LEAGUE OF NATIONS

ORGANISATION FOR COMMUNICATIONS AND TRANSIT

ENQUIRIES INTO THE ECONOMIC, ADMINISTRATIVE AND LEGAL SITUATION OF INTERNATIONAL AIR NAVIGATION

GENEVA, 1930

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LEAGUE OF NATIONS

ENQUIRIES INTO THE ECONOMIC, ADMINISTRATIVE AND LEGAL SITUATION OF INTERNATIONAL AIR NAVIGATION

Errata

Page 30. — Title of Chapter II, for "*Present Characteristics and Efficiency of Air Transport*", read "Characteristics and Present Efficiency of Air Transport".

Page 46. — The Note 1 referred to in the eighth paragraph is on page 68.

Page 51. — The Note 2 referred to in the eighth line is on page 69.

Page 67. — In the last line, after "Swedish *A.B.A.*", add "or the Swiss *Balair*".

Page 68. — First line of second paragraph, for "*Year-Book for Great Britain*", read "Air Annual for the British Empire".

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LEAGUE OF NATIONS

ORGANISATION FOR COMMUNICATIONS AND TRANSIT

ENQUIRIES INTO THE ECONOMIC, ADMINISTRATIVE AND LEGAL SITUATION OF INTERNATIONAL AIR NAVIGATION

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Lo sviluppo del traffico aereo ha fatto in questi ultimi cinque anni dei passi giganteschi. I cieli d'Europa sono solcati da numerose linee che congiungono i grandi centri e uniscono al disopra delle frontiere, come una linea ideale, tutti i popoli.

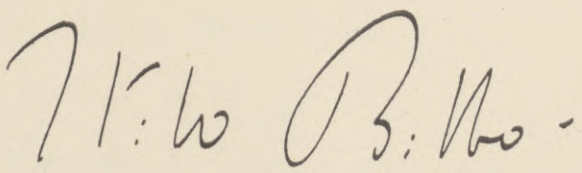
Secondo me il segreto dello sviluppo e del consolidamento dell'aviazione civile sta sopratutto nella sicurezza : più che aumentare il numero delle linee in Italia abbiamo atteso in questo ultimo tempo al perfezionamento delle garanzie di sicurezza, al perfezionamento del personale e del materiale con un aumento di frequenze su alcune linee principali. Insisteremo su questo metodo che ci ha dato finora degli ottimi risultati.

Tutti sanno che le linee civili europee sono sovvenzionate in tutti gli Stati : perchè divengano redditizie occorreranno ancora vari anni di lavoro e di perfezionamenti, di selezione e di sana propaganda che si ottiene più coi fatti che con gli scritti.

Perchè l'aviazione commerciale si sviluppi nei riguardi internazionali, ritengo che sia indispensabile l'adozione da parte di tutte le Nazioni, del criterio di una effettiva collaborazione aerea che semplifichi le norme vigenti che ancor oggi ne intralciano lo sviluppo. A questo criterio deve ispirarsi la legislazione aerea internazionale.

Solo a queste condizioni l'aviazione civile potrà prendere in Europa quell'impulso e quello sviluppo che tutti auspichiamo.

Roma, il 30 giugno 1930.



[*Translation.*]

Air traffic has made enormous strides during the past five years. A network of air lines connecting all the large centres has now been marked out on the skies of Europe, and forms an ideal link between all nations, regardless of frontiers.

In my opinion, the secret of the development and consolidation of civil aviation lies, above all, in increasing safety. In Italy recently, we have concentrated on adding to the guarantees of safety, improving personnel and material, and establishing a more frequent service on some of the principal lines, rather than on increasing the number of lines. We shall adhere to this method, which has, so far, yielded excellent results.

It is a well-known fact that civil aviation is subsidised in every European country. Several years' work and various technical improvements, as well as the careful recruiting of personnel and judicious propaganda, which calls for action rather than words, will be necessary before it becomes a paying proposition.

For the development of commercial aviation on international lines, I consider that all nations should adopt the principle of effective co-operation in air navigation, with a view to simplifying the existing regulations by which it is still hampered. It is on this principle that international legislation in the sphere of air navigation should be based.

Only on these conditions can civil aviation in Europe progress as rapidly as we all desire.

Rome, June 30th, 1930.

(Signed) Italo BALBO.

MIT dem überaus günstigen Verlauf der in der letzten Zeit unternommenen Weltflüge dürfte, wie wir annehmen, der Beweis als erbracht gelten, dass die Luftschiffahrt berufen ist, grosse Aufgaben auf dem Gebiete des Passagierverkehrs und der Postbeförderung zu übernehmen, namentlich wenn es sich darum handelt, ganz grosse Entfernungen zu überbrücken. Die Begeisterung, mit der die Luftschiffe überall auf ihrem Flug und bei der Landung in fremden Ländern begrüsst wurden, redet eine eindringliche Sprache ; sie beweist, dass der Luftverkehr die Völker einander näher bringen muss, weil ihnen Gelegenheit geboten wird, auch fremde Leistungen anzuerkennen und ihren grossen Wert für die gesamte Kulturmenschheit zu verstehen.

Will man allerdings einen Luftschiff-Weltverkehr organisieren, so muss man entsprechende Abmachungen zwischen den einzelnen Staaten herbeiführen und dabei ihren berechtigten Bedürfnissen Rechnung tragen. Das lässt sich aber nur dann ermöglichen, wenn sich der Ausbau des Luftfahrwesens in einer Atmosphäre des Wohlwollens und nicht etwa des Misstrauens vollzieht.

Man kann es daher nur mit Genugthuung begrüssen, wenn sich Kräfte dafür einsetzen, eine möglichst enge Zusammenarbeit zwischen den verschiedenen Ländern auf dem Gebiete der Zivilluftfahrt zu gewährleisten. Solche Kräfte werden den Ausbau des internationalen Luftfahrwesens tatkräftig fördern. Nur wenn sich die Völker in vertrauensvoller Zusammenarbeit finden, wird die Menschheit der erhofften Segnungen der ständig fortschreitenden Technik bald teilhaftig werden.

Friedrichshafen, den 8. März 1930.

Hugo Eckener

[*Translation.*]

As a result of the success of the world flights recently undertaken, we think it can be regarded as proved that air navigation is destined to render valuable services in the sphere of passenger traffic and mail carrying, especially when great distances have to be covered. The enthusiasm with which airships have been greeted everywhere in foreign countries, both when flying and upon landing, emphatically demonstrates that air traffic is likely to bring the peoples nearer together by affording them an opportunity of appreciating foreign achievements and of understanding the value of these achievements to civilised humanity.

If, however, a worldwide air traffic is to be organised, suitable agreements must be concluded between the individual States, taking into consideration their legitimate requirements. But this will only be possible if air traffic develops in an atmosphere of goodwill and not one of mistrust.

One cannot, therefore, but greet with great satisfaction all efforts which are made to ensure the closest possible co-operation between the different countries in the sphere of civil aviation. Such efforts will powerfully assist the development of international air navigation. Only when nations work together in trustful co-operation will humanity be able to share in the benefits which may be anticipated from the new improvements continually being achieved in the technical field.

Friedrichshafen, March 8th, 1930.

(Signed) Dr. Hugo Eckener.

AVIATION must be considered from an international standpoint. An ability to cover great distances in a relatively short time makes it a leading factor in world intercourse.

Every advance in transportation has stimulated commerce and brought people into closer contact with each other. One after another the fears and prejudices of isolation have been overcome as methods of communication and transport improved. Aviation, with its great speed and freedom of movement, is too powerful an instrument of progress to be long confined by the remaining artificial restrictions left over from an age of provincialism. Constructive thought is turning more and more toward international co-operation, and nothing is more important in this field than the simplification of communication and intercourse at the present time. While the world's air lines are in the formative stage in their development, much can be done to encourage their progress and to avoid unnecessary complications in the future.

There is great need for international co-operation in the standardisation of airways. A uniform system of markings and signals should be decided upon and a comprehensive meteorological and radio reporting system established.

The adoption of uniform regulations is of the utmost importance. In some countries to-day, aircraft are placed in the same class as ocean steamers, and must go through a similar procedure in clearing. As a result, clearance charges are high, and delays often comparatively long in relation to time spent in actual travel. There are instances where only aircraft

registered within a country and carrying its markings are allowed to operate; others where it is required that a native pilot be carried; in certain countries a visiting pilot must qualify for a licence before he is permitted to fly. Numerous and complicated papers are often required where careful study would make most of them unnecessary. Lack of uniformity is so great that it is at times impossible for a private flier to obtain accurate information regarding the regulations he will encounter on an international trip without unreasonable effort and delay.

The intelligent consideration of these and many other problems confronting aviation at the present time will be of untold assistance in the development of international air commerce.

Aviation does not concern one nation alone. Its ultimate value lies in bringing the various countries of the earth into closer contact. It is not possible to develop air transport and communication in its broadest aspect without the co-operation of the entire world.

New York, July 5th, 1930.

Charles A. Lindbergh

CONTENTS.

PRESENT ECONOMIC CONDITIONS OF CIVIL AIR NAVIGATION

By

M. Henri BOUCHÉ,

Editor of L'Aéronautique, *Paris.*

CONTENTS.

Observation.

We cannot guarantee the figures given below. All these numerical data are the result of compilations, comparisons, analyses and, sometimes, suppositions, the general accuracy of which must be accepted *a priori*. We crave the reader's indulgence for any mistakes that may occur, and would be grateful if these were pointed out to us.

Chapter I.

THE PLACE OF AIR TRANSPORT IN THE ECONOMIC ORGANISATION OF THE WORLD.

A. Some European Facts and Figures.

1.

In France, from 1920 to 1929 inclusive, aeroplanes or seaplanes belonging to the subsidised air lines travelled 45,735,960 kilometres, conveying 124,792 passengers, 6,990 tons of parcels, and 995 tons of postal matter.

If this freight is reckoned as an element in the kilometres travelled by each passenger or each consignment, and if we assume that twelve passengers with luggage weigh a ton, the traffic figures in *kilometre-tons* are as follows :

7,229,400	kilometre-tons	representing	passengers ;
3,069,000	»	»	parcels ;
1,518,000	»	»	postal matter ;

Total... 11,809,400 *kilometre-tons :* 607,397,000 francs of direct subsidies being paid to the companies. This works out at 51 *francs per ton conveyed over one kilometre.* (See Table III and Graph 4, Chapter III.)

Over a distance of 1,000 kilometres, like Paris-Berlin or Paris-Prague, the whole of the French aeroplanes and seaplanes would have carried *per day, from* 1920 *to* 1929, 16 passengers, 840 kilogrammes of parcels, and 416 kilogrammes of postal matter. This average quantity calculated over ten years is, of course, lower than the most recent figures ; for 1929, the daily load would have been 34 passengers, 2,430 kilogrammes of parcels, and 860 kilogrammes of postal matter.

The resources employed by the companies to obtain this result (staff and material) amounted, in 1929 (see Table I, page 8), to :

Direction and administration.	817 persons
Mechanics, workmen, maritime services	1,955 persons
and 133 pilots, with 363 aeroplanes and seaplanes.	

Table I. — Staff and Material of French Companies in 1928 and 1929.

Companies	Kilometrage of air lines		Machines in service		Pilots		Direction and administration		Mechanics, workmen and miscellaneous	
	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929
Air Union..	2,321	2,593	40	41	20	24	105	131	236	312 [1]
Compagnie générale aéropostale	16,650 [2]	16,650 [2]	125	200	77	49	170	376	875	1,130 [3]
C.I.D.N.A.	4,119	4,119	55	75	35	41	232	232	333	405
S.G.T.A....	1,378	2,333	24	37	10	12	43	54	55	74
Air Union Eastern lines	3,254	3,254	1	9	3	7	24	24	34	34
Total..	27,722	28,949	245	362	145	133	574	817	1,533	1,955

[1] Including 26 for the Maritime Rescue Service.
[2] Including 2,320 kilometres by despatch-boat.
[3] Including 292 for the Despatch-boat Service to Dakar-Natal.

2.

In Germany, where commercial aviation has absorbed all the aeronautical resources of a country in which military aviation is prohibited, approximately 200 aeroplanes covered, in 1928, on the regular lines, 11,500,000 kilometres, carrying 120,000 passengers for average distances of 235 kilometres. These were maximum results, coinciding with maximum subsidies (see Table II and Graph 2, Chapter III).

3.

Between the Continent of Europe and London, the annual number of passengers crossing the Channel by aeroplane rose from 6,500 in 1920 to over 48,000 in 1929, or more than 130 per day on an average, and more than 500 on certain days in summer. This increase is continuing at a still more rapid rate.

4.

The importance of aerial transport is clearly shown by the value of the goods exported or imported by the great Customs airports.

For London-Croydon, in 1928, this value has been estimated at 375 million francs (15 million dollars), of which two-thirds refer to imports.

For Paris-Le Bourget the increase from 1921 to 1929 is shown in Table II below, which does not include imports of gold. (These amounted to 45,267,000 francs in 1928 and 3,320,956,800 francs in 1929.)

Table II. — Goods Imported and Exported by the Airport of Paris-Le Bourget.

Year	Value of goods	
	Exported	Imported
	(French francs)	(French francs)
1921	16,070,000	7,945,000
1922	29,646,000	12,262,000
1923	68,848,000	16,843,000
1924	89,090,000	37,238,000
1925	125,736,000	64,555,000
1926	189,893,000	100,694,000
1927	148,430,000	127,775,000
1928	297,286,000	165,483,000
1929	340,182,000	162,314,000

This traffic of *half a milliard francs* in 1929 forms but a small part of the total Parisian traffic ; none the less, it represents 6 *to* 7 *per* 1,000 of the total French exports, and 2 *to* 3 *per* 1,000 of imports.

5.

The traffic of the airports is significant in itself ; our graphs (Figures 1 to 4) show its comparative growth for Berlin-Tempelhof and Paris-Le Bourget. For the latter port the numerical progress is summarised below (Table III).

Table III. — Traffic of the Airport of Paris-Le Bourget.

Year	Machines (units)	Passengers (units)	Post (kilogrammes)	Parcels (kilogrammes)
1927	6,247	26,556	12,440	827,266
1928	8,502	41,176	17,567	1,416,200
1929	10,519	45,017	49,750	1,923,850

We may also mention Croydon, Amsterdam, Cologne and Munich, whose traffic in 1928, according to the official statistics of Cina (the International Commission for Air Navigation), works out as follows :

Table IV. — Traffic of a Few Large European Airports in 1928.

	Machines	Passengers	Post (kilogrammes)	Parcels (kilogrammes)
Croydon (London)..	7,325	42,628	90,000	1,450,000
Amsterdam.....	6,204	18,000	18,000	550,000
Cologne.....	7,751	18,500	101,000	530,000
Munich	4,493	15,000	46,000	238,000

6.

From 1919 to 1929, France, Germany, Great Britain and Italy spent on transport aviation approximately 3 milliards of francs (120 million dollars), including 2,200 millions in direct subsidies, 300 millions in land equipment, 300 millions in subsidies for the construction of commercial machines and 200 millions in operation and control credits.

Simultaneously, the private capital engaged in these undertakings may be estimated in these four countries at 300 million francs (12 million dollars) ; about 200 million francs have been issued in the form of debentures or notes.

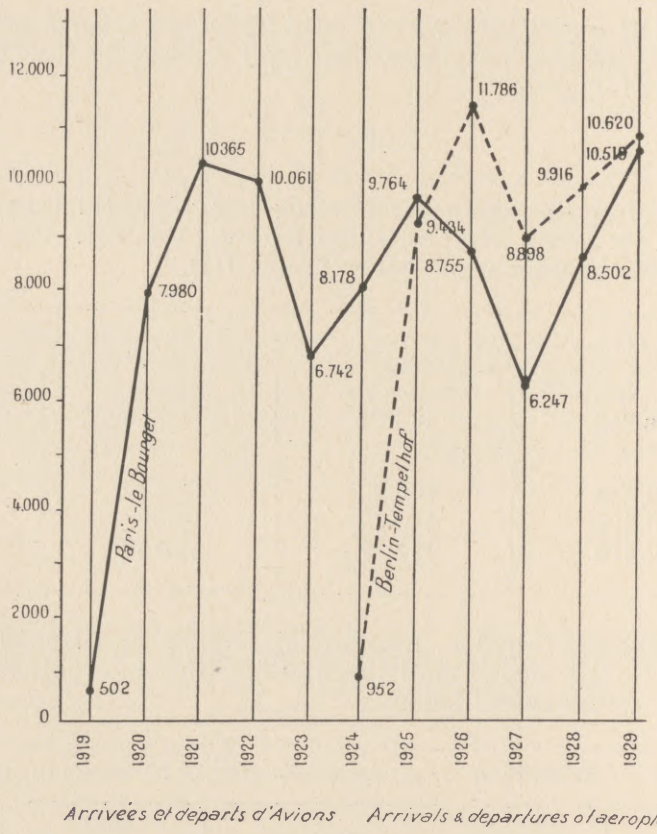


Figure 1. — Comparative Increase of the Traffic of the Airports of Berlin-Tempelhof and Paris-Le Bourget.

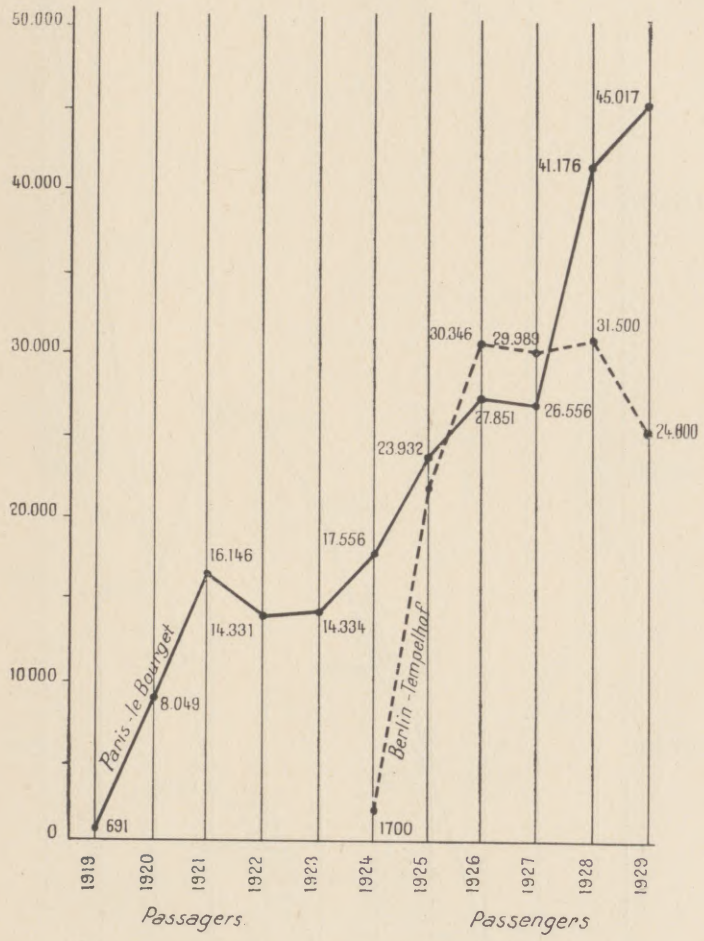


Figure 2. — Comparative Increase of the Traffic of the Airports of Berlin-Tempelhof and Paris-Le Bourget.

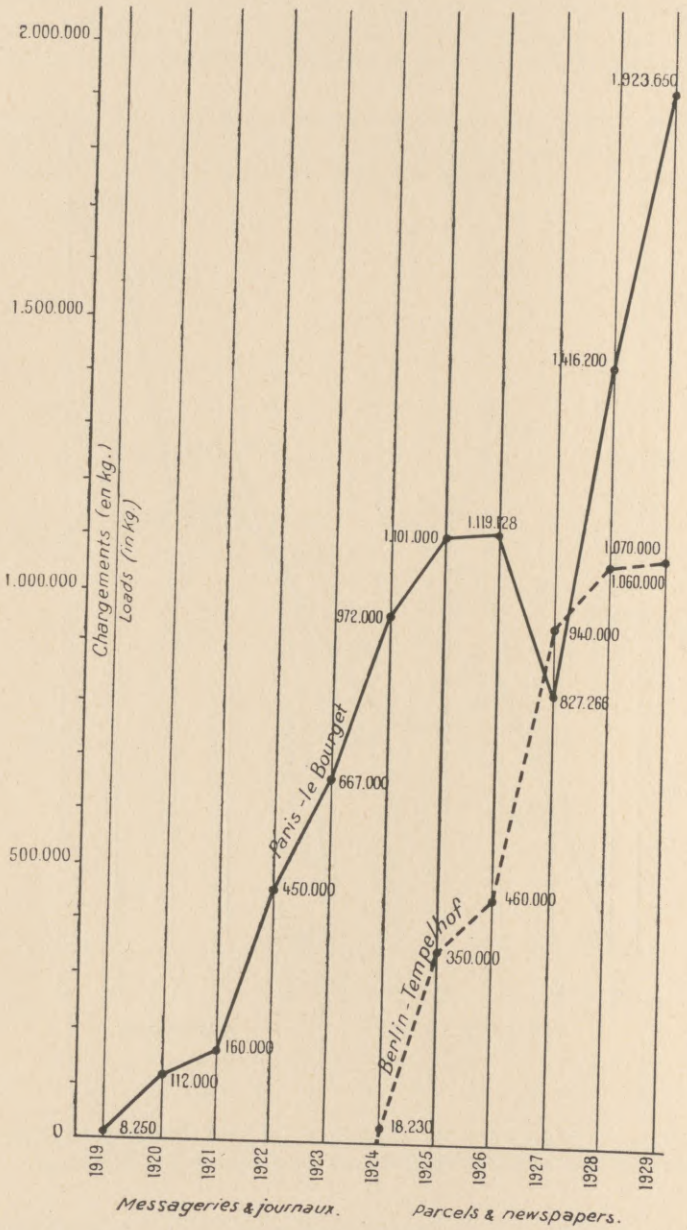


Figure 3. — Comparative Increase of the Traffic of the Airports of Berlin-Tempelhof and Paris-Le Bourget.

Note. — The statistics at our disposal for Tempelhof do not distinguish postal matter from parcels and newspapers in 1926, 1927 and 1928.

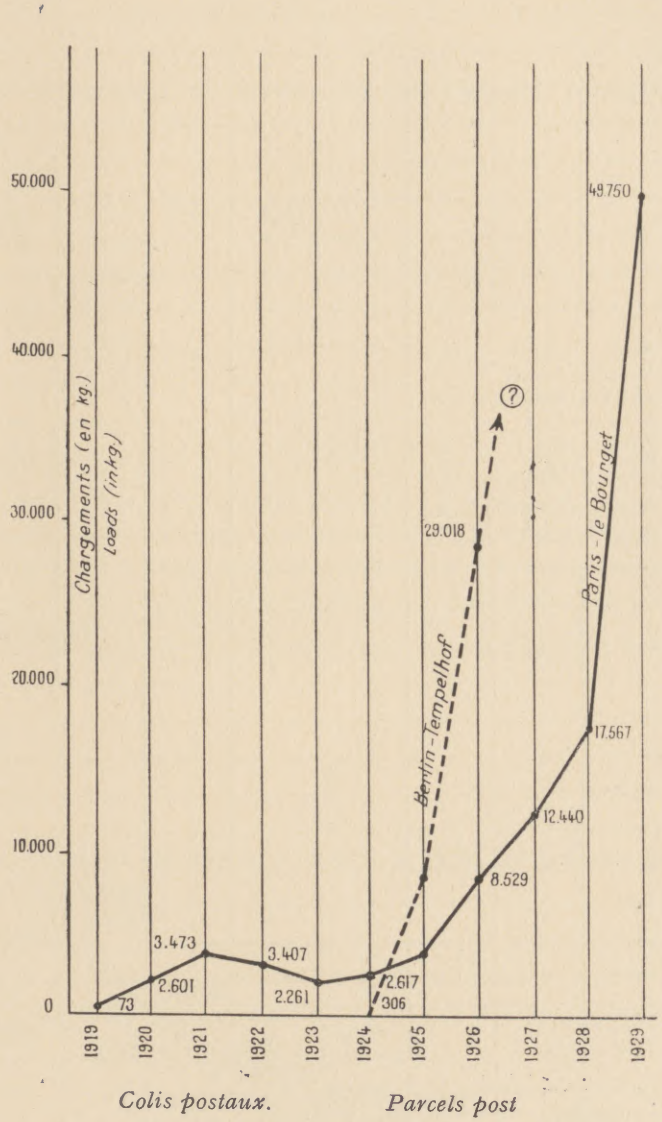


Figure 4. — Comparative Increase of the Traffic of the Airports of Berlin-Tempelhof and Paris-Le Bourget.

Note. — The statistics at our disposal for Tempelhof do not distinguish postal matter from parcels and newspapers in 1926, 1927 and 1928.

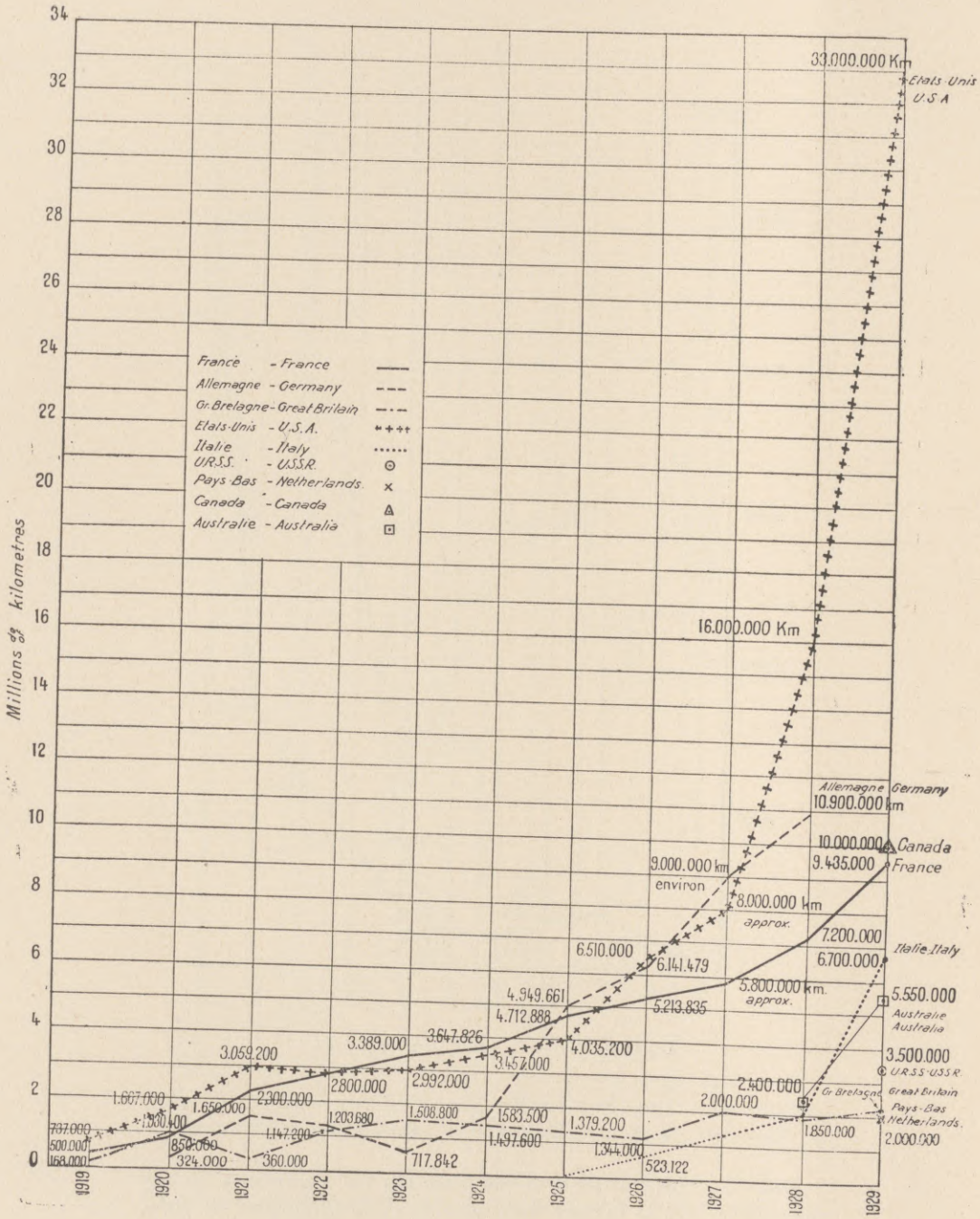


Figure 5. — Increase in the Number of Kilometres travelled by Aeroplanes and Seaplanes of the Principal Air Powers engaging in Regular Transport.

B. Throughout the World.

7.

In 1929, the aeroplanes in service on the regular transport lines covered approximately :

	Millions of kilometres
Under the United States flag	33
» » French »	9.4
» » German »	9.6
» » British »	2.2
» » Italian »	6.7
» » Netherlands »	2
» » Soviet »	3.5

The total works out at some 66 million kilometres, or 1,650 times the circumference of the earth for the aeroplanes and seaplanes of these seven Powers. The rise in the kilometrage from 1919 to 1929 is shown by our graph (Figure 5).

In 1929, these same machines accounted for 145 million passenger-kilometres, which is equivalent to carrying 145,000 passengers for 1,000 kilometres. To carry the same number of passengers in Pullman cars, and assuming a coefficient of utilisation of 40 per cent (which corresponds in both cases to the facts), 1,200 trains of six carriages each would have been required during the year, or 20 waggons only per day.

8.

A comparison between the present length of railways and air routes in the world gives the following results :

Table V. — Railways and Air Routes in the Five Continents.

	Area (per 1,000 sq. kms.)	Population (millions)	Railways (kms.) [1]	Air routes (kms.) [2]
Europe	10,059	465	381,000	80,000
Asia	41,600	953	122,000	20,000
Africa	29,795	138	50,000	10,000
America	40,000	213	632,000	100,000
Australasia	8,000	8	74,000	9,000
World	129,454	1,777	1,259,000	219,000

[1] Position in 1925.
[2] Position at the end of 1929.

Thus, per 100 square kilometres there are in :

	Metres of railway	Metres of air route
Europe	3,800	800
Asia	300	50
Africa	170	30
America	1,540	260
Australasia	870	90

Naturally, in order to understand the meaning of these figures, account must be taken of the relative facility of establishing an *air line*; but it must be remembered, also, that any line followed by a regular service presupposes an *air route* thoroughly marked out and organised on land.

9.

This organisation, in particular, necessitates wireless communications (meteorological warnings, traffic information). For example, in 1928, 26,500,000 words were exchanged between the twenty-four principal stations constituting the wireless system of the German airports, of which 3 millions were accounted for by Berlin-Tempelhof.

10.

Lastly, an endeavour may be made to estimate the amount of aerial transport in the *whole world*, and we have established rough statistics (Table VI) on the basis of a recent article in the American review *Aviation* (March 22nd, 1930).

Roughly, the outcome of these figures is that :

(1) On 225,000 kilometres of regular air lines 600,000 passengers and 14,000 tons of postal matter and parcels were carried in 1929 by 2,000 aeroplanes and seaplanes.

(2) There are already nearly 3,000 aerodromes or equipped flying-grounds at the disposal of aviation throughout the world.

11.

Going outside the sphere of regular public air transport, an estimate may be attempted of the place occupied by the civilian aeroplane—public or private—in the chief country of mechanical transport, the United States of America.

In that country, there are 27 million motor-cars, or one for every four inhabitants, and 10,000 *civilian aeroplanes*, or one for every 11,000 inhabitants. In the European countries where civil aviation is most highly developed, this coefficient is eight to ten times smaller.

Table VI. — Rough General Statistics of Air Transport throughout the World at the Beginning of 1930.

Note. — These statistics are based on the table published by *Aviation* on the date mentioned. They have been rearranged and modified whenever the information at our disposal seemed more recent or more reliable. Nevertheless, these figures should only be regarded as rough estimates.

The traffic results are those of the last year (1928 or 1929) for which published figures were available.

Country	Length of air-lines (kilometres) 1	Passengers carried (regular services) 2	Postal matter and parcels carried (kilogrammes) 3	Number of machines employed by the regular services 4	Number of airports 5	Number of aerodromes or emergency grounds 6	Number of military grounds 7	Square kilometric area of grounds (all types) 8
				Europe.				
Germany	29,800	120,711	2,510,000	200	33	68	—	4,650
Austria.....	1,840	5,477	104,000	9	1	—	—	—
Belgium	595	1,543	18,400	10	5	—	9	2,160
Denmark	290	1,740	47,300	4	3	3	3	4,750
Spain	1,175	1,027	11,600	6	44	—	12	9,000
France	31,533	25,000	1,800,000	362	19	18	18	10,000
Finland	432	3,201	47,400	4	—	5	—	—
Great Britain.....	3,740	19,935	596,000	23	34	8	38	2,875
Hungary	600	2,293	53,100	8	1	—	—	—
Italy.....	12,800	54,700	908,000	54	12	88	45	2,160
Netherlands.....	3,040	19,129	964,000	21	4	15	10	—
Poland	1,980	6,585	248,300	20	6	20	—	14,900
Sweden.....	1,140	14,948	105,900	8	4	—	—	112,000
Switzerland.....	3,390	14,283	155,000	19	18	17	—	1,180
Czechoslovakia ..	2,220	6,231	51,600	31	6	—	13	7,360
U.S.S.R.....	18,442	11,000	350,000	100	2	30	20	—
				Asia.				
China	1,500	—	—	10	1	10	—	—
Japan.....	3,245	270	54	26	—	30	—	—
Persia.....	1,760	2,800	38,400	7	1	10	—	—
Netherlands Indies	1,500	10,045	—	7	6	42	48	—
				Africa.				
Belgian Congo....	3,530	735	56,500	33	5	50	—	—
South Africa	2,000	—	—	10	25	—	—	48,900
				America.				
Canada.....	2,560	124,689	1,235,000	150	68	—	—	142,000
United States of America.....	59,500	165,263	3,220,000	619	969	511	80	5,060
Mexico	10,580	3,500	9,060	59	39	—	—	50,800
Bolivia	3,420	2,963	58,400	8	1	10	—	—
Colombia	2,860	2,667	242,000	15	1	10	—	—
Peru	3,780	517	10,900	10	6	—	—	228,000
				Oceania.				
Australia	8,800	28,962	93,200	34	10	195	—	—
Total	217,482	618,000	12,931,114	1,861	1,317	1,083	241	
						2,641		

Note. — The following countries do not figure in the above table :

Europe : Portugal, Norway, Estonia, Latvia, Lithuania, Bulgaria, Roumania, Yugoslavia, Greece, Albania.

Asia : Turkey, Syria, Hejaz, Yemen, Afghanistan, British India, Burma, Malay States (Straits Settlements), Siam, French Indo-China, Netherlands East Indies.

America : All the countries of Central America (except Mexico), Venezuela, Ecuador, Chile, the Argentine, Paraguay, Uruguay and Brazil.

