which has been in operation only a few months, is from Lisala to Stanleyville, a distance of 340 miles, with a stop at Basoko.

Regular departures from Kinshasa are made twice a month, the first one directly after the arrival of the ship from Europe, and the second, fifteen days later. In addition, there are a certain number of special journeys. (From Paris Office, N.A.C.A.)

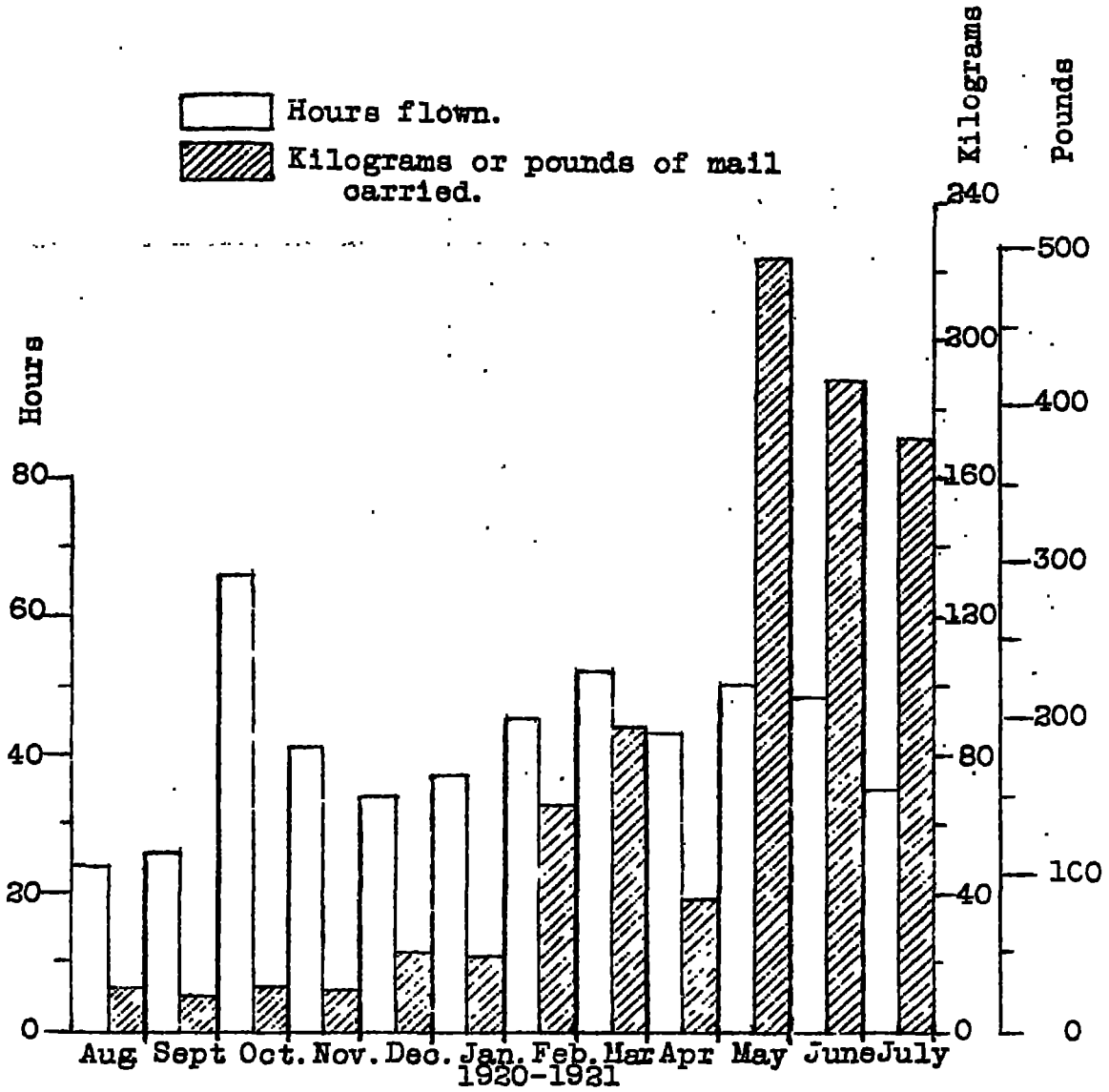
Air Traffic Statistics of S.N.E.T.A.

August, 1920 - May, 1921.

Year Month	Trips made	Passengers	Packages (weight)	Mail kg.	Distance flown km.
1920			kg.		
August	156	146	584,785	134,591	45,330
September	154	166	938,370	230,232	44,960
October	138	182	1,005,330	338,780	51,190
November	96	73	1,300,660	173,570	28,470
December	38	17	708,370	44,955	11,125
1921					
January	65	22	562,095	51,265	18,775
February	64	36	523,982	42,560	18,860
March	92	99	795,748	60,753	26,740
April	105	161	1,300,778	72,586	30,900
May	199	445	1,798,811	182,133	49,045
TOTAL	1,107	1,347	9,518,929	1,331,425	325,495

(From "Luftfahrt", December 1921).

COMMERCIAL AVIATION IN THE BELGIAN CONGO.



Month	Hours flown	Mail carried Kilograms	Mail carried Pounds
August	24	13	28.7
September	26	10	22
October	66	13	28.7
November	41	12	26.5
December	34	23	50.7
January	37	22	48.5
February	45	65	143.3
March	52	88	194.0
April	43	38	83.8
May	50	224	493.8
June	48	188	414.4
July	35	171	377.0
Total	501	867	1911.4

King Albert Air Line in the Congo.

(From Premier Congrès International de la Navigation Aérienne, Vol. I, p. 157, November, 1921).

CZECHO-SLOVAKIA

COMMERCIAL AVIATION IN CZECHO-SLOVAKIA.

Aerial passenger and mail service between Prague and Vienna will soon be opened it was reported to the Department of Commerce a few days ago. Planes will leave Prague on Monday, Wednesday and Friday at 1:30 p.m., being due at Vienna at 3:30 p.m. From Vienna planes will leave for Budapest at 4 p.m., making the trip in 1 hour 40 minutes. Planes will leave Budapest on Tuesday, Thursday and Saturday at 6:45 a.m., and are due to arrive at Vienna at 8:30 a.m. Leaving Vienna at 9 a.m. they are scheduled to arrive at Prague at 11 a.m. The fare from Budapest to Prague is said to amount to 770 Czecho-Slovakian crowns.

(Taken from "Aviation", June 26, 1922, p. 760).

Denmark.

COMMERCIAL AVIATION IN DENMARK.

For the year 1920.

Distance.....5700

Passengers carried..... 187

Letters carried.....80,000

Packages carried..... 216

(From "Nachrichten fur Luft-
fahrer," November 25, 1921).

France.

FRENCH AIR TRAFFIC PROGRESS.

An idea of the astonishing progress of commercial aviation in France during the past year may be gained from a statement issued by the French Department of Aeronautics and Air Transport, giving traffic figures for the years 1919, 1920 and 1921. Considering the handicap under which aviation has been carried on by the companies concerned, the outlook for the future seems very bright. The following is a summary of the official figures:

Year	Journeys made	Miles covered	Passengers carried	Parcels. lbs. approximately	Letters-mail, lbs.
1919	988	158,606	588	14,400	900
1920	2,386	529,454	1,721	110,000	9,000
1921	6,221	1,457,437	10,336	375,000	21,000

Figures which are available for the air mail between France and Morocco for 1921 are also very instructive. In the "round" journey there and back, the increases have been very marked. In January, 1921, the total was 16,377 letters; in January, 1922, the number was 50,851, equal to over 300 per cent increase. Curiously, the dispatchings from Morocco to France were greatly in excess, viz: 32,691, as against 18,160 in the reverse direction. So steady has been the growth of the air mail that it has determined the Secretary of State to augment the facilities by increasing the service between Toulouse and Casablanca from three to five times per week as from the month of March, necessitating a fleet of 90 craft. The following monthly figures of letters carried during 1921 speak for themselves:

January		July.....	28,108
February	12,025	August.....	34,283
March.....	14,005	September.....	35,006
April.....	17,179	October.....	40,601
May.....	18,878	November.....	41,330
June.....	22,738	December.....	47,235.

The France to Morocco airway has now been extended to Mogador, the airport of which was inaugurated by the President of the French Republic during his recent visit to the city.

It is proposed soon to establish aerial tours from Algiers to the desert at Biskra and Touggourt, and another cross-country line from Gabes and Tunis, in Tunisia, to Algiers; thence to Oran, Algeria, and Casablanca and Agadir, in Morocco.

(From "Aviation", May 1, 1922)

COMMERCIAL AVIATION IN FRANCE.

France has gone ahead of England in the promotion of its commercial aviation, as illustrated, for instance, by the statement in the Journal des Debats, of September 2, 1921, that during June last French Air Companies carried 1,553 passengers while British companies carried 400. The considerable increase in traffice in 1920, as compared with 1919, is shown in the following table:

Traffic	1919	1920
Paying passengers.....	729	5,864
Goods.....(lbs)	31,041	267, 186
Mails.....(lbs)	1,027	13,155
Completed journeys.....	1,173	4,052
Distance travelled.....miles.	219,905	933, 407

FRENCH COMMERCIAL AVIATION ACTIVITIES,1920 - International only.

Lines	No. of Trips	Miles flown	Passengers Paying	Passengers Non-paying	Freight lbs.	Mail lbs.
ris-London.....	614	153,606	470	231	78,303	763
ris-Brussels.....	190	35,012	175	160	1,532	205
ris-Gabourg(1)resort..	63	7,387	41	3	1,945	...
is-Strasburg-Prague(2)	119	35,316	18	32	1,252	154
ris-Geneva.....	12	3,521	6	...	88	...
ulouse-Casablanca(Morocco).....	897	228,304	128	96	22,266	7,408
yonne-Bilbao(Spain)...	139	13,858	36	97	.....	...
rdeaux-Toulouse-Montpelier.....	274	40,129	60	96	2,935	....
mes-Nice.....	62	12,063	7	13	474	....
TOTAL.....	2,370	529,196	941	740	108,795	8,530

The longest traffic route at present is that from Toulouse to Casblanca, Morocco, which takes about a day and a half with a stop overight. Other foreign services are: Paris-London, four times daily, -1/2 hrs; Paris-Brussels, 2 hrs; Paris-Amsterdam, 4-3/4 hrs; a. Paris-Strasburg-Prague, 7 hrs.; Parisrsaw, daily, except Sunday, 12-1/2 hrs.; Bayonne-Bilbao-Santander, ily, 2-1/2 hrs. Services within France include: Bordeaux-Toulouse, ntpellier-, 3-1/2 hrs; Montpellier-Nimes-Avignon-Nice, twice weekly, -3/4 hrs.

(From "Journal des Debats" Sept.2, 1921).

COMMERCIAL AVIATION IN FRANCE.

TABLE I.