To take account of the air transport of these countries, the results obtained above should doubtless be increased by 5 per cent for the lines, 10 per cent for the traffic results, 20 per cent for the total number of airports and 10 per cent for the number of machines in service.

C. Maps of the Principal Services, with Comments.

We have no intention of giving in this report a list of the air services available to the public throughout the world. The reader will, however, find below a few maps, accompanied by comments, which have been prepared so as to provide a general idea of the various systems.

Europe.

Maps of the air system of Europe are too familiar, too complex, and also—if unaccompanied by a long commentary—too deceptive, for one to be reproduced in support of this chapter. It may be well to recall, however, that the length of the air-lines in Europe is three times as great in proportion to the area of the continent as in America, and approximately the same as in the United States of America ; and that the airport of Paris-Le Bourget was utilised daily during the summer of 1929 by 48 aeroplanes engaged in regular public transport (average figure), that of Berlin-Tempelhof by 44, and that of Cologne by 32. But local conditions, and the consequent value of the lines, are so much influenced by the subdivision of European soil into small national territories (small in comparison with the average range already attained by aeroplanes) that any description of the air system must involve *political* considerations of rivalry and co-operation (see Chapter IV).

Africa.

At the beginning of 1930, the only regular aeroplane services in Africa—apart from the Mediterranean basin, which is better classed with Europe—were the following (Figure 6) :

(1) The coastal section Casablanca-Dakar, connecting French West Africa with Morocco, but owing its true significance to its extension to South America ;

(2) The Belgian Congo system, a large and methodical enterprise whose efficient operation has already shown its effects on the life of the colony ;

(3) The first postal lines of the " Union Airways ", organised on a modest scale in the Union of South Africa, which have been in existence barely a year.

In addition, the first section, Cairo-Bagdad, of the British line to India may be regarded as of importance to Africa.

The plans in process of realisation chiefly aim at the establishment of Empire air routes, which do not afford any guide to the frequency or economic importance of the services which may be initiated in future.

The Cape-to-Cairo route, which throughout traverses territory under British sovereignty or influence, will be entirely open to commercial aviation as from the beginning of 1931 ; its political unity will simplify the establishment of the air services.

The route from Algiers to Madagascar lies, for over two-fifths of its length, over territory not under French sovereignty or influence—Belgian Congo, Rhodesia and Portuguese East Africa. On this route there will, therefore, be a preliminary problem of international agreement and co-operation to be solved.

The same will apply to the less important route, reconnoitred by the British military air service in 1929, which leaves the Cape-to-Cairo route at Khartoum and connects this great artery with Nigeria and the British West African colonies (see Figure 7, page 20).

Figure 6. — COMMERCIAL AIR-LINES IN AFRICA.

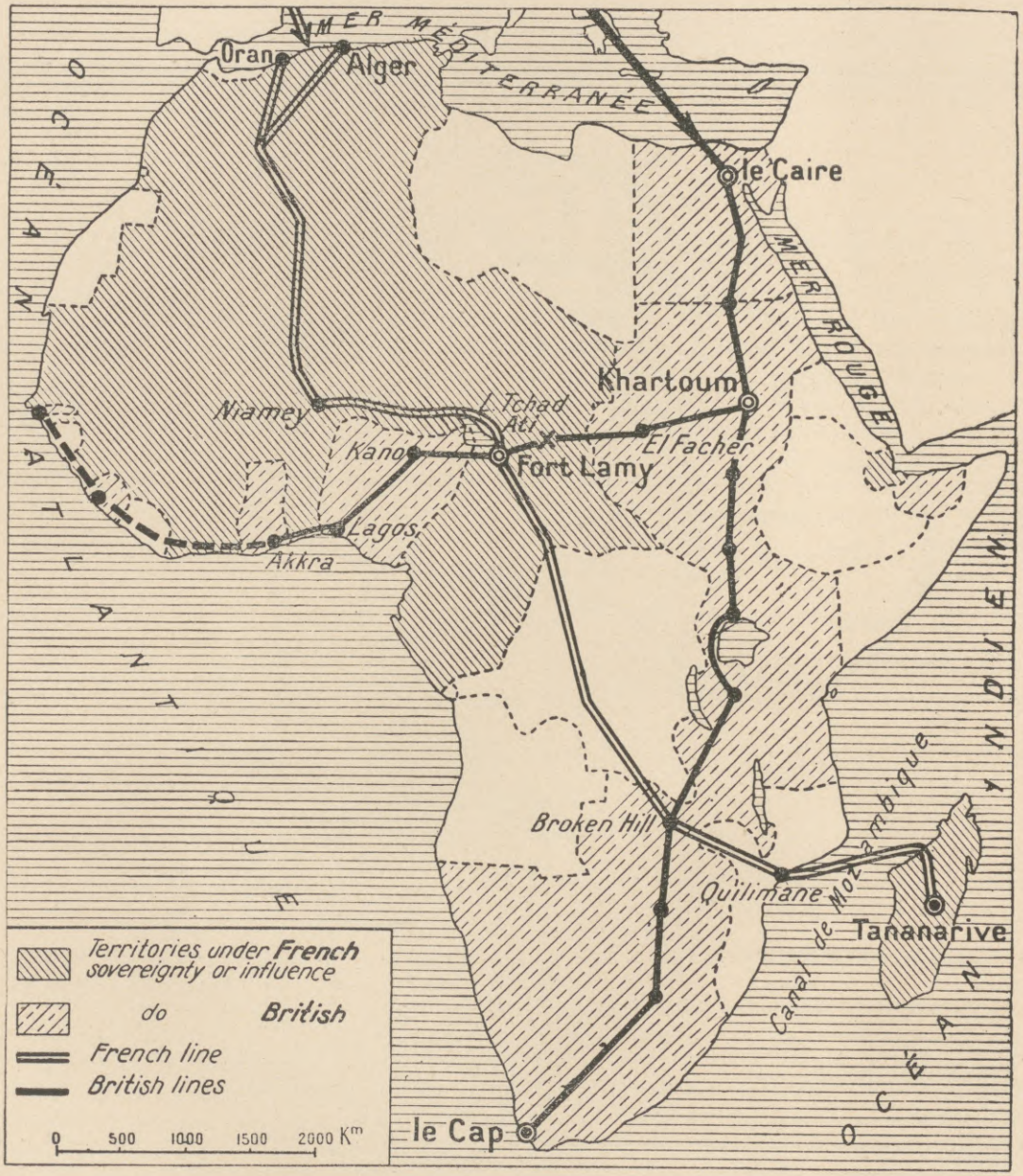


Figure 7. — The British and French Projects for Empire Air Routes in Africa and the Problems of Sovereignty.

(Map taken from an article by the author, published in *L'Illustration*).

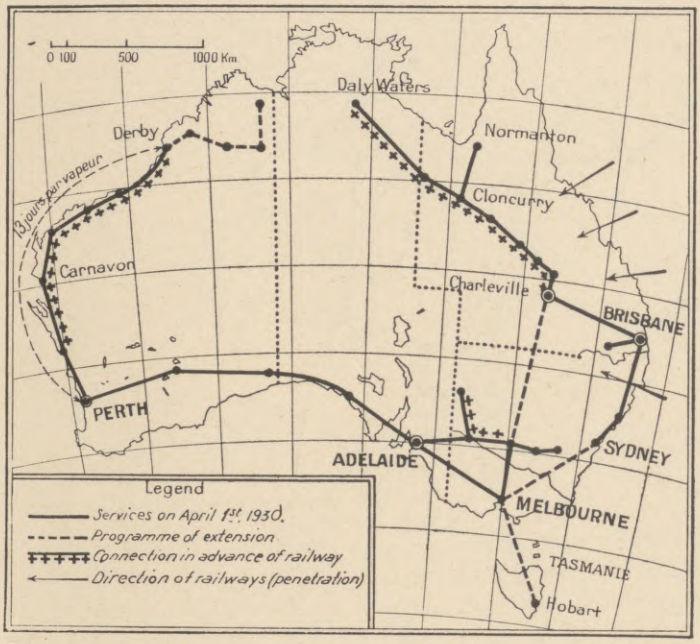


Figure 8. — Commercial Air-Lines in Australia.

Australia.

As, owing to its political unity, the business-like execution of a programme solely based on economic considerations is easy, Australia is perhaps the part of the world where commercial aviation at present renders the most valuable services (though possibly not the most regular) in proportion to the length of the lines established.

The map of air routes in operation (Figure 8) should be interpreted in the light of the rail and coastwise communications, which are often the only means of transport. Thus, the distance from Perth to Derby (approximately 2,500 kilometres) is covered by aeroplane in two days, whilst a steamer takes six times as long.

Many air services, the stopping-places and sometimes the termini of which are not given on our map, have been started owing to gaps in the railway system. Furthermore, the railways of the west consist chiefly of lines of penetration perpendicular to the coast, and the aeroplane has made it possible to establish rapid connection without delay between their inland termini above territories where railway construction is always difficult and sometimes not an economic proposition.

This special suitability of aviation to the territory of Australia has led to an accelerated development of regular air transport in that continent in the last two years, to which subsidies have also contributed their share.

Figure 9. — Commercial Air-Lines in Asia.

Note : Long distance lines in Russia and Siberia are shown in skeleton form.

The latest particulars, taken from the Australian review *Aircraft*, may be summarised as follows :

	1928	1929
Aerodromes equipped	56	87
Emergency grounds maintained	4	118
Licensed commercial pilots.	108	157
Kilometrage of subsidised lines.	5,620	8,660
Kilometres travelled on these lines.	821,000	1,100,000
Total kilometrage of civil aviation	2,400,000	5,460,000

Asia.

The only active " local " services, which, however, cover territories as large as several European countries, are the Persian services (see Chapter III) and those of the Netherlands East Indies *(see Figure 9)*.

The Japanese programme is still only in its early stages. China, where the future prospects of air transport are undeniable, is at present hardly in a condition to permit of the regular operation of an air-line.

The Union of Soviet Socialist Republics had nearly 19,000 kilometres of lines at the end of 1929—long-range connections across Siberia or towards Mongolia, communications filling serious gaps, whether permanent or local.

Great Britain has already brought the weekly service of the line to India as far as Delhi. France and the Netherlands wish to adopt the same itinerary, the former towards Indo-China and the latter towards the Netherlands East Indies. The necessary sub-structure is already in existence or is being completed in Indo-Chinese territory and in the Netherlands East Indian archipelago. But from Delhi to Rangoon, and from Rangoon to Hanoi and Saigon on the one hand, and to Singapore on the other, there is a big hiatus.

North America.

Dominion of Canada.

Private air services have multiplied in this immense country, where " the aeroplane reigns supreme and is utilised by all wherever the railway has not yet penetrated ".[1]

The Dominion Government has subsidised some twenty postal air services, prolonging the railways over territories where transport in winter is only possible by means of dog-sledges at the cost of weary weeks of dangerous travel. Thus, certain Arctic outposts which had hitherto only been able to receive one letter mail throughout the long winter are now in weekly touch with the civilised world.

In 1929, on twenty air routes having postal contracts with the Dominion Government —only the most important of which are shown on our map (Figure 10)—200 tons of mail were carried.

The Dominion Government is organising an " Aerial Canadian Pacific ", duplicating and accelerating the Canadian Pacific Railway. The Ottawa-Winnipeg section, through the great province of Ontario, and the Calgary-Vancouver section, across the Rockies, still remain to be established.

Canadian civil air traffic in 1929, including both public and private services, has been estimated at 78,000 hours' flying over a distance of 10,000,000 kilometres covered by 400 aeroplanes or seaplanes on 10,000 kilometres of established routes ; 125,000 passengers and 1,750 tons of freight being thus conveyed by air.

United States.

On the basis of the three official maps of the American Department of Commerce, brought up to January 1st, 1930, we have prepared a single document (Figure 11) showing whether the air routes are used for the conveyance of postal matter, express parcels and passengers, or whether they specialise in a particular freight. In order to give a clear picture of air traffic in the United States, some idea ought also to be given of the wide differences in the relative amount of transport on the different lines. Suffice it to say that, apart from the great transcontinental routes, which reduce the length of the journey from ocean to ocean to 30 hours for mails and 48 hours for passengers (air-rail services) instead of four days, certain shorter lines (Boston-New York ; San Diego-Los Angeles-San Francisco ; Kansas City-Wichita), and even very short lines (Tulsa-Oklahoma City ; Dallas-Fort Worth), enjoy a large custom, owing to the inadequacy of the railway system or its local inconvenience.

The development of air traffic in the United States since 1926 (when there was only the transcontinental air post which the Government had organised and handed over to private enterprise) was, as it were, " inflated " by the superabundance of capital which in 1928, and still more in 1929, was seeking employment. The following figures none the less deserve consideration :

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[1] Pierre DE SAINT-DENIS ; " Aviation and its Future in Canada " (*L'Aéronautique*, May 1930).

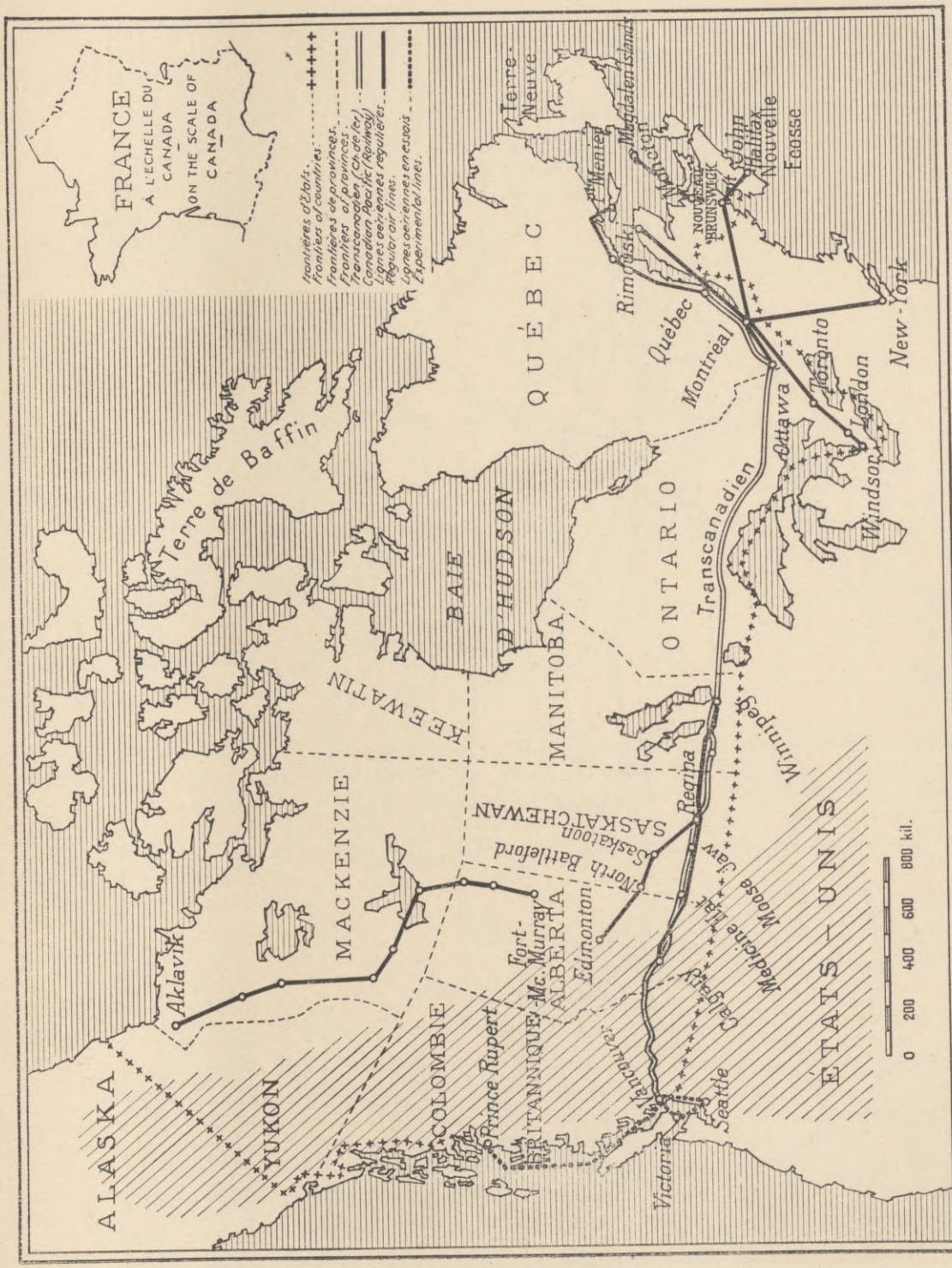

Figure 10. — Principal Lines of the Canadian Air Transport System (according to *L'Aéronautique*).

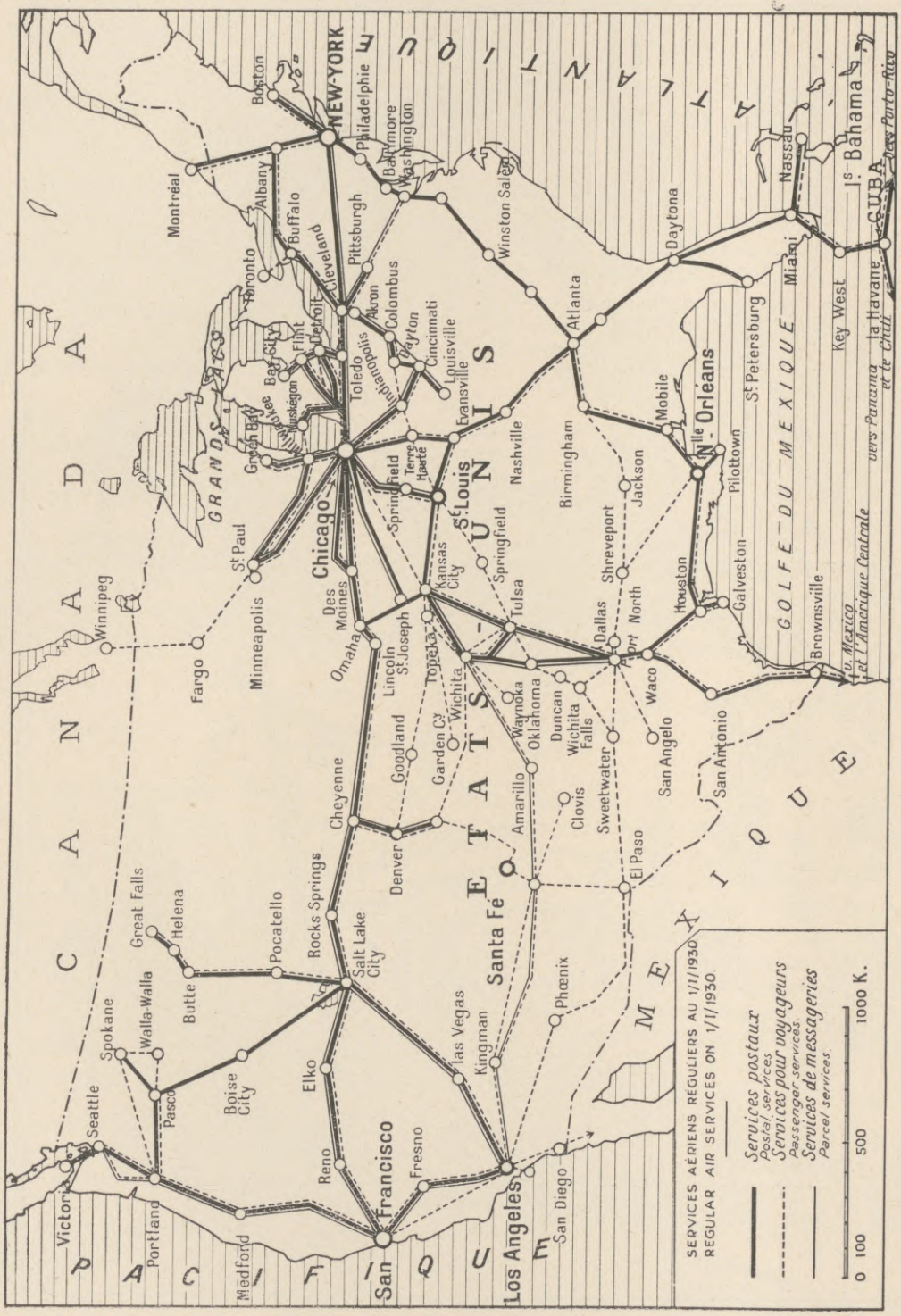

Figure 11. — Regular Air Services in the United States.

Activity of Regular Air-lines.

	1926	1927	1928	1929
Kilometres travelled (approx.)	6,920,000	9,400,000	17,300,000	36,000,000
Average daily kilometrage (approx.)	19,000	26,000	48,000	97,000
Passengers	5,782	8,679	49,713	150,000
Parcel post (kilogrammes) (approx.)	760,000	1,000,000	820,000	900,000
Mails (kilogrammes) (approx.)	370,000	730,000	1,900,000	3,600,000

Aeronautical Equipment of the Country.

	1926	1927	1928	1929
Air routes utilised (kilometres)	13,000	14,700	25,000	60,000
Air routes equipped for night flying (kilometres)	3,300	7,200	11,800	21,000
Civil airports	—	503	733	948
Emergency grounds	—	320	340	235
Total grounds available	—	823	1,073	1,183

In March 1930, the kilometrage of the air services was officially estimated at 145,000 a day. At the same period, out of 93 lines, 50 carried mails, 64 passengers, and 32 express parcels ; 15 went abroad, providing 12 postal services and 8 passenger services. On the same date, it was calculated that regular transport represented 15 per cent of the total air transport, and that the latter therefore amounted to a daily kilometrage of 980,000.

Central America.

The air system of Central America and the Greater Antilles should be considered as part of that of the United States. The principal Mexican lines owe their significance to their linking up with the United States system (both in the case of the tourist lines to the pleasure resorts and in the case of the main traffic lines) ; in the same way it is owing to the leisured and wealthy population which resides in Florida that the luxury lines going as far as San Juan de Porto Rico are assured of their custom.

But the true value of these lines is due to the fact that their stopping-places, both on the mainland and in the islands, lie along the prearranged routes to South America.

Figure 12. — COMMERCIAL AIR-LINES IN SOUTH AMERICA.

South America.

Briefly, the air system of South America includes (Figure 12):

1. In Colombia, and from Colombia to Panama westwards and to Ecuador and Peru southwards, the lines of the *S.C.A.D.T.A.*, a remarkable Germano-Colombian enterprise which, owing to the exceptionally favourable geographical conditions that have determined the lines on which the undertaking has developed, was for a long time the only air transport company in the world which survived, prospered and distributed dividends without being subsidised (see Chapter III).

2. The system, entirely continental like the country itself, of the Bolivian *Lloyd Aero*, an undertaking also under German technical control and management.

3. The Peruvian Government lines on the eastern slopes of the Andes.

4. The east coast services, mainly consisting of the great Natal-Buenos Aires artery of the French *Compagnie générale aéropostale*, which has been prolonged as far as Santiago de Chile to the west, Asunción (Paraguay) to the north, and Comodoro Rivadavia and Rio Gallegos (Patagonia) to the south; on the east coast, too, the German-Brazilian *Kondor* Syndicate operates coastal services, chiefly by seaplane, between Rio Grande do Sul and Rio de Janeiro; the extension of these services to the north as far as Natal has just been announced. Lastly, the American *N.Y.R.B.A.* has, since April, been carrying on subsidised postal services connecting the United States with Buenos Aires, Santiago de Chile, Yacuiba (Argentine-Bolivian frontier) and Asunción (via Corrientes).

5. The west coast services (*Pan-American Airways, Faucett Aviation Company*, Chilian Government lines all along the coast of that country), which practically complete the aeronautical circuit of the South American continent.

Many of these services are too new to enable any judgment to be formed of their economic efficiency. Broadly speaking, however, they cover immense areas, most of them wealthy and badly served by coastwise shipping lines or by precarious land communications. They should gradually transform local traffic conditions and influence trade, and their future is therefore assured.

Chapter II

PRESENT CHARACTERISTICS AND EFFICIENCY OF AIR TRANSPORT.

The place already occupied by air transport in the economic equipment of Europe is, to a considerable extent, due to the artificial development of the aeronautical industry. After the war of 1914-1918, this industry used every means in its power to maintain its business ; but these efforts of self-preservation would not have been decisive if aviation had not been able to rely on its own technical qualities. Moreover, the commercial air movement which began in North America early in 1926 owed practically nothing to the accidental impetus of the war, but everything to the technical realities of aviation and the power attributed to it of endowing this vast continent with a new and advantageous system of public transport.

In that continent, which the railway takes at least three days and four nights to cross, and in which the road system is still rudimentary, the aeroplane should have special opportunities for demonstrating its essential quality — speed.

But this speed, which must not be over-estimated, and which, in the case of *commercial speed*, is much lower than usually supposed, is set off by drawbacks which must be taken into account when judging the true possibilities of air transport. This question we propose to examine below.

A. Speed.

Record Speed. — The greatest speed yet attained by a flying machine is 575 kilometres an hour. This official record was established on the basis of a distance of 3 kilometres travelled several times in each direction with a 2,000 h.p. engine by an aeroplane with floats, carrying its pilot and the few decalitres of petrol necessary for the flight, a machine totally incapable of any practical service.

Exceptional Speeds. — From time to time the newspapers announce that a plane has " beaten the record " on a particular journey, doing Paris-London or Paris-Berlin at 250 or 280 kilometres an hour. These announcements have no technical importance, as the speeds in question are due to a strong wind which helped the machine in its flight, but lowered the speed of the commercial machines doing the same journey in the opposite direction to 60 or 70 kilometres an hour.

True Speeds. — Transport machines in service on the regular lines have a maximum speed of 160 to 260 kilometres an hour, according to their technique and especially according to their general dimensions and the power of their engines. The fastest are single-engine monoplanes, capable of carrying a load of 500 to 1,000 kilogrammes for distances of 500 to 1,000 kilometres ; for example, in Europe, the Latécoère 28 (600 h.p. Hispano-Suiza engine), which reaches 240 kilometres per hour ; and, in the United States of America, the Lockhead and Fleetster, which are said to exceed 260 kilometres an hour, but with a less roomy cabin and a smaller commercial load. Seaplanes are about 20 per cent slower than aeroplanes of the same tonnage and of the same power.

Cruising Speeds. — These speed maxima are attained during trials or in exceptional circumstances ; they sometimes require special propellers and always the full power of the engine ; they are incompatible with the requirements of regularity and safety which are essential to a public transport service, and they would involve the rapid wearing-out of the material. Except when he has to contend with unfavourable atmospheric conditions, the pilot keeps his machine throttled down to a cruising speed of about two-thirds or three-quarters of the maximum speed, *i.e.*, between 110 and 120 kilometres per hour for the slower machines and between 180 and 200 kilometres for the faster. Leaving on one side the special postal machines employed on certain lines, the use of which is still not without some element of risk, *an average speed of* 150 *kilometres an hour* on a normal line of 500 kilometres travelled without a stop by modern machines carrying passengers *must be regarded as exceptionally high.*

This practical travelling speed remains much higher than that of the best means of transport (fast steamer, 45 kilometres per hour ; motor-car, 70 kilometres per hour ; express train, 90 kilometres per hour) ; from the point of view of transport, however, it is not the speed of the vehicle which is important but that of the passengers or freight transported between the point of departure and the terminus of the journey.

Commercial Speeds. — The wide open spaces still required for the safe taking-off and landing of aeroplanes too often mean that airports are situated at some distance from the great cities ; the result is that journeys by air *are lengthened at both ends* to an extent which sometimes annuls the gain in speed. This is the case for short journeys between towns well served by fast trains and with badly situated aerodromes.

On longer journeys, intermediate landings and the taking in of supplies reduce the commercial speed, as it is not always possible to adopt the expensive solution of changing the machine at each stopping-place.

But it is on the longest stretches, when theoretically the aeroplane should be best able to display its qualities of speed, that it still nearly always encounters the most serious handicap, *stoppage at night.* As we shall see, there are still very few routes in the world along which an aeroplane is capable of flying at night with reasonable safety. This drawback is the more serious inasmuch as the man whose time is of most value can generally afford the luxury of a sleeping-car and nearly always spends the night in travelling, so as not to waste time. [1]

In order to be subject as little as possible to the severe handicap of night stoppages, the whole journey must, if circumstances permit, be covered between dawn and twilight ; and with the help of technical progress an enterprise can thus be considerably improved. We give below (Table I and Figure 1) a remarkable example of this in the case of the France-Morocco line. In two years the percentage of journeys carried out *in a day* between Toulouse and Casablanca has doubled ; thus, in 1929, *a commercial speed* of between 160 and 190 kilometres an hour was achieved 77 times out of 100. It is true that, during six months of the year, there practically has to be night flying at the two ends, between Casablanca and Tangier and between the Col du Perthus and Toulouse.

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[1] One evening, in December 1929, we happened to find the directors of most of the air companies of Europe on the platform of the Berlin-Friedrichstrasse station waiting for the Nord Express. They had been attending a congress which had ended in the afternoon, and were taking advantage of the night train in order to be at their offices, after a comfortable night, towards the middle of the following day. An aeroplane could not do the same for them, and the public argues in the same way.

Table I. — VARIATION OF COMMERCIAL SPEED ON THE TRIP FRANCE-MOROCCO AND BACK.

Year.		France-Morocco			Morocco-France		
		Number and percentage of journeys completed			Number and percentage of journeys completed		
		On first day	On second day	On third day	On first day	On second day	On third day
1927	Number.....	156	192	17	143	199	22
	Percentage	42.7	52.6	4.7	39	55	6
1928	Number.....	197	157	12	193	165	5
	Percentage	54.1	45.5	3.2	53	45	1.4
1929	Number.....	307	55	0	256	108	1
	Percentage	84.6	15	0	70	29.7	0.3

Connections effected in one day (average of both directions) : .....
1927 — 41 per cent.
1928 — 53 per cent.
1929 — 77 per cent.

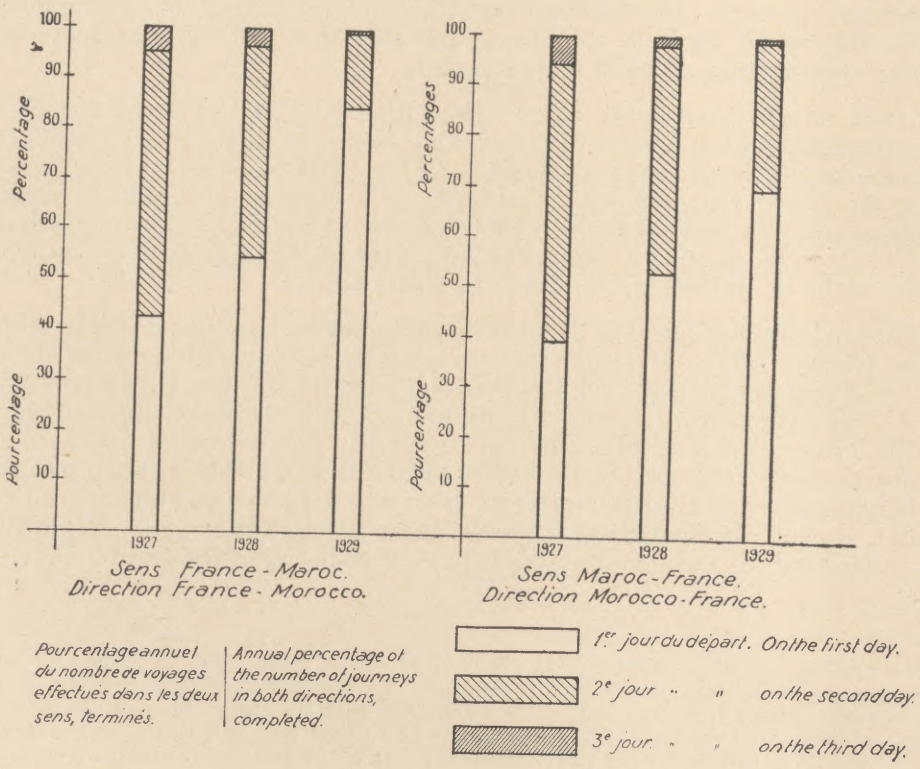

Figure 1.

Nevertheless, even when night flying is impossible, long-distance aeroplanes show a considerable superiority over ships as a means of world communication.

On the line to India, British machines only achieve a commercial speed of 48 kilometres per hour between London and Karachi ; but this nevertheless constitutes a saving of seven days out of sixteen for the connection with Calcutta.

On the line France-South America, where two air sections (Toulouse to Dakar, 4,695 kilometres, and Natal to Buenos Aires, 4,650 kilometres) are still separated by sea crossings of 3,300 kilometres in fast despatch boats, a speed of 66 kilometres per hour is now normally obtained ; in fact, the seventeenth journey of 1929 achieved *a commercial speed of 71 kilometres an hour* over the 12,665 kilometres between Toulouse and Buenos Aires, reducing to 7 days 9 hours the length of the connection, for which the fastest boats take approximately 18 days.

It should not, however, be forgotten that these results are achieved on a postal line where passengers are not normally admitted and where the efforts of the pilots are still attended by undoubted risks, since for each weekly connection, out of 90 hours' flying, 15 to 20 are done at night over inhospitable areas.

* * *

Finally, there are numerous cases where special geographical or economic circumstances give particular value to the speed of aerial transport, *e.g.*, sea crossings (even short ones, if they avoid transhipment), slow river travelling (communications between the Colombian coast and the capital), flying over desert areas (Persian or Australian lines).

B. Regularity.

Even a very high commercial speed might, for lack of regularity, be of little value. One often hears it stated that aerial transport is, if not perfectly regular, at any rate of a regularity comparable with that of transport by rail ; here, unfortunately, the wish is father to the thought and such a reality is still far off.

If the vague notion of regularity is analysed, it may be subdivided into three factors : constancy (corresponding to the permanence of supply), regularity proper and punctuality.

Constancy. — In the case of Europe, this quality is still not at all marked. The mileage in service is hardly more than half in winter what it is in summer ; in addition, the falling-off in frequency reduces to a quarter, or even less, the supply of aerial transport during the bad season.[1] This very accentuated seasonal character (see Figure 2) is partly due to the fact that passengers still represent three-quarters of the total business and that these passengers are chiefly tourists and therefore travel in summer ; but, above all, it is due to aerial transport dependency on atmospheric variations. This dependency is apparent in the statistics of regularity proper.

---

[1] Even during the summer the capacity of an active aerial line remains very small compared with that of other means of transport ; and, for lack of adaptability to the demand, it may have to refuse clients who have been attracted by advertisement and who, in many cases, may not come again.

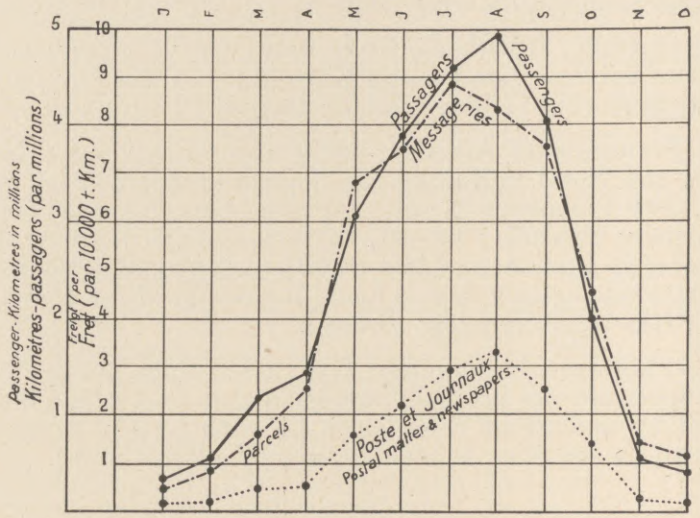

Figure 2. — Seasonal Character of Air Transport

(according to the German statistics for 1927).

For the sake of convenience we have adopted a scale for passenger-kilometres which greatly reduces passenger traffic ; in kilometric weight the latter is *five times* greater than the parcels traffic.

Regularity. — In the first place, definitions of aeronautical regularity differ profoundly from those employed for other modes of transport. M. Dautry, in his report already referred to, has emphasised the fact that the French railway administrations regard as irregular any train reaching its destination *more than one minute late ;* in aviation, many companies still regard as regular any aerial voyage completed, whatever the distance, on the day on which it was undertaken (definition A) ; there is, however, a tendency to adopt the definition sanctioned by the twenty-third International Aeronautical Conference to the effect that a stage is regular if it is effected with a delay *of less than* 100 *per cent on the time-table* (definition B).

According to definition A, which is the less strict of the two, the regularity of the German air traffic in 1927 took the course, month by month, which is shown in the graph (Figure 3).

It will be seen that the maximum percentage of regularity achieved in August was 96.9 per cent and corresponds to the period of greatest activity ; and that the minimum, 57 per cent, was reached in January, when the *number* of journeys not undertaken or declared irregular was 480 out of 1,121.

For the whole year the regularity was 90.4 per cent, and 26,656 journeys out of 29,473 were regular ; for 1928 the percentage — which this time applied to 30,424 journeys out of 33,116 — remained identical.

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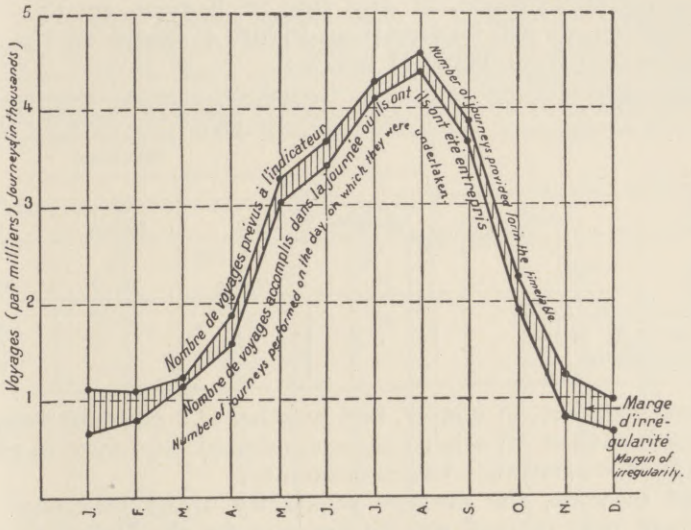

Figure 3. — Regularity of German Air Traffic in 1927.

N.B. — A journey is reputed regular when performed on the day on which it was undertaken. Highest percentage of irregularity (January) : 43%. Highest number of irregular or cancelled journeys (January) : 480 out of 1,121. Lowest percentage of irregularity : 3.1%.

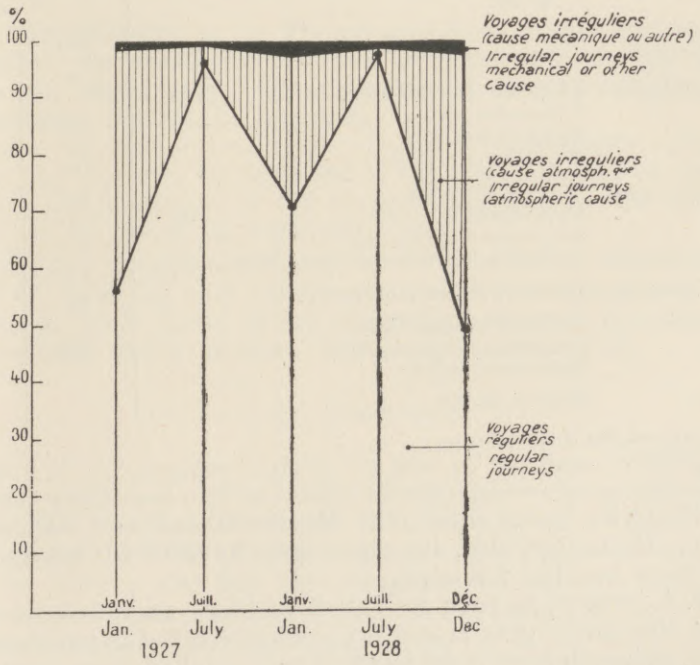

Figure 4. — Seasonal Influence of Various Causes of Irregularity. German *Luft Hansa* (1927 and 1928).

The most powerful influence, at any rate in Europe, on the regularity of air transport is the weather, as will be seen from Figure 4, based on the statistics of the *Deutsche Luft Hansa* and from Table II below :

Table II. — Percentage and Causes of Irregularity (German Traffic *D. L. H.* 1927-1928).

		Percentages				
		1927		1928		
		January	July	January	July	December
Regular journeys		% 56.7	% 95.9	% 70.6	% 97.3	% 49.1
Irregular journeys	Atmospheric cause ...	42	3.2	27.6	1.5	48.9
	Mechanical cause ...	0.8	0.7	1.2	0.9	0.9
	Other causes	0.5	0.2	0.6	0.3	1.1

It will be observed that, in winter, bad weather is a cause of irregularity twenty-three times more often than all other causes combined, and even in the middle of the fine season its influence continues to predominate.

However that may be, the average regularity of air transport (still according to definition A) from 1925 to 1928 was 89 per cent for the United States, 90 per cent in Germany, 92 per cent for the British lines and 94.5 per cent for the lines of the Netherlands K.L.M. Company, which, however, in 1928, only achieved 93.3 per cent.

Taking definition B, which is stricter, the regularity of the most typical French air-transport undertakings—calculated per stage—in the last three years was as follows :

Table III. — Regularity of French Air Transport 1927 to 1929.

Air lines		Percentage of stages flown in a time not more than double the time allowed for.		
		1927	1928	1929
		%	%	%
I. *Short Aeroplane Lines :*	Toulouse-Bordeaux		100	98
	Lyons-Geneva	97	97	92.2
	Paris-London	90	87	93.2
	Paris-Amsterdam	93	91	93.4
II. *Long Aeroplane Lines:*	Paris-Marseilles	87	80	89.7
	Paris-Berlin	81	87	85.8
	Toulouse-Casablanca	97	97	98.4
	Paris-Constantinople (and branches)..	91	80	76.7[1]
III. *Long-range Aeroplane Lines :*	France-America	79	95	97
IV. *Seaplane Lines :*	France-Corsica-Tunis	82	95	82.6
	Marseilles-Algiers.....	56	67.2	86.5[2]
	Marseilles-Beirut			
V. *Night Services :*	Paris-London.....			56.5[3]

[1] Services being gradually extended to the bad season.
[2] Frequency doubled in 1929.
[3] Summer season only.

Technical difficulties being equal, the Mediterranean and African lines have a greater regularity. Naturally, also, the short lines have an advantage, as they derive more protection from weather forecasts.

The *C.I.D.N.A.*, which, in 1929 for the first time, extended its Paris-Constantinople service to the whole year round, experienced a reduction in regularity from 80 to 76.7 per cent, although from April to October it reached 90 per cent (see Figure 5).

The regularity of 56.5 per cent obtained by the Paris-London night service should be noted. Such services presuppose great experience on the part of the crews

and also a land equipment which, in the case of this line, is still rudimentary. The German night services, which are of longer standing and are better guided on land, covered 70,000 kilometres in three months in 1927 and 255,000 kilometres during the twelve months of 1928, with an average regularity of 88.2 per cent the first year (August-October) and 83 per cent the second.

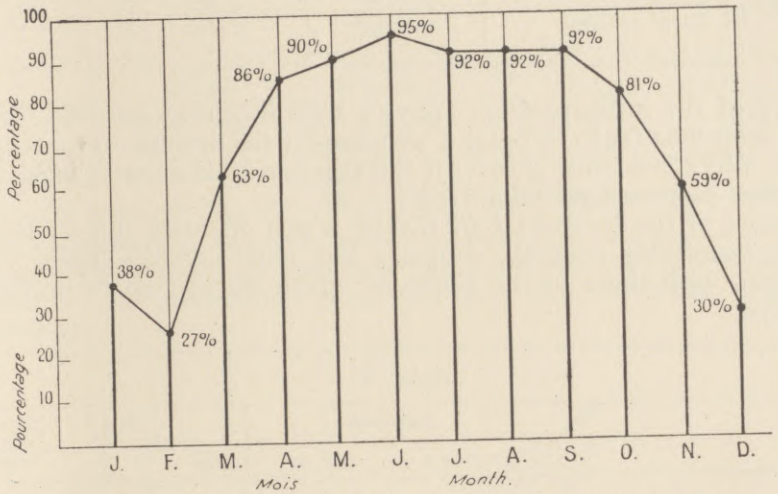

Figure 5. — Regularity of the C.I.D.N.A. in 1929

(Paris-Constantinople and branches).

To sum up, and according to the French definition, it may be said that, in Europe and North America, the regularity achieved is 90 per cent during the summer and 80 per cent over the whole year. These results are certainly improved upon under more favourable skies, notably in Australia.

Punctuality. — In the present state of affairs, punctuality cannot be expected of air transport. It can only be achieved at the original place of departure, and at the starting-point of the stages, if the margin procured by the stoppages—at the expense of commercial speed—is sufficient.

The Swiss *Balair* Company, well known for its efficient administration and the homogeneity of its material, only carries on a small number of winter services over moderate distances ; it is justly proud of having achieved, in 1928, 90 per cent of arrivals with less than thirty minutes' delay on the time-table.

C. Safety.

The statistics of aeronautical safety are few in number, rarely comparable, and not always readily published—all of which clearly shows the present insecurity of the aeroplane as compared with railways and even motor-cars.

In his report for 1928, M. Dautry estimates that the motor-car is sixteen times less safe than the railway and that the aeroplane, taking as a basis the statistics in passenger-kilometres—which are the only correct ones—is, on the French lines, one hundred times less safe than the train. Taking for the aeroplane, not the figures of M. Dautry's report relative to 1925 and 1926, but the average results for the period 1919 to 1929 inclusive, we may establish the following comparison (Table IV), in which the only victims considered are the *passengers:*

Table IV.

		Railway (average 1923-1926)	Aeroplane (average 1920-1929	Ratio (approximate)
Per million passenger-kilometres	Killed	0.0011	1.17	1 to 1,060
	Injured.....	0.0125	1.07	1 to 85
	Total victims ..	0.0136	2.24	1 to 160

The safety of the railways from 1923 to 1926 inclusive was 160 times as great as that of the aeroplane (1920 to 1929) if we consider the number of passengers victims of an accident, and 1,060 times greater if the number of passengers *killed* is compared with the number of passenger-kilometres.

The statistics of the *Deutsche Luft Hansa*, which operates shorter lines and over generally more hospitable country, compare less unfavourably (Table V), especially as regards killed, with those of the railways, which we assume to be identical with those of France.

Table V.

		Aeroplanes		Average	Probable ratio with railways (approximate)
		1926-1927	1927-1928		
Per million passenger-kilometres	Killed	0.29	0.15	0.22	1 to 200
	Injured	1.75	0.89	1.32	1 to 110
	Total victims	2.04	1.04	1.54	1 to 130

Recently, the American review, *Aviation*, gave for commercial aeronautics in three countries a death rate per million passenger-miles which worked out as follows after conversion into passenger-kilometres :

Great Britain.	0.27	per	million	passenger-kilometres	
Germany.	0.24	»	»	»	»
United States	0.256	»	»	»	»

These figures, which apparently refer to the period 1925-1929, are remarkably similar. It should be noted that, from 1925 to 1928, British subsidised air transport did not have a single fatal accident ; but, its traffic not being very large, two accidents with several victims in 1929 were sufficient to bring it back to the common level of relative insecurity. Similarly, certain small companies which have so far had no accident involving the death of a passenger do not on this account provide proof of absolute security ; a single accident would perhaps put them at once at the rate of one killed per million passenger-kilometres.

This fact brings out the most serious difficulty of aeronautical insurance : *absence of large numbers* on which probabilities can be calculated.

* * *

Statistics in passenger-kilometres alone permit of a valid comparison with other means of transport, for they alone eliminate the disproportion between the average journeys on the one hand and the average number of passengers on the other.

But, if the object is simply to judge the progress of aeronautical safety, all factors of comparison are valid, and mention should be made of the remarkable work *Aviation*

and Life Insurance published at the beginning of 1930 by the Daniel Guggenheim Fund. We reproduce the following figures from this article :

1. *Mortality rate of aeroplane pilots in the United States:* 1927, 2.34 per 100 ; 1928, 2.78 per 100 ; 1929, 2.37 per 100.

2. *Mortality rate of aeroplane passengers in the United States:* 1927, 1.06 per 1,000 ; 1928, 1.33 per 1,000 ; 1929, 1.46 per 1,000.

3. *Joint statistics for both categories:*

Table VI.

Year	Miles travelled	Pilots on active service	Pilots killed	Passengers carried	Passengers killed
1927.....	35,692,653	2,772	65	833,679	99
1928.....	70,673,450	5,787	161	1,669,713	223
1929 [1]	140,000,000	7,161	170	1,550,000	226

[1] For 1929, the figures for the first half-year have been doubled, as they were only available for this period.

In Figures 6 and 7 below we have expressed in graphic form the evolution displayed by the statistics ; an undeniable (and, one may add, essential) progress towards security is shown.

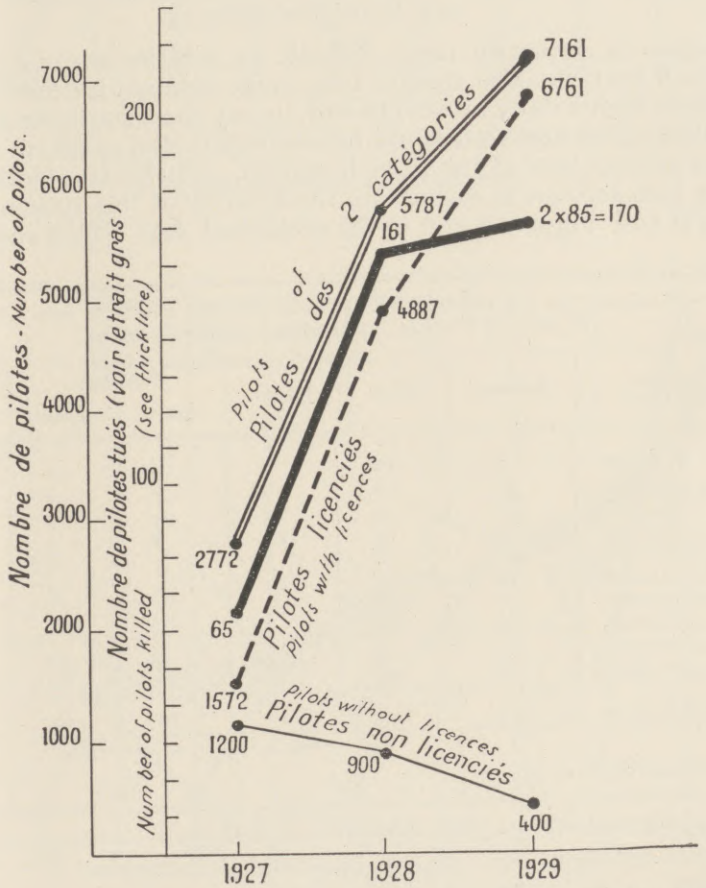

Figure 6. — Fatal Accidents to Pilots in the United States.

This table applies to all civilian pilots, and not only to pilots employed on the regular transport lines. (In 1929, the figure of those killed in the first half-year has been doubled.)

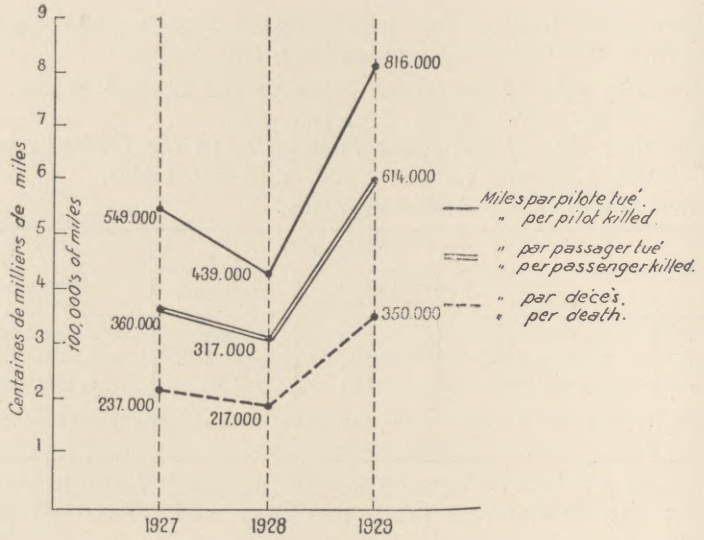

Figure 7. — Increase of Distances covered in the United States per Fatal Accident.

Such progress is naturally more difficult to achieve when a system not only grows larger each year but also ensures long-range communications which sometimes involve hazardous flights daily or weekly and, in any case, necessitate regular journeys above alien, ill-supplied and sometimes hostile territories, or above the sea. Such is the case on the greater part of the French system, and this is a factor which must be seriously taken into account in estimating the security of this system. We summarise below (Table VII and Figures 8 and 9) the statistical data which show this degree of security.

Table VII. — Accidents, Deaths and Injuries on the French Air Lines providing Regular Public Transport (1920 to 1929).

Year	Passenger-kilometres	Accidents	Killed	Injured	Passengers		Crew	
					Killed	Injured	Killed	Injured
1920 ...	615,000	9	10	5	3	0	7	5
1921 ...	4,126,000	11	11	7	7	4	4	3
1922 ...	3,484,000	8	19	2	12	1	7	1
1923 ...	4,189,000	6	12	13	8	9	4	4
1924 ...	5,366,000	6	6	3	3	0	3	3
1925 ...	6,279,000	12	12	10	4	5	8	5
1926 ...	6,592,000	17	18	25	11	17	7	8
1927 ...	7,717,000	9	12	6	6	2	6	4
1928 ...	9,926,000	23	19	28	6	15	13	13
1929 ...	12,461,000	18	21	19	10	11	11	8
	60,245,000	119	140	118	70	64	70	54
Accidents involving death or injury			258		134		124	

The average figures *for* 10 *years* are thus as follows :

1 serious accident per 506,000 passenger-kilometres.
1 victim per 233,500 » »
1 killed per 430,000 » »
1 injured per 502,000 » »

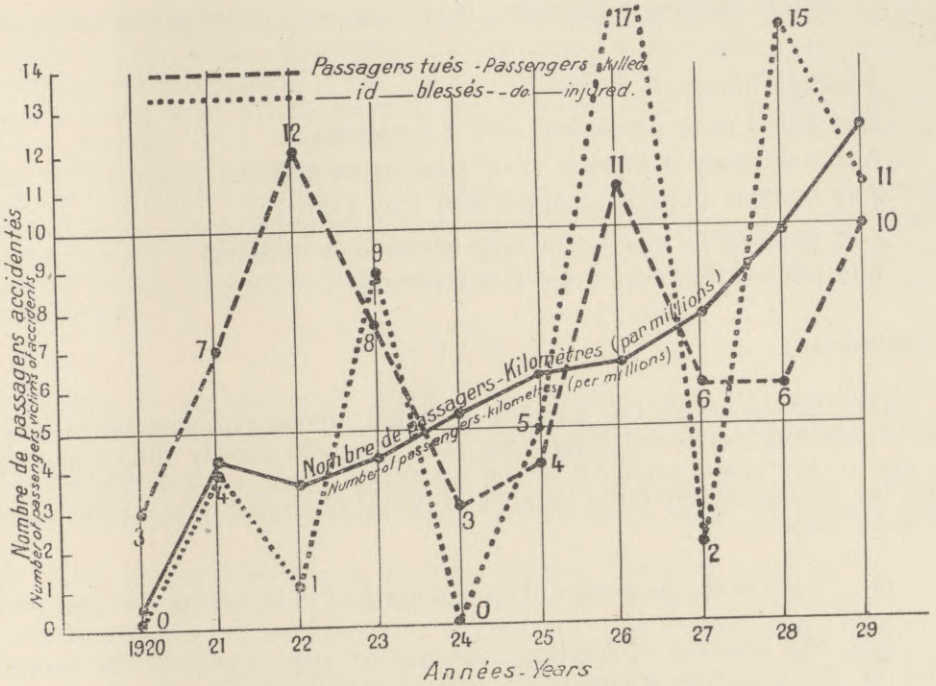

Figure 8. — French Air Traffic (1920-1929).

Killed and injured (passengers).

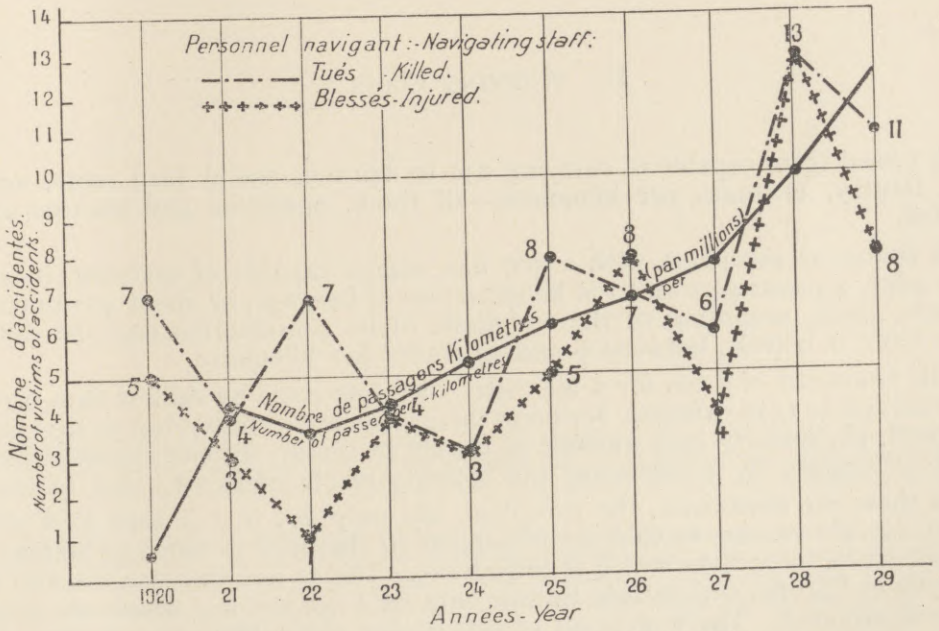

Figure 9. — French Air Traffic (1920-1929).

Killed and injured (navigating staff).

Or, per million passenger-kilometres (1,000 passengers travelling 1,000 kilometres each) :

2 serious accidents ;
2.33 killed (1.17 passengers and 1.17 pilots) ;
Approximately 2 injured (1.07 passengers and 0.9 pilots) ;
4.31 victims (2.24 passengers and 2.07 pilots) ;
1.17 passengers killed and 1.07 passengers injured ;
1.17 pilots killed and 0.9 pilots injured.

Conclusions :

(1) In ten years the number of killed among the passengers and among the navigating personnel composing the crews was exactly the same (70), which is due to the small capacity of the machines, their small degree of utilisation, and the comparatively large number of postal or commercial machines travelling without passengers ;

(2) Even in the passenger class, the number of killed exceeds that of injured ;

(3) The number of victims increases at approximately the same rate as that of the passenger-kilometres ; the sharp fluctuations in the graphs show how necessary it is, as long as one or two accidents may have such important effects on the annual statistics, to consider the longest period possible and, within this period, the average figure.

D. Working Costs.

A mixed train capable of carrying 230 to 240 tons useful load costs, according to M. Dautry, 22 francs per kilometre—all track, operation and traction expenses included.

A transport aeroplane with a 300 h.p. engine capable of carrying, in addition to the pilot, 4 passengers and 100 kilogrammes of baggage, or about 400 paying kilogrammes, costs, according to the technique of its construction and the difficulties of the route it travels, between 6 and 12 francs per kilometre.

The transport of a ton for a kilometre therefore costs by railless than 0.10 franc and by aeroplane 15 to 30 francs. No doubt the aeroplane goes faster, but we have seen that this speed, particularly on a number of European routes, is more apparent than real, and is outweighed by a regularity and security much inferior to that of the train.

In these circumstances, the aeroplane can only *pay* if it is used in a judicious manner, *i.e.*, if it renders services in proportion to the price at which its kilometres are sold and to the new risks which it introduces. This is not the case for *any regular air service* in Europe, and outside Europe only for a few services which are geographically well situated. The best proof of this is that the public can only be asked for sometimes one-third and generally one-quarter, and often less, of the price which it ought to pay, and the deficit has to be covered by Government subsidies.

It may, of course, be hoped that technical progress will bring about a considerable reduction in working costs. But this reduction seems to depend largely on an increase in the tonnage of aeroplanes [1]; the regular utilisation of machines which will carry 50 to 100 passengers at a time necessitates, however, a wider clientèle and a better established security than at present. Furthermore, it is somewhat striking that, after 25 years' existence, aeroplanes do not yet answer to definite standard types; aeronautical technique is feeling its way much longer than did automobile technique—the problem to be solved being, of course, much more complex. It is, therefore, wiser, in order to allow for a technical instability which involves the scrapping of machines still capable of long service, to take as a basis the present prices of aeroplanes [2] and of air transport.

* * *

A lowering in working costs in the near future is not very probable, because *the aeroplane, as we have seen, must become faster, more regular and safer before it can be really adopted as a normal means of public transport.*

In addition, if the transport of passengers is to be regarded as the chief or as an important resource, the aeroplane must become *much more comfortable than it is at present.*

All these improvements will tend to increase working costs or to neutralise economies made elsewhere. In cases where, as in Europe, regular air services are (*a*) international and (*b*) working at a heavy loss, it is therefore necessary to have recourse without further delay to all the assistance that can be obtained from international organisation and co-operation.

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[1] The appearance in 1929 of the Dornier Do. X seaplane (100 passengers for 800 to 1,000 kilometres) and of the Junkers G. 38 (30 passengers for 3,000 kilometres), giant machines with an economic output probably much greater than that of the aeroplanes in service, is an event of great importance.

[2] A transport aeroplane with three engines of 300 to 450 h.p. intended for the conveyance of ten to fifteen passengers over 600 kilometres costs, if made of metal, 1,500,000 to 2,000,000 French francs and one-third less if it is made of wood. The best technical systems allow for the wearing out of the structure in 3,000 hours, with general overhauling every 200 to 300 hours, and that of the engines in 1,500 hours with overhauling about every 250 hours. Furthermore, technical evolution is rapid enough to make it necessary to eliminate from the parks of the companies concerned aeroplanes or seaplanes in perfect flying order but unable to compete with more modern material.

Chapter III

FINANCIAL RESULTS : TEN YEARS' EXPERIENCE.

Under these working conditions, which all depend on technique, what financial results has it been possible to derive from regular air transport ? How far has this new force been able to make itself independent, as regards the place and method of its application ?

During recent parliamentary debates in France, it was officially stated that no regular air transport undertaking had hitherto been able to " pay its way " and do without subsidies either from the State or from other administrative bodies.

This is roughly true, though, to our knowledge, there is one exception—and perhaps two. This is little enough if we consider the number of companies.

* * *

A. The Colombian *S.C.A.D.T.A.*

The one undoubted exception is the *S.C.A.D.T.A.* (*Sociedad Colombo-Alemana de Transportes Aéreos*), a German-Colombian undertaking established in 1921 in a prosperous, progressive country, whose capital is a thousand kilometres from the coast, from which it is alone accessible. This distance is normally covered in *eight* to *twelve days* by vessels plying from Barranquilla to Girardot on the Magdalena River, the Girardot-Bogotá section being served by rail. At first, the small float-seaplanes employed covered this essential section (1,000 kilometres) in eight hours—that is to say, in the day—and the service rendered was such that the *S.C.A.D.T.A.*, when it had shown what it could do, could make its own prices. Since then, it has become more and more prosperous. Other lines were opened, though always with caution and only when the advantage of air transport was so marked as to make the public willing to pay the rates which had to be charged : coastal lines of 800 to 1,000 kilometres to Panama or Peru, which meant a saving in time of two to five days ; small inland lines such as that from Puerto Wilches to Bucaramangua (perched over the River Magdalena) *which is 70 kilometres in length as the crow flies* and makes it possible to cover the distance in an hour (the plane has to fly high to cross the mountain) as compared with two days and a-half—this being the time taken in the train, followed by a mule ride.

The *S.C.A.D.T.A.* seaplanes cover 125,000 kilometres a month ; the river service from Barranquilla to Girardot, which used to be weekly, is now daily. Thanks to agreements concluded, more particularly with *European* postal authorities (an example of long-distance co-operation due to the initiative of enterprising commercial services), the air lines of Colombia, which is a country of six and a-half million inhabitants, convey—and at a profit—a larger quantity of mail than all the German lines in Europe. What is still more remarkable, these 125,000 kilometres a month are paid for by a tonnage which is not very large : 500 tons in all during the year, 60 tons of which are for postal matter. *But the rates charged, which are regulated in proportion to the service rendered, are from three to six times the rates on the European lines.*

The *S.C.A.D.T.A.* pays quite good dividends, is gradually reducing its rates in order to fill its planes, and is contemplating and preparing for extensions of the system —all designed on the same principles—to Central America, Chile and Trinidad.

* * *

Some of the Peruvian lines, which are run by the State Air Service, make it possible to cover in two days a difficult section for which six weeks are otherwise required. The *Lloyd aéreo boliviano* is always rendering similar services. In Persia, the *Junkers Luftverkehr* lines are transforming conditions of traffic and, having worked without a subsidy for three years, consider their financial independence established. One New Guinea line in the service of a gold-mining concern is also regarded as prosperous.

In all these cases which we have considered, it is the local conditions and especially the precariousness and difficulty of normal traffic which have made air transport prosperous, or are likely to do so in the near future. But the companies must be able to obtain enough tonnage and tonnage that can pay the true price. As has been said, " aviation does not live exclusively on the area covered [or indeed, one may add, on its ability to surmount obstacles], *but on traffic* ".

Although it is true that this paying tonnage (passengers in a hurry, urgent correspondence, samples, interest-bearing bankers' bills, etc.) is larger in more highly developed countries, it is also true that these countries, as a rule, already possess rapid means of transport which are more regular, safer and less costly than air transport, and frequently, for the reasons given above, scarcely less rapid. Thus, in cases where the technical superiority of air transport has been proved, it is often unable to obtain the tonnage which would ensure its commercial success ; and, again, where the material to be transported is plentiful, already established means of communication often almost entirely neutralise, by their high degree of development, the theoretical superiority of the new means of transport.

B. Commercial Aviation in the United States of America.

One country, however—a country as large as Europe—appears at first sight as if it ought to be the " promised land " of commercial aviation. I refer to the United States, where business is intense, distances great, and road and rail systems less concentrated and less equally distributed than in Europe. Much has been said of the prosperity of American commercial aviation, as if its undeniably promising future were a present reality.

Commercial aviation in the United States still lives on subsidies. It receives special Government grants for mail services, and private grants for other branches of air transport in the form of generous donations in initial capital—a circumstance which was largely due to the superabundance of ready money in America between the beginning of 1928 and the middle of 1929.

Nevertheless, as regards these latter concerns, and especially the soundest of them, which have not indulged in aviation " on the cheap ", the facts of the technical position have made themselves felt, as is shown by the balance-sheets that have been published.

An express transport company plying between the Atlantic and the Pacific in co-operation with the railways—the *Transcontinental Air Transport, Maddux*—announces for its first financial period (six months only) a deficit of 32 million francs on operation. Of course, this deficit does not take account of sums tied up for initial installation, which are shown in the accounts at approximately 4 million dollars (100 million francs).

The *Western Air Express* would have lost at least 25 million francs in 1929 on its passenger and rapid goods services if it had not, on its postal contracts for two lines of a length of approximately 1,300 kilometres in all, made, on 2,355,000 dollars received from the Government, a profit of nearly two-thirds of that sum, which restored the balance.

In point of fact, as regards practically all the regular American air-transport concerns, the " compensation " paid by the Federal Postal Administration has alone ensured their prosperity or continued existence in accordance with the rates—and these are often very different—at which they have undertaken to perform their services.

But whenever concerns have had to depend on the public for remuneration for services rendered, they have proved almost as ineffective in the United States as in Europe. As the transport of a passenger by aeroplane over one kilometre costs 10 to 12 cents and the planes can only be half-filled by charging 5 to 10 cents a kilometre, it is not difficult to see what the result will be. Since the beginning of 1930, the American companies have had to reduce their rates in order to attract customers. Reductions of 30 to 50 per cent have sometimes been sufficient almost to fill the aeroplanes, but the general financial result has not been any better. All that can be said is that such a policy, provided that accidents are not too numerous, may prepare the way for that more numerous public which will, in the near future, use aeroplanes that are safer, larger, better and easier to run at a profit.

* * *

At all events, the Government " compensation " and the large quantities of mail carried at extra rates make it reasonably certain that, in the United States, where the conditions are very favourable, we shall see self-supporting postal air services.

In 1928, the postal matter carried by air amounted to 135 tons a month ; the figures for 1929 and the first quarter of 1930 being 170 tons and 250 tons per month respectively.

At the end of the first quarter of 1930, on twenty-five inland lines totalling 24,000 kilometres, postal machines covered 60,000 to 70,000 kilometres a day and conveyed altogether 9 tons of postal matter, for which they received one million francs.

The remuneration per kilometre may therefore be estimated at 15 francs, and the postal " compensation " paid to the companies at approximately 110 francs per kilogramme.

Furthermore, the system in use allows of this compensation being paid to several concerns if they all help to carry the mails (see Note 1).