		1919 Sept. 1 to Dec. 31	1920	1921 Jan. 1 to Sept. 1.
1	Extension of operation zones..miles...	1,540	2,675	3,080
2	Pilots in service.....	27	71	102
3	Airplanes in service.....	46	183	263
4	Horsepower available.....	13,300	54,000	80,000
5	Useful load available.....tons	16	83	110
6	Percentage of scheduled trips being actually completed..... Paris-London.....	75	95	36
	Paris-Brussels.....	77	93	92
	Toulouse-Casablanca..	93	96	97
7	?Trips made.....	1,490	2,381	4,479
8	Total miles flown.....	200,000	525,000	960,000
9	Total number of passengers carried....	527	982	6,387
10	Average miles flown per trip.....	134	220	215
11	Average number of passengers carried per trip.....	.35	.41	1.42
12	Total express matter carried (tons)...	7.50	.54	112
13	Total mail carried.....(tons)....	.44	4.40	6
14	Average express matter carried per trip, lbs.....	10	45.5	51
15	Average express matter carried per mile, lbs.....	.075	.2	.24
16	Average mail carried per trip.....lbs..	.59	3.7	2.65
17	Average mail matter carried per mile... lbs.....	.0044	.017	.012
18	Number of lines operating regularly....	3	9	11
19	Customs duties paid to the French Gov't on express matter at Bourget (Paris), Airport only.....francs.	17,835	312,724	560,000
30.	Estimated total revenues of operating companies.....francs.	45,000	720,000	2,400,000
21	Estimated revenues of operating companies per trip.....francs.	30	300	540
22	Estimated revenues of operating companies per mile.....francs.	.225	1.37	2.5
23	Estimated average cost of operation per mi. flown based on experience of Bourget operation on Paris-London line only.....	14.50	14.50	14.50

(Continued)

TABLE 2.

Total number of passengers, mail and express matter carried by French and other aerial lines passing through the Bourget (Paris) Airport from May 1 to October 31, 1921.

Month	Passengers	Express matter tons	Mail lbs.
May	1532	13	670
June	2036	15	740
July	2285	13	880
August	2473	17	840
September	1418	18	1150
October	1250	21	820
TOTAL.....	10,994	97	5100

TABLE 3.

Total number of airplanes, passengers, mail and express matter passing through the Bourget (Paris) Airport during September and October, 1920 and 1921.

Date	Passengers	Airplanes	Express tons.	Mail lbs.
September, 1920	1190	451	14	1090
September, 1921	1418	433	18	1150
October, 1920	961	444	16	1370
October, 1921	1250	408	21	820

TABLE 4.

Air Mail Rates - France and Colonies.
(Law of Oct. 10,1919).

Distance	0 to 20 gr.	21 to 100 gr.	101 to 200 gr.
0 to 500 Km	.75 fr.	1.50	2.25
501 to 800 Km	1.00 fr.	2.00	3.00
801 Km and more	1.25 fr.	2.50	3.75

TABLE 10.

Air Mail Rates - France-Spain.

Bayonne-Santander - .25 fr, for 0 to 20 gr.
Toulouse-Barcellone-
Alicante-Malaga - .50 fr, for 0 to 20 gr.
1.50 fr, for 21 to 100 gr. (500 gr.
.75 fr, for every 100 gr.or fraction of up to

TABLE 5.

France and Colonies.
(Law of Jan.13th, 1921).

	0 to 30 gr.	31 to 100 gr.	101 to 500 gr
For any distance.....	.75 fr.	1.75	1 fr. for every 100 gr.or fraction of

TABLE 6.

Paris - London.

	Sept.29,1919 Law of	Aug.27,1920 Law of	May 1, 1921. Law of
For 20 grams or fraction of.....	3 fr.	.75 fr.	.50 fr.
Additional charge of 1 fr. for Special Delivery.			

TABLE 7.

Air Mail Rates.
Paris-Brussels-Amsterdam.

	Paris-Brussels June 30,1920 Law of	Paris-Brussels May 1,1921 Law of	Paris-Amsterdam Law of May 1, 1921
For 20 gr. or fraction of, up to 100 gr.....	.75 fr.		
For more than 100 gr.....	3.75/for first 100 gr. plus.50 fr. every 20 gr. or fraction of,from 101 gr. up.		
For 20 gr. or fraction of from 0 gr. up.....		.30 fr.	.50 fr.
Additional charge of 1 fr. for Special Delivery.			

TABLE 8.
Air Mail Rates
France-Hungary-Poland.
(Law Febr. 22, 1921)

Routes	0 to 20 gr.	21 to 100 gr.	101 to 200 gr.	For every 100 gr. or fraction of, up to 2Kg.
Paris-Strasbourg	.75	1.50	2.25	---
Paris-Prague	1.25	2.25	----	.50
Paris-Warsaw	1.75	3.00	----	.75
Strasbourg-Prague	.50	.75	----	.25
Stras'bg-Warsaw	1.00	1.50	.25	---
Prague-Warsaw	.50	.75	----	.25

TABLE 9.
Passengers, Mail and Express Matter Rate.
French Aerial Lines

Operating Company	Route	Distance in mi.	Mail up to 20 gr. frs.	Express /lb. frs.	Express /ton/mi. frs.	Express /passenger.	Passengers/mi. frs.
Messageries Grand Express...	Paris-London	233	.50	2.26 to 3.4	19.5 to 29.3	300	1.28
Messageries	Paris-Brussels	161	.30	1.36 to 1.82	16.9 to 22.6	175	1.08
Messageries.	Paris-Amsterdam	273	.50	2.26 to 2.93	16.7 to 21.5	300	
Farman	Paris-Amsterdam.	273	.50	1.36 to 1.82	10.0 to 13.3	300	1.1
Franco-Romaine	Paris-Strasbourg	249	.75	1.14	9.2	150	.6
Franco-Romaine	Paris-Prague	560	1.25	3.18	11.2	500	.9
Franco-Romaine	Paris-Warsaw	870	1.75	4.08	9.4	800	.92
Luteovere	Toulouse-Casablanca	1140	.50	4.08	7.15	1516	1.36
Franco-Bilbaire	Bayonne-Santander	124	.25	1.14	18.4	150	1.20
Messageries	Paris-Sattano	186	.	1.58	17.0	200	1.08
Ernoul	Bordeaux-Montpelier	260		3.00	23.0	176	.68
Seneme-Francaise....	Nimes-Nice	216		2.04	18.9	240	1.1

(From "Aerial Age Weekly" March, 20, 1922)

Status of Aerial Transportation in France, October 1, 1921.

Airplanes.- The following table sums up the situation:

Year	Pilots	Airplanes	Available HP.	Available Tonnage
1919	27	46	13,300	16
1920	72	183	54,000	83
1921	102	258	80,000	110

Unfortunately, these airplanes are all built on the principles of war machines (Berlin Spad 33), unless we except the converted war airplanes (Breguet limousine, Goliath F.60, Salmson limousine, Potez 9 limousine). They are constructed for general utility, without specialization.

It is interesting to note, in the above table, a more rapid increase in tonnage than in power, which indicates a better utilization of the latter.

The carrying capacity of these airplanes varies around 0.30.*

Companies.- Transportation service was performed in France by four companies in 1919, ten in 1920, and eight in 1921. The 1921 companies had a combined capital of about 25,000,000 francs.

These companies were founded by groups of aeronautic constructors or by means of capital obtained by subscription from various sources. One company, with the largest capital of all, was formed by a bank of foreign affairs. Two companies went out of business in 1921.

Routes.- Because, on the one hand, of the poor adaptation of the airplanes to commercial use and because, on the other hand, of the small financial resources of the companies, the routes exploited give but a faint idea of the logical routes for air traffic.

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* French definition: $\frac{\text{useful load}}{\text{total load}}$ and not German $\frac{\text{useful load}}{\text{weight empty}}$.

(Taken from "Premier Congres International de la Navigation Aerienne", Paris, November, 1921, Vol.II, pp.128).

These routes serve rather as the forerunners of future routes and are sometimes so advertised.

The Paris-London route, which is justified by itself, is the forerunner of lines to Central Europe and Italy.

The Paris-Amsterdam route is the forerunner of lines to Scandinavia and Russia.

The Paris-Prague route anticipates lines to Eastern Europe and Constantinople.

The Toulouse-Casablanca route is the beginning of the Paris-Dakar line.

The Bayonne-Santander line is headed toward Lisbon.

A special line operates successfully between Paris and Havre in correspondence with the steamship lines to North America.

The growth of these lines is indicated by the following table:

Year	Total length of Routes, in km.	Distance flown per month, in km.
1919	2480	57,000
1920	4310	135,000
1921	4960	280,000

Note the increased distance exploited and especially the more rapid increase in the distance flown per month, which is the index of the increased intensity of exploitation.

Operation.- The present status of aerial transportation gives but a faint idea of what it will become in the near future. The airplanes employed still possess all the characteristics of war machines. They deteriorate rapidly and are still subject to breakdowns, thereby necessitating intermediate emergency landing fields. The indispensable radiotelegraphic and meteorologic services are still being installed.

All these considerations oblige the companies to proceed cautiously, while being constantly ready to take advantage of the possibilities of the moment.

As indicated by the foregoing table, the lines began operations in 1919 and 1920, with infrequent trips. These trips were rather of the nature of repeated experiments for studying the airplanes, the aviation fields, the routes and the atmospheric conditions. In 1921 the companies brought their services more within reach of the public and increased the frequency of the trips to one a day (three a day between Paris and London).

The speeds (including stops) reached the following figures: Toulouse-Casablanca (four stops, one night on the ground), 60 km. per hour; Paris-Brussels-Rotterdam-Amsterdam (two stops), 100 km. per hour; Paris-Warsaw (two stops, one meal), 115 km. per hour; Paris-London (without stop), 110 to 140 km. per hour. The stops are necessitated by the airplanes, which can not make non-stop flights of over 500 km.

The saving in time effected, over the other fastest methods of public transportation, is about 5 hours on the Paris-London and Paris-Amsterdam trips, 13 hours on the Warsaw and 70 hours on the Toulouse-Rabat trip.

The safety, although not yet what it should be, is shown by the following figures: Up to September 1, 1921, 2,808,000 km. (1,745,000 miles) had been flown, with a record of 10 killed and 14 injured, including passengers and crew, or one killed for every 280,000 km. (174,000 mi.) and one injured for every 200,000 km. (124,300 mi.).

The regularity has constantly improved and has attained truly surprising results. If we understand by regularity the percentage of the trips completed, we obtain the following results:

Year	Paris-London	Paris-Brussels	Toulouse-Casablanca
1919	75	77	93
1920	95	93	96
1921	96	92	97

The fares have been frequently changed. They are, moreover, purely arbitrary, like all prices relating to a monopoly. The government establishes a maximum, below which the companies are free to fix their fares. In 1921 the fares were reduced about 40% below those for 1919 and 1920.

Purely as a matter of information and without wishing to draw any conclusion, we give the following table of fares and freight rates in effect in September, 1921.

Company	Route	Distance in km.	Mail to 20g	Freight		Passengers	
				Tariff	Charge per kg/km.	Fare frs.	Per km. frs.
Messageries Grand Express	Paris-London	375	0.50	5-7.50	0.0133 to 0.0199	300	0.80
	" "						
Messageries	Paris-Brussels	260	0.30	3-4.00	0.013	175	0.67
"	Paris-Amsterdam	440	0.50	5-6.50	0.013	300	0.68
Farman	" "			3-4.00	0.008	300	0.68
Franco Roumaine	Paris-Strassburg	440	0.75	2.50	0.006	150	0.375
" "	Paris-Prague	900	1.25	7.00	0.0077	500	0.55
" "	Paris-Warsaw	1400	1.75	9.00	0.0064	800	0.57
Latecoère	Toulouse-Casablanca	1850	0.50	9.00	0.0048	1560	0.86
Franco-Bilbaine	Bagaure-Santanda	200	0.25	2.50	0.0012	150	0.75
Messageries	Paris-Settano	300		3.50	0.0116	200	0.66
Ernoul	Bordeaux-Montpelier	420		6.60	0.0157	176	0.40
Sénème francaise	Nîmes-Nice	350		4.50	0.013	240	0.68

It should be remembered that these charges include the terminal charges which are often high and generally not included in the charges for other methods of transportation. Moreover, as regards passengers, the saving in time eliminates numerous incidental expenses of the trip.

Mail transportation.- All the important lines carry mail. This is perhaps a good way to distinguish the important lines from those which are not.

The companies make contracts with the Post Office Department with the following characteristics: Delays are fixed without liability for the company. The mail consists of "official and private correspondence of every kind, letters, postal cards, business papers, samples of merchandise and printed matter, ordinary or registered." The maximum weight of each piece is 100 grams (3.53 ounces). The mail is assembled in a special room at the post office, where the company sends for it about an hour before departure. The company is responsible to the Post Office Department in the same manner that the latter is to the public. In case of a breakdown, the company must forward the mail by the quickest route. An extra charge is made, according to the weight of the piece, the proceeds of which goes to the company. In 1921 these charges were lowered on all lines, resulting in a considerable increase in the quantity of mail entrusted to airplane transportation.

Parcels must be deposited at certain offices and are generally delivered at the domiciles. The maximum dimensions are generally fixed at 60 x 40 x 80 cm. Some companies also fix the maximum weight at 80 kg. The charges are established by weight, always counting a volume of 5000 cc. at least equivalent to one kilogram. Parcels are accepted for reshipment. They can be insured, the premiums being about 0.5% of their value.

The merchandise thus far carried has consisted principally of garments, furs, millinery, watches, electric apparatus, jewels, paintings, and even early vegetables. These are naturally luxuries, whose value justifies the higher transportation charges.

Passengers.- Passengers are taken and carried by automobile, either to the domicile or to a central office. They are allowed 10 to 15 kg. of free baggage, according to the company. The airplanes are generally fitted out with a cabin "de luxe," as comfortably as a first-class railway coach.

In addition to the tourists of 1919 and 1920, there were in 1921 many business men among the passengers. The tourists were chiefly Americans, English and Japanese, while the business men

were mostly Belgians and Germans. In both categories the French are the most "refractory."

Results.- Without going into details, we will summarize the results in the following table:

Year	Trips	Km. flown	Kg. mail	Kg. parcels	Passengers
1919	1490	319500	397	6980	527
1920	3381	353700	3920	49180	982
1921 (6 mos. only)	3342	1239600	4320	98500	4854

These figures require no comment.

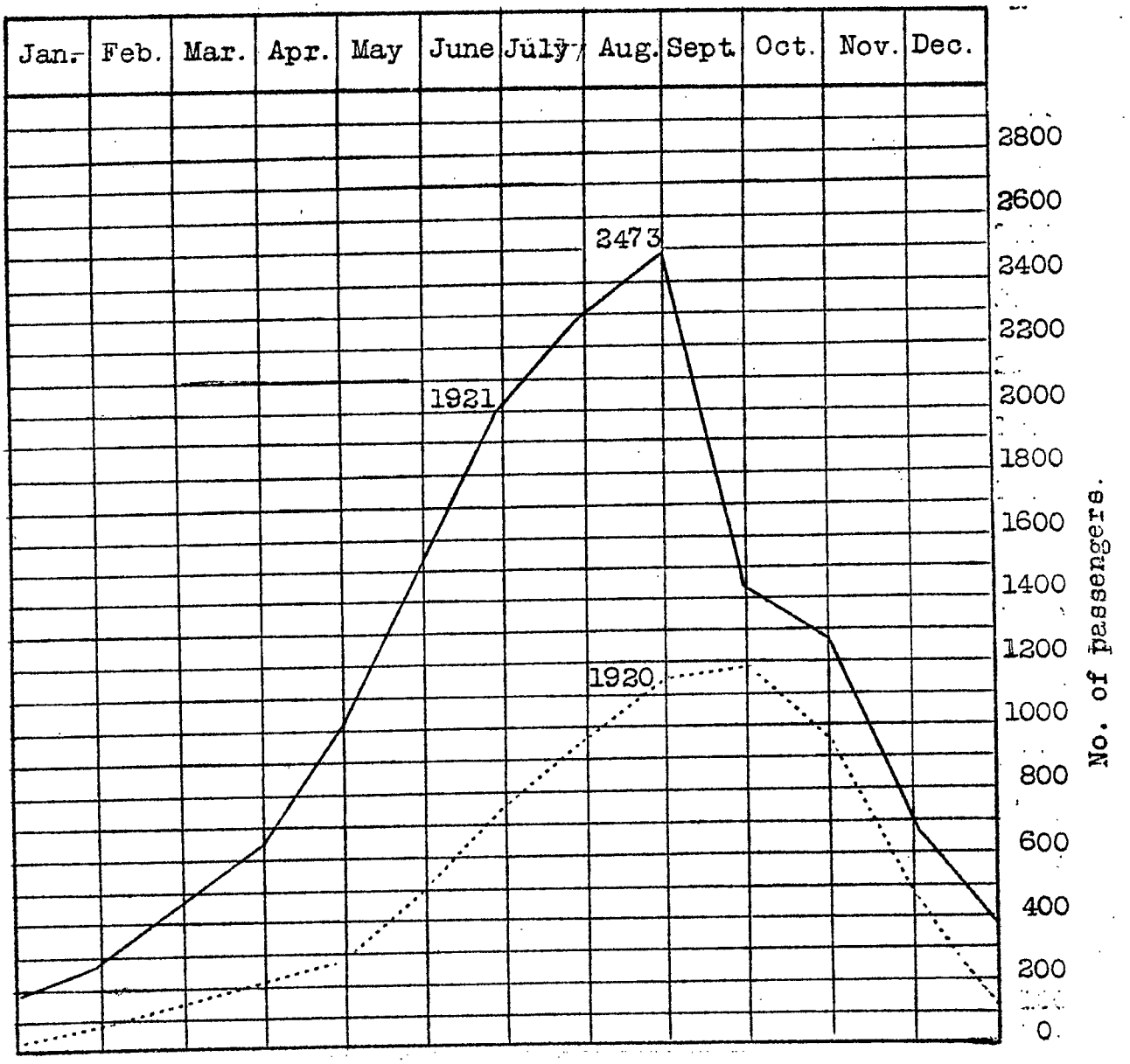
As to parcels, the official figures unfortunately do not give the value of the merchandise carried. We have, however, succeeded in learning the amount of customs duties collected at the single port of Bourget for 1919 (4 months), 17,835 francs; for 1920 (12 mos.), 312,724 francs; and for 1921 (8 mos.), 560,000 francs.

Efficiency of aerial transportation.- Regarding the economic aspects, the significance of the following table will be apparent to every one.

Year	Km. per trip	Kg. mail	Kg. freight per trip	Passengers
1919	215	0.27	4.68	0.356
1920	365	1.65	21.00	0.420
1921 (6 mos.)	370	1.30	26.50	1.450

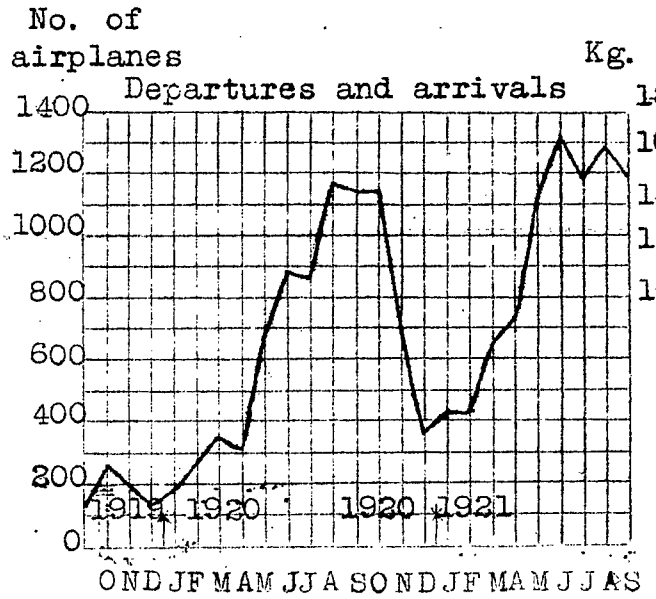
Receipts.- It would be interesting to know how much money the aerial transportation enterprises have been able to extract from the public. The question is a difficult one to approach and the figures can only be approximate. We think we are not very wide of the truth in estimating the receipts at 45,000 francs in 1919, 720,000 in 1920, and 1,800,000 for the first six months of 1921.

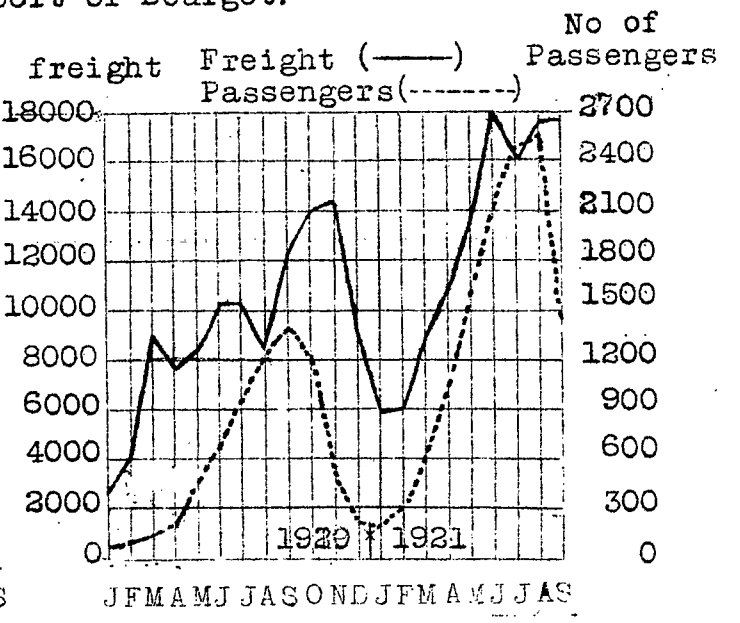
Comparative traffic of the airport of Bourget in 1920 and 1921.