There are cases where the payments made by the State are so disproportionate to its receipts that it may be said that the subsidies paid to the air companies reach a level rarely seen in Europe. That is one of the results of the American system of making contracts for the mail service over several years on sections where it was difficult to appreciate the yield of the new services and where the carrier naturally tended to " cover himself " by charging high rates computed by weight. He could do this the more easily as, in 1926, civil aviation was entirely unknown to the American business world. Since then, he has taken advantage—and this is human if the pursuit of gain and of gain alone can be said to be human—of any weak points in the contracts. For instance, one carrier sent by air to his own address crank-shafts covered with stamps, each of which cost the consignor 5 cents but brought him in 20 ; while another carrier one Christmas sent thousands of actual or prospective clients Christmas cards, each of which, so far from costing him anything, brought him in a profit. The American Postmaster-General has described these practices as " unethical ". It is obvious,

however, that such methods can only have been applied in relatively rare cases where the rates of " compensation " were disproportionate to the postal rates. Generally speaking, the air postal transport undertakings seem to have lost money in the United States since 1926, in spite of the very substantial support received from the Government.

At the time of writing, the Waters Law has just been passed. It extends this Government support to passenger lines, though on a small scale and by a method which amounts to taking the new subsidies out of the unduly generous " compensation" accorded to certain postal air carriers. At the same time, the present payments, which are reckoned on the weight of mail carried, are being replaced by payment of a sum proportionate to the space made available for the Federal Postal Administration by the air company in question on a given section.

* * *

This is not the place to examine the probable consequences of this change. We will only say that the inability of regular air transport to " pay its way " is at present the general rule ; that there are only a few exceptions based on the observation and intelligent utilisation of peculiarities of economic geography ; and that, finally, this weakness is inherent in the average aircraft of to-day, which has reached much the same technical level everywhere and the employment of which—both in the United States and in Europe—is subject to the same limitations and involves the same outlay if the conditions of employment are comparable.

* * *

These conditions of employment, however, actually differ very greatly, especially in the case of the European concerns. It would therefore be necessary, in order to gauge their influence, to examine separately the most characteristic concerns. Such an examination is difficult, as the accounts published are often not very clear or are too greatly simplified. We will, however, endeavour briefly to state the position of two non-French undertakings, and then of two French companies. We have more information with regard to the latter, and we shall perhaps appear to be too severe on them at times, which would be inexcusable and unreasonable. It is our intention merely to bring out certain facts, proved by experience, of which account must be taken at least in Europe, if air transport is to render more and more valuable services, which will be ultimately and adequately paid for by the passenger and not by the taxpayer.

C. The Netherlands *K.L.M.* Company.

The *K.L.M.* is often quoted as a typical example of a concern run on sound business lines, and giving a constantly increasing return.

These working results are shown in Table I and the graph (Figure 1) below.

While the traffic of the *K.L.M.* has expanded continuously, the cost price per kilometre-ton offered by it to the public also fell continuously until 1928, so that, in 1927, the proportion of operation expenses covered by commercial receipts had already doubled since 1923 (69.3 as against 34.3 per cent). Thus, while at that date the company had either to receive a subsidy of something like 20 francs per kilometre-ton or submit to the loss of that amount, this Government assistance—or the company's loss—amounted to only about 3.50 francs in 1928.

It will be admitted that the progress made is considerable ; but, before holding up the *K.L.M.* as an example, we must study its peculiar working conditions.

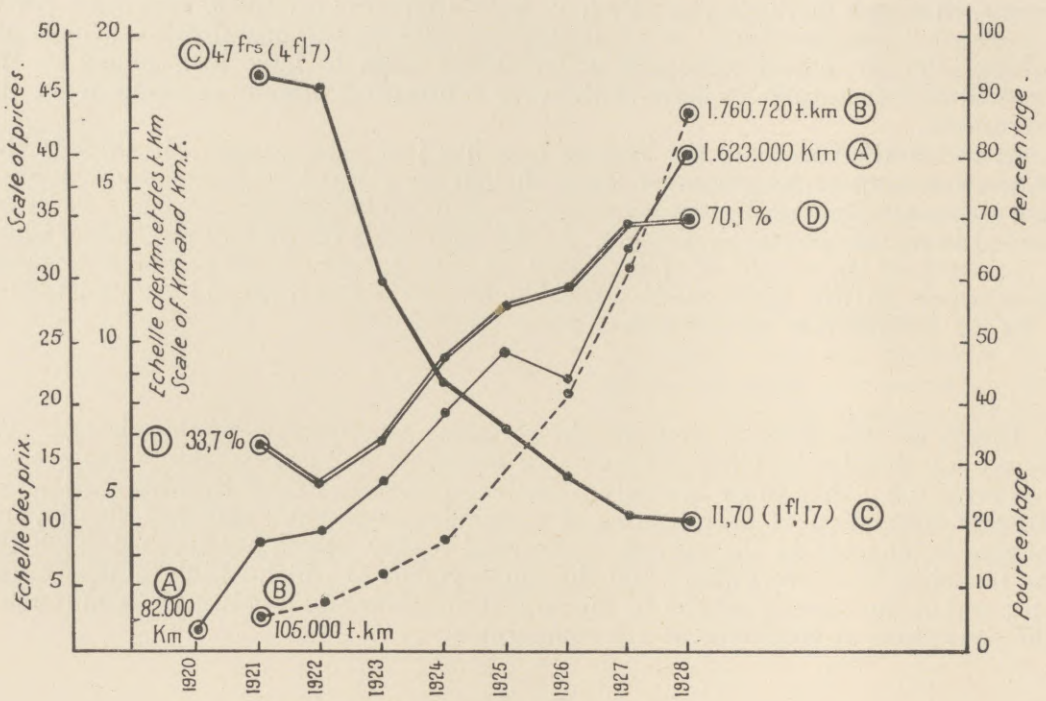

Figure 1. — Operating Results of the *K.L.M.* from 1920-1928.

A. Kilometrage.
B. Number of kilometre-tons offered.
B. Costs per kilometer-ton offered.
D. Percentage of commercial receipts to total receipts.

Table I. — Results of Operation of the *K.L.M.* from 1921 to 1929.

	1921	1922	1923	1924	1925	1926	1927	1928	1929
Number of kilometres covered	350,000	397,000	540,000	790,000	965,000	895,000	1,310,000	1,623,060	1,986,240
Number of kilometre-tons offered	105,000	163,000	239,000	359,000	610,000	883,000	1,272,000	1,760,720	1,965,000
Cost of kilometre-ton offered (Francs)	47	46	30	22.30	18	14.10	12.10	11.70	13.70
Percentage of working costs covered by commercial receipts [1]	33.7 %	27.2 %	34.3 %	47.6 %	56 %	59 %	69.3 %	70.1 %	64 %

[1] These working costs comprise overhead costs and amortisation and insurance charges.

1. *Its system is a small one.* Permanent lines between Amsterdam and London and Amsterdam and Paris ; lines to Copenhagen and Basle during the half of the year most suitable for tourist traffic and air transport.

2. *This system converges on Amsterdam.* The termini, which can be reached without intermediate landing and without the company having had to worry about ground installations, are situated sufficiently near the principal base to make it possible, even where it is not commercially desirable for aeroplanes to make the double trip on the same day, to reduce to a minimum the staff and technical equipment required, the cost of which is borne by the company. The *K.L.M.* has made every effort to introduce regular services on the Amsterdam-Paris-London triangle, where two aeroplanes, leaving Holland in the morning in each direction, would easily cover the distance in the day and be able to get back by the evening.

3. *The* K.L.M. *material is homogeneous* and, as far as possible, kept up to date. This facilitates repairs, the changing of parts, and the training and remunerative utilisation of the shifts employed on upkeep. The company sells its machines, while still perfectly airworthy, to other concerns whenever it can replace them by machines of a more recent model and better suited to its requirements. In this way, its park is not encumbered with material of inferior quality which slows down traffic or which, when scrapped, depreciates in value very rapidly.

4. *The system of free trade* followed in the Netherlands makes it possible for the *K.L.M.*, which operates in a small country where the aeroplane industry cannot be expected to excel in all subsidiary specialities, to purchase its raw material, engines and other equipment in the best and cheapest market. A *K.L.M.* aeroplane is a curiously international combination, and so sometimes is its crew.

The direct consequence of these principles and of this system is that the technical quality is high, the upkeep is easy and cheap, and the " rotation " of the material remarkably rapid and steadily improving. In 1927, 14 machines covered 1,310,000 kilometres in 8,817 hours ; in 1928, 12 machines covered 1,750,000 kilometres in 10,287 hours : that is, in 1927, 93,600 kilometres and 629 hours and, in 1928, 145,833 kilometres and 857 hours. Last year, the machines were, on an average, available for 88 *days out of* 100, as against 53 out of 100 in 1921. Similarly, 46 per cent of the tonnage offered by the various aeroplanes belonging to the regular service was utilised by paying freight in 1927, and 47.6 per cent in 1928.

As the company receives only small subsidies, which were originally intended merely as a Government guarantee in respect of two-thirds of the deficit on operation, and as it has accepted the sound principle of diminishing grants over a period of seven years, the *K.L.M.* has had every inducement to improve its service, *but only within the limits of an easily executed European programme,* and a local one at that. Owing to the fierceness of competition, however, it is no longer possible for the financial side to keep pace with the technical progress.

The percentage of working costs covered by commercial receipts fell from 70 per cent in 1928 to 64 per cent in 1929, and, owing to the losses sustained in 1929 and the anticipated deficit for 1930, the Government has had to grant larger subsidies. These amounted to 925,000 florins last year and will amount to 1,000,000 florins for the current year.

D. The German « Luft Hansa ».

Attached to this chapter (Table II and Figure 2) are some statistics and a graph showing the development of the regular German air services. These attached documents, which cover the period 1925 to 1929, really represent the operations of the German *Luft Hansa*, the only company which has a monopoly of Government subsidies. Account being taken of the operations of the *Deruluft*, which only runs the services between Germany and Russia, and of the *Nordbayerischer Verkehrsflug*, a local company, 88 to 90 per cent of the total traffic is in the hands of the *Luft Hansa*.

The figures for 1928 show that each passenger covered 240 kilometres on an average and each ton of freight 360 kilometres.

If the air transport limitations we indicated in Chapter II are kept in mind, and if, in particular, we consider the density of the road and rail systems in Germany, it is doubtful whether air traffic can have meant any great saving of time for these

Table II. — Development of German Air Transport from 1919 to 1928.

A. *Technical Statistics.*

Aeroplanes in use.

Year	With cabin	Without cabin	Total	Number of flights	Kilometres flown per diem	Kilometres flown per annum	Percentage of regularity [1]
1919	—	—	144	—	—	580,139	—
1920	27	115	142	—	3,060	480,053	—
1921	34	124	158	—	6,780	1,654,000	90.8
1922	50	75	125	2,504	9,860	1,203,680	86.3
1923	72	73	145	3,064	9,670	717,842	84.0
1924	107	142	249	4,198	15,030	1,583,492	84.4
1925	142	182	324	18,634	35,174	4,949,661	89.7
1926	168	248	416	42,184	37,222	6,541,159	95.2
1927	194	344	538	26,659 [1]	55,812	9,969,995	89.6
1928				30,424 [1]	67,577	11,449,744	90.4

B. *Transport Statistics.*

Year	Passengers		Goods			
	Number	Passenger-kilometres	Weight (tons)		Total weight	Kilometre-tons
			Goods	Postal matter		
1919.....	2,042	—	—	—	9.9	—
1920.....	3,975	—	5	6.4	12.1	—
1921.....	6,820	—	—	—	31	—
1922.....	7,733	—	37	32	69	—
1923.....	8,507	2,062,901	39	5	44	9,501
1924.....	13,422	3,266,334	71	22	93	41,513
1925.....	55,185	10,603,035	521	287	808	178,328
1926.....	84,594	14,639,151	1,056	550	1,607	311,266
1927.....	151,991	26,953,998	2,326	826	3,152	681,661
1928.....	120,711	28,689,466	2,163	350	2,514	873,467

[1] A flight is regarded as regular if it is completed on the day on which it was begun.

passengers or goods over such short distances, and it will therefore be felt that, in view of the insignificant services rendered,[1] the remuneration can scarcely have been adequate. Indeed, it must be admitted that the *Luft Hansa* (to take only that company) covers less than one-third of its expenditure out of its commercial receipts (59 million francs out of 185 millions in 1928-29), and that it has hitherto received a subsidy of approximately 14 francs per kilometre. In 1929, the reduction in the Government subsidies immediately led to a proportionate reduction in traffic, which shows that in this as in other cases the progress (see Note 2) is of an artificial nature.

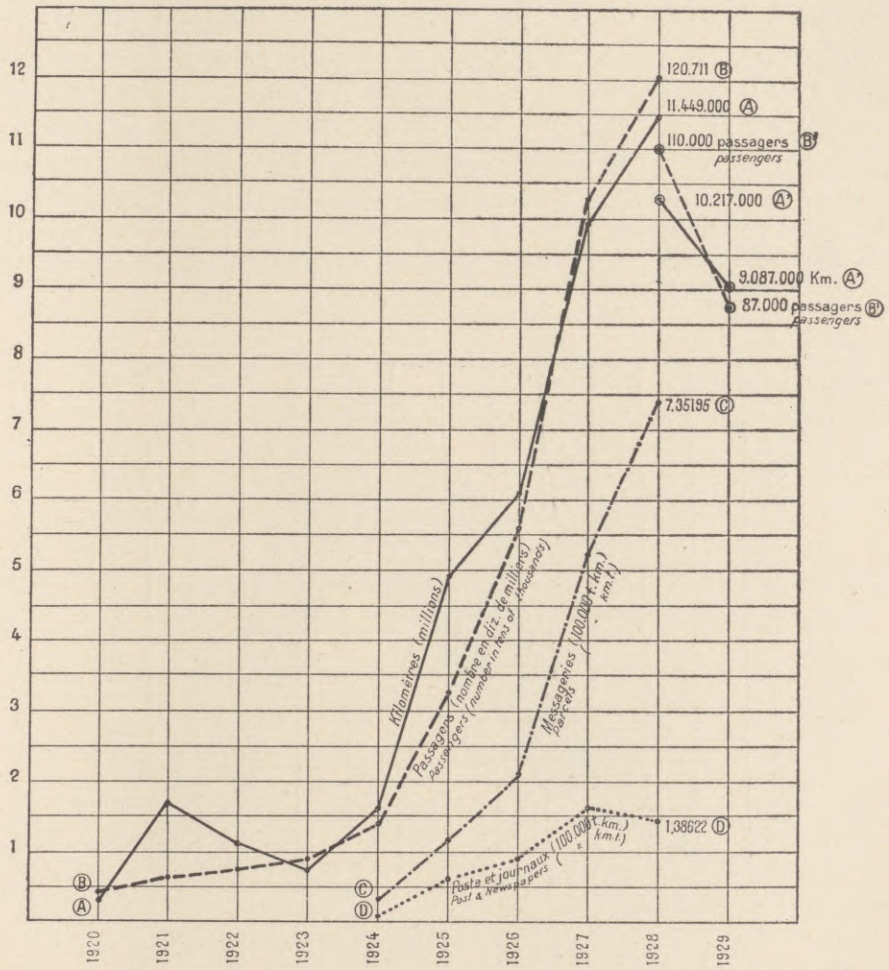

Figure 2. — Graph of the Development of Regular German Air Traffic from 1920-1929.

A. Annual kilometrage.
B. Passengers (per 10,000).
C. Parcels (per 100,000 kilometer-tons).
D. Mail (per 100,000 kilometer-tons).

Observations.

The only figures available in the middle of April 1930 with regard to 1929 are those concerning the *Luft Hansa*. It may, however, be assumed that in 1929 they represented at least nine-tenths of the total traffic, as in 1928 (cf. values A and B—total traffic—and A^1 and B^1—*Luft-Hansa* traffic). The trend of the graph (decline from 1928 to 1929) is therefore undoubtedly correct.

[1] We are referring here only to averages and are fully aware of the importance of particular lines.

The German inland system has so often been the subject of critical examination, the details with regard to its ninety lines so often reproduced, and the reasons for this artificial development are so well known that we will not go into this question here.

We will only point out that, the unproductive lines neutralising the satisfactory results of the best lines, even the astonishingly low rates (they were again reduced in 1930) have not succeeded in raising to more than 35 per cent the average utilisation of the tonnage offered to the public. In 1928, the *Luft Hansa* classified its lines as follows, according to the greater or lesser utilisation of the tonnage offered for passenger traffic (passengers represent in weight seven-tenths of the total traffic) :

Main lines: Of the 27 main lines, there were 15 with a percentage of more than 45, 7 with a percentage of 30 to 45, and 5 with a percentage of less than 30.

Subsidiary lines: Out of a total of 43, there were 15 with more than 45 per cent, 11 with 30 to 45 per cent, and 17 with less than 30 per cent.

On more than half the ninety permanent or seasonal lines, not more than 20 per cent of the seats available for passengers were filled. One of our graphs (Figure 3) shows the variation in the large percentage of unoccupied seats in 1927, and the curves for 1928 and 1929 would be much the same.

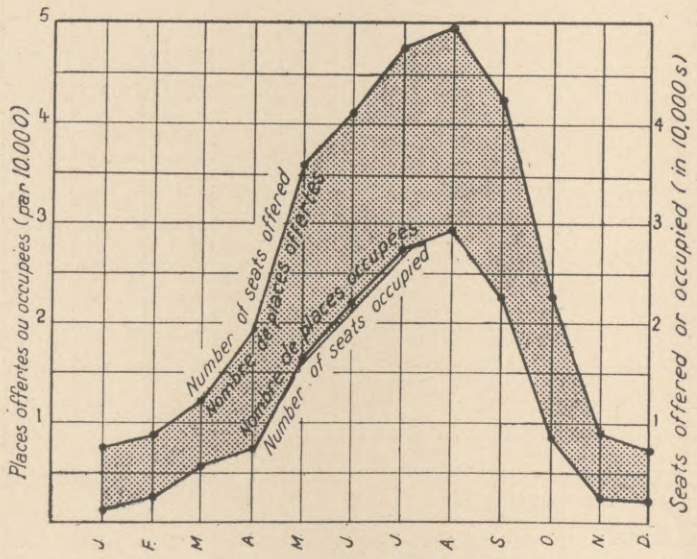

Figure 3. — Utilisation of Seats for Passengers.
(According to the German statistics for 1927.)

Maximum percentage of unoccupied seats—78% (January).
Maximum number of unoccupied seats—20,000 (out of 47,000 and 49,000 in July and August).

E. Experience in France.

Table III and the corresponding graph (Figure 4) summarise, for the various companies, the working results of the French air transport undertakings, and also give the total subsidies granted annually to these companies by the French Government.

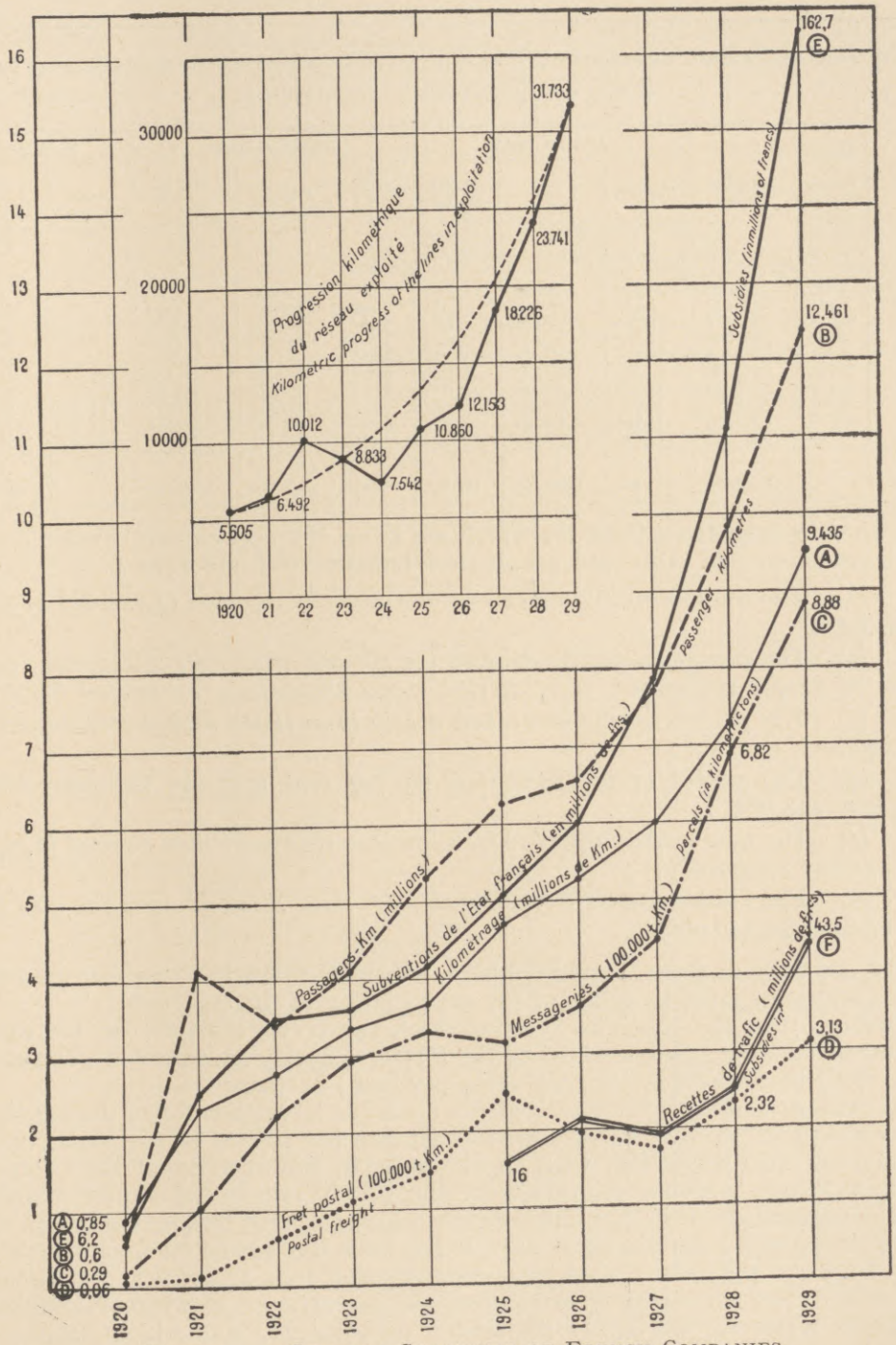

Figure 4. — General Statistics of French Companies.
Activity, Traffic and Subsidies, from 1920-1929 inclusive.

A. Kilometrage ;
B. Passenger-kilometres ;
C. Parcels (kilometer-tons) ;
D. Postal freight (kilometer-tons) ;
E. Subsidies (in millions of francs).

Table III. — FRENCH COMPANIES : TRAFFIC AND SUBSIDIES BETWEEN 1920 AND 1929.
(From the French official documents.)

Year	Length of system operated (kilometres)	Kilometres covered	Absolute traffic			Kilometre traffic			Total receipts	
			Number of passengers	Parcels (kilogrammes)	Postal matter (kilogrammes)	Passenger-kilometres (000's omitted)	Parcels (kilometre-tons)	Postal matter (kilometre-tons)	Traffic receipts (francs)	French Government subsidies (francs)
1920	5,605	853,959	1,379	48,100	3,925	615	29,458	6,320		6,207,000
1921	6,492	2,353,455	9,427	166,490	9,481	4,126	106,250	14,040		25,180,000
1922	10,013	2,798,366	6,799	388,509	40,367	3,484	209,552	65,914		34,908,000
1923	8,833	3,387,195	7,822	704,253	73,573	4,189	292,781	114,486		36,062,000
1924	7,542	3,647,826	10,758	674,559	110,176	5,366	333,411	150,130		41,100,000
1925	10,860	4,712,888	14,196	741,085	198,609	6,279	319,359	254,689	16	51,340,000
1926	12,153	5,220,585	13,634	767,681	154,258	6,592	361,349	195,404	22 (approximate)	60,250,000
1927	18,226	6,028,727	15,857	746,452	125,289	7,717	445,591	171,232	19 (approximate)	78,650,000
1928	23,741	7,297,004	19,644	1,156,354	130,256	9.926	682,448	232,201	25 (approximate)	111,000,000
1929	31,733	9,435,434	25,256	1,602,596	149,398	12,461	888,317	313,293	43 (approximate)	162,700,000
Total 1920-29		45,735,960	124,792	6,990,079	995,332	60,245	3,070,000	1,518,000		607,397,000

If we only take the period for which we know the approximate traffic receipts, we shall see from this table and graph that *between* 1925 *and* 1929 :

(1) The number of kilometres covered exactly doubled (4,712,888 as against 9,435,434) ;

(2) The passenger traffic *doubled* (12,461,000 passenger-kilometres, equivalent to 12,461 passengers each carried 1,000 kilometres, as against 6,279,000) ;

(3) The parcels traffic increased *nearly three times* (888,317 kilometre-tons as against 319,359) ;

(4) The postal traffic increased 23 *per cent* (313,293 kilometre-tons as against 254,689) ;

(5) The *total traffic* expressed in kilometre-tons *more than doubled* (2,240,020 as against 1,097,298) ;

(6) *The annual subsidies increased more than threefold* (162,700,000 francs as against 51,340,000).

Thus, activity doubled, traffic doubled, subsidies more than trebled (or roughly trebled, as account must be taken of the depreciation of the currency).

If we compare the subsidies received with the traffic receipts, we see that the latter amounted to nearly one-third of the former (exactly 31.4 per cent) in 1925 and to little more than one-quarter only (26.4 per cent) in 1929.

The average commercial returns of the concerns have thus fallen during the last five financial years, so that Government assistance has had to be increased, not only absolutely, but also relatively, with the increase in the activity of the companies.

This increased activity, expressed by the steady rise in the annual number of kilometres covered, is due, to a small extent only, to more frequent services on the lines already opened ; for the most part, it has been due to the opening of new lines. Between 1925 and 1929, the *French air system increased from* 12,400 *to* 31,533 *kilometres*. At the same time, the *index of utilisation*, the importance of which is emphasised by M. Louis KAHN in two highly important memoranda,[1] and which expresses the annual tonnage per kilometre of system, has fallen in five years from 91 to 71.

* * *

[1] *Revue Politique et Parlementaire* (November 10th, 1927, and April 10th, 1928).

If we desire to obtain a more exact idea of the average returns of the French public air transport undertakings, we must study Table IV with its corresponding graph (Figure 5).

Table IV. — Returns of French Subsidised Air Transport from 1925 to 1928.

Year	Kilometre-tons		Ratio	Cost price per kilometre-ton		Subsidy per kilometre-ton carried	Traffic receipts per kilometre-ton carried	Total receipts per kilometre-ton carried	Returns (ratio of traffic receipts to cost price)
	1 Offered	2 Carried	$\frac{2}{1}$	Offered (francs)	Carried (francs)	(francs)	(francs)	(francs)	
1925	2,335,000	1,202,000	51%	29.50	56.90	47.60	10.40	58	18.2
1926	2,524,250	1,215,900	49%	35	72.90	47.40	17.56	64.96	24
1927	2,882,940	1,388,020	45%	35	72.31	58.30	14	72.30	19.4
1928 [1]	4,729,922	1,907,200	40%	33.50	83	?	?	?	?

[1] On April 25th, 1930, the Audit Committees had not communicated the result of their work for 1928. The values given are therefore taken from the statements made by the companies themselves to the official services.

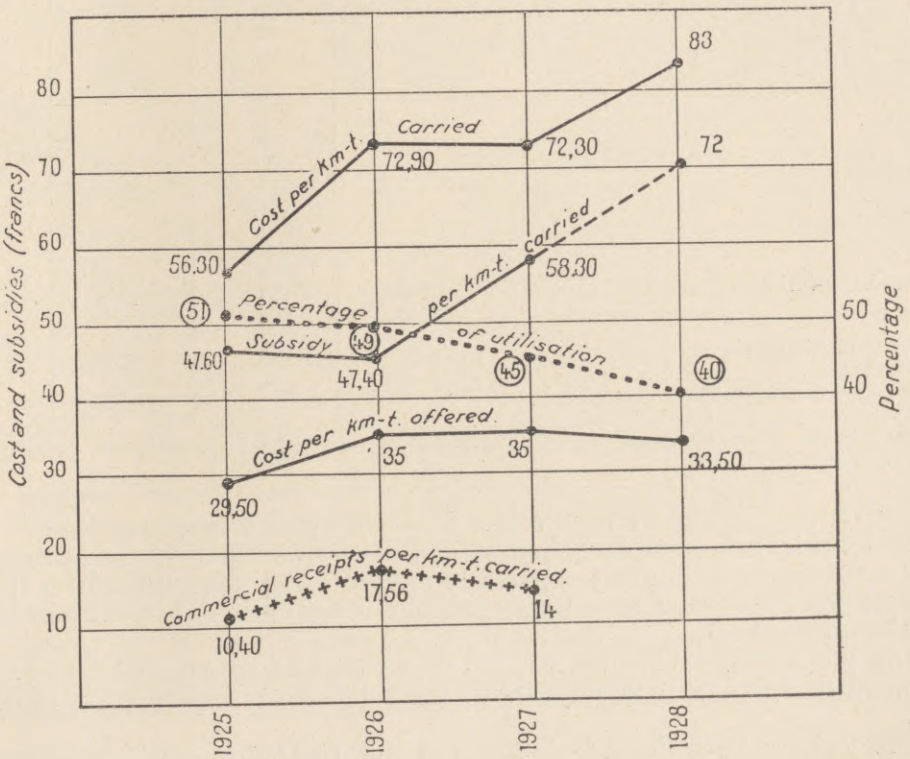

Figure 5. — Factors for estimating Output (French companies 1925-28).

Variation in the operating cost per kilometer-ton (offered and carried), utilisation, subsidies and commercial receipts per kilometer-ton carried.

It will be noted that :

(1) The cost price of the kilometre-ton *offered* remains practically constant ;

(2) On the other hand, the cost price of a kilometre-ton carried increased in three years from 56 to 83 francs, owing to less satisfactory utilisation of the tonnage offered, expressed by a percentage which has fallen from 51 to 40 and was no doubt lower still in 1929 (slight fall in the number of passengers on certain lines, more notable increase on others, but on *all the lines* larger aeroplanes and seaplanes introduced ; see Table V) ;

(3) As the commercial receipts per kilometre-ton carried are scarcely increasing at all, the corresponding rate of subsidy needed roughly to balance the accounts has increased from 47.60 to 72 francs.

* * *

Table V. — Coefficient of Tonnage Utilisation
(Coefficient of sale).

Companies and lines	Percentage of utilisation (kilometre-tons offered — kilometre-tons carried)		
	1927	1928	1929
Compagnie Générale Aéropostale :	%	%	%
Toulouse-Casablanca	50	36.8	21.5
Casablanca-Dakar	15	22	
France-America			18
Marseilles-Algiers		6.3	18
Paris-Madrid			9.6
Air Union :			
Paris-London [1]	50	59.3	55.6
Paris-Marseilles	76	43.8	44.6
Antibes-Tunis	50	48	35.8
Lyons-Geneva	68	43.6	28.8
C.I.D.N.A. :			
Paris-Stambul and branches	61	58.7	48.5
S.G.T.A. :			
Paris-Amsterdam	43	45.3	44.3
Paris-Berlin	59	49	48.8
Paris-Saarbruck (Berlin in 1929)		18.6	38.7

[1] Day service. For the night service, introduced in 1929, the coefficient of utilisation is 56.5 per cent.

The variation in these average values for such a varied system as that of French companies (see Figure 6) is not very illuminating. If we desire to obtain a clearer picture, we must consider each company separately and see what subsidy each of them has needed each year and what commercial receipts it has been able to obtain with the help of these subsidies.

Figure 7 shows the subsidies paid between 1926 and 1929 per kilometre covered. Figure 8, which refers to 1929 only, shows the subsidies as a percentage of the total receipts.

Figure 7 shows that the *Aéropostale* and the *Air Union* are the concerns which in 1929 required the largest subsidies per kilometre, but figure 8 shows that the *Air Union* obtained by far the most satisfactory commercial receipts.

A more detailed examination of these two companies would seem to be specially indicated.

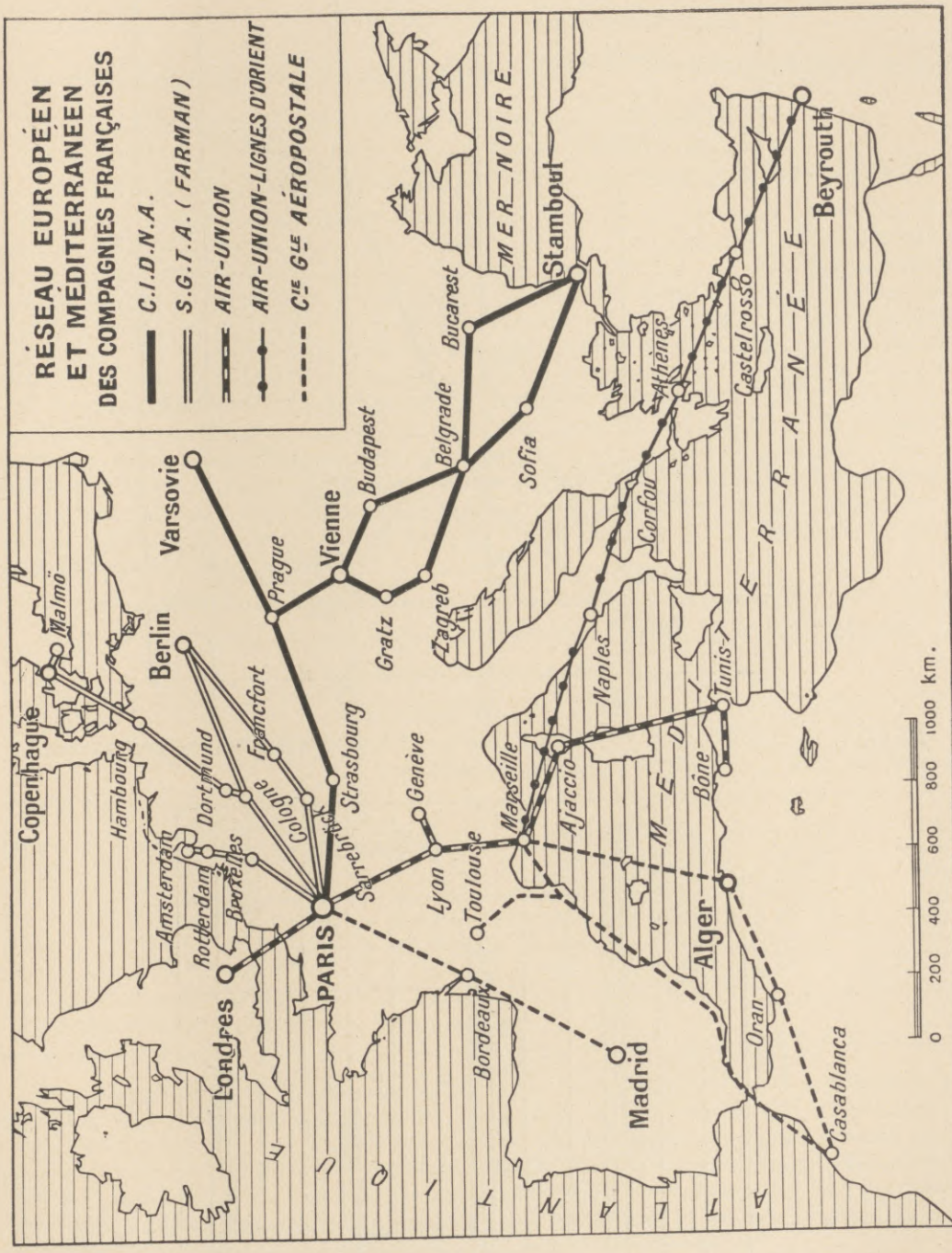

Figure 6. — European and Mediterranean Lines of the French Companies in 1930.