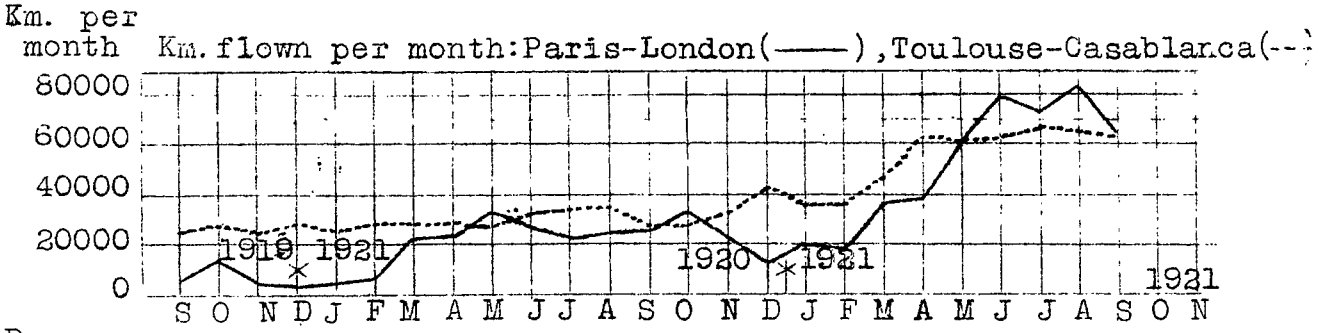


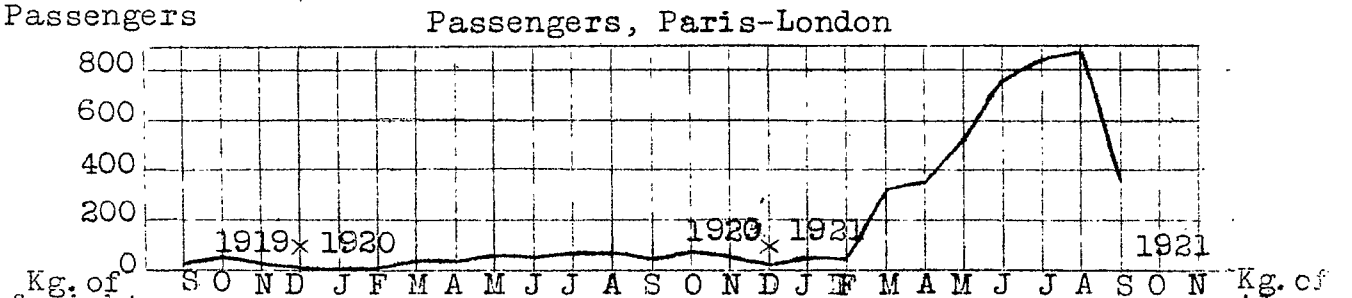
(Taken from "Ephémérides de l'Aéronautique", Apr.1,1922).

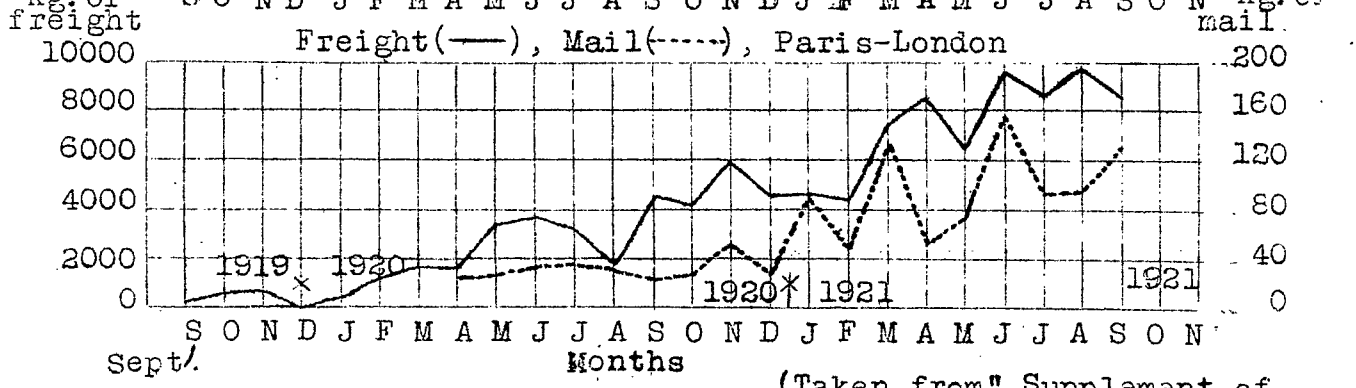
Traffic at the airport of Bourget.











(Taken from" Supplement of N°30 l'Aeronautique", Nov. 1921).

Commercial traffic of French aerial navigation companies.

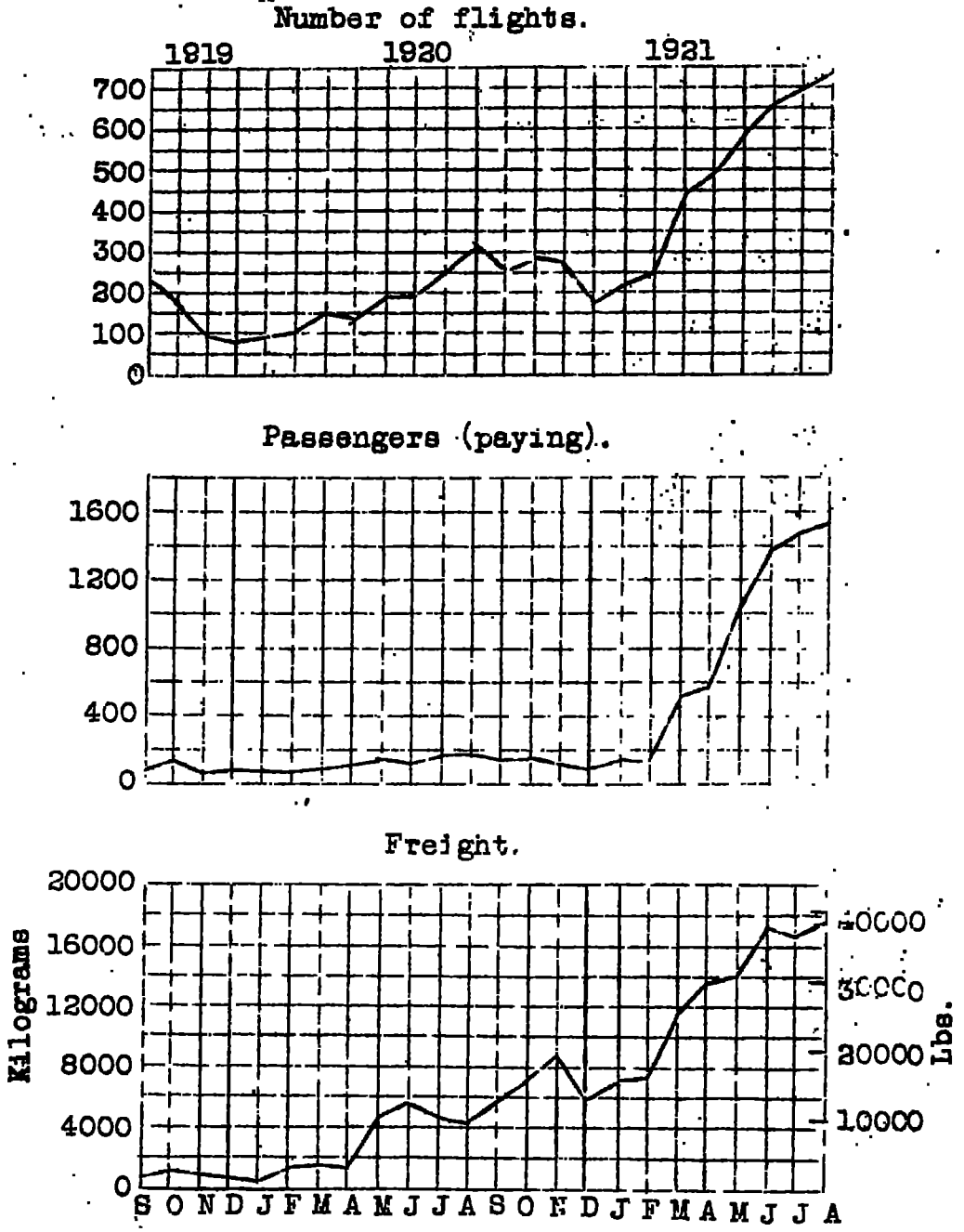
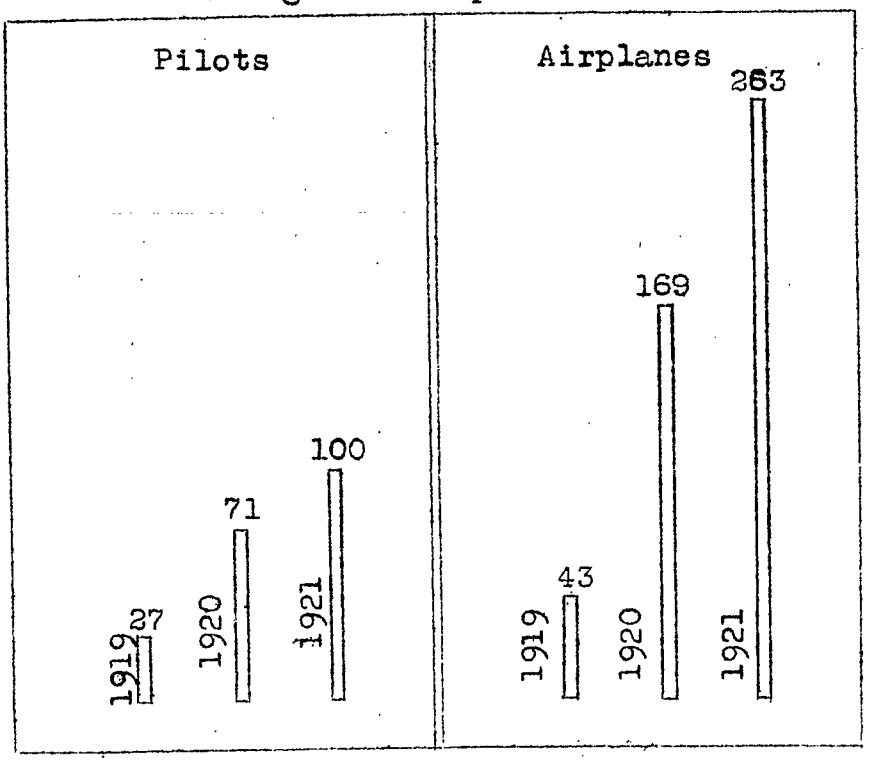


Fig. 1.