These lines represent the whole of those exploited by French companies, with the exception of the long Morocco-South America line of the Aéropostale (Casablanca-Dakar and Natal-Santiago de Chile by air, Dakar-Natal by fast despatch-boats).

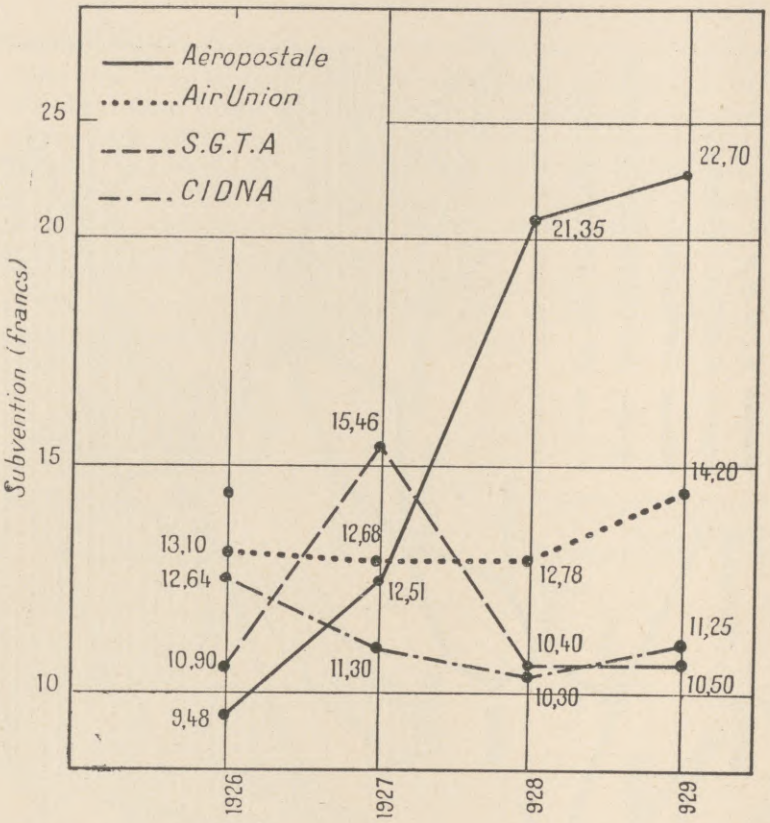

Figure 7. — Subsidy paid to French Undertakings per Kilometre travelled from 1926-1929.

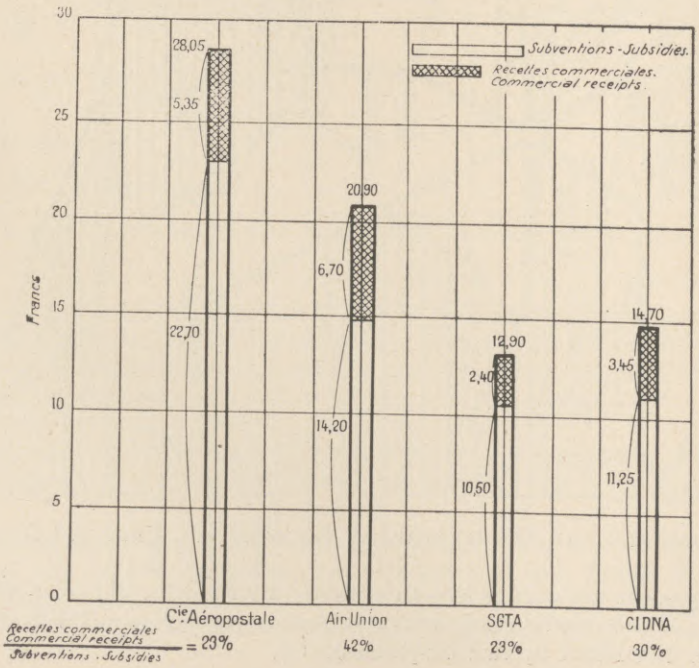

Figure 8. — Approximate Receipts per Kilometre of the French Companies in 1929.

Note. — *The Air Union-Eastern lines,* which carried on a postal service provisionally of an experimental character between Marseilles and Beirut, does not figure in this graph. It received about 58 francs per kilometre, of which 56.50 francs was subsidy.

F. Air Union.

The system operated by the *Air Union* consists for practical purposes of three lines :

A short aeroplane line : Paris-London (375 kilometres) ;
A medium aeroplane line : Paris-Marseilles (730 kilometres) ;
A long seaplane line : Marseilles-Ajaccio-Tunis-Bona (1,300 kilometres).

The first provides a connection of less than three hours between two of the most important capitals, which are also almost constant stopping-places for tourists, particularly from the United States. At the same time, certain Customs simplifications, and also the special suitability of aeroplanes for the transport of fragile objects, have gradually led to the building up of a considerable parcels traffic on this air route. Furthermore, the subsidies enjoyed by the *Air Union* (like its British competitor *Imperial Airways*) have made it possible to charge very low rates, especially for goods.

It is therefore natural that the traffic between Paris and London should have continually grown since 1927, as will be seen from Table VI and Figure 9, the proportion of available space utilised remaining, however, between 50 and 60 per cent. For this period the increase amounts to 90 per cent for parcels and 110 per cent for passengers (200 per cent for mail, but the quantities of the latter carried are so small that the variation could not be shown on the graph), while the number of kilometres covered only increased by 70 per cent.

Table VI. — Traffic of the French Air Service between Paris and London (*Air Union*) from 1923 to 1929.

Year	Kilometres covered	Traffic in absolute figures			Kilometric traffic		
		Number of passengers	Parcels (kilogrammes)	Mail (kilogrammes)	Passenger-kilometres (000's omitted)	Parcels (kilometre-tons)	Mail (kilometre-tons)
1923	384,228	2,303	436,927	769	864	136,848	288
1924	485,771	5,622	443,711	822	2,108	166,392	308
1925	617,890	7,708	514,926	1,251	2,891	193,098	469
1926	563,827	6,255	487,146	1,916	2,347	182,672	718
1927	576,600	5,176	336,653	1,218	1,906	126,250	459
1928	700,629	8,541	425,033	1,985	3,204	160,391	745
1929 [1] ...	957,740	10,774	823,471	3,776	3,993	233,924	1,203

[1] These figures do not include night traffic.

These traffic results, when compared with the general statistics (Chapter III, Table III), show that, in 1929, the Paris-London line, whose length represents 1.2 per cent of the system, carried 25 per cent of the kilometre-tons and earned 23 per cent of the commercial receipts obtained by the French undertakings. Exceptional though its *output* may be, however, its economic yield is smaller ; for the aeroplanes on the Paris-London line, while accounting for 10 per cent of the total French mileage, also received 9 per cent of the subsidies.

Here, therefore, we have a very active line with a large assured custom, but it does not succeed in recovering from its customers the cost of the service rendered. In 1927, the commercial receipts on the Paris-London line amounted to 9,460,000 francs, or 38 per cent of the total receipts of the line, these being supplemented by nearly 15 millions in subsidies (see Figure 10).

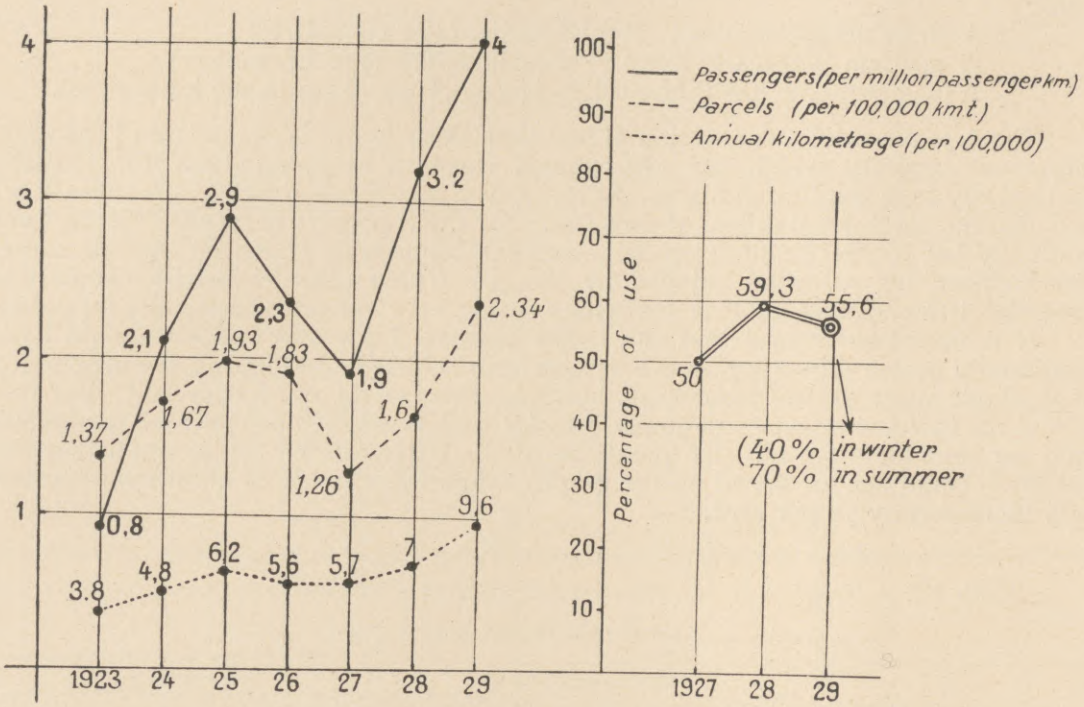

Figure 9. — Traffic and Utilisation of the French Paris-London Air Service from 1923-1929 (*Air Union*).

There are two explanations for this fact. In the first place, the receipts are still mainly derived from rich or well-to-do passengers, and particularly tourists, who are willing to pay more for an aeroplane than for railway and boat, but who would certainly be deterred by the real cost of air transport; for, as we have already indicated in Chapter II, the time saved is small, and this saving applies to day journeys, whereas the ordinary means of transport provide excellent night services which alone can really save time for ordinary hurried travellers, *e.g.*, for those whose time and energy are valuable. There remain urgent cases and tourists who have been recommended to take this air trip, which is beautiful, not too long and very pleasant, especially in summer ; but this is a limited clientèle.

In the second place, the competition which exists between *Imperial Airways* and the *Air Union* makes it very difficult to reach an agreement on prices which

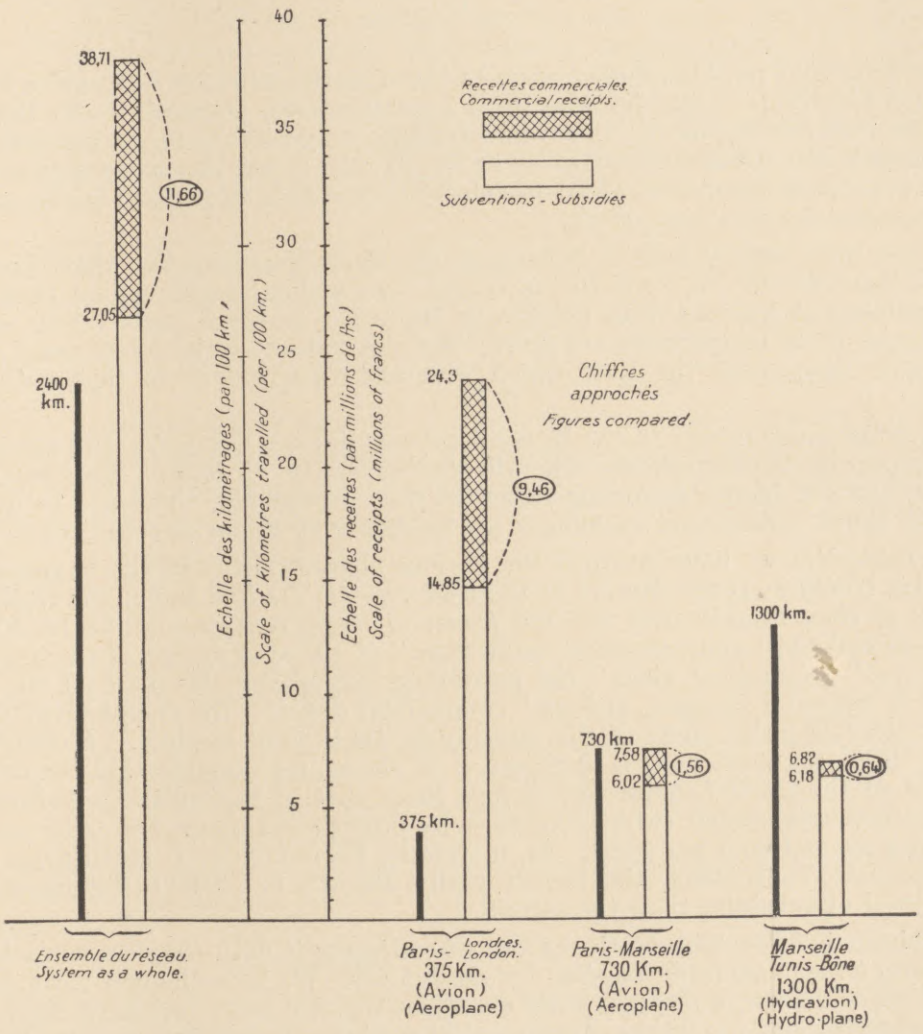

Figure 10. — AIR UNION LINES.

To the right of the scales, comparison for each line of kilometres travelled, the commercial receipts and the subsidies in 1929.

On the left will be found the same particulars for the system as a whole.

would tend to raise them methodically in proportion as the service rendered became more real (more comfortable aeroplanes ; more frequent flights ; very fast evening services, carried on, if necessary, into the night between 7 and 10 p.m. but leaving the ordinary business hours intact, while allowing the passenger a full night at an hotel or at home). On the contrary, if the tourist traffic tends to fall off, there is reason to fear a rates war in regard to goods, which would not be likely to improve the earning power of the line.

* * *

However that may be, and in spite of these weaknesses, the air service between Paris and London is easily the *Air Union's* greatest asset at present. On the Paris-Marseilles line (see Figure 10) the traffic receipts only account for 20 per cent of the total receipts, the subsidies amounting to 80 per cent ; and the proportion of actual receipts is as low as 9 per cent, while the subsidies amount to 81 per cent on the seaplane line Marseilles-Ajaccio-Tunis-Bona.

It has been rightly said in defence of the Paris-Marseilles line that this sector is much less valuable in itself (being served by excellent night trains) than in its prolongations. A journey from London to Marseilles makes it more worth while to travel by air if the connections are good ; but it is still more the connections further on towards Egypt and the East which give their importance to this preliminary sector.

Much the same applies to the Marseilles-Tunis line via Corsica, a difficult connection—despite its landing-places—like all Mediterranean air-lines. Moreover, while seaplanes involve higher operating expenses than aeroplanes, the route in question is one on which commercial exchanges are neither very important nor often urgent.

In Table VII we have grouped the various characteristics of the financial yield of the *Air Union* in 1929—factors in the *total receipts per line* and *in the receipts per kilometre of line, subsidy paid per* 100 *francs of traffic receipts*, and, lastly, what we propose to call the " characteristic coefficients " of the system and of the lines. We describe as " commercial yield " the percentage expressing the share of the traffic receipts in the total receipts, and as " commercial deficit " the complementary percentage expressing the share of the subsidy in these total receipts. A comparison between these two coefficients is instructive. It shows, for example, that the commercial yield of the Paris-London line is *four times* that of Marseilles-Tunis-Bona, but that its commercial deficit (which expresses its present weaknesses) is only one-third lower (61.4 against 90.7 per cent). As, moreover, Paris-London is much more active than Marseilles-Tunis-Bona, the former really absorbs in absolute figures a much greater total of subsidies than the second.

Emphasis is often laid, to the extent of confusing it with the commercial yield, on the *ratio between the traffic receipts and the subsidy*. We have thought it preferable, to avoid all confusion, to replace it by an equivalent but more expressive figure—the subsidy absorbed per 100 francs of commercial receipts. It will thus be seen that even Paris-London requires subsidies to an amount (156 francs) which exceeds the standard of 100 francs considered, and one is tempted to think that a first result to be aimed at would be to achieve equality between these two factors in the total receipts. In the case of Paris-London, each of these factors would then come to 128 francs, *i.e.*, the traffic receipts would have to be improved by 28 per cent assuming the total outlay to remain constant.

This indicates a first stage in the progress towards financial independence, that at which the line obtains as much from its customers as from the Government which subsidises it. Modest though this result may be, it is still far from achievement in

many cases. For Paris-London the deficiency, as we have seen, is 28 per cent, for Paris-Marseilles 144 per cent, for Marseilles-Tunis-Bona 434 per cent and for the whole of the *Air Union* system 70 per cent.

* * *

One fact remains clear, however. As it does not seem that, in the countries of Western Europe, the aeroplane is yet strong enough to create new currents of transport, there is an obvious advantage in using it for the most active, the best established and, above all, the densest currents. Paris-London remains typical of a line which could very quickly be made to pay by means of wholehearted Franco-British co-operation. Over these 375 kilometres the *Air Union* obtains nine and a-half millions of commercial receipts. This is substantially the same as that which the *C.I.D.N.A.* derived in 1929 from a trans-European system of 4,120 kilometres, and is three times what the *S.G.T.A.* has been able to obtain on 3,000 kilometres of lines.

Table VII. — System and Lines of the *AIR UNION* : Financial Return in 1929.

		Total system (2,400 kilometres)	Paris-London (375 kilometres)	Paris-Marseilles (730 kilometres)	Marseilles-Tunis-Bona (1,300 kilometres)
		Francs	Francs	Francs	Francs
Inclusive receipts	Annual traffic receipts	11,658,561	9,459,535	1,560,882	638,144
	Annual subsidies	27,050,939	14,847,936	6,021,728	6,181,275
	Total receipts	38,709,500	24,307,471	7,582,610	6,819,419
Receipts per kilometre of line	Traffic receipts	4,858	25,220	2,138	491
	Subsidy	(A) 11,271	39,592	8,248	4,754
	Total receipts	16,129	64,812	10,386	5,245
Subsidy per 100 francs of traffic receipts		240	156	387	968
		%	%	%	%
Characteristic coefficients of the system and of the lines	Commercial yield : $\% = \frac{\text{Traffic receipts}}{\text{Total receipts}}$ ..	30	38.6	25.9	9.3
	Commercial deficit : $\% = \frac{\text{Subsidy .....}}{\text{Total receipts}}$ ..	70	61.4	74.1	90.7
	Improvement still necessary in the percentage of traffic receipts before they become equal to the subsidies [1]	70	28	144	434

[1] This first result would be achieved for the whole system, for example, all other conditions remaining equal, if (see (A) in the table) the kilometre receipts of 16,129 francs, which at present ensure the approximate balance of the accounts, consisted of 8,064.50 francs of traffic receipts (*i.e.*, 70 per cent more than at present) and 8,064.50 francs of subsidies.

G. Compagnie générale aéropostale.

The increase in earnings, subsidies and general activities over the whole of this company's system from 1925 to 1929 is as follows :

Table VIII.

	Kilometres flown	Commercial receipts	Subsidies	Observations
		Francs	Francs	
1925.....	2,360,494	3,624,189	23,210,000	Original system
1926.....	2,440,367	5,480,667	23,666,000	
1927.....	2,482,002	5,265,043	33,600,000	Extension
1928.....	2,851,002	9,252,209	60,550,000	Extended system
1929	3,442,663	18,524,929	78,000,000	

The graph (Figure 11) illustrating these figures calls for comment.

In 1925 and 1926, the *Compagnie générale aéropostale* was mainly engaged in the France-Morocco service, which we shall consider separately later. The subsidies remained steadily at 23 millions, while commercial earnings increased from 3.6 to 5.5 million francs, from 1925 to 1926 ; but this was owing to the temporary influence of extraneous events. As a matter of fact, receipts from this service decreased during the following years.

Thereafter (in 1927), the Company, in accordance with its settled policy, secured the right to ensure communications with French West Africa, a necessary preliminary to establishing communications between France and South America. The subsidies then suddenly rose to 33.6 millions, although, naturally, the extension of the service could not produce any immediate effect on traffic receipts, which then amounted to 15.6 per cent of the subsidies. In 1928, the opening of the postal service between France and South America caused the subsidies to increase to 60.5 millions (and then, in 1929, to 78 millions, mainly owing to the extensions of the service in American territory). At the same time, the commercial earnings rose to 9.2, and then to 18.5 millions (an increase of 100 per cent in one year), whereas the subsidies increased by 30 per cent during the same period. The curves show that, if the present rate of progress is maintained, commercial earnings should attain from 70 to 80 million francs towards the year 1934. Actually, after the extension of the system, they amount to 24 per cent of the subsidy as against 16 per cent in 1927.

By this extension, the company has discovered a way out of what seemed to be an impasse. But the new system has imposed a financial burden on the State four times what it was previously ; mention should also be made of the large issues of bonds by the company which have made it possible to create the vast substructure necessary. This would, however, appear to be an example of a long-term enterprise in which the directors (and consequently the State, if the contracts are properly drawn up) may hope to recover their capital and occupy, perhaps definitively, a valuable position.

Figure 12 shows that extra postal charges accounted for 91.3 per cent of the total receipts for 1929, and that the France-South America line already earned almost two-thirds of these surcharges.

Figure 13 shows the regular increase in quarterly postal receipts on this special line. Their average value, which was less than 600,000 francs in 1928, rose to more than two and a-half million for 1929, *i.e.*, an increase of over 300 per cent. It can

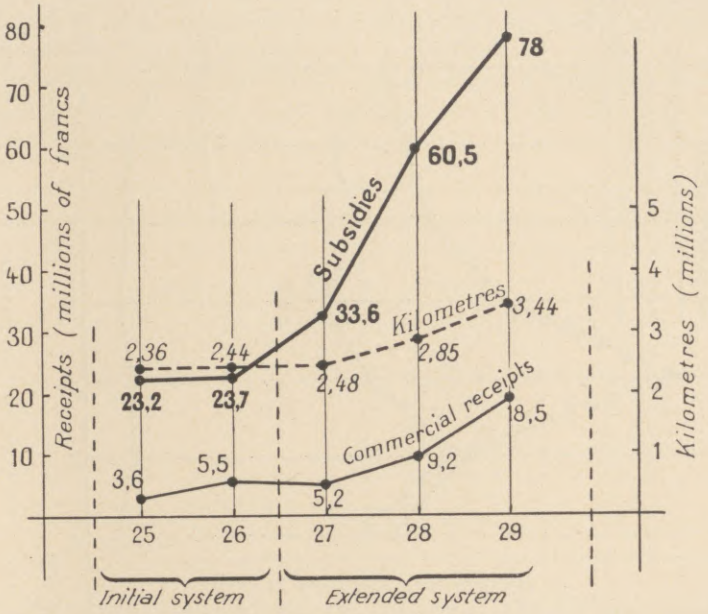

Figure 11. — Movement of Commercial Receipts, Subsidies and Distances flown of the "Compagnie générale aéropostale" from 1925-26.

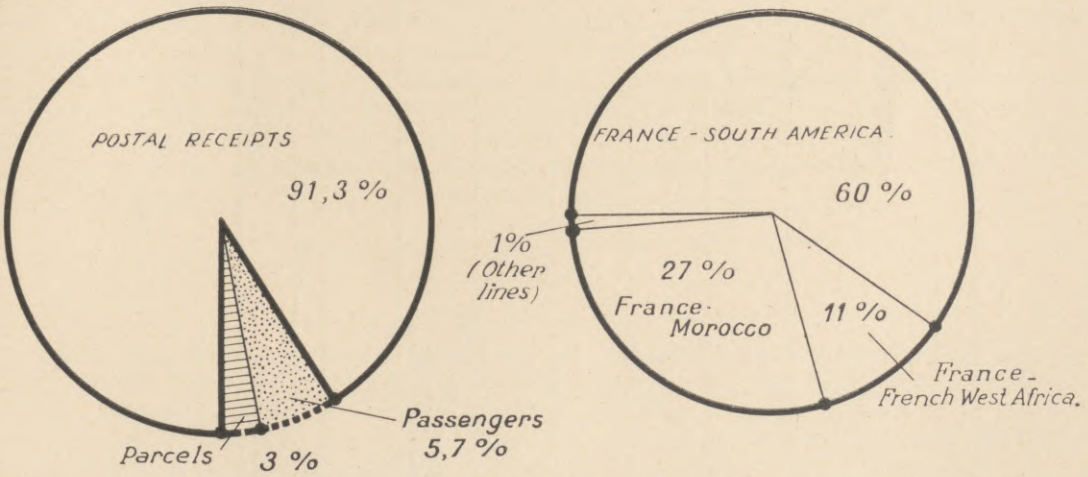

Figure 12. — Distribution of the Commercial Receipts of the "Compagnie générale aéropostale" in 1929.

I. Distribution between the various categories of freight (out of 18,524,929 francs).

II. Distribution of the postal receipts between the lines (out of 16,881,781 francs).

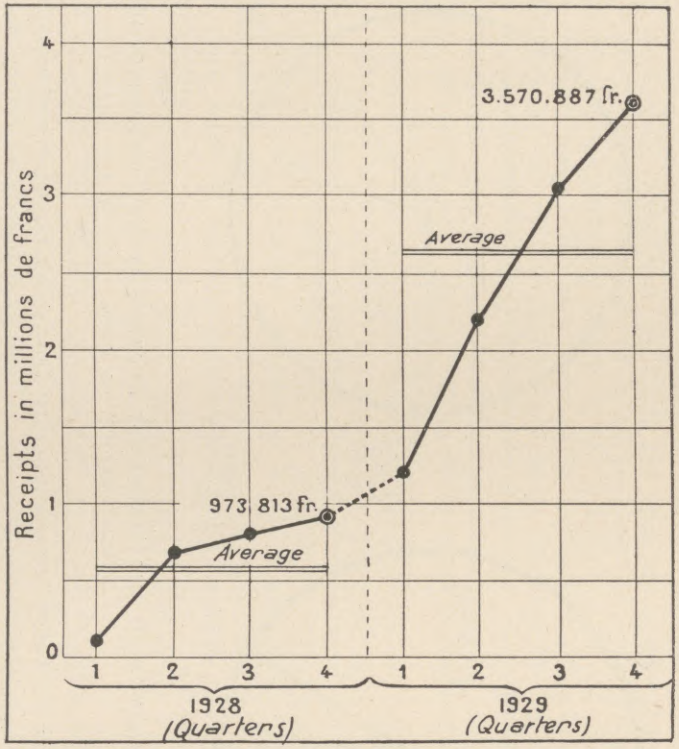

Figure 13.— Variation of the Quarterly Commercial Receipts on the Postal Line between France and South America.

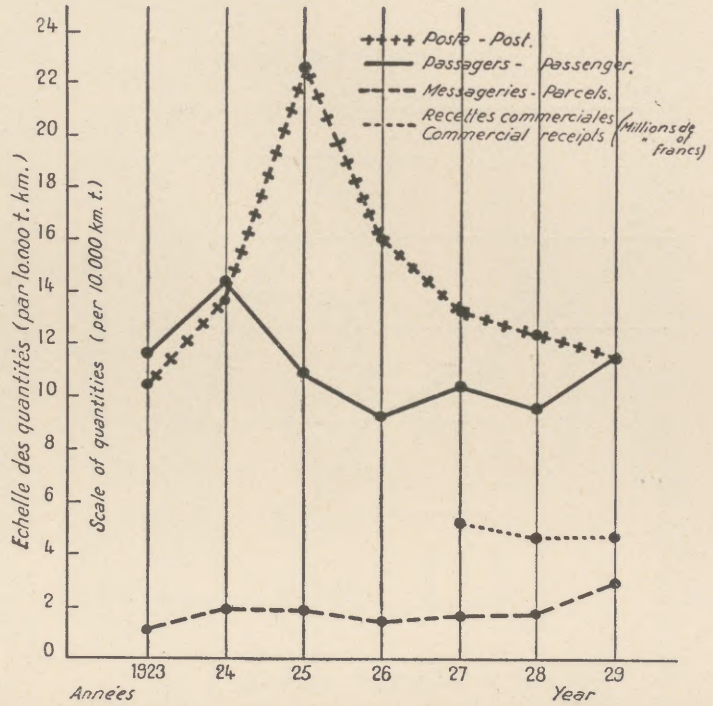

Figure 14. — Variations in Traffic on the Line between France and Morocco.

Note. — Constant annual kilometrage (from 1,300,000 to 1,400,000 kilometres).

hardly be hoped that this rate of increase will continue. It is, however, fair to suppose, even if the recent acceleration of the service by means of seaplanes with floats is not permanent, that very appreciable progress will be made, for the volume of the mail between Europe and South America is considerable.

Many years, therefore, will probably elapse before a situation is reached similar to that which has obtained since 1926 in the case of the Toulouse-Casablanca air service (see Table IX and Figure 14).

Table IX. — Variation of the Traffic from 1923 to 1929 on the France-Morocco Line.

Year	Commercial receipts	Passengers	Parcels	Mail
	Francs	Kilometre-tons		
1923.....		114,000	10,550	106,661
1924.....		143,000	19,333	137,871
1925.....		111,000	19,545	228,916
1926.....		93,000	15,855	160,050
1927.....	5,105,419	105,000	18,546	132,685
1928.....	4,372,826	98,000	18,833	124,470
1929.....	4,788,750	116,000	25,172	112,780

In spite of the excellent technical operation of the service, and in spite of a regularity which ensures the saving of several days, there has been an obvious stagnation in the traffic of this line, after the artificial spurt due to military events of 1924 to 1926. The reason for this is quite simple. Although the line carries a considerable portion of the total mail between France and Morocco, air mail alone cannot keep it going, because the amount of mail carried is insufficient. We believe, however, that, thanks to new, comfortable and rapid aeroplanes, such as the *Latécoère* 28, the Toulouse-Casablanca line, which was for long regarded (owing to the absence of a better example) as the model *air-mail line*, will very soon become an excellent *line for the carriage of freight and passengers*. The amount of *mail* necessary to justify and keep going a daily air goods service can only be found along the great world trade routes which are inter-continental. The United States of America are possibly the only exception to this rule. There, postal lines which are both national and continental will shortly attain a state of prosperity, thanks to a movement of trade which is much more intense than is possible in Europe, with its many barriers.

* * *

Thus, undeniable technical progress, the valuable experience acquired by the directors and the employees of every category, and the devotion of all concerned to their own undertaking in particular and to the transport of goods by air in general have not, on the whole, succeeded in improving to any appreciable extent the financial situation of air-transport companies.

There are exceptions, as we have seen. Absolute success—the *S.C.A.D.T.A.* is perhaps the only example—is due to special geographical and economic conditions. Progress, wherever progress is clear, is due to the careful and intelligent operation of a moderate-sized system ; this is the case with the Netherlands *K.L.M.* and also, to a lesser degree, with other very restricted and seasonal enterprises like the Swedish *A.B.A.*

But, as soon as a system shows any ambition, any desire to gain prestige, any disdain for facts (whether they be technical, geographical or economic)—in short, any undue haste to go ahead or outdistance a rival, the results invariably indicate—and almost to the same extent, taking into account the local purchasing power of the currency—the inability of the young undertaking to cope with the task entrusted to it.

According to the most authentic sources (the *Year-Book* for Great Britain and the official documents of the French, German, United States and Italian Air Ministries), each kilometre of air transport cost the taxpayer in 1929 : 20 francs for the British lines in Europe (but 90 to 100 francs for the British Empire air routes), 14 francs for the German airways, 17 francs for the French airways (whose task is, we think, the most difficult of all), 12 francs in Italy and 11 francs in the United States of America.

It may, of course, be argued that these first years are merely a trial period in which each country is endeavouring, according to its means or enthusiasm for air transport, to formulate a definite policy. The truth is, however, that, in the long run, there can be no hope for a commercial enterprise unless it succeeds commercially.

We have now to consider on what lines such success may possibly be attained, if a definite attempt is made to put an end to confusion and waste.

Note I.

AIR MAILS IN THE UNITED STATES OF AMERICA.

Approximative Estimate, taking an Extreme Case, of the "Compensations" paid to Air Mail Carriers by the Federal Postal Service.

Example of a kilogramme of surcharged letters transported by air from Boston to Los Angeles (4,570 kilometres) by the following services :

1. Boston-New York (*Colonial*).
2. New York-Chicago (*N.A.T.*).
3. Chicago-Salt Lake City (*Boeing*).
4. Salt Lake City-Los Angeles (*W.A.E.*).

The State pays for this transport :

For sector 1 (300 kilometres) : 3 dollars per lb. (453 grammes), or 165 francs per kilogramme.

For sector 2 (1,150 kilometres) : 0.74 dollar per lb. (453 grammes), or 40.75 francs per kilogramme.

For sector 3 (2,160 kilometres) : 2 dollars per lb. (453 grammes), or 110 francs per kilogramme.

For sector 4 (960 kilometres) : 3 dollars per lb. (453 grammes), or 165 francs per kilogramme.

In all, about 480 francs per kilogramme conveyed over 4,570 kilometres, or a total of 105 francs per kilometre-ton.

The State would receive only 44 francs per kilogramme (1.25 franc per 28 grammes) if each postal packet weighed that amount. Statistics show, however, that the average weight of letters sent by air is only 11 grammes, which would bring the receipts up to 110 francs.

Each kilometre-ton therefore brings in 24 francs to the State and costs the State 105 francs. In this extreme case, the State incurs very heavy loss, whereas on other routes used by the Federal administration a profit is made. At this other end of the scale, of course, it is the transporter who loses, though, in some cases, very little.

As a whole, the network of postal lines in the United States should cost the State, for the fiscal year 1930-31 (taking only the inland routes into account), 15 million dollars according to the old law, while receipts can hardly exceed 8 to 9 million dollars. The loss (or subsidy) provided for is, therefore, between 6 and 7 millions, or 150 to 175 million francs, for a national public service which does, it is true—and this is a consideration in so vast a territory—save time.

Note II.

TRAFFIC OF THE GERMAN *LUFT HANSA* IN 1928 AND 1929.