(Taken from "Premier Congres International de la Navigation Aerienne", Vol.I, p. 132)

Pilots and airplanes in service of French navigation companies.



Regularity on all aerial lines beginning or ending in France.

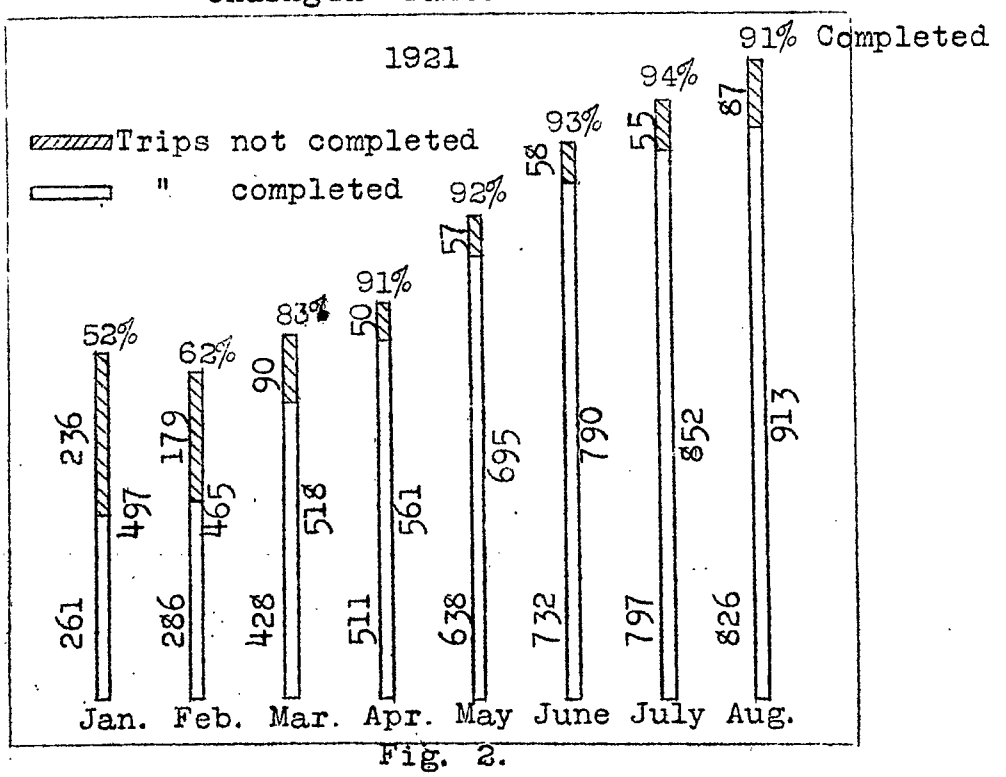


Fig. 2.

(Taken from "Premier Congres International de la Navigation Aerienne," Vol. 1, p. 132).

Germany.

COMMERCIAL AVIATION IN GERMANY.

The Konigsberg-Moscow air service on which Fokker monoplanes are used, was inaugurated on May 1. At first the service will be bi-weekly, the machines leaving Konigsberg at 9 a.m., arriving at Smolensk at 4:15 p.m., leaving Smolensk at 4:45 p.m., and arriving at Moscow 7:45 p.m. In the opposite direction the times are as follows: Moscow 6:30 a.m., Smolensk 9:30, leave Smolensk 10, arrive Konigsberg 3:15 p.m. Machines will leave Konigsberg on Sundays and Thrusdays and Moscow on Sundays and Wednesdays. The railway journey between Berlin and Konigsberg occupies 12-1/2 hours, and the flight between Konigsberg and Moscow 9 hours, giving a total of 22 hours, as compared with more than five days by train. The air mail fees are to be 8 marks for post cards and 8 marks for every 20 grammes in case of letters.

DRESDEN- BERLIN - HAMBURG.

Beginning April 1, a daily passenger, mail and freight air service was re-established on the line Dresden-Berlin-Hamburg and return; also on the line Dresden-Leipzig-Magdeburg-Hanover-Bremen and return. The trip from Bremen to Hamburg takes four and one-half hours, including a half-hour stop in Berlin. The journey to Bremen requires five hours, including 15 minute stops at Leipzig, Magdeburg, and Hanover.

The fare from Dresden to Berlin is 500 marks and from Berlin to Hamburg 650 marks. This compares with 285 marks and 387 marks respectively, for the first-class railway fare between the same points, Passage from Dresden to Leipzig is 500 marks and from Leipzig to Bremen 1,300 marks, as compared with 190 marks and 536 marks, respectively, for first-class railway fares between these points. Fifteen kilos of baggage is carried without charge, and all excess at the rate of 15 marks per kilo - Commerce reports.

(From "Aerial Age Weekly", June 26, 1922, p. 375).

COMMERCIAL AVIATION IN GERMANY.

Air Lines - 1919 to 1921.

Year	Routes	Km.
1919	Berlin-Weimar	250
	Berlin-Hamburg	260
	Berlin-Hannover-Gelsenkirchen	490
	Berlin-Swinemünde	175
	Berlin-Warnemünde	220
	Hamburg-Westerland	190
	Total Kms.	1,585
1920	Europa Nord-West-Flug	560
	Berlin-Warnemünde	220
	Berlin ab 15. IX bis Kopenhagen	180
	Hamburg-Westerland	190
	Berlin-Leipzig(Messeverkehr)	150
	Berlin-Frankfurt a.M.	450
	Berlin-Essen	490
	Total Kms.	2,240
1921	Hamburg-Rotterdam	465
	Berlin-Dortmund	435
	Berlin-Dresden	175
	Hamburg-Westerland	190
	Travemünde-Swinemünde	405
	Travemünde ab 1. IX. von Kiel	120
	Hamburg-Travemünde	75
	Berlin-Leipzig (Messeverkehr)	150
	Berlin-Breslau (Messeverkehr)	300
	Danzig-Riga-Reval	780
	Total kms.	3,095

(From "Zeitschrift fur Flugtechnik und Motorluftschiffahrt, Jan. 31, 1922).

COMMERCIAL AVIATION IN GERMANY.

Total Weights (Passengers at 75 kg. each).

Lines	1919	1920	1921	TOTALS
Berlin-Weimar	65767			65767
Berlin-Hamburg (Westerland)	39820			39820
Berlin-Hannover-Gelsenkirchen	14488			14488
Berlin-Swinemünde	15047			15047
Berlin-Warnemünde	10879	5018		15897
Hamburg-Westerland		14328	50580	64908
Europa-Nord-West-Flug		7588		7588
Berlin-Leipzig	2041	15343	16401	33785
Berlin-Frankfurt a.M.		390		390
Berlin-Braunschweig-Essen-Dortmund		889	15118	16007
Hamburg-Rotterdam			27187	27187
Berlin-Dresden			40950	40950
Travemünde-Swinemünde-Kiel			12377	12377
Hamburg-Travemünde			1278	1278
Berlin-Breslau			2	2
Danzig-Riga-Reval			78171	78171
Sonder-und Rundflüge	164784	163232	411390	739406
TOTALS	312826	206788	653454	1173068

Number of Flights.

	1919	1920	1921	TOTALS
Regular trips	2144	757	2325	5226
Special trips	1356	2141	3003	6500
TOTALS	3500	2898	5328	11726

(From "Zeitschrift fur F & M, January 31, 1922).

COMMERCIAL AVIATION IN GERMANY.

Mail (kilograms)

Lines	1919	1920	1921	TOTALS
Berlin-Weimar	10993			10993
Berlin-Hamburg(Westerland)	9305			9305
Berlin-Hannover-Gelsenkirchen	512			512
Berlin-Swinemünde	82			82
Berlin-Warnemünde	108	878		986
Hamburg-Westerland (incl. Ztg.)		3603	12405	16008
Europa-Nord-West-Flug		1248		1248
Berlin-Leipzig	605	37	656	1298
Berlin-Frankfurt a.M.		15		15
Berlin-Braunschweig-Essen-Dortmund		56	945	1001
Hamburg-Rotterdam			963	963
Berlin-Dresden			2615	2615
Travemünde-Swindmünde-Kiel			77	77
Hamburg-Travemünde			3	3
Berlin-Breslau			2	2
Berlin-Gelsenkirchen-Utrecht		167		167
Danzig-Riga-Reval			486	486
TOTALS	21605	6004	18152	45761

Parcel Post, Merchandise (kilograms).

Lines	1919	1920	1921	TOTALS
Berlin-Weimar	35424			35424
Berlin-Hamburg (Westerland)	13040			13040
Berlin-Hannover-Gelsenkirchen	6476			6476
Berlin-Swinemünde	6715			6715
Berlin-Warnemünde	646	90		736
Hamburg-Westerland			---	
Europa-Nord-West-Flug		640		640
Berlin-Leipzig	986	81	2095	3162
Berlin-Frankfurt a.M.			---	
Berlin-Braunschweig-Essen-Dortmund		8	148	156
Hamburg-Rotterdam			2224	2224
Berlin-Dresden			385	385
Travemünde-Swinemünde-Kiel			---	
Hamburg-Travemünde			---	
Berlin-Breslau			---	
Danzig-Riga-Reval			4260	4260
Sonderflüge	8858	91	828	9777
TOTALS	72145	910	9940	82995

(From "Zeitschrift fur F & M", January 31, 1922).

COMMERCIAL AVIATION IN GERMANY.

Kilometers flown on regular trips, special trips and round trips.

Lines	1919	1920	1921	TOTALS
Berlin-Weimar	203,750			203,750
Berlin-Hamburg	154,170			154,170
Berlin-Hannover-Gelsenkirschen	156,980			156,980
Berlin-Swinemünde	22,440			22,440
Berlin-Warnemünde	32,120	60,530		92,650
Hamburg-Westerland	4,500	25,560	65,640	95,700
Europa-Nord-West-Flug		63,935		63,935
Berlin-Leipzig		4,500	10,270	14,770
Berlin-Frankfurt a.M.		5,340		5,340
Berlin-Braunschweig-Essen-Dortmund		29,105	236905	266010
Hamburg-Rotterdam			129555	129555
Berlin-Dresden			86955	86955
Travemünde-Swinemünde-Kiel			32670	32670
Hamburg-Travemünde			1725	1725
Berlin-Breslau			900	900
Danzig-Riga-Reval			110615	110615
Sonder-und Rundflüge	77,738	185375	131263	394376
TOTALS	651698	374345	806498	1832541

Number of Passengers.