In its *Nachrichten*, March 1930, the *Deutsche Luft Hansa* has published its traffic statistics for 1929, and a comparison of these results with those for 1928. Taking separately the " mixed service ", which accepts all categories of freight, the " goods service " and the " newspaper service ", the comparison, in tons, is as follows : (in order to appreciate more correctly the variations of the commercial freight carried, we are showing passengers as weight, estimating each passenger at 70 kilogrammes) :

	Service			1928 (tons)		1929 (tons)		Percentage of variation
Mixed	Passengers				7,700		6,090	— 21.7
	Luggage				868		690	— 20.5
	Goods				900		921	+ 2.3
	Mail				262		263	+ 0.4
					9,800		7,964	— 18.7
Freight	Goods		123		277		+125	
	Mail		56	179	104	381	+ 86	+113
Transport of newspapers				162		45		— 72
				10,141		8,390		— 17.3

Concurrently with this reduction of 17.3 per cent in commercial freight, there has been a diminution of 11.1 per cent in the number of kilometres flown. Air transport has not, therefore, been so well patronised. It will be seen, moreover, that passengers represent 72 per cent of the bulk transported, and that the mixed service still transports 95 per cent of the load entrusted to aircraft.

If the aircraft number 180 and their average flying speed is 135 kilometres per hour, each machine has flown for about 370 hours per annum—a fact which shows the excessive demands made on the material of the *Luft Hansa*.

(Extract from *L'Aéronautique*, No. 132, pages 189 and 190).

Chapter IV.

THE CONDITIONS OF PROGRESS.

The observations in the foregoing chapters should already have placed us on our guard against excessively simple theories. In regard to commercial aviation, there is no panacea, no infallible prescription for improving the conditions of a service which is running at a loss. There is only one very general principle of action, and we have stated it already—that the service rendered should be sufficient to obtain the price desired.

Where there is indisputably latent wealth co-existing with means of communication still in the primitive stage, aviation can accelerate the pulse of the country and hasten its exploitation. Where the intensity of industrial and commercial life has given rise to a correspondingly dense network of communications, aviation can still substantially expedite business and make it possible to reduce stocks and gain on the period of inertia which travel imposes on securities, goods, and men themselves.

It is for this second function that aviation is still technically the less suited ; but this is the task which lies before air transport in Europe.

As we have seen, technical conditions are still so precarious that a sensible air-line sometimes pays almost as badly as an absurd line. Facts, however, are making themselves felt ; the ease with which air transport can be " put on the road ", where it can be aided by other methods of rapid transport, may have created illusions, but cannot maintain them in being. Although there are vast new countries where competition can be allowed free play and the progress of aviation enterprises, already encouraging, can be left to look after itself, having regard to the inevitability of technical improvements, there is at least one quarter of the world—Europe—where it does not seem possible to rely any longer on these forces alone.

We have nations shut off in watertight compartments and shrinking away from their neighbours ; we have only a small volume of long-distance traffic, and few of those continuous strong currents which, across six million square kilometres, form the characteristic feature of the vitality of the United States of America. At the same time, we have national aircraft industries which are too powerful to be able to live on their own areas, and neutralise each other's efforts on foreign markets or international lines, exhausting themselves in this struggle notwithstanding the supporting policies of their Governments—or perhaps actually because of this excessive support. Such is the situation in Europe.

* * *

The international character of air traffic has undoubtedly already made numerous agreements essential, and established perfectly valid methods of co-operation between different countries. The inititals *C.I.N.A.*, *C.I.T.E.J.A.*, *C.A.I.*, are familiar in flying circles ; the work of these bodies in the political, legal and administrative spheres is both persevering and successful. The *C.C.I.* (*International Chamber of Commerce*) also has placed its authority and experience, through a special committee, at the service of air traffic. As the outcome of the most recent Congresses, it has made suggestions for a complete programme of air mails and combined transport, and for the better adaptation of Customs methods to aviation. The *I.A.T.A.* (*International Air Traffic Association*) comprises practically all the European companies licensed by their Governments to operate international air traffic. Dealing professionally with questions of time-tables, rates, relations with Customs and postal authorities, combined transport, the form of documents, the mutual representation

of companies—in short, with traffic as a whole—it has done an enormous amount of work during the last ten years. At close grips with realities, and confronted by antagonisms, it has already promoted and registered a considerable number of separate agreements among its members. Most important of all, perhaps, it has created, by its periodical meetings, an atmosphere of confident and friendly personal relations between the heads of the principal concerns.

All these efforts, supported by the most incontestable ability, are directed to the same end—the progress of commercial aviation. The lines on which this progress must be made are known, and we shall therefore be content to summarise below the essential suggestions which are now, thanks to the endeavours to which we have referred, more or less public property.

A. Equipment of the Territory.

We propose for consideration a document (Figure 1) published quite recently by the American review *Aviation* showing the distribution of airports in the United States. On January 1st, 1930, there were 453 municipal aerodromes, 495 commercial and private aerodromes, 285 intermediate fields equipped by the Department of Commerce, and 235 auxiliary fields equipped with marks and beacons. In all, therefore, there are some 1,500 non-military landing-grounds which can be used by commercial aircraft. It was, of course, impossible to show on the map the *individual features* of the aerodromes represented, but a much more expressive means of representing them was found—the approximate circle of land (or, if you prefer it, slice of land) protected by each landing-ground, inasmuch as an aeroplane's chance of reaching the aerodrome is proportionate to the altitude at which it is flying, The value of this ground organisation is further illustrated by the fact that throughout the Middle West there are natural landing-grounds everywhere along roads where supplies of fuel, lubricants and essential spare parts are already organised for the immense volume of motor traffic.

Although we have had no means of working out a similar map for Europe, we can safely say that this ground organisation is much less advanced there. It is estimated that there are between 600 and 700 airports open to civil aircraft in Europe, but we doubt whether, on an average, these grounds are as accessible and as freely open to commerce as the American airports. Moreover, numbers are only one factor, and probably the least important ; what really counts is the arrangement, upkeep, equipment, supervision and communications of the landing-grounds—in short, the vitality which is given to each of them and, still more, to the *organic structure* which they should form throughout the country. All this involves considerable initial expenditure, and at a later stage—quite apart from income, which may not be received at once—a large supply of working capital. These conditions are effectively fulfilled in the United States, where, between June 1928 and December 1929, 330 *million dollars* or 8,250 *million French francs* were laid out in the establishment and upkeep of aerodromes.

When we consider that, apart from all this expenditure by private enterprise, every annual budget of the Department of Commerce provides for expenditure on the construction, upkeep and buoyage of the Federal air-lines (this expenditure is in the neighbourhood of 180 million francs for the fiscal year 1930-31), we shall have some idea of the financial resources set in motion.

These Federal air-lines alone, which are open to public commercial aviation, formed, at the end of 1929, a thoroughly equipped system of 60,000 kilometres, over 24,000 kilometres of which night flying is possible ; by the end of 1930 another 7,000 kilometres will have been added to the night-flying system.

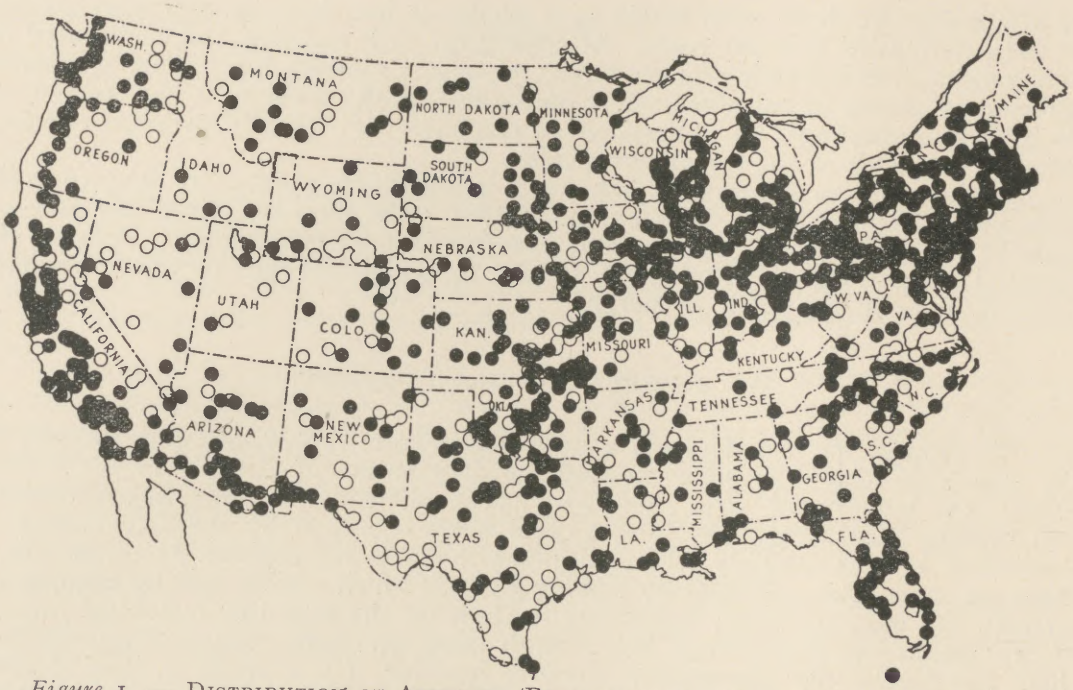

Figure 1. — Distribution of Airports (Beginning of 1930) over the Territory of the United States.

Commercial or municipal airports are shown in black ; the intermediate aerodromes, whether private grounds or State grounds, along the main routes are shown in white.

Each airport is represented by a circle with a radius of 32 kilometres to suggest the portion of the territory above which an aeroplane flown at a moderate height has a chance of reaching the airport or ground prepared for landing (from *Aviation*).

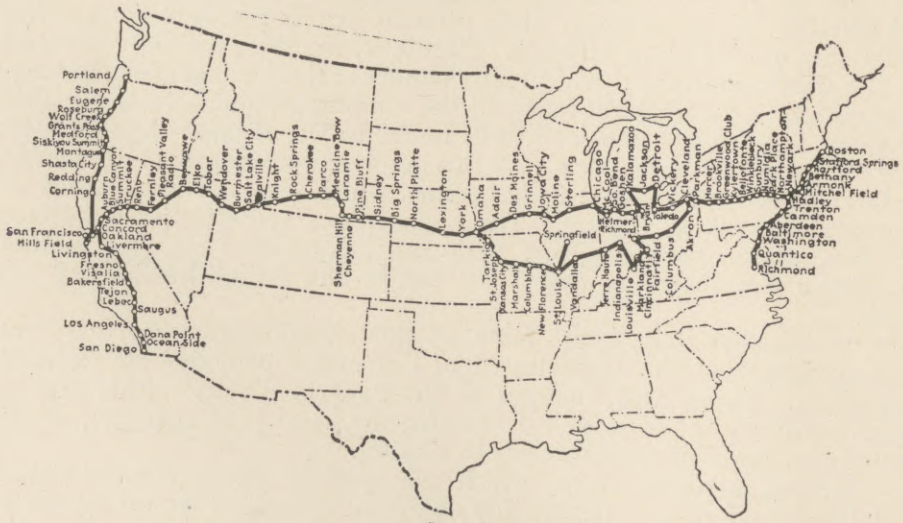

Figure 2. — Teletype System established in the United States by the "Airways Division" of the Ministry of Commerce (Situation at the Beginning of 1930).

Lastly, the essential security is being provided for this system by the establishment of Hertzian-wave buoys and the acceleration of meteorological intelligence. At the beginning of 1930, the system of hourly messages by teletype was working over at least 8,000 kilometres (see Figure 2). This kilometrage will have been increased by 1,000 kilometres by July, and another 3,800 kilometres during the following fiscal year. A parallel effort is being made, with the co-operation of the Departments of Commerce, War, and the Navy, to produce a much larger number of special flying maps, which are indispensable to pilots (Figures 3, 3*bis* and 3*ter*).

We have made out on the same scale two skeleton maps (Figures 4 and 5) illustrating the present position as regards air-lines equipped for night flying in the United States and Europe—4,200 kilometres here and 24,000 there. In the United States, there are long continuous routes actually covered throughout the year by night-mail services. In Europe, there are a few short French and German routes which it is being attempted to connect up through the Rhine provinces, the Netherlands and Belgium, but only experimental services have yet been inaugurated. In the United States, there is a uniform technique determined by eight years of experiment and practice in the conveyance of air mails both by day and by night between the Atlantic and the Pacific [1]; here we are engaged in uncertain experiments which still offer too much opportunity for barren discussions in a field where valid principles can only be based on long experience of operations on a large scale.

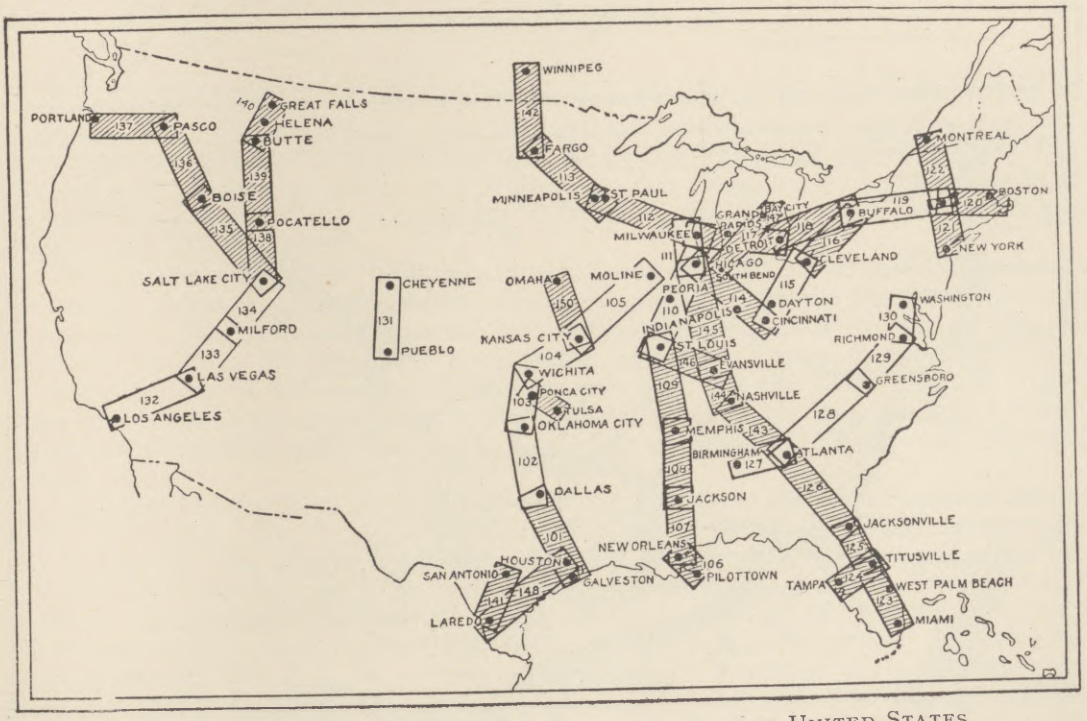

Figure 3. — Special Maps for Air Navigation in the United States.

Maps of the Department of Commerce. — Maps published are shown in white, and maps in process of compilation are shown shaded (position at the end of 1929).

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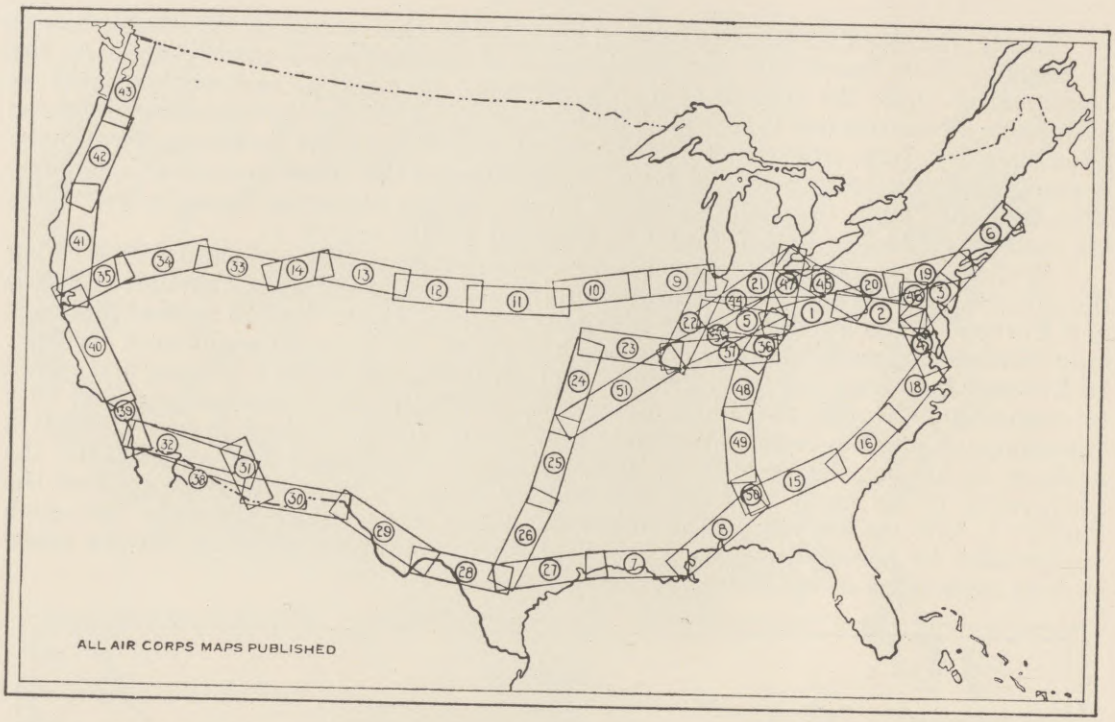
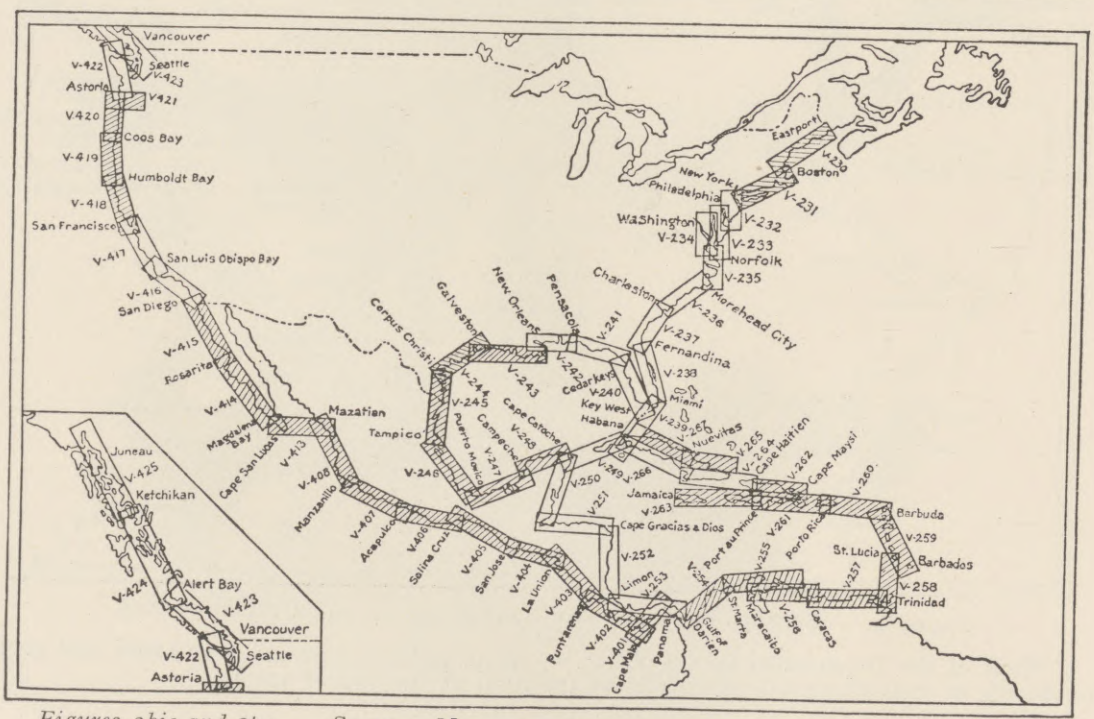
[1] On the 4,300 kilometres of the New York-San Francisco line alone, this technical unity embraces 16 airports, 111 emergency landing-grounds, and 887 lights, including 232 revolving lights and 529 alternating lights; luminous buoyage, properly so-called, on this route cost 22 million francs.





Figures 3bis and 3ter. — Special Maps for Air Navigation in the United States.

Reading downwards : Maps of the Military Aviation Department and of the Naval Hydrographical Service. Maps published are shown in white, and maps in process of compilation are shown shaded (position at the end of 1929).

A genuine effort has been made in Europe (chiefly at the *International Aviation Conferences* of high officials, which do much valuable but unrecognised work) to establish, within the general scope of the *C.I.N.A.*, uniform rules for the construction of landing-grounds, traffic in their approaches, buoyage, meteorological safeguards, and methods of giving help on oversea air-routes. It is perfectly clear, however, that this effort is inadequate ; the regulation of the ground organisation is continually improving, but the whole system is still too anæmic. This is unavoidable, since between 1919 and 1929 Europe spent on her air-routes far less than one-quarter of the amount she spent in direct bonuses and subsidies to air navigation companies. France is perhaps the country which, at the instigation of the first head of her *Air Navigation Service*, saw furthest in this direction, as long ago as 1919 ; yet in ten years the present French ground organisation has been established at a cost of barely 120 million francs, whereas over 600 millions have been spent on mileage bonuses. In the United States, on the other hand, it will be seen that the proportion is roughly reversed.

At the same time, there can be no denying the importance of these national systems of air routes. A well-constructed and well-managed ground organisation will very quickly become a source of profit, especially if determined efforts are made to link these systems up into a general European network.

B. Co-operative Working.

The routes followed by the air traffic system across Europe must reflect the economic facts of European life, and not national ambitions or rivalries, if this new network is really meant to take its place in the general economic system. The present mutual neutralisation of efforts may lead to serious antagonisms, and even conflicts ; the first step towards its elimination will be a working programme aiming at emphasising the essentials.

We reproduce (Figure 6) the scheme recently proposed by Dr. Pirath for a Continental air system, designed, according to its author, exclusively from the European economic standpoint. This system seems still too complicated, especially so far as concerns Germany, to form the minimum programme on which European agreement could be reached ; but it does represent an effort to clear up the position, and, what is more, it coincides—except as regards the links with Russia via Roumania and Poland, the Rome-Belgrade line, and the Zurich-Genoa line via Milan—with the most important existing lines.

Another document on which to base this study might be the map (Figure 7) showing in the first place, the postal routes over which night flying is already or very soon will be possible (see Figure 5), together with certain other essential arteries taken from Figure 6. The ground organisation assumed to be most urgent is shown in thicker lines ; it affects nine European countries, including practically all those (except Italy) in which commercial aviation is active. We are very far from supposing, however, that existing aircraft and ground equipment are adequate to allow of the establishment, from one day to the next, of a day and night mail service across such a difficult area as Europe, where mountain systems and meteorological conditions so often interfere with flying. That is one reason the more for the experiment to be undertaken without delay, with the support of a close ground organisation. This would be productive expenditure, and the funds could very well be drawn, if necessary, from those super-abundant mileage bonuses of which no more is heard when the flight is over.

Financial pressure of this kind, if it were applied simultaneously in all the countries interested in this general clearing system, would have the further result of making working agreements between companies of different nationalities more effective,

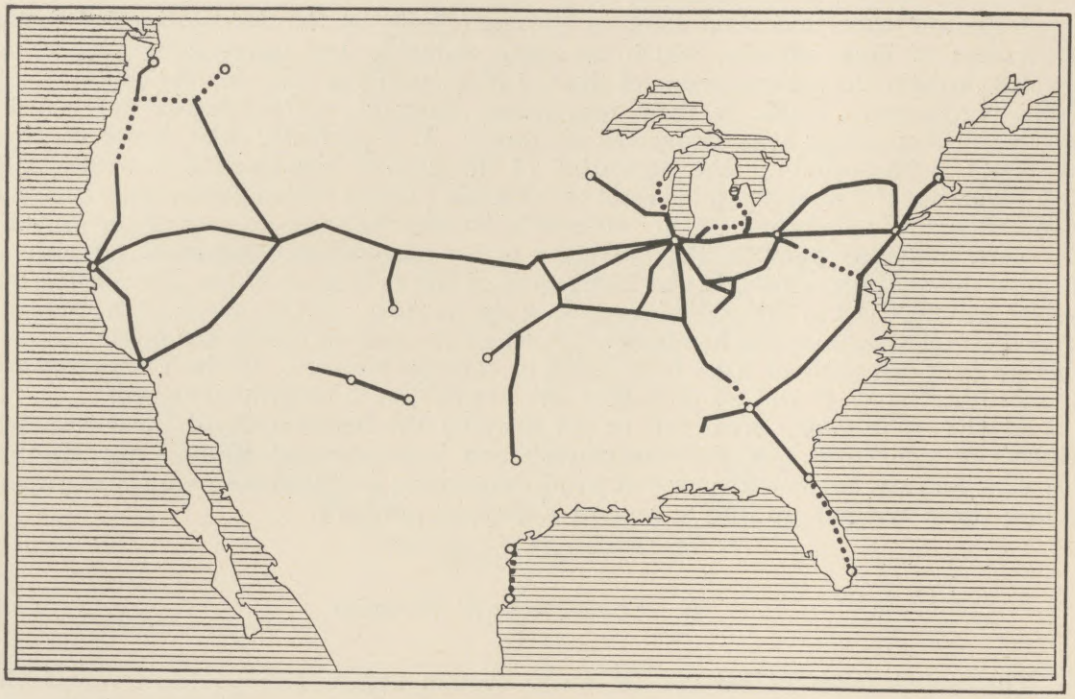


Figure 4. — Air-Routes in the United States marked with Beacons for Night Flying (January, 1930).

Full lines show routes equipped, and dotted lines routes in process of equipment. All equipped routes have actual day and night postal services throughout the year.

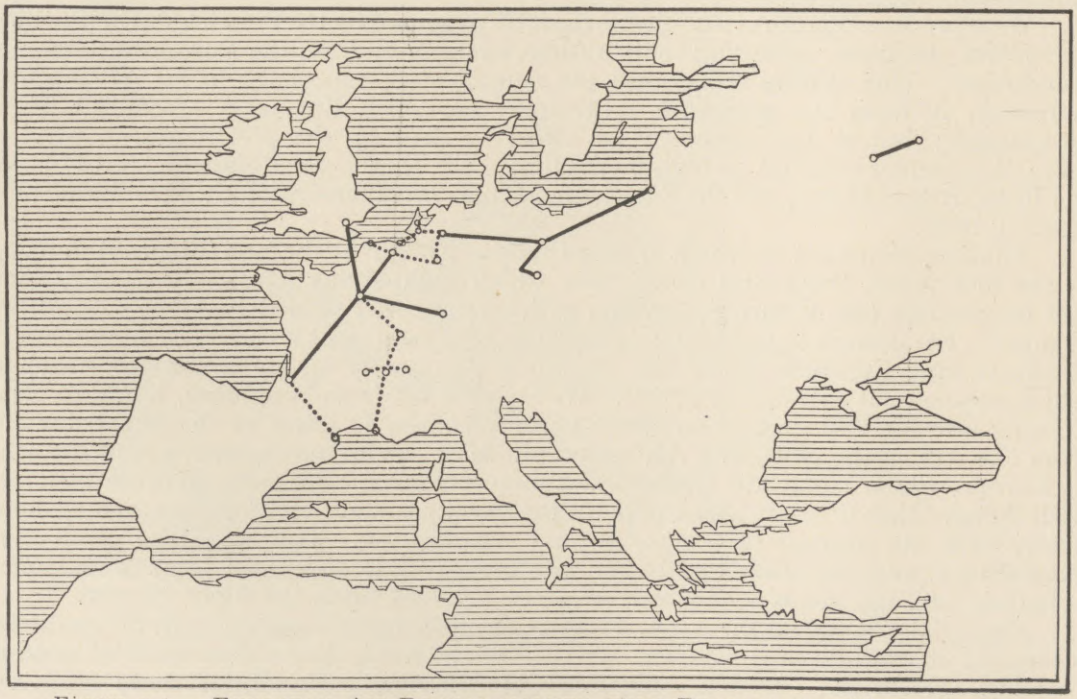


Figure 5. — European Air-Routes marked with Beacons for Night Flying (May 1930). (Same scale as for Figure 4).

Full lines indicate a normal complement of beacons and dotted lines insufficient beacons or beacons in process of installation.

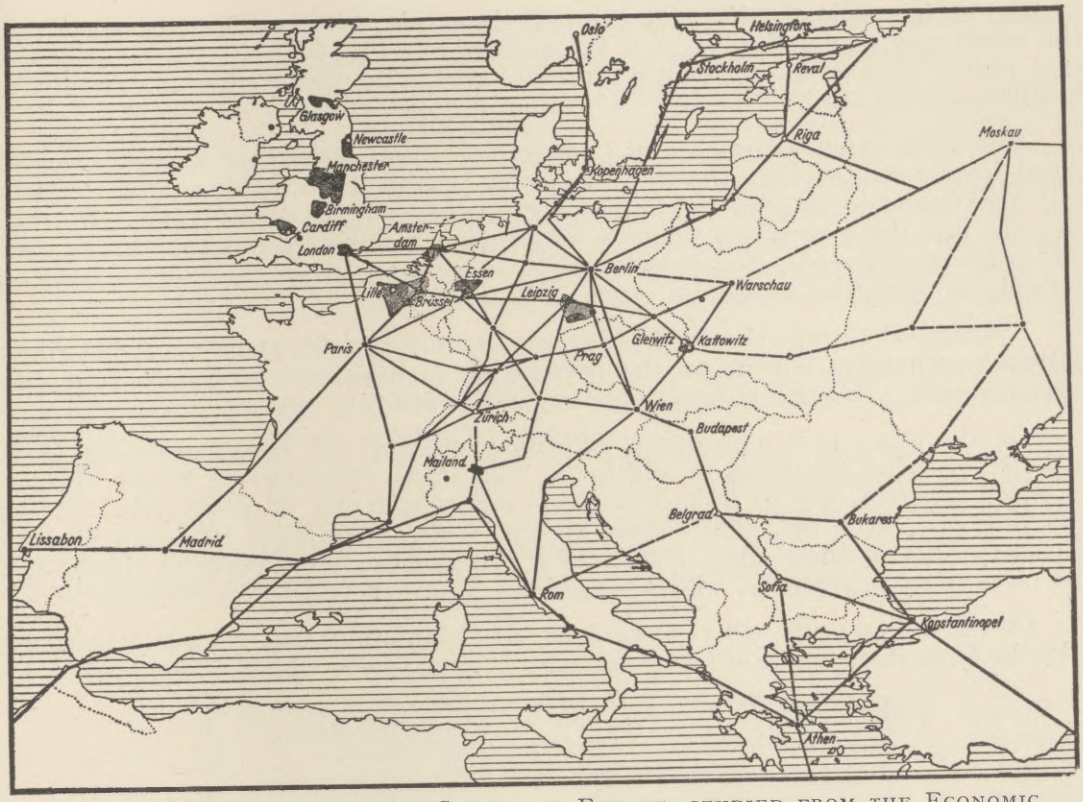


Figure 6. — Continental Air System of Europe, studied from the Economic Point of View, by Dr. Pirath.

——— Existing air-lines.
----- Projected or proposed air-lines.

because more necessary. The present double and treble costs would be diminished, and, above all, there would be fewer of those rate wars which do no good even to the customer, seeing that he, as taxpayer, pays the difference. At the same time, there would be a tendency towards equality on the technical side, because that would be the condition for the optimum allocation of receipts ; thus pressure would be exerted with excellent results, tending to the removal of restrictions from the European traffic in raw materials and flying requisites.

1. *Air Mails in Europe.*

Only on this simpler system, with its smaller " resistance ", can aircraft accelerate the currents of traffic—postal traffic, in the first place. At present, the amount of postal traffic carried by air in Europe is really negligible, partly because the service is limited and unreliable, and partly because the public is not adequately informed.

Properly speaking, it ought to be superfluous for the public to be informed ; it is not the public's business to work out time-tables, or to ascertain whether the time saved is worth the extra money. When an " accelerated transport system " (which, by the way, need not be entirely an air system) has really been added to the normal postal system, the public should not need to do anything more than buy an *express stamp* instead of the ordinary stamp, if they wish their letters to go by the quickest route. Moreover, when this accelerated transport system is added to the normal

system, with sufficient uniformity to make the service of approximately equal value the whole way across Europe, it is the general rate that will have to be altered so that letters may be automatically sent by express, assuming that an extra charge is still made for the latter.

The International Chamber of Commerce, at its Congress at Amsterdam (July 1929), recommended that the clauses of the Universal Postal Convention relating to air mails should be amended to facilitate this accelerated postal traffic. We think that the first thing necessary would be to establish a single express postal rate *within the Continent of Europe, considered as a single unit* as soon as the express service is actually in operation on certain essential lines.

Continental Europe should thus become less impermeable and more open to international exchanges, which, on the present world scale, are really no more than inter-regional ; but this cleansing of the tissues will take time.

On the other hand, Europe is already prolonging its transcontinental traffic in three essential directions in which the mail traffic is heavy—to North America, to South America, and to India and the Far East (the case of Mediterranean traffic and that of links with Africa should be considered separately). It seems urgently necessary that in these three directions a programme of co-operation should take the place of open rivalries, which cannot but injure the European community.

On the Indian route, where aircraft has no oceanic obstacle, co-operation should take the form of the distribution of national services *in time* rather than in space.

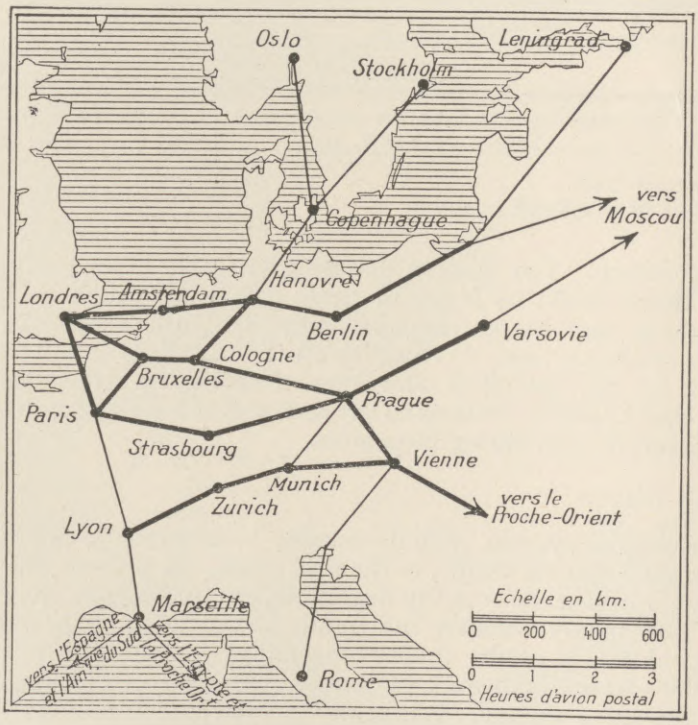


Figure 7. — A SUGGESTED PROGRAMME OF GREAT URGENCY FOR EUROPEAN POSTAL AVIATION.

The indicated speed of 200 kilometres per hour can now be achieved by day and night on well-organised air-routes.

This is what M. Louis KAHN wrote nearly three years ago in one of his articles in the *Revue Politique et Parlementaire*, to which we have already referred :

> " A combined postal service by aircraft and mail-boats should be tried experimentally on the South American route if it seems too difficult to cross the Atlantic regularly by seaplane. Connection might be made with the mail-boat at Lisbon, in the Canaries, at Dakar, in the Cape Verde Islands, and at the American ports of call. The service should be a daily one like the mail-boat services. Mails would save about the same amount of time, or even more, because they would not have to await the departure of the postal aeroplanes from one week to the next. The cost would be less, and we should not have to cross the Atlantic."

The first successful crossings in May 1930, by a seaplane with floats and a rigid dirigible, certainly do not in any way detract from the immediate importance of this programme of co-operation—quite the contrary.

Both on the North American and on the South American route the mails could be very appreciably speeded up if uniform systems for dropping mails and picking them up on postal aeroplanes or seaplanes (catapults, trailing waterproof bags) and transferring loads without landing (catching-hooks, etc.) became in the near future part of the normal equipment of mail-boats of all nationalities.

2. *Combined Transport.*

That is only one particular instance of *combined transport*, which method, if systematically applied, is particularly well adapted to the present state of aviation technique. Even if the " express air system " which we have sketched were superimposed to-morrow on the ordinary system of communications, it would, in our belief, be wholly premature to send by night any freight other than mails or certain express parcels which may be treated as mails.

Passengers, however, still represent at least three-quarters, by weight, of the freight carried by air in Europe. Every effort must therefore be made, not merely to keep these customers, but to increase their number in proportion to the service rendered—care being taken, however, not to outstrip the progress of technique. Furthermore, in many cases it will still be expedient, for a long time to come, to take advantage—even in the case of mails—of the night trains which deliver the freight on the spot in the early morning (this is the common-sense method, primarily originated by M. LATÉCOÈRE in 1929, when he fixed the starting-point of the air mails from France to Morocco at Toulouse, one night from Paris and other important centres). Lastly, under the combined transport system, the aircraft themselves generally have to follow routes on which the train and the motor-car—more reliable means of communication, and less affected by the weather—can step in if the journey is unavoidably interrupted.

We must here pay a tribute to the efforts of the *Deutsche Luft Hansa*. M. WRONSKY recently wrote that " every little town in Germany is automatically linked up with the air system ", and pointed out that 80 per cent of the freight conveyed by this combined transport system started—in the case of exports—from towns that had no aerodromes. In 1929, indeed, such freight was accepted at 287 German stations, while only 70 aerodromes were served.

In the *International Chamber of Commerce*, in the *I.A.T.A.*, and at the recent Conference of the *International Railway Union* at Nice, M. WRONSKY urged the extension throughout Europe of a system which has proved its worth in Germany and—in a lesser degree, or more recently—in Switzerland, Sweden, Belgium and Hungary, and also—in what is, to tell the truth, a very peculiar case—in France.

M. WRONSKY's proposal was adopted at Nice, subject to the necessary sanction. If every air-transport ticket were, in the near future, accepted at any European railway-station in respect of its unused portion, that would represent a considerable advance.

Further, efforts must be made on quite general lines, at all events so far as concerns peninsular Europe, to establish a traffic *by land and air* (railway, public motor transport, aeroplane) with a single all-in tariff. Nothing will demonstrate more clearly that, in the case under consideration, these different methods of transport should be mutually complementary and not competitive.

We may reasonably suppose, also, that the ground system of roads and railways, which was established first, will long continue to be of immense value to aviation, since the latter is very far from being freed from terrestrial necessities. There can, indeed, be no question that investigations should be set on foot with a view to adapting these road and railway systems *all over Europe* to help and combine with air traffic (buoys, identification marks, landing-grounds close to railways and roads, establishment of air routes in conjunction with the new motor-roads).

3. *The " Common Fund ".*

Special resources would be desirable for the carrying out of this programme of rationalising the ground organisation and the operation of services. We would suggest that, in this general clearing system to which we have referred, every country—starting from the present position—should sacrifice a portion of its annual traffic subsidies and pay the money thus released into a common fund. We are convinced that, by this means, it would be possible in a very few years, without making any addition to the taxpayer's burdens :

(1) To equip Europe for air traffic ;

(2) To perfect European co-operation along the main lines of traffic ;

(3) To spare many countries—thanks to these *national* ground organisations, which would be freely opened to international traffic—the cost of disproportionate expansionist tendencies in aviation (because on this traffic system each country's contribution will be proportionate to its traffic) ;

(4) Incidentally (for we are digressing from our subject), to give life to an aviation industry in Europe that would no longer be a war industry.

C. SOME OTHER POSSIBLE METHODS OF CO-OPERATION.

Information.

A non-commercial service of reliable information and free publications might be established for peninsular and Mediterranean Europe and for the European services on the main lines of traffic. This service would be similar to that provided in the United States of America by the Aeronautics Branch of the Department of Commerce.

Consideration might be given to the possibility of publishing in every important country an international guide, making a special feature of the transport combinations (time-tables and itineraries) possible on the general system (trains, motor-cars, aeroplanes, boats).

Technique.

Efforts might be made to secure free trade in regard to aviation, which is particularly necessary in an area divided up like Europe, with a view to the employment of the best material—even the best being barely adequate.

Consideration might be given to the desirability of holding international commercial aviation shows, so as to give an impetus to the development of the flying material and equipment necessary for the efficient operation of the international air system. The cost of these shows would be defrayed from the common fund referred to above. The inevitable and, indeed, necessary increase in the general dimensions of aircraft should have the effect, here also, of making the effort international.

Financing and Subsidies.

Consideration might be given to the possibility of setting up a European banking organisation for aviation. This organisation would alone be competent to administer the common fund, and, in particular, to assign subsidies or loans, where necessary, to air services of public concern. This bank might perhaps have a wider sphere of action and endeavour *to accelerate transport* by all tried technical means.

CONCLUSION.

The international character of air traffic is a *new* development. We have no longer to deal with a traffic which goes from one country to another without penetrating the latter's territory, but merely touching at the port and returning to sea ; in the near future it may be possible to fly over countries at altitudes which will make sovereignty an empty word because all control will be illusory. Doubtless the defensive reaction against this violation, which is to-day scarcely perceptible, will be greatly intensified ; nationalism in the air will be all the more vehement because it will be obviously against the nature of things. International co-operation in the air is necessary and will, therefore, be particularly difficult, because compulsion—even the compulsion of nature—is never willingly endured.

The problem of the hour—we freely admit it, after these analyses and sketches of the solution—is neither technical nor economic, but *purely political.* Before anything can be done, there must be the will in political circles to pay heed, in a spirit as international as air traffic itself, to the technical and economic realities by which this mode of transport is limited.

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THE RELATIONS BETWEEN CIVIL AND MILITARY AVIATION

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THE RELATIONS BETWEEN CIVIL AND MILITARY AVIATION

It is with great pleasure that I accept the invitation, from the Secretary-General of the Advisory and Technical Committee for Communications and Transit, to contribute a memorandum on " The Relations between Civil and Military Aviation ". As I see it, the pivot of these relations is that frequently debated issue—the military significance of civil aviation. My readers are doubtless acquainted with the various discussions of this difficult question which have taken place during the past ten years, and it is therefore unnecessary for me to review them in detail. But, for the purpose of this memorandum, I wish to recall the following salient facts :

Between 1919 and 1922, the subject was exhaustively debated by three international committees of air experts which sat at Paris, Geneva and Washington respectively. The three committees arrived independently at an identical conclusion, namely, that civil aviation is very readily convertible to war purposes, and that no means can be devised to prevent such convertibility which would not, at the same time, prejudice the development of civil air-transport.

When this opinion was expressed in January 1919 by the first of the above-mentioned committees, namely, the Aeronautical Advisory Commission to the Peace Conference, the Supreme Council refused to accept it. Accordingly, the Peace Treaties provided that the late enemy powers should be forbidden to possess any military (including naval) aviation, but should be allowed to develop civil aviation. It is illuminating to note what followed—during 1919 and 1920 the Commissions of Control constantly confiscated aircraft which they ruled as " military " but which the Central Powers claimed to be " civil ". At length, in the autumn of 1920, the Supreme Council instructed the Aeronautical Advisory Commission to " draw up rules to distinguish between civil aviation and the military and naval aviation forbidden by the Peace Treaties ". The Commission replied that the task was impossible and referred to its original report of January 1919, in which that opinion had been unanimously recorded. The Supreme Council nevertheless insisted that its instructions should be complied with. Accordingly, after debating for several months, the Aeronautical Advisory Commission submitted a set of regulations known as " The Nine Rules ". The Central Powers were obliged to accept these purely arbitrary restrictions, which were enforced by Commissions of Control in the territories of the countries concerned. These rules certainly prevented the development of military aviation, but they also stultified the development of civil aviation. Eventually, the Allies recognised the manifest unfairness of imposing a set of regulations which, if applied to their own civil aircraft, classified the bulk of them as military, and the attempt to enforce the Nine Rules was abandoned. To sum up, " The Nine Rules ", the best regulations which the Allied air-experts could devise, after months of discussion, proved to be abortive because they penalised civil aviation.

Thus theory was borne out in actual practice.

An important point to note, before we pass on, is that the earlier investigations of our subject (at Paris, Geneva and Washington) were made before great commercial aviation interests had come into being, and before national air policies had developed.

Neither of these potent factors, which have since influenced discussion, was then in existence.

The next occasion upon which our subject was exhaustively discussed was in 1926, when Sub-Commission A reviewed the whole issue in detail, in the course of three sessions held at Geneva. The Sub-Commission was unable to make a unanimous report, but on the key-issue of convertibility the opinion of the three earlier international committees was endorsed by a large majority.

Early in the following year (1927) the question was referred to a Committee of Civil Aviation Experts which met at Brussels in February of that year. The paragraph in the Committee's report which is most relevant to our subject reads as follows :

> " Every effort should be directed towards differentiating more and more clearly between civil and military aviation ; in this way civil machines will become capable of a maximum economic return and will become less and less useful for military purposes. "

This opinion opposes, almost to the point of contradiction, that expressed by the other bodies of air experts which I have mentioned. The basic contention of these bodies (a small minority of Sub-Commission " A " excepted) was that the " performance " of air transport machines rendered them suitable for military purposes and that their construction permitted of ready adaptation ; consequently, that convertibility was *inherent* and therefore *ineluctable*. It is this conclusion which the report of the Committee of Civil Aviation Experts implicitly denies. Is the opinion of this Committee justifiable in the light of the up-to-date development of civil and military aviation ? The question is of cardinal importance, in view of the fact that the Committee's opinion was accepted by the Preparatory Commission for the Disarmament Conference (*vide* the Minutes of the sixth session (first part) 1929).

I have kept closely in touch with the development of both civil and military aviation and during the past few years have flown in, or examined, many types of civil and military aircraft. I have also discussed the question of convertibility with various aircraft constructors and other air experts. Much as I should like to endorse the opinion of the Committee of Civil Aviation Experts, my personal knowledge of the facts has driven me to the conclusion that it is totally unwarranted in regard to air liners—the type of aircraft to which, judging from the context, the report particularly refers. On the other hand, I consider that there is justification for the view that the development of the smaller types of civil and military aircraft has been along divergent lines. These convictions are based on the following considerations.

First in regard to air liners. The development of commercial aviation has called constantly for increased range, greater reliability, greater weight-carrying capacity and higher speed. These are precisely the requirements aimed at in the development of bombers. Day bombers require also high ceilings, but the present ceilings of air liners are adequate for night bombers. The average air liner of to-day is potentially a far more efficient bomber than the air liner of seven years ago. This can easily be proved by comparing the performances of air liners of that period with the performances of the great passenger-carrying machines which now fly regularly over the European and American air route systems. Can it seriously be denied that such machines, for example, as the British Argosies and Handley-Page air liners, the French Farman

Goliaths and Jabirus, the German three and four-engined Junker and Rohrbach monoplanes, the American three-engined all-metal Fords—to mention but a few types, could be converted into highly efficient night bombers ? It is evident that the development of commercial flying will call for even better performance in the machines employed and thus automatically improve their military potentials as bombers. Already we have for long-distance work such machines as the De Haviland " Hercules " type employed on the Cairo-Baghdad-Karachi service. This aeroplane has a top speed of 130 miles per hour, a ceiling of 17,000 feet and an endurance, when fully loaded, of five hours. I estimate that, as a bomber, this machine would have an action radius of 500 miles, carrying two-thirds of a ton—the remainder of its useful load being carried as extra fuel. As an example of a still later type, consider the Fairey monoplane which made a non-stop flight from England to India last year. This machine was designed for imperial contact work as an express mail-carrier. High technical authorities have confirmed my estimate that, as a bomber, this monoplane would have a radius of action, carrying a load of one ton, of about 1,200 miles.

Large flying boats are also convertible into bombers. Example, the British " Calcutta " type, which was especially constructed for commercial purposes, yet has a better all-round performance than most of the Royal Air Force flying-boats.

The performance of the German Dornier " Dox " flying-boat has not been published. But it is obvious that this gigantic machine, which is driven by twelve 500 h.p. engines and is capable of making a long flight with sixty passengers, in addition to its crew of nine, possesses great military potentials as a carrier of bombs or war chemicals.

The arguments against the convertibility of air liners are :

First, that which I have already mentioned, namely, that commercial aircraft do not possess the requisite ceiling. The reply is that the ceiling imposed by geographical conditions is ample for night bombing. Moreover, there are several methods by which a ceiling can be increased if desired.

Secondly, that the construction of air liners precludes the possibility of good fields of fire for self-defence by machine-guns. The reply to this argument is (*a*) that clouds and darkness serve as protection, and that additional protection could, if necessary, be supplied by sending long-distance fighters to escort the bombers ; (*b*) that simple structural alterations and additions would permit of the installation of several gun-rings giving excellent fields of fire.

The report of the Committee of Civil Aviation Experts advocates that no military features should be embodied in the construction of air liners. In other words, that no provision should be made for gun-mountings, bomb-racks, gas-containers or good fields of fire. The lack of such provision might entail that conversion would take several days instead of several hours, but it would not neutralise the convertibility, since this, as I have already mentioned, is inherent in performance.

The views of the British Air Staff on the subject of convertibility were stated in a lecture, given by one of its members, under the chairmanship of the late Air Minister, Sir Samuel Hoare, at the Royal United Services Institute, on December 27th, 1928 :

> " In bombing attacks by night, or on days of indifferent visibility, large passenger-carrying civil aircraft may be usefully employed after comparatively minor modifications."

Alluding to this same issue of convertibility, Captain the Hon. F. E. Guest, who was British Air Minister in 1922 and is now chairman of National Flying Services, Ltd., said, in the course of the debate on the Air Estimates for 1928 :

> " Civil machines are convertible to a degree which was not possible five or six years ago. These machines can carry twenty passengers at 110 miles per hour, and are driven by the most experienced pilots, as capable of flying by night as well as by day as any service pilot, and can be, within a week, converted into bombing-planes."

It would be possible considerably to amplify this review of the issue of convertibility, but I think sufficient has been said to prove that, so far as air liners are concerned, the claims of the Committee of Civil Aviation Experts are quite unjustified. There is, in fact, no particle of evidence to support the contention that, if certain steps are taken, such machines " will become less and less useful for military purposes ". On the contrary, the up-to-date development of commercial flying and the trend of progress point to diametrically opposite conclusions. I venture to suggest that general recognition of this truth would not only pave the way for limitation of air armaments, but would also prove beneficial to the development of commercial aviation itself. These are points to which I shall return later.

I propose now to consider the war value of the smaller types of civil aircraft. Ten, or even seven, years ago, these were mostly converted military machines and were obviously reconvertible. To-day the majority of these small machines are, for reasons of economy and safety, of low horse-power. On the other hand military machines of the same size have developed very high horse-power. Example, the modern single-seater fighter has frequently an engine of 500 h.p., whereas the " light " aeroplane has an engine of from 40 to 100 h.p. I think all air experts will agree that, generally speaking, it would be quite impossible to convert existing small aeroplanes into even moderately efficient fighters. The two types have diverged ; the construction of small civil machines would not permit of any considerable increase in performance. It is true that there are a few types of civil machines, such as sky-writing aeroplanes and racers, which could be converted into fighters. But the total number of these in Europe is negligible.

A certain proportion of small aeroplanes, such as air taxi machines, could be adapted for such auxiliary work with armies and navies as artillery co-operation, aerial photography and reconnaissance. But in this connection it should be noted that there has been considerable specialisation and development in naval and military co-operation aircraft during the past ten years and, in most cases, converted civil aircraft would fall far below modern standards of efficiency.

I believe it would now be entirely practicable for a committee of military air experts supplied with a list of a country's civil aircraft, showing the performance of each machine, to classify them as follows :

(*a*) Potentially aggressive, that is, suitable for inclusion in a striking force ;

(*b*) Potentially non-aggressive, that is, not suitable for inclusion in a striking force ;

(*c*) Suitable for miscellaneous naval and military duties.

I would draw special attention to (*a*) and (*b*) ; the possibility of differentiating between aggressive and non-aggressive types is of great importance. The essential aim of limitation of armaments is to limit the probabilities of war, and that aim may largely be achieved by limiting the factors which make for striking power. It is of course out of the question to limit the development of civil aviation. But if the truth that air liners are readily convertible into bombers were accepted, then all such civil aircraft could be counted in a nation's air strength as second-class bombers. Effort might then be directed towards reduction of the numbers of first-class, that is, military bombers. This suggestion is analogous to that of scaling down naval strengths by reducing the number of battleships, or of scrapping these and agreeing upon the cruiser as the capital ship. But there is this difference : the cruiser, although it is a less powerful unit than a battleship, is nevertheless an instrument of war, and nothing else. Whereas the air liner, while potentially an instrument of war, is primarily an instrument of commerce—a means to facilitate commercial intercourse, to establish closer intellectual and political contact, hence to promote mutual understanding.

At present, European States, with few exceptions, devote less than five per cent of their annual air votes to the development of commercial aviation. General recognition of the reality that air liners are inherently, and therefore unavoidably, bombers, should result in some reallocation of expenditure in favour of commercial flying. The advantages of such reallocation, both to the cause of peace and to the development of air transport, are too obvious to call for comment.

To turn now to the question of the military value of the personnel employed in civil aviation. First as regards air liners—the pilots of these machines fly regularly over long distances in all kinds of weather—rain, snow, gales and fog. Not infrequently, owing to delays, they are also required to fly in darkness. Already there are several air services on both sides of the Atlantic, which are operated by night as well as by day ; and night flying is on the increase on all air systems. In flying, more perhaps than in any other form of human activity, efficiency depends upon experience, and the air-liner pilot gains more experience in the course of his ordinary work than any other pilot. Example, the pilots of Imperial Airways, Ltd., fly, on an average, 100 hours per month, whereas the average pilot in the Royal Air Force flies 100 hours per year. Clearly, an air-liner pilot is a first-class airman, his training makes him an excellent bombing pilot, he should therefore be counted amongst first-line effectives.

The mechanics—fitters, riggers, etc.—who keep a large commercial machine in order, are obviously equally fitted to maintain the efficiency of a bomber, particularly as the engines employed in these two kinds of aircraft are frequently of the same type. These civil mechanics are in fact 100 per cent efficient as air-force mechanics and should therefore be counted as first-line effectives.

These arguments do not apply equally to the personnel of small civil machines. The pilots of these have far less experience than those of air liners, and they are not used to high-powered aircraft. They could, however, be utilised for military purposes after a short period of training, and might therefore be regarded as first-line reserves. The mechanics employed with these small types of civil aircraft are more difficult to classify. Their training is such that very little additional instruction would render them suitable for military employment. I estimate that fifty per cent could at once be transferred to military units.

This completes my survey of the relation of civil to military aviation in the light of up-to-date developments. The principal conclusion, to which I would again draw attention, is that it is now possible to differentiate between civil aviation which is potentially striking power, and that which is unsuitable for such a purpose. It might be possible to go further and estimate the war values of all civil aircraft, judging by their performance, and classify them in their various categories. But this, although it would certainly be done in war time by the nations concerned, would be a difficult task for an international committee in time of peace. I venture to suggest therefore, as a first step, an examination of civil aviation with a view to drawing a dividing line between potentially aggressive and potentially non-aggressive forms. Let the fact of convertibility be faced, at least so far as striking forces are concerned. Nothing can be gained by denying or discounting the truth. Certain it is that those countries which hold that civil aviation is convertible and recognise the great striking power of fleets of air lines, will not abate their military preparations because other countries, possessing large commercial air systems, refuse to admit inexorable facts. General admission of the truth, and the consequent inclusion of air liners and their personnel in statements of air armaments, would help to disarm suspicion and facilitate comparison. Refusal to admit the truth transgresses the spirit, if not the letter, of the last paragraph of Article 8 of the Covenant, and thus renders it impossible to agree upon a common denominator in the problem of aerial disarmament. Yet, until a common denominator has been fixed, no progress can be made towards a solution of that complex problem.

And while that solution tarries, air power, which has developed enormously during the past decade, continues to expand. Four years ago the British Air Minister stated that the air forces of one continental power could drop, within the first 24 hours of conflict, a weight in bombs equivalent to the total weight dropped in England by German air forces in the course of the war (nearly 300 tons), and continue that scale of attack indefinitely. That represented a fifteen-hundredfold increase in striking power in the course of six years. The following figures, quoted in the House of Commons last autum, give a further index to the rate of expansion :

> " Since 1925, Italy has increased her expenditure on air armaments by 28 per cent, France by 92 per cent, and the United States of America by 126 per cent. During the same period Great Britain's expenditure on air armaments has decreased by 10 per cent."

INTERNATIONAL COMMERCIAL AVIATION AND NATIONAL ADMINISTRATION

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CONTENTS.

INTERNATIONAL COMMERCIAL AVIATION AND NATIONAL ADMINISTRATION.

I. INTRODUCTION.

Commercial aviation, more than any other means of international communication, affects the most varied branches and interests of the national administration. In the case of railways, the territorial limits of the national administration coincide with those of technical exploitation. It is true that a railway truck may circulate beyond the national frontiers, but its transport beyond that point is effected by another and a foreign concern with a foreign staff, and under control of a foreign administration. Continuity of railway transport through several countries is also possible in an emergency, even in the absence of all co-operation between the various other national administrations concerned. In shipping, there is no such concordance between the territorial limits of exploitation and those of administration. A foreign vessel flying a foreign flag and under a foreign administration, enters waters which belong to the territory of another State. It thereby becomes subject to another administrative power, the requirements of which it can only satisfy in practice if they are compatible with the regulations of the State of origin. This compatibility of requirements as between different national administrations is, however, much more easily secured in maritime navigation than in aviation. The area within which a foreign vessel can move is restricted to territorial waters, ports or rivers, and it is easily controlled. These national conditions also restrict the possible encroachments and actual dangers by which foreign vessels may threaten public order and safety. For this reason the State need only issue a comparatively small number of simple administrative regulations, which may be the same in the different countries and the application of which will inconvenience maritime traffic the less since it is accustomed to reckon by days and months and not by hours.

How much greater are the difficulties encountered by the State administration when it comes to international aviation. The latter's technique does not confine it to specified areas, but permits it to cover the whole territory of the State. National legislation may erect frontiers reaching perpendicularly to the stars, but, for the administration which has to control these frontiers day and night, the air will nevertheless create new and extremely difficult tasks. Foreign aircraft may fly at no matter what altitude and with the most pacific intentions, but the natural law of gravity necessitates measures by the State to secure the lives and property of its citizens. The administration is obliged to adopt a number of measures towards the aircraft which, with its crew, comes from a territory under foreign sovereignty, is already subordinate to a foreign administration, and which, by reason of its first economic purpose—the establishment of the most rapid communications—allows, less than any other means of transport, of loss of time due to the fulfilment of administrative formalities. *The competence of different national administrations and the opposition between the needs of the administration and the technical requirements of air traffc are conflicts upon the satisfactory solution of which the development of international commercial aviation primarily depends.*

No one can be surprised that in the first few decades, during which aviation technique has itself undergone constant modification, progress has not yet passed beyond the experimental stage. And yet it is less the rapid and not yet perfected changes in technique than certain considerations not connected with transport policy which are endeavouring to influence the regulation of free international commercial aviation. These considerations are armaments policy, commercial policy and considerations of national culture. Obviously such different objects as armaments, commerce and transport imply not only a difference of end but a difference of means. According as one or the other is preponderant, commercial aviation will differ in regard to its fleet, its organisation and national status. If commercial aviation, that is to say, the carriage of persons and goods for hire, is primarily to serve the interests of cultural policy, it will be used less to facilitate international transport than to establish connecting links between countries to the exclusion of other nationalities. An armaments policy, on the other hand, will be based upon the idea that although a fleet of transport aircraft is by itself completely useless as a weapon of defence, it nevertheless constitutes a valuable complement to a country's fighting squadrons. This policy too, thrusts economic considerations into the background, as regards both the choice of aviation material and the whole administrative organisation. It also has merely a secondary interest in international co-operation between the administrations. International commercial aviation finds more support in commercial policy, which, owing to the economic interdependence of nations, cannot prosper without a certain international adjustment of national laws and administrative regulations, and is thus led to encourage freedom of air traffic, although commercial policy also may pursue a policy of national protectionism which will hamper international communications.

However great may be the pressure by which political ends divert commercial aviation from its natural channels, it is still a fact that under present conditions commercial aviation is dependent for its existence upon the aid of these political forces. Throughout the world there are only very few aviation undertakings which are capable of operating their lines without financial help from the State. The universal system of subsidies is the means by which the tendencies of aviation policy find expression. In this way the national Administration is given a direction which, under the pretext of encouraging national schemes, may, and very often does, impede the development of international aviation.

We can already anticipate that the technique of aviation will in the near future have made sufficient progress for international commercial aviation to become economically self-supporting. It may, however, be doubted whether national legislation and administration will open the way for these technical possibilities, or whether national laws, in pursuance of existing tendencies, will not throw away the advantages which international commercial aviation offers to humanity. The tasks in which the jurists and diplomats of the different countries will have to co-operate to set commercial aviation on its feet are scarcely less formidable than the technical problems which still await solution. The purpose of the present report is to contribute towards this preliminary work. It indicates briefly those administrative measures by States which seem of the greatest importance to international commercial aviation. The difficulty of securing documents and the still greater difficulty of obtaining information concerning the administrative practice of certain countries will excuse all faults and omissions.

II. ADMINISTRATIVE ORGANISATION.

The administrative authority under which commercial aviation is placed is symptomatic of the main political influences at work. Before and during the war questions affecting aviation were generally dealt with by the Ministry of War. With the development of air transport after the war, however, the administrative competence of an authority inspired by purely military considerations came to be realised as more and more unsuitable. Accordingly, most countries, including those which have worked hardest to develop aviation, have proceeded during the last ten years to place civil aviation under a civil administration.

The Ministry of War, or, most often, a special section of this Ministry, is still exclusively responsible for civil aviation in the following countries : *The Argentine* (Ministry of War and the Marine, with a Directorate for Civil Aviation) ; *Chile* (Ministry of War with Aviation Department) ; *Yugoslavia* (Ministry of War and the Marine) ; *Canada* (Ministry of National Defence with a Directorate for Civil Aviation) ; *Colombia* (Ministry of War) ; *Cuba* (Ministry of War) ; *Norway* (Ministry of National Defence) ; *Peru* (Ministry of the Marine and Aviation) ; *San Salvador* (Ministry of War) ; *Siam* (Ministry of War) ; *Turkey* (Ministry of War) ; *Uruguay* (Ministry of War and the Marine).

In the following countries commercial aviation is placed under a civil ministry : *Egypt* (Ministry of Transport and Public Works) ; *Belgium* (Ministry of Transport) ; *Bolivia* (Ministry of Railways and Transport) ; *Brazil* (Ministry of Transport and Public Works) ; *Bulgaria* (Ministry of Railways, Posts and Telegraphs) ; *China* (Ministry of Railways) ; *Denmark* (Ministry of Public Works) ; *Germany* (Reich Ministry of Transport) ; *Estonia* (Ministry of Transport) ; *Finland* (Ministry of Transport and Public Works) ; *Greece* (Ministry of Transport) ; *Guatemala* (Ministry of Public Works); *Japan* (Ministry of Transport) ; *India* (Ministry of Public Works) ; *Ireland* (Ministry of Industry and Trade) ; *Latvia* (Ministry of Transport) ; *Lithuania* (Ministry of Transport) ; *Mexico* (Ministry of Transport and Public Works) ; the *Netherlands* (Ministry of Public Works) ; *Austria* (Federal Ministry of Trade and Transport) ; *Poland* (Ministry of Transport) ; *Portugal* (Ministry of Trade and Industry) ; *Roumania* (Ministry of Industry and Trade) ; *Sweden* (Ministry of Transport) ; *Switzerland* (Federal Department of Posts and Railways) ; *Union of South Africa* (Postmaster-General) ; *Czechoslovakia* (Ministry of Public Works) ; *Hungary* (Ministry of Trade) ; *United States of America* (Department of Commerce, Aeronautics Branch).

In countries which attach equal importance to the development of military and civil aviation and wish to develop the two as complements to one another, we often find an undesirable and harmful rivalry between the different ministries, especially when military aviation is further divided between the Ministry of War and the Ministry of Marine. In these countries the main endeavour has been to create a uniform administration and this has led to the establishment of special ministries competent in all matters of aviation including commercial aviation: *Australia* (Civil Aviation Department) ; *France* (Ministry of Aviation) ; *Great Britain* (Secretary of State for Air) ; *Italy* (Ministry of Aviation) ; *Panama* (National Aviation Board) ; *Spain* (Consejo superior de Aeronautica) ; *Union of Soviet Socialist Republics* (Chief Inspectorate of Civil Aviation).

III. LICENSING OF AIRCRAFT ACCORDING TO NATIONAL LAW.

As a general rule aircraft cannot be admitted to air traffic unless they fulfil conditions of two kinds : (*a*) material conditions concerning airworthiness ; (*b*) formal conditions concerning registration. Further (*c*) the machine must bear a distinctive mark ; (*d*) it must fulfil certain conditions peculiar to various countries, and (*e*) according to the law of some countries, an insurance contract must be concluded to cover the risk of accidents. The rules, however, only apply to private aircraft. We must therefore further distinguish (*f*) between private aircraft and State aircraft.

(*a*) Airworthiness.

1. — All countries, desiring to make air traffic as safe as possible, have been led to adopt certain regulations forbidding aircraft to fly without the authorisation of the State. The latter reserves the right of testing the aircraft to see if it fulfils the necessary technical conditions, and the machine must in no case be used before it has been officially recognised as airworthy. If the machine satisfies the conditions, the authorities issue a certificate, either in the form of a special certificate of airworthiness, or in connection with the certificate of registration.

Cf. The Argentine (Decree of July 30th, 1926) ; *Belgium* (Decree of November 27th, 1929) ; *Brazil* (Decree of July 22nd, 1928) ; *Bulgaria* (Law of July 8th, 1925) ; *Denmark* (Law of May 1st, 1923) ; *Danzig* (Law of June 9th, 1926) ; *Germany* (Law of August 1st, 1922) ; *Estonia* (Decree of May 28th, 1926) ; *France* (Decree of October 13th, 1926) ; *Great Britain* (Air Navigation Consolidation Order of December 19th, 1923) ; *Japan* (Law of April 8th, 1921) ; *India* (Aircraft Rules 1920) ; *Italy* (Decree of January 11th, 1925) ; *Ireland* (Air Navigation Regulations, 1928) ; *Cuba* (Decree of April 21st, 1928) ; *The Netherlands* (Decree of December 16th, 1928) ; *Norway* (Law of December 7th, 1923) ; *New Zealand* (Decree of February 21st, 1921) ; *Austria* (Law of December 10th, 1919) ; *Poland* (Decree of March 14th, 1928) ; *Saar Territory* (Decree of February 15th, 1928) ; *Sweden* (Laws of May 26th, 1922, and April 20th, 1928) ; *Switzerland* (Decree of the Federal Council, dated January 27th, 1920) ; *Spain* (Law of March 6th, 1920, and Decree of October 12th, 1928) ; *Czechoslovakia* (Law of July 8th, 1925) ; *Hungary* (Decree of November 28th, 1929) ; *Union of Soviet Socialist Republics* (Decrees of July 20th, 1923, and June 13th, 1924) ; *Venezuela* (Law of June 21st, 1920) ; United States of America (Law of May 20th, 1926, and Air Commerce Regulations of September 1st, 1929).

In a few countries a certificate of airworthiness is required, not for all, but only for commercial aircraft :

Chile (Decree of October 17th, 1925) ; *Colombia* (Decree of March 15th, 1920) ; *Latvia* (Law of June 7th, 1926) ; *Portugal* (Decree of April 27th, 1927).

This body of law contains the following stipulations concerning airworthiness :

2. — Even after the authorisation to use the aircraft has been granted as a result of a test of airworthiness, the machine continues to be under State supervision and as soon as it is found to be unfit for use or dangerous, the authorisation may be withdrawn. If any technical changes are made or important repairs done to a machine authorised for use, a new certificate is generally required or a confirmation of the old one. In order to ensure that machines are regularly tested, the airworthiness certificate is only granted for a limited period.

3. — These regulations, which are laid down in the interests of safety are often prejudicial to national and international aviation. This is shown in the methods by which the State carries out the tests for airworthiness. In the discharge of this duty the administration has recourse to a number of official, semi-official or State-aided laboratories, offices and technical experts. Either in law or in fact, these offices exercise a monopoly as regards this examination. This may interfere with the play of national competition in the aviation industry in every case when the State does not confine itself to testing but also participates in manufacture, either directly or by the granting of subsidies. In the same way the State, on the pretext that an aircraft does not satisfy the conditions of airworthiness, is able to take protectionist measures against foreign manufactures. These dangers are all the greater both to national and foreign production because only very few countries allow of any appeal against the decisions of the examining authorities.

In other directions, too, the various regulations for testing airworthiness contain measures which may have an injurious effect upon national and foreign manufacture. The test generally consists of an examination of the model (examination of type and series) and of each machine (individual examination). For the examination of the type, the designs are generally asked for. Sometimes the rules provide for control over manufacture.

With regard to the technical qualities of an aircraft, the various countries impose minimum requirements, the details and extent of which vary considerably in the different countries. Thus the same machine may be regarded in one country as not airworthy and may in another country be recognised as airworthy. These differences may be justified. Obviously an aircraft must satisfy different conditions according as it serves one or another purpose—is to be used in a temperate zone or in the tropics, in mountainous country or on the plains. Nevertheless, the differences between minimum official requirements may have a harmful effect upon the national industry, since they are calculated to limit the possibility of mass manufacture in an industry which works partly with a view to export.