Lines	1919	1920	1921	TOTALS
Berlin-Weimar	258			258
Berlin-Hamburg(Westerland)	233			233
Berlin-Hannover-Gelsenkirchen	100			100
Berlin-Swinemünde	110			110
Berlin-Warnemünde	135	54		189
Hamburg-Westerland		143	509	652
Europa-Nord-West-Flug		76		76
Berlin-Leipzig	6	203	182	391
Berlin-Frankfurt a.M.		5		5
Berlin-Braunschweig-Essen-Dortmund		11	187	198
Hamburg-Rotterdam			320	320
Berlin-Dresden			506	506
Travemünde-Swinemünde-Kiel			164	164
Hamburg-Travemünde			17	17
Berlin-Breslau			---	---
Danzig-Riga-Reval			979	979
Sonder-und Rundflüge	2079	2173	5477	9729
TOTALS	2921	2665	8341	13927

(From "Zeitschrift fur F & M" January 31, 1922).

COMMERCIAL AVIATION IN GERMANY.

January - October, 1920.

Month	No. of flights	Distance flown km.	Passengers carried	Mail carried	Total load carried
January	46	7,070	17	167 kg	1,442 kg
February	103	6,660	86	---	6,450
March	220	27,855	414	---	31,050
April	60	6,565	51	---	3,825
* May	---	------	---	---	------
June	374	45,612	437	---	32,862
July	398	38,906	341	901	26,476
August	677	67,473	684	2,549	53,939
September	450	66,532	353	1,232	27,844
October	380	67,581	232	1,098	19,085

*Flight prohibited by Allies.

Comparison of
August-October, 1920 - August-October, 1919.

Time	No. of flights	Kilometers flown	Passengers carried	Mail carried	Total load carried
August-October, 1919	715	70,074	1,304	21 kg.	97,821
August-October 1920	1507	201,586	1,233	5,107 "	-----

From February 5, 1919 to October 31, 1920.

Number of flights.....6,208
Kilometers flown.....986,925
Passengers carried..... 5,536
Mail carried..... 32,402 kg.
Total load carried..... 515,800 kg.

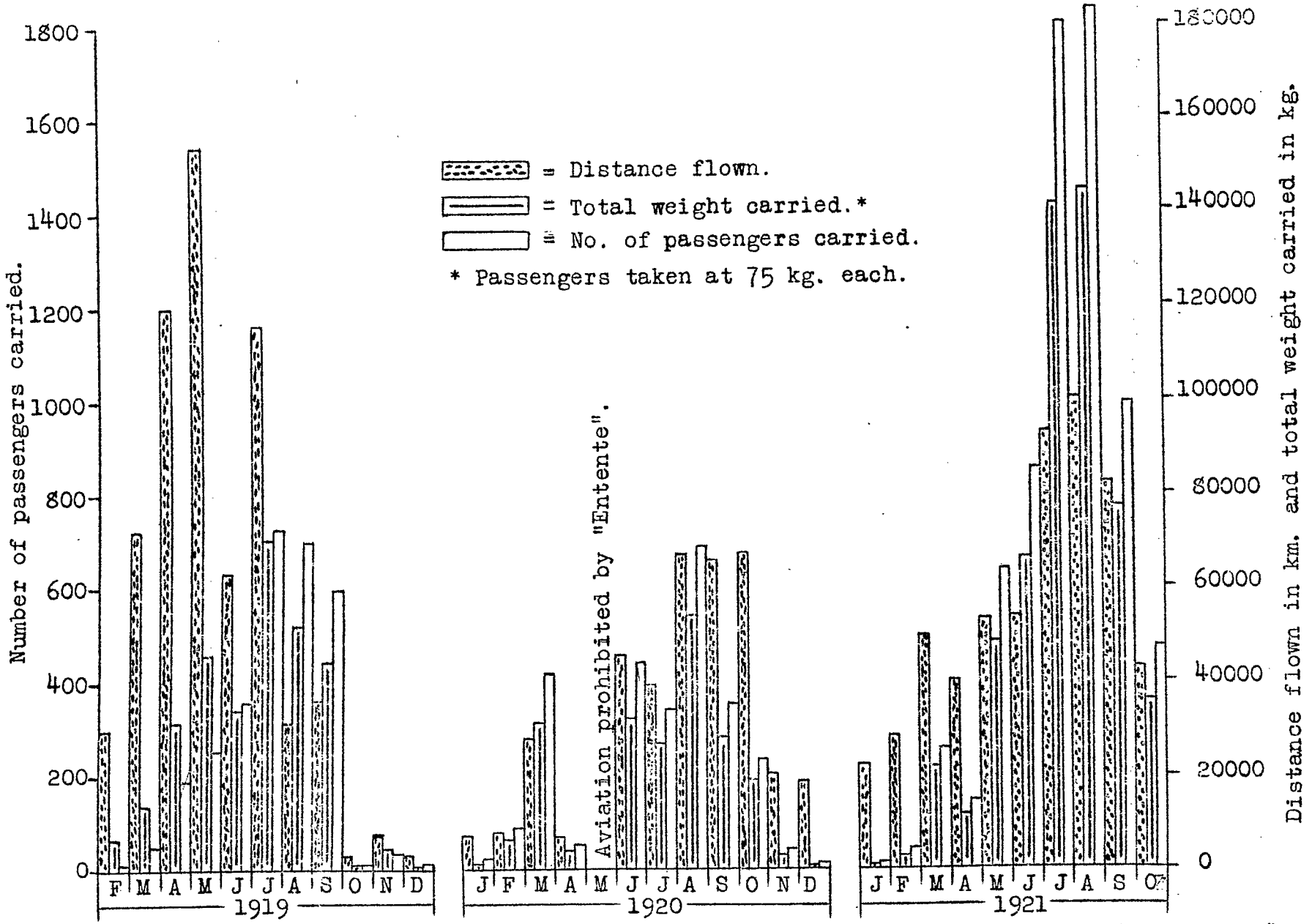
(From "Der Luftweg" Dec. 30, 1920).

COMMERCIAL AVIATION IN GERMANY.

April - October, 1921.

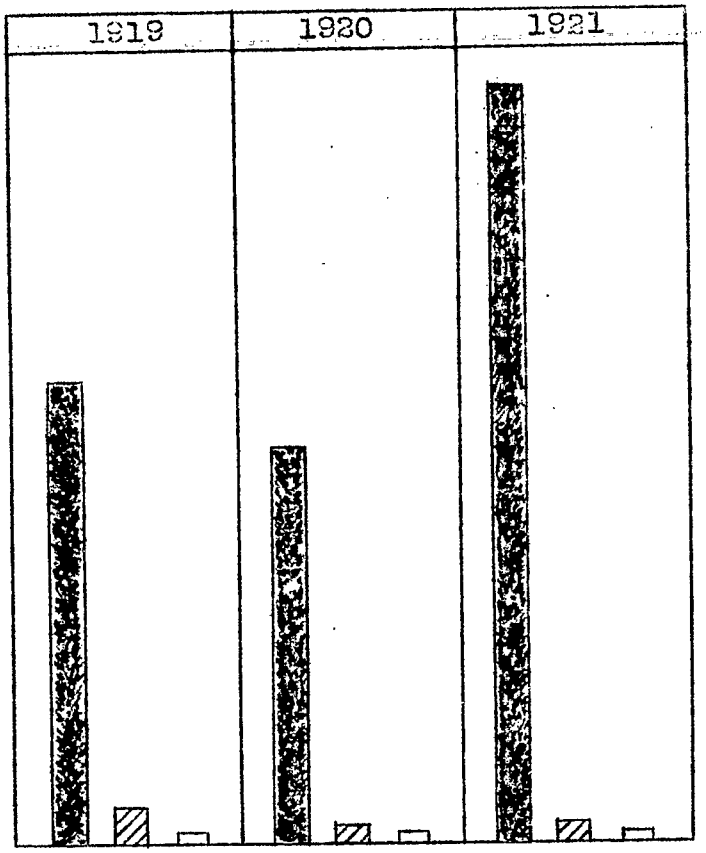
Month	Passengers	Mail kg.	Regularity (Scheduled flights).	Distance flown km.
April	400		85.9 %	
May	650		91.0	
June	790		91.3	
July	1390		92.0	
August	1730	30,710	94.4	1,654,400
September	1240		92.9	
October	620		88.4	

(Taken from Report of Controller-General of Civil Aviation, Air Ministry, London).



German Air Traffic.

Taken from Zeitschrift für Flugtechnik und Motorluftschiffahrt, January, 1922.



Completed flights

Interrupted flights

Cancelled flights

(Taken from Zeitschrift fur Flugtechnik und Motorluftschiffahrt Jan. 31, 1922.)

Great Britain.

BRITISH COMMERCIAL AVIATION. (Including Continental Services).

May 1919 - September, 1921, inclusive.

Period	Airplane flights	Airplane hours flown	Average duration of each flight	Approximate mileage	No. of passengers carried	Weight goods carried tons
April, 1921	879	309	21 min.	23,500	1,773	1.1
May, "	1,511	448	18	38,500	3,130	2.3
June, "	2,597	723	16	55,000	3,898	1.5
July, "	3,682	912	15	69,500	6,781	1.7
August, "	4,798	920	11	69,000	9,609	1.1
September"	3,715	838	14	66,000	6,662	1.3
May 1919 to Sept. 1919	31,250	6,566	12	460,300	58,132	20.2
Oct. 1919 to March, 1920	6,571	3,061	28	231,600	9,808	25.8
April 1920 to Sept. 1920	20,658	8,200	24	689,600	32,345	86.5
October 1920 to March 1921	5,496	2,626	28	212,200	10,103	38.0
April 1921 to September 1921	17,180	4,150	14	321,500	31,853	9.0
May 1919 to September 1921 TOTAL....	81,155	24,603	18	1,915,200	142,241	179.5

(From "Half-Yearly Report on the Progress of Civil Aviation, April 1 - September 30, 1921, Air Ministry, London").

COMMERCIAL AVIATION IN ENGLAND.
January 1, 1921 - October 30,1921.

Route	Distance in mi..	No. of trips	Passengers arrived.	Trips carrying mail.
Paris-London.....	233	1141	4581	435
London-Paris.....	233	1110	4521	317
London-Brussels...	210	260	298	148
Brussels-London...	210	226	353	177
London-Amsterdam..	265	176	200	160
Amsterdam-London..	265	175	275	164
TOTAL		3,088	10,228	1,401

(Continued)

Route	Trips carrying express matter.	Trips completed to schedule	Percent of trips completed
Paris-London.....	787	1021	90
London-Paris.....	407	1033	93
London-Brussels....	153	243	93.5
Brussels-London....	173	201	89
London- Amsterdam..	166	167	95
Amsterdam- London..	147	162	93
TOTAL...	1,833	2,827	91.5

(From "Aerial Age Weekly", March 27,1922).

May 1, 1919 - September 30, 1921

The British Air Ministry's report for the six months ended September 30,1921, just received by the Dept. of Commerce from Consul Reed at London shows that fewer passengers and less tonnage were carried by air in the summer of 1921 than in the two preceding summers. From the standpoint of the number of passengers carried, the period from the inauguration of commercial flying on May 1, 1919,to Sept. 30, 1919, was the most active, although most of these were local flights. In the number of cross-channel passengers carried, the six months period just ended ranks first.

The following table summarizes the performance of British commercial air services for the periods specified:

Period	Total Passengers	Cross-Channel Passengers	Tons of Freight
May - September, 1919.....	58,132	.....	20.2
October 1919 - March 1920....	9,808	.....	25.8
April - September, 1920.....	32,345	4,697	86.5
October 1920 - March, 1921...	10,103	2,023	38.0
April - September, 1921.....	31,853	8,531	9.0
TOTAL....	142,241	15,251	179.5

During the summer of 1921, passenger traffic reached its height in August, when 9,609 persons were carried, of which 2,021 were cross-channel passengers, mainly residents of Great Britain and France.

Subsidies amounting to £200,000 per year, now paid by the British Government to provide a regular air service between London and Paris will be continued for some months. A permanent scheme of subsidies is contemplated, however, and it is now proposed that the government shall pay to certain approved British firms operating a cross-channel air service with British airplanes and engines a subsidy of 25 per cent of their grss earnings, and that the Air Ministry shall provide a portion of their air fleet on a hire purchase basis at less than cost price. Besides this, it is proposed to grant an additional £3 per passenger and 3d. per lb. of freight for the year ending February 28, 1923, and a contribution of 50 per cent of the cost of insurance, up to 10 per cent of their value, for airplanes provided by the Air Ministry.

During the past year certain features of air navigation have been more or less standardized. All British airplanes operating on cross-channel routes are now fitted with wireless apparatus, and under the new Air Navigation order this will be made compulsory for all airplanes capable of carrying 10 or more passengers. The stations at Croydon and Pulham have been provided with wireless direction finding stations which work together and enable aircraft to ascertain their positions. Experiments are being made with various pyrotechnic devices and colored searchlights for directing aircraft to airdromes in fogs or mists.

(From "Aerial Age Weekly"
March 3, 1922).

COMMERCIAL AVIATION- SAFETY IN AIR TRAVEL.

The "Illustrated London News" devotes an entire page in its issue of April 22, to a graphic chart showing the extent to which commercial aviation was operated between England and the Continent during the years 1920 and 1921. From this chart the following pertinent data is obtained:

Continental Flights.

Registry	No of flights.		No. of passengers	
	1920	1921	1920	1921
British	2,854	993	5,799	5,256
French	657	1,565	486	4,352
Belgian	104	421	98	630
Dutch	5	366	0	480
Others	0	---	0	13
GRAND TOTAL	3,620	3,345	6,383	10,731

Goods Transported by Air: (British)

Imported, 1920 .....£677,047
Imported, 1921.....£375,474
Exported, 1920.....£351,765
Exported, 1921.....£195,826

British.

Year	Total no.of passengers carried	No. of miles flown.	Killed	Injured
1920	42,396	546,400	14	15
1921	42,680	452,000	3	6

1920 - Total no. of flights.....26,803
1921 - Total no. of flights.....23,152

(From "Aviation", June 19, 1922)

Holland.

COMMERCIAL AVIATION IN HOLLAND.

The following information has been received through the Department of Overseas Trade, dated "The Hague", Febr.14, 1922.

Preliminary returns have been published recently of the traffic on the Koninkiljko Luchtvaart Maatschappij air lines for the year 1921, as follows:

Route	No. of Passengers carried.	Goods kg.	Mails kg.
Amsterdam-London	489	24,874.5	842.9
Rotterdam-Hamburg	254	2,617.6	358.5
Amsterdam-Brussels-Paris	931	11,141.4	346.2
TOTAL, 1921	1,674	38,633.5	1547.6
TOTAL, 1920	345	21,963	2,962

(From "Controller-General of Civil Aviation, Resume of commercial information, March 6, 1922).

Italy.

COMMERCIAL AVIATION IN ITALY.

A report just received giving the official record of the activities of the Civil Aerial Transportation Company S.A.I.A.M. (Societa Anonima Imprese Aeree Milano) from its organization on June 1, 1920, to November 30, 1921, shows that during this entire period a total of 4,194 passengers were carried without accident, the actual flying time being 1309 hours and 40 minutes. Strange as it may seem, a comparison of the figures for 1920 and 1921 shows that there was a falling off in traffic during the latter year. During the period from June 1 to November 30, 1920, the hours of flight totalled 777, and the number of passengers carried was 2,316, while for the same period during 1921 the hours of flight totalled 311-1/2, and the number of passengers carried was 903, As a matter of fact, the figures for the six months from June to November 1920, given above, were greater than the figures for the ten months in 1921, since in this latter period the hours of flight totalled 532-2/3 and the number of passengers carried was 1878. There was no flying during the month of December, 1920, and January and December, 1921, due to unfavorable atmospheric conditions.

The above company is in operation at the airdromes of Aroore, Erba Incino, Taliedo and Centocelle, and at its seaplane stations at San Remo, Pallanza and Schiranna. The aerial operations by months during the years 1920 and 1921 shows the following:

Month 1920	Hours of Flight	Passengers
June	96 hrs. 45 min.	365
July	101 " 35 "	591
Aug.	160 " 12 "	453
Sept.	173 " 30 "	320
Oct.	125 " 45 "	374
Nov.	119 " 13 "	213
Dec.	No activites	---
TOTAL	777 hrs	2,316

Month 1921	Hours of Flight	Passengers
Jan.	No activities	-------
Febr.	90 hrs. 10 min.	238
Mch.	37 " 30 "	123
Apr.	45 " 20 "	217
May	48 " 10 "	397
June	34 " 15 "	120
July	58 " 0 "	170
Aug.	67 " 35 "	195
Sept.	50 " 20 "	187
Oct.	37 " 45 "	88
Nov.	63 " 45 "	143
Dec.	No activities	---
TOTAL	532 hrs. 40 mins.	1,878

(From "Air Service News Letter, May 3, 1922).

United States

General
Aeromarine Airways
Air Mail Service.

COMMERCIAL AVIATION IN THE UNITED STATES.

Commercial aircraft in 1921 definitely began the demonstration of practical utility. More miles were flown, more paid passengers booked and more package freight and goods carried.

Comparative Commercial Aircraft Operations, 1920 - 1921.

	1920	1921
Estimated number of aircraft in operation	1,000	1,200
Estimated total mileage.....	6,000,000	6,250,000 to 6,500,000
Operating companies reporting.....	88	125
Equipment of these companies.....	365-425	500-600
Mileage flown by these companies.....	3,136,550	*2,907,245
Number of passengers carried.....	115,163	122,512
Pounds of freight carried.....	41,390	123,227
Number of flights by operating companies.	Unknown	130,736
Average duration of flight.....	Unknown	21 min.
Average charge for short flights.....	$12.50	$9.00
Average charge per mile for inter-city flights.....	.65	.55
Average charge per pound for freight.....	Unknown	.33
States in which operations were carried on.....	32	34
Air terminal facilities.....	128	146

*Decrease explained by less free and more paid flights.

Approximately one-half the equipment was controlled by established organizations, the other half being in the hands of the gypsy flier. It being known that the operators at fixed points covered approximately 3,000,000 miles, carrying about 122,500 passengers, it is estimated that, all told, rather more than 250,000 persons flew and that, counting the wanderings of the gypsy, 6,500,000 miles were compassed by commercial aircraft during the year.

(From "Automotive Industries," June 1, 1922).

COMMERCIAL AVIATION IN THE UNITED STATES.

The following is an extract from the First Annual Report of the Aeromarine Airways on commercial aviation operations. The services maintained include:

Key West - Havana,
Florida - Bahama Islands,
New York - Atlantic City - New England ports,
New York Sight Seeing,
New York - Albany,
Great Lakes Region,
Mississippi River Valley.

October 27, 1920 - October 27, 1921.

Passengers Carried	6,814
Miles flown	95,020
Accidents	NIL
Mail and Freight (lbs)	29,002

Total number of seaplanes in use - 15.

6 - 11-passenger (F5L type)
6 - 5-passenger (HS2L type)
3 - 3-passenger (Aeromarine).

(From "First Annual Report of the Aeromarine Airways",).

AEROMARINE AIRWAYS STATISTICS.

Aeromarine Airways have just furnished the Bureau of Aeronautics, Navy Department, their second half-yearly report on the operations of their seaplanes in the commercial transportation of passengers and merchandise in Southern waters. The report which covers the period commencing November 15, 1921 and ending March 15, 1922, shows that out of 740 flights undertaken according to schedule all but five were completed, the defaulted flights being due to weather conditions, the seaplanes in these cases returning to their starting point. The total number of passenger miles covered in these flights is 268,535 and the total number of hours flown 640. Not a single passenger or employee was injured during these flights. The types of seaplanes used in these operations were the 11-passenger F5L, the 5-passenger HS2L, and the three-seater Aeromarine Model-50.

The following tabulation gives the details of the operations carried out by the Aeromarine Airways for the period indicated:

November 15, 1921 - March 15, 1922.

Routes	No. of flights
Key West-Havana	171
Key West-Miami	49
Miami-Bimini	91
Miami-Nassau	49
Miami-Palm Beach	16
Miscellaneous	359

Total number of flights	735
Flights defaulted	5
Hours flown	640
Passenger-Miles	268,535

These figures added to those of the first annual report of commercial flying operations submitted to the Navy Department on November 12, 1921, show that in the operations of the Aeromarine Airways seaplanes have flown an aggregate distance of over 150,000 miles, and have carried a total of 10,700 passengers without a single mishap.

(Taken from "Aviation", April 24, 1922).

AIR MAIL SERVICE STATISTICS.

May 15, 1918 - June 30, 1921.