(*b*) Registration of Aircraft.

1. — The State recognition of airworthiness through the granting of a certificate is not, however, the only condition which aircraft must fulfil before its use is authorised. It also has to be marked and *entered in the official register*. A State which desires to exercise permanent technical supervision over aircraft flying over its territory and to take measures to punish offences against traffic regulations, must be able in individual cases to identify the machine rapidly and with certainty even when flying. In order to facilitate this identification, it is ordered that aircraft must be marked with letters and numbers visible at a long distance and corresponding to entries in the official register. The latter must contain the necessary particulars concerning the owner, operator, manufacturer, model, equipment, etc.

The main purpose of the register is, therefore, administrative ; it serves in the first place the requirements of the traffic police. This does not prevent various countries, such as France and Italy, from also using the register for promulgating and establishing certain private rights to aircraft.

2. — In all these cases it will be understood that registration is necessary for the needs of the traffic police. On the other hand, it is not so easy to justify the conditions generally laid down (except in the Argentine and Colombia) as preliminaries to registration. Thus, it is not enough that airworthiness should be proved and recognised. It is further required that the machine shall be the exclusive property either of a national or of a national company in the State in which it is to be registered.

As regards a company's nationality, the different laws contain different requirements. In the case of a company of persons, all the members, or at any rate those personally responsible, must be nationals of the registering State. For joint-stock companies on the other hand, the regulations differ. The rules of the Cina, Article 7 of which requires that, in addition to the chairman of the incorporated company, at least two-thirds of the directors must also be members of the registering State, have been adopted in the following countries :

Belgium (Decree of November 16th, 1919, Article 7) ; *Bulgaria* (Law of July 23rd, 1925, Article 2, paragraph 2) ; *France* (Law of May 23rd, 1924, Article 5) ; *Great Britain* (Decree of December 9th, 1923, Appendix I A. 1 (*b*)) ; *Ireland* (Air Navigation Regulations 1928, Article 5) ; *Canada* (Decree of December 31st, 1929, Article 5) ; *Latvia* (Law of June 7th, 1926, Article 6) ; *The Netherlands* (Decree of December 6th, 1928, Article 8) ; *Poland* (Decree of March 14th, 1928, Article 10) ; *Switzerland* (Decree of the Federal Council, dated January 27th, 1920, Article 8) ; *Spain* (Decree of November 25th, 1919, Article 3) ; *Czechoslovakia* (Law of July 8th, 1925, Article 6, paragraph 3) ; *Venezuela* (Law of June 16th, 1920, Article 41).

Denmark, Finland, Norway and Sweden have laid down requirements which go farther still. These countries require in principle that all the directors must be nationals domiciled in the country. The authorities may, however, grant exceptions in the case of not more than one-third of them.

Denmark (Laws of May 1st, 1923, and June 15th, 1928, Article 4) ; *Norway* (Law of December 7th, 1923, Article 6) ; *Sweden* (Laws of May 26th, 1922, and April 20th, 1928, Article 6).

In these countries, thanks to the possibility of these exceptions, the regulations are in accordance with the minimum requirements of Cina. This, however, is not the case in a number of other countries which, in addition to Cina's conditions, require that the majority of the shares shall be held by nationals. Thus, Chile and Italy require two-thirds of the shares of joint-stock companies to be held by nationals of the country in order that the company may possess the nationality necessary for the registration of the aircraft. Similarly, the United States of America requires that 51 per cent of the shares be held by nationals. From the point of view of the financial administration of aviation companies, Chile establishes certain restrictions on the transfer of shares, but it is not clear how these restrictions work out in practice. Italy and the United States of America impose no restrictions of this kind, but the company automatically ceases to fulfil the conditions necessary for registration as soon as the majority of shares pass into the hands of foreigners.

Cf. Chile (Decree of October 7th, 1925, Articles 7 and 8) ; *Italy* (Decree of August 20th, 1923, Article 6) ; *United States of America* (Law of May 20th, 1926, Section 3 (*a*) 1, Section 9 (*a*) 3).

In Germany and Danzig the question of the nationality of aviation companies has been settled in accordance with quite different principles. The regulations in general used before the War have been maintaind and the criterion adopted is whether or not the company's head offices are situated in the country. In the case, however, of limited liability companies, the members personally responsible must be German (or Danzig) nationals. According to the laws both of Germany and Danzig, therefore, it is possible for a company to acquire the nationality of the respective State even if all the directors and shareholders are foreign.

Germany (Law of August 1st, 1922, Article 2, paragraph 2) ; *Danzig* (Law of June 9th, 1926, Article 2, paragraph 2) ; *Saar Territory* (Decree of February 15th, 1928, Article 2, paragraph 2).

The nationality requirement for purposes of registration has sometimes been explained on the grounds that aircraft regulations were—rightly or wrongly—based on the rules of maritime law concerning the registration of vessels. This may be true of the earliest attempts to construct a theory of aerial law, but it cannot explain a legal clause which has been applied with such persistence by the legislation of the majority of countries. It is, in the last resort, political considerations which are here paramount. In so far as the State does not impose restrictions upon itself through international treaties, it desires in principle to reserve its territory to the aircraft of its own nationals, and in this way to give them precedence over foreign owners of aircraft. It has frequently been pointed out in recent times that, while regulations of this kind have very few positive advantages, their negative effect is to impede international air traffic. They do not ensure the protection of national interests. Aerial espionage, for example, is just as practicable from aircraft belonging to a national. Regulations which consist in registering only aircraft belonging to nationals become an administrative absurdity in cases when international conventions oblige the State to permit the passage of foreign aircraft over its territory.

Let us suppose that an owner of aircraft of A nationality is domiciled in country X, which, in virtue of an international convention, is obliged to permit the flying in its territory of aircraft registered in country A. In this case, the tests and control of airworthiness and all the registration formalities would have to take place in country A, of which the owner is a national, while the aircraft would be stationed and used in country X, where its owner resides. How can the owner's native country exercise technical control over aircraft which an aviation company belonging to that country employs on foreign air routes, possibly in another continent ? Imagine, too, the difficulties confronting an owner, who, for the purposes of tests, certificates and subsequent inspection in respect of his aircraft used abroad, must apply to his country of origin. In practice he will be referred to his Consulate, but this procedure is exceedingly dangerous from the traffic point of view, since Consulates do not as a rule have either the laboratories or the experts required for these examinations.

In order to avoid this separation between administrative competence and facilities for genuine control, it has sometimes been decided that not only shall registration depend upon nationality, but also the aircraft shall have its aerodrome in the State in which it is registered, *e.g.*, *Denmark*, (Law of May 1st, 1923, Article 7) ; *Sweden* (Laws of May 26th, 1922, and April 20th, 1928, Article 7). This solution, too, is unsatisfactory. In the first place, any person domiciled abroad will be unable to operate and, therefore, to register aircraft. Further, this solution does not prevent a national air navigation company, having its head office in the territory of the State concerned, from making use of its aircraft abroad and thus, in practice, evading control by the State.

The consequences for international traffic which follow from the application of these principles are bound to deprive of most of their value the national airworthiness certificates recognised in the relations between various States. For, if it is in fact impossible for one country to ensure the permanent airworthiness of its aircraft used in foreign territory, the foreign country must reserve the right to exercise control at any time and, if necessary, to cancel the certificate of airworthiness. This point will be dealt with later. (International Law in Matters of Aviation).

One further condition is required for registration. A whole number of laws contain an express clause specifying that registration must be refused when the aircraft is already registered in another country.

Examples : *Great Britain* (Law of December 19th, 1923, Annex 1 A, No. 1*b*) ; *Ireland* (Air Navigation Rules of October 5th, 1929, Section 5, No. 2) ; *Cuba* (Law of April 21st, 1928, Article 21) ; *Latvia* (Law of June 7th, 1926, Section II, No. 6) ; *Poland* (Decree of March 14th, 1927, Article 10, No. 3) ; *Sweden* (Laws of May 26th, 1922, and April 20th, 1928, Article 6, paragraph 2).

As regards countries belonging to Cina, the same situation results from Article 8 of Cina ; see also Ciana, Article 8, Havana Convention, Article 7.

Belgium-Germany (Convention of May 29th, 1926, Article 15) ; *Denmark-Norway* (Convention of July 27th, 1921, Article 8 *et seq*) ; *Germany-France* (Convention of May 22nd, 1926, Article 15) ; *Germany-Norway* (Convention of January 23rd, 1929, Article 17) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 18) ; *Sweden-Norway* (Convention of May 26th, 1923, Article 9), etc.

3. — In the application of these official regulations, the different countries proceed differently. Some, as we have already said, make the airworthiness and registration certificates independent one of another, although both are required before the aircraft can be used.

Examples : *Belgium* (Decree of November 17th, 1919, Articles 5 *et seq*) ; *Bulgaria* (Law of June 6th, 1925, Articles 2 *et seq*) ; *Great Britain* (Decree of December 9th, 1923, Annex 1) ; *Ireland* (Air Navigation Rules, 1928, Section 12) ; *Netherlands* (Decree of December 6th, 1928, Articles 3 *et seq*, Articles 74 *et seq*) ; *United States of America* (Law of May 20th, 1926, Section 3*a* and *b*).

Other countries only register those aircraft whose airworthiness they require to be established. In this case, registration may at the same time constitute a recognition of airworthiness.

Examples : *The Argentine* (Decree of September 4th, 1925, Articles 37 *et seq*) ; *Brazil* (Decree of July 22nd, 1928, Article 13) ; *Denmark* (Law of May 1st, 1925, Article 8*c*) ; *Danzig* (Law of July 9th, 1926, Article 2, paragraph 2) ; *France* (Decree of October 13th, 1926, Article 3) ; *Italy*

(Decree of January 11th, 1925, Articles 156 *et seq*) ; *Poland* (Decree of March 14th, 1928, Article 10) ; *Saar Territory* (Decree of February 15th, 1928, Article 2, paragraph 2) ; *Sweden* (Laws of May 26th, 1922 and April 20th, 1928, Article 7).

4. — *The effects of registration* vary. According to the law of some countries, registration, according as airworthiness has to be determined before registration or not, is a requisite condition in order that the aircraft may be used in aerial traffic. We have already mentioned above that a few laws also confer upon registration certain effects concerning property rights to the aircraft (ownership, mortgage).

Nearly every country has recognised the legal principle that aircraft acquire by registration, the nationality of the registering State. (In addition to national laws, see *Cina*, Article 6, *Ciana*, Article 6, *Havana Convention*, Article 7). The legal importance of this nationality is shown mainly by the fact that, in international private law, administrative law and penal law, it is regarded as the determining factor in applying national rules. We shall have occasion to return to this question later on. It may, however, here be mentioned that the adoption of the nationality of aircraft as a criterion must, in international law, often lead to unsatisfactory solutions, since the nationality of aircraft is determined, not by the aerodrome where the machine is stationed or by the nationality of its operator, but by its registration and, therefore, indirectly by the nationality of its owner.

5. — If the conditions governing registration (airworthiness, owners' nationality, nationality of the directors or shareholders of a company, native aerodrome, registration of aircraft abroad) should undergo modification, some laws provide for the cancelling of the registration, while others deprive the registration *ipso jure* of its legal effects. It can happen therefore that, in virtue of a still apparently valid registration, some aircraft continue to fly abroad although they are no longer properly registered in any country. In practice, this situation has been satisfactorily remedied by establishing an obligation upon States to notify to one another registrations and cancellations.

(*c*) Affixing of Marks to Aircraft.

The distinction of each aircraft, which is the primary aim of registration, consists in marking machines by fixing plates containing the same particulars as those entered in the register (name and domicile of owner and operator, type, number, etc.) ; also registration marks and national colours or emblems are painted upon the machine. The laws of the different countries all require in one form or another the fixing of marks of this kind.

So far, however, marks have not been unified under conditions fully satisfactory to international traffic. The international Conventions, with the exceptions of Cina and Ciana (Article 10 and Annex I), content themselves with stating that aircraft must bear distinct and visible marks which will enable the machine to be identified during flight (*Havana Convention*, Article 9, and all the separate European Conventions).

(*d*) Insurance Responsibility.

The last condition which has to be fulfilled before aircraft are authorised for use is the proof required by a few countries of the deposit of security or of the conclusion of an insurance contract to cover any damages that may have to be paid as the result of an accident due to the exploitation of the aircraft :

Examples : *Arizona* (Decree of November 10th, 1928) ; *Bulgaria* (Law of July 25th, 1925, Article 25) ; *Denmark* (Law of May 1st, 1923, Article 39) ; *Germany* (Law of August 1st, 1922, Article 29) ; *Louisiana* (Law of June 26th, 1926, Sections 1 and 3) ; *Norway* (Law of December

7th, 1923, Article 40) ; *Sweden* (Laws of May 26th, 1922, and April 20th, 1928, Article A 37) ; *Switzerland* (Decree of Federal Council dated January 27th, 1920, Article 28) ; *Czechoslovakia* (Law of July 8th, 1925, Article 38) ; *Venezuela* (Law of June 16th, 1920, Article 65) ; *Virginia* (Decree of July 1st, 1929, No. 33), etc.

As regards details, insurance responsibility is regulated in very different ways by different countries. In some, it is a *sine qua non* for the authorisation of the aircraft ; in others it is compulsory but independent of the aircraft's authorisation ; in some countries the condition is only obligatory if the authorities decide that it shall be so ; in others, it is only compulsory for aircraft engaged in transport. The risks to be covered include either all damage to persons or only damage caused to third parties or only damage to passengers and goods. In some cases, the responsibility is limited to a certain sum, in others it is unrestricted. Naturally, these differences seriously hamper international communications. We shall have occasion to revert later on to their importance to commercial aviation.

(*e*) Special Regulations.

Reference should be made to a few special regulations governing the authorisation of aircraft, which are found in the laws of certain countries but which have not yet been adopted elsewhere.

1. — *The Netherlands* make provision not only for certificates of airworthiness which apply to a complete aircraft—that is to say, a machine including the engines and equipment necessary for flying—but for special certificates for aircraft manufactured in series (Decree of December 6th, 1928, Articles 74, *et seq*).

2. — *Switzerland*, in contradistinction to other countries, has laid down that the aircraft, before it can be authorised for use, must not only be registered after being tested for airworthiness, but must further be provided with a licence issued by the supervisory authority (Decree of the Federal Council dated January 27th, 1920, Article 7, paragraph 2). This certificate is evidence at the same time of airworthiness, registration and authorisation to fly. It contains the name of the owner or of any person authorised by the owner to operate the aircraft (*Cf.* Hess, "Schweizerisches Luftrecht", 1927, page 27, *et seq*). Arizona has similar rules (Decree of November 10th, 1928).

3. — According to the *Czechoslovak* Law on Aviation, dated July 8th, 1925 (Article 7), no one may operate aircraft—that is to say, have the right to make permanent use of a registered aircraft—unless he has obtained a special licence issued by the Ministry for Public Works, such licence only being granted if there is no objection either to the person of the operator or to the general geographical position of the native aerodrome. This licence takes the form of a special legitimation card. In the case of persons who wish to fly Czechoslovak aircraft outside Czechoslovakia, the card may be issued by the Czechoslovak representative abroad.

(*f*) State Aircraft and Commercial Aircraft.

State aircraft everywhere enjoy a special situation, which amounts to privileged treatment in national traffic and unfavourable treatment in international traffic. From the point of view of international commercial aviation there is no occasion to examine these conditions except in so far as is necessary in order to define the term "commercial aircraft" and their legal status.

Here, too, the opposition should be noted between national and international traffic :

1. — In *national* traffic the essential point is that both State ownership and also the mere use of a machine by the State are sufficient to place an aircraft outside the general laws on transport and to subject it to the special rules of administrative law. The machine is then described as "State" or "public" aircraft. Its special situation involves various consequences : it is exempted from the usual procedure governing authorisations ; the customary registration in the official register may be waived ; the machine is not marked, or only by special signs ; the prohibition to take on board certain apparatus, or the obligation to obtain a special licence to do so, does not apply to these aircraft, nor are they subject to the internal regulations prohibiting flight over certain areas (prohibited areas), etc.

Since, therefore, the questions of what aircraft is to be regarded as State aircraft and what are the results of this situation are matters concerning the administrative law of each country concerned, we must here consider this latter law. Only a few countries have laws on aviation containing any special provisions on this subject. Thus, according to the *Brazilian* Aviation Decree, dated July 22nd, 1925 (Article 4), and according to the *Polish* Decree of March 14th, 1928 (Article 5, paragraph 2), every aircraft belonging to the State must be regarded as official aircraft. The same rule must be taken to apply to all countries which have no express regulations to the contrary. Most aviation laws take as their criterion, either exclusively or as well as the point above mentioned, the use to which the aircraft is put. In this case, all aircraft are regarded as State aircraft which are used in the administration of the State :

Examples : *The Argentine* (Decree of July 30th, 1926, Article 1*a*) ; *Chile* (Decree of October 17th, 1925, Article 2, paragraph 2) ; *France* (Law of May 31st, 1924, Article 2) ; *Great Britain* (Air Navigation Consolidation Order of 1923, Section 31 (1)) ; *Italy* (Decree of August 20th, 1923, Article 3 and Decree of June 11th, 1925, Article 4) ; *Latvia* (Decree of July 27th, 1925, Article 18) ; *Portugal* (Decree of April 27th, 1927, Article 2) ; *San Salvador* (Decree of May 17th, 1923, Article 2). *Cf.* also *Code de l'Air*, Articles 32 *et seq.*

Some texts enumerate all the services which confer upon aircraft the character of State aircraft ; this class includes, in addition to military aircraft, aircraft used by the postal authorities, the police, and the Customs. Accordingly, a machine which although belonging to the State is used for other than the above purposes—for example, for survey work, for the campaign against harmful insects or for health work—would not constitute State aircraft, at any rate on a literal interpretation of the texts :

Examples : *Colombia* (Decree of March 15th, 1920, Article 2) ; *Switzerland* (Decree of Federal Council dated January 27th, 1920, Article 34) ; *Venezuela* (Decree of June 16th, 1920, Articles 70 *et seq*).

Even aircraft belonging to private persons or companies may be declared to be State aircraft when they are used on account of the State :

Examples : *Chile* (Decree of October 17th, 1925, Article 2, paragraph 3) ; *Italy* (Decree of June 11th, 1925, Article 4, paragraph 3).

The laws of the different countries agree in treating all military aircraft as State aircraft. A machine is in every case a military aircraft, no matter to whom it belongs, if it is piloted by a military person.

The foregoing definitions are not without importance to international aviation, because the international Conventions which establish different regulations for State aircraft and private aircraft often fail to give an exact definition of these two groups and therefore oblige us to refer to the definitions given by domestic law.

2. — In *International traffic*, the international Conventions relate in the first place to *private aircraft*. State aircraft are therefore excluded, unless the Convention expressly provides for exceptions in the case of such aircraft or certain sub-divisions thereof. At the same time a number of comparatively old Conventions omit to define the term "private aircraft" :

Examples : *The Argentine-Uruguay* (Convention of May 18th, 1922) ; *Denmark-Germany* (Convention of April 25th, 1922) ; *Germany-The Netherlands* (Convention of July 24th, 1922) ; *Germany-Austria* (Convention of May 19th, 1925) ; *Germany-Sweden* (Convention of May 25th, 1925) ; *Germany-Switzerland* (Convention of September 14th, 1920) ; *France-Switzerland* (Convention of December 9th, 1919) ; *Great Britain-Switzerland* (Convention of November 6th, 1919) ; *Colombia-U. S. A.* (Convention of February 23rd, 1929) ; *The Netherlands-Poland* (Convention of November 24th, 1925) ; *The Netherlands-Switzerland* (Convention of May 18th, 1925).

The difficulties due to the interpretation of the term "private aircraft" are, in this case, all the greater because national legislation, as we have already shown under 1 (*a*) differs in the different countries. As far as I know, the question has not yet been settled. The best method would seem to lie in having recourse to the more recent Conventions, which contain greater detail as regards the meaning to be given to the terms "State aircraft" and "private aircraft". Nevertheless they, too, reveal divergencies.

In these Conventions, any machine is regarded as a private aircraft which is neither under the charge of a military person nor devoted exclusively to a State service. Accordingly—and this is a matter which concerns us—postal aircraft belonging to the postal administration of the State must be regarded as State aircraft :

Examples : *Belgium-Denmark* (Convention of June 28th, 1923, Article 2) ; *Belgium-Switzerland* (Convention of June 13th, 1922, Article 2) ; *Ciana* (Article 30) ; *Cina* (Article 30) ; *Denmark-Norway* (Convention of July 27th, 1921, Articles 30 *et seq*) ; *Denmark-Portugal* (Convention of December 16th, 1924, Article 2) ; *Sweden-Norway* (Convention of May 26th, 1923, Articles 30 *et seq*).

In order, however, that the advantages of aviation Conventions may be enjoyed by aircraft which, like postal aircraft, do not serve the political administration of the State, in spite of their official character, *Cina* has assimilated to private aircraft, over all the territories to which it is applicable, all State aircraft except military, Customs and police aircraft (Article 30, paragraph 3). Thus, State aircraft employed on health work, surveying, or in the campaign against harmful insects could, in international traffic, fly under the same conditions as private aircraft. Nevertheless, differences of opinion might occur in practice. If, according to the law of a foreign country, these aircraft are exempted from the obligations to be registered and marked or are only provided with special signs not recognised internationally (*e.g.*, signs peculiar to the postal administration), this would conflict with the general obligation whereby aircraft plying internationally must be marked with easily recognisable emblems and registration marks.

Many Conventions are based upon the regulations laid down in Cina :

Examples : *Canada-United States of America* (Convention of November 5th, 1929, Article 1) ; *Ciana* (Article 30) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 1, paragraph IV) ; *Italy-Austria* (Convention of May 11th, 1928, Article 1, paragraph V) ; *Austria-Czechoslovakia* (Convention of February 15th, 1927, Article 2) ; *Pan-American Commercial Aviation Convention* (of February 20th, 1928, Article 3) ; *Switzerland-Saar Territory* (Convention of August 15th, 1928, Article 1, paragraph II).

A last group of international air Conventions deals with private aircraft and *State aircraft exclusively employed for commercial purposes:*

Examples : *Belgium-Germany* (Convention of May 29th, 1926, Article 1, paragraph IV) ; *Germany-France* (Convention of May 22nd, 1926, Article 1, paragraph IV) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 1, paragraph III) ; *Germany-Italy* (Convention of May 20th, 1927, Article 1, paragraph V) ; *France-Spain* (Convention of April 25th, 1928 Article 1, paragraph V) ; *Great Britain-Norway* (Convention of July 15th, 1921, Article 1, paragraph I) ; *Great Britain-Portugal* (Convention of May 6th, 1921, Article 1, paragraph 18) ; *The Netherlands-Norway* (Convention of January 8th, 1925, Article 1, paragraph II).

Here, we encounter the difficulty of what is meant by "commercial purposes". This term may be differently interpreted by the law of each country. Aircraft employed by the health services are certainly not devoted to commercial purposes ; and the same applies to postal aircraft, since the postal administration does not primarily work for profit. As regards postal aircraft, therefore, the Conventions must be regarded as unsuitable. For this reason some Conventions assimilate postal aircraft to State aircraft devoted to commercial purposes, *e.g.:*

Germany-Spain (Convention of December 9th, 1927, Article 1, paragraph IV) ; *France-Spain* (Convention of April 15th, 1928, Article 1, paragraph V) ; *Spain-Italy* (Convention of August 15th, 1927, Article 1, paragraph V).

3. — *To sum up*, as regards the distinction between State aircraft and private aircraft, the laws of the different countries differ substantially in the same way, the international Conventions, owing to their partial assimilation of State aircraft to private aircraft, reveal certain divergencies which are due both to the differences of national legislation and to a defective wording of the Conventions themselves.

Most open to criticism are those Conventions which do not treat postal aircraft as private aircraft. If this has not resulted in any disadvantage as yet, it is only because the postal administrations have not so far established any air services of their own, but have entrusted the transport of mail to private aviation concerns. If, however, the postal administrations should decide to carry mail by their own aircraft, Cina, and the provisions of the Conventions based thereon, would probably be found to be the most suitable for the purpose.

IV. AIRCRAFT CREWS.

1. — Since the safety of air traffic is dependent both upon the airworthiness of the machine and upon the competence of its crew, the different States naturally require a special certificate, not only for the machines, but for their crews. Departments have been created to examine the health and technical competence of airmen. Many

countries entrust this examination to the air administration itself, others to experts appointed by that administration, while a few have recourse to the services of recognised aviation associations. According to the report of the authority in charge of the examination, the air administration grants or refuses the certificate, and in principle this applies to all airmen of the country concerned. With regard to details, however, there are very wide differences between the forms of the authorisation, the conditions under which it is granted, and the validity of the certificate.

2. — Some countries require only one permit (certificate of competency). This permit certifies that the holder possesses the necessary competence and, at the same time, authorises him to fly. Other countries distinguish between the certificate of competency and the police permit, both these certificates being issued according to different procedures and under different conditions.

The certificate of competency also varies according to the holder's duties on board and according to the nature of the aircraft for which it is to be valid. The pilot (originally the only aviator) is invariably dealt with separately. The different laws, however, according to their chronological date, have taken very unequal account of the differences which recent technical progress has established between the various duties on board. In some countries, special certificates are issued for the commanding officer, the mechanics, navigators and wireless operators ; in other countries all these persons are combined within the general category of aviators, and there are no special regulations for these different functions ; in some cases no certificate at all is required for them. Some laws expressly define the term "crew", others only enumerate those aviators who have to obtain a certificate.

Differences in classifying aircraft which the holder of a certificate is authorised to fly are a further cause of inequalities. In the scale of machines, extending from the glider via the sporting machine to the commercial aeroplane, there are many possible methods of distinguishing according to number and horse-power of engines, carrying capacity, etc., and a distinction may also be made according to whether the aircraft is to be flown over land or over sea. Accordingly the certificates of competency valid for these machines frequently vary.

3. — We need only mention that in these circumstances the requirements of the different countries as regards qualifications vary very widely. From the point of view of international traffic it need only be said that certain countries, in addition to requiring technical qualifications, demand that the aviator shall be a national of the country, or be domiciled therein, a condition which is obviously explained, not so much by the nature of things, as by nationalist (military) and protectionist tendencies ; permission to fly over the national territory will only be given to those who, in the event of war, can be mobilised for the service of the country.

The following countries, as a general rule, require that pilots of aircraft entered in the national register or flying over the national territory shall be nationals of the country :

Denmark (Law of May 1st, 1923) : the air administration is authorised to issue regulations concerning nationality and domicile, both of which conditions are also required by the Decree

of September 11th, 1920 (Article 39*a*) ; *Italy* (Decree of September 2nd, 1927, Article 1*d*) requires that wireless operators shall be Italian nationals ; *Norway* (Law of December 7th, 1923, Article 24) lays down that the crews of all aircraft flying over Norwegian territory shall be of Norwegian nationality and resident in Norway. Exceptions may be granted by the air administration, but in the case of service on board a Norwegian aircraft, these exceptions will not be granted for more than two months ; *Poland* (Decree of March 14th, 1928, Article 18) : the crew of every Polish aircraft and all auxiliary personnel must be Polish nationals, but exceptions may be granted ; *Portugal* (Decree of April 27th, 1927, Article 4*b*) : a special authorisation may grant exemption from the requirement that every aviator on board Portuguese aircraft must be of Portuguese nationality ; *Sweden* (Decree of April 20th, 1928, Article 15) : pilots, navigators, engineers and wireless operators on board Swedish transport aircraft must be of Swedish nationality, but as regards other aircraft, the Laws of May 26th, 1922, and April 20th, 1928 (Article 23), contain executive regulations which may also require Swedish nationality or domicile ; *Czechoslovakia* (Law of July 8th, 1925, Article 12, paragraph 2) : according to this law foreigners must prove that their country of origin accords formal reciprocity ; the *United States of America* require that an " industrial, limited, commercial or transport pilot " shall be either a national of the U. S. A. or a national of a country which grants reciprocity (Air Commerce Regulations 1929, Section 49). Other categories of pilots (pilots of gliders and private pilots) may be foreigners.

V. AERIAL LAW IN GENERAL.

(*a*) The Problem of Sovereignty in the Air.

1. — For the lawyer, who takes his stand on positive law, the principle that the sovereignty of the State also extends to the air space above its territory—a principle which the technical expert and the sailor have difficulty in understanding—is now a well-established rule of international law. It is characteristic of the present state of the law that of the many amendments submitted to the diplomatic conference convened by Cina in the summer of 1929 and consisting of representatives of nearly 100 countries, none made any attempt to attack the principle of the sovereignty of the State over the air space above the home country, colonies and territorial waters, which constitutes the basis of Cina.

All other international aviation Conventions rest on the same principle. Ciana and the Pan-American Convention of Havana have both textually reproduced Cina provisions and proclaimed in Article 1 "full and exclusive sovereignty over the air space". If other international Conventions, such as those concluded by Germany, do not expressly proclaim this sovereignty, it is only because the principle is tacitly assumed. It is recognised by these Conventions by the fact that foreign aircraft are only allowed free access to and flight over national territory in virtue of treaty provisions and subject to certain restrictions.

The sovereignty thus recognised internationally is reflected in domestic legislation. Many of these national laws expressly mention the point :

Examples : *The Argentine* (Decree of September 4th, 1925) ; *Brazil* (Decree of July 27th, 1925, Article 1) ; *Chile* (Decree of October 17th, 1925, Article 17) ; *Great Britain* (Law of December

23rd, 1923) ; *Italy* (Decree of August 20th, 1923, Article 1) ; *Cuba* (Decree of April 21st, 1928, Article 1) ; *Latvia* (Law of June 7th, 1925, Article 1) ; *Lithuania* (Law of December 10th, 1921, Article 1) ; *Czechoslovakia* (Law of July 8th, 1925, Article 1) ; *Hungary* (Decrees of December 30th, 1922, and March 22nd, 1924, Article 1) ; *Venezuela* (Decree of June 21st, 1920) ; *United States of America* (Law of May 20th, 1926, Section 6*a*).

In order that sovereignty may exist there is, however, no need for it to be proclaimed. It exists and is claimed by the fact that domestic legislation in principle prohibits and subjects to special authorisation the flight of foreign aircraft over its territory.

Examples : *The Argentine* (Decree of September 4th, 1925, Articles 4 *et seq* and Decree of *July* 30th, 1926, Article 74) ; *Belgium* (Decree of November 27th, 1919, Articles 1 and 50) ; *Brazil* (Decree of July 22nd, 1925, Article 43) ; *Bulgaria* (Law of June 6th, 1925, Article 2) ; *Chile* (Decree of October 17th, 1925, Article 19) ; *Denmark* (Law of May 1st, 1923, Article 3) ; *Danzig* (Law of June 9th, 1926, Article 2) ; *Germany* (Law of August 1st, 1922, Article 2) ; *France* (Law of May 31st, 1924, Article 8) ; *Great Britain* (Decree of December 9th, 1923, No. 4) ; *Italy* (Law of August 20th, 1923, Article 5) ; *Yugoslavia* (Decree of June 12th, 1926, Article 2) ; *Colombia* (Decree of March 15th, 1920, Articles 18 *et seq*) ; *Cuba* (Decree of April 21st, 1928, Article 21) ; *Latvia* (Law of June 7th, 1926, Article 16) ; *New Zealand* (Decree of February 21st; 1921, Article 1); *the Netherlands* (Law of July 30th, 1926, Articles 7 and 11) ; *Norway* (Law of December 7th, 1923, Article 3) ; *Austria* (Law of December 10th, 1919, Article 9, No. 5) ; *Portugal* (Decree of April 27th, 1927, Article 15) ; *Russia* (Decree of January 17th, 1921, No. 15) ; *San Salvador* (Decree of May 17th, 1923, Article 17) ; *Sweden* (Decrees of May 26th, 1922 and April 30th, 1928, Articles 14 and 15) ; *Switzerland* (Decree by Federal Council dated February 27th, 1920, Article 7) ; *Spain* (Decree of November 25th, 1919, Article 38) ; *Czechoslovakia* (Law of July 8th, 1925, Article 43) ; *Hungary* (Decree of December 30th, 1922, Article 20) ; *Venezuela* (Law of June 21st, 1920, Article 38) ; *United States of America* (Law of May 20th, 1926, Section 6*b*).

Peru constitutes an exception. In its decree of November 15th, 1921, No. 1, it proclaims the freedom of aviation at an altitude above 3,000 metres. This is a last survival of Fauchille's liberal theories, which, at any rate in the form of the zone theory we find in Peru is, if only for technical reasons, recognised by modern doctrine as impracticable.

Sovereignty over the air space, which would appear proved by the sources of national and international law mentioned above, involves as a positive consequence the right of the State to dispose of this air space and, negatively, the right to exclude from traffic third parties, especially foreign aircraft. Accordingly, however important its air territory may be to international air traffic, a State can reserve it for certain foreign Powers or close it to all. Such action will be in conformity with modern conceptions of international law, whenever the exclusion of foreigners is dictated by the interests of the State, whether by considerations of its security or by the wish to gain economic advantages. It is of course conceivable that these national advantages may be out of all proportion to the injury inflicted upon the excluded nations and their international air traffic. The jurist may here see an abuse of rights or will consider the possibility of granting harmless passage

and participation in international air traffic through the recognition of a way of necessity (*Notweg*) from excluded States through the air territory of a foreign country. This, however, would be equivalent to applying to international law conceptions of private law, without any legal basis for such procedure. And there will be no such basis until some universally recognised rule has been fixed which will reconcile the interests of each individual country with those of the commonwealth of nations.

2. — With regard to oversea air traffic, sovereignty over the air space will involve special difficulties in cases when coastal and insular States, upon which the technique of air communications still depends, do not in principle permit international traffic over and through their territorial waters. It may be asked whether, in spite of the closing of the air space above territorial waters, the free coastal stations necessary to air traffic could not be found, at any rate if the hydroplanes employed were to take off from and descend in the open sea and then proceed to enter ports as floating vessels, in conformity with the more liberal provisions of maritime law.

Against such a procedure it may be urged that States are anxious to claim sovereignty over the air space above their territorial waters—uniformly recognised in international conventions—for the very purpose of establishing a monopoly of oversea air transport from their coasts. If, in pursuit of this policy, they refuse to apply the provisions of maritime law to the entry of floating aircraft into their ports, their refusal would be perfectly justified in law. It is contrary to the ordinary conceptions of traffic to place aircraft within the category of "vessels". When Cina in Annex D, No. 50, prescribes that an aircraft manœuvring under its own power on the water shall conform to the regulations for preventing collisions at sea, it expressly states that aircraft and vessels shall be treated alike for the purposes of those regulations only. Moreover, it would seem obvious that the application of the same treatment to vessels and aircraft is a theory which is untenable in face of the technical and police regulations for traffic in ports. Finally, the coastal State could prohibit the entry of all floating aircraft simply by invoking its sovereign rights over territorial