Month	Miles flown with mail	Percentage of Performance	Pounds of mail	Cost of service
1918				
May.....	5,324	78.87	4,750	$ 3,682.11
June.....	10,685	94.97	13,081	9,922.71
July.....	11,855	97.57	16,967	10,001.46
August....	11,984	99.96	16,588	9,555.67
September.	10,900	100.00	15,200	9,638.74
October...	11,617	98.68	16,788	9,841.76
November..	11,118	93.07	16,854	10,673.68
December..	8,415	77.23	17,778	13,300.46
1919				
January....	9,653	82.00	18,105	13,741.58
February...	9,307	88.18	15,489	13,645.16
March.....	10,699	92.59	17,531	13,880.39
April	11,105	95.06	16,677	13,516.44
May.....	22,578	96.92	26,627	17,715.66
June.....	30,835	99.53	35,647	30,891.62
July.....	56,577	96.04	48,704	41,134.38
August....	58,022	98.43	56,870	40,614.59
September.	56,308	98.60	55,668	34,861.53
October...	50,437	86.27	55,095	35,609.03
November..	41,757	86.61	54.084	31,127.58
December..	35,788	73.61	41,246	33,909.86
1920				
January...	33,952	69.83	43,125	52,551.66
February..	32,647	71.02	37,242	46,004.12
March.....	37,861	77.25	42,361	44,785.71
April.....	41,890	86.16	42,066	55,343.40
May.....	54,138	90.72	51,112	57,004.93
June.....	49,867	69.74	59,005	80,209.43
July.....	69,140	96.69	68,401	85,993.59
August....	73,456	92.42	73,140	73,026.93
September.	105,847	73.84	91,150	108,751.76
October...	123,274	79.68	89,541	123,618.68
November..	114,750	73.50	87,302	121,501.18
December..	127,306	71.21	89,942	131,205.96

(Continued on next page)

Month	Miles flown with mail	Percentage of Performance	Pounds of mail	Cost of service
1921				
January...	132,679	77.18	84,435	$ 136,488.61
February..	130,431	81.90	88,135	131,855.43
March.....	171,593	92.42	110,117	152,442.37
April.....	171,156	95.73	117,778	147,890.64
May.....	168,397	97.96	115,073	125,754.74
June.....	166,956	99.00	105,838	127,479.83
July.....	130,555	99.31	77,276	109,799.11
August....	134,549	98.22	84,680	106,986.98
September.	125,914	98.59	88,401	102,998.45
October...	138,759	99.05	99,057	122,205.51
November..	117,529	89.36	93,519	117,417.83
December..	125,416	88.17	101,198	118,264.70
TOTAL..	3,053,026	87.96	2,499,643	$ 2,876,845.64

(From "Consolidated statement of Performance of Air Mail Service, from May 15, 1918 - December 31, 1921)

Miscellaneous.

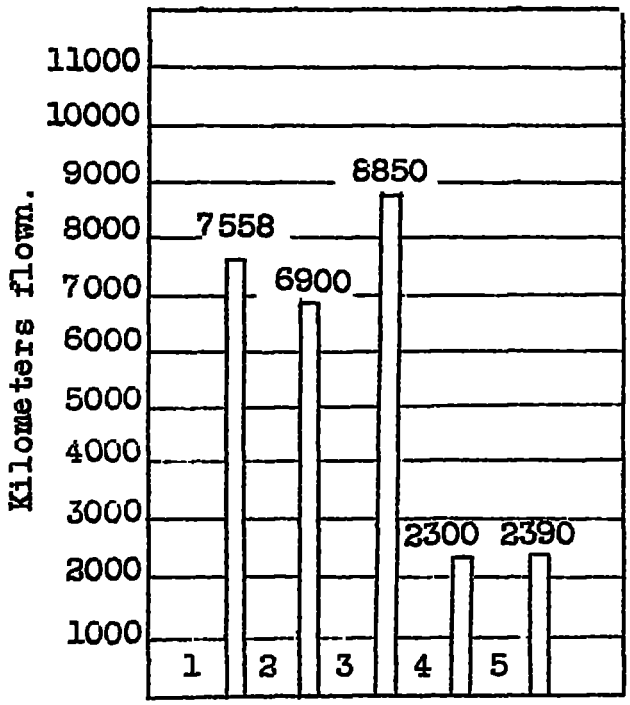
ACTIVITIES OF WORLD AIR TRAFFIC, 1931.

Mileage of Routes	Miles	Kilometers
10 French lines, 5 Colonial lines.....	4,694	7,558
U.S. Postal Service.....	5,496	8,850
Great Britain and Colonies.....	1,428	2,300
Belgium and Congo Belgium.....	1,484	2,390

Distance flown on routes	Miles	Kilometers
French and Colonial lines.....	2,080,350	3,350,000
U. S. Postal Service.....	1,552,500	2,500,000
Great Britain and Colonies.....	436,874	703,500
Belgium and Congo Belgium.....	190,274	306,400

(From "Bulletin de Federation Aeronautique Internationale," March 1932).

Aerial traffic of the principal aeronautic nations in 1921.



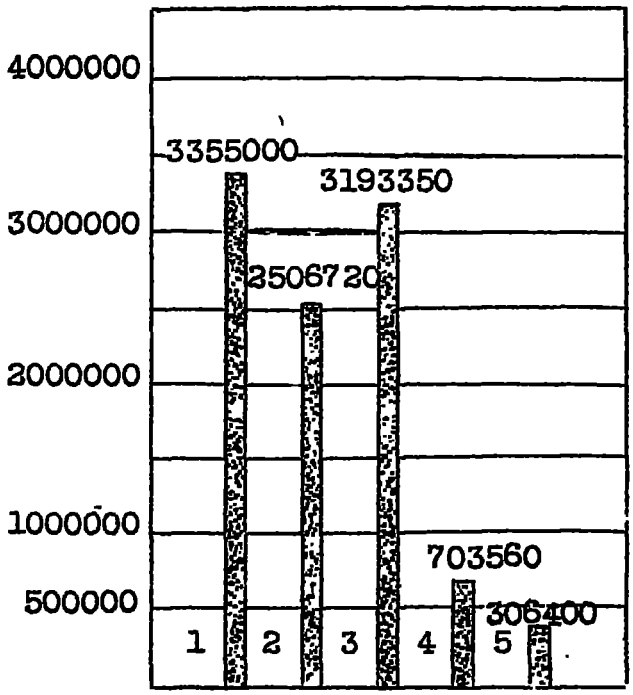
1 10 metropolitan lines, 5 colonial lines.

2 15 lines, on at least 7 of which the service was very irregular.

3 Government postal service only.

4 Great Britain, dominions and colonies.

5 Belgium and the Belgian Congo.



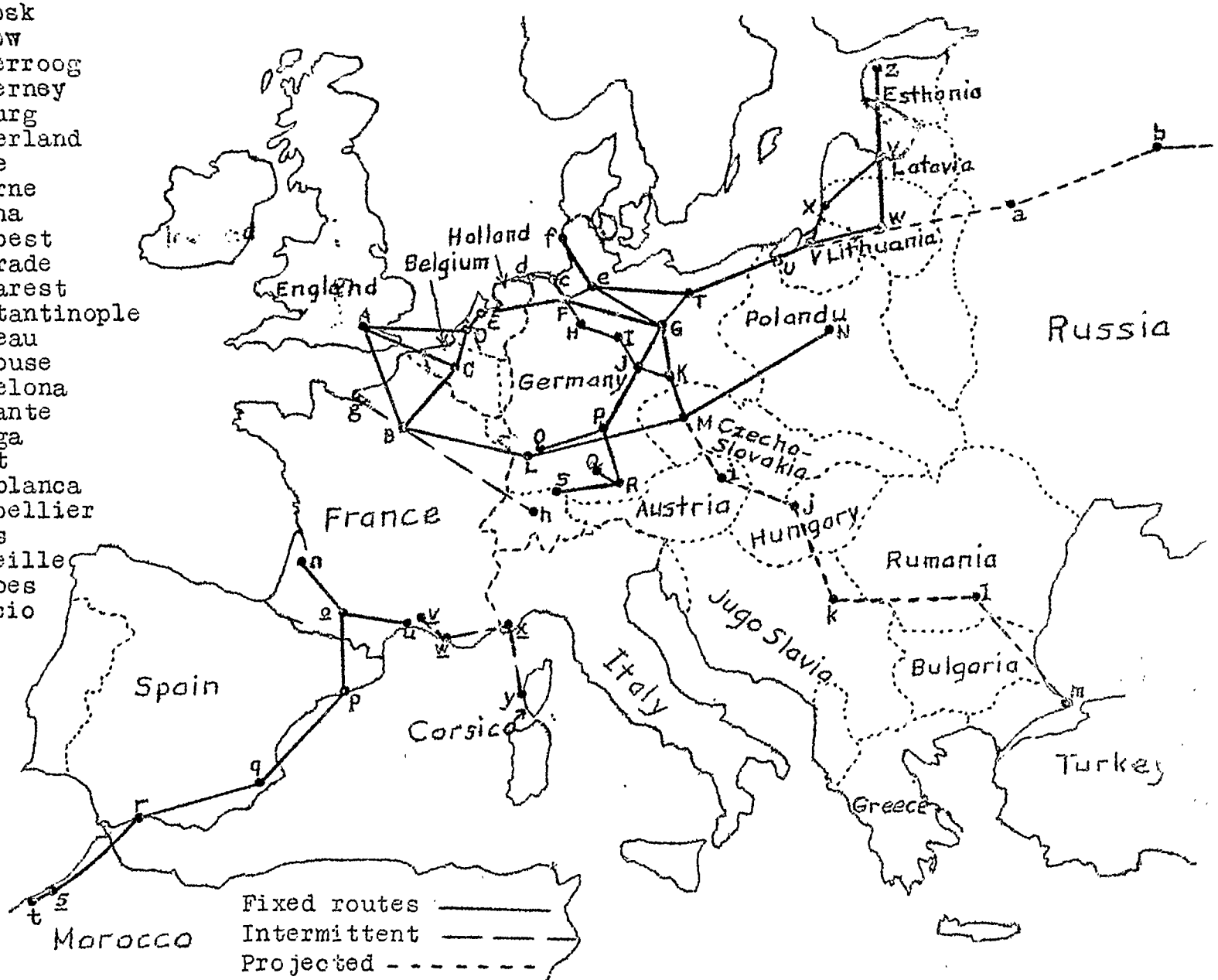
No. of km. flown on regular air lines (up to Oct. 31, 1921).

The index of traffic efficiency (No. of times total distance was covered during the year) is 440 for France, 363 for Germany, 360 for U.S.A., 305 for Great Britain and 128 for Belgium.

(Taken from "Ephémerides de l'Aéronautique," Jan. 1, 1922).

A-London
B-Paris
C-Brussels
D-Rotterdam
E-Amsterdam
F-Bremen
G-Berlin
H-Hanover
I-Magdeburg
J-Leipzig
K-Dresden
L-Strassburg
M-Prague
N-Warsaw
O-Stuttgart
P-Nuremburg.
Q-Augsburg
R-Munich
S-Constance
T-Stettin
U-Danzig
V-Konigsberg
W-Kovno
X-Memel
Y-Riga
Z-Reval

a-Vitebsk
b-Moscow
c-Wangerroog
d-Norderney
e-Hamburg
f-Westerland
g-Havre
h-Lucerne
i-Vienna
j-Budapest
k-Belgrade
l-Bukharest
m-Constantinople
n-Bordeau
o-Toulouse
p-Barcelona
q-Alicante
r-Malaga
s-Rabat
t-Casablanca
u-Montpellier
v-Nimes
w-Marseille
x-Antibes
y-Ajaccio



Existing and proposed passenger airplane routes in Europe.

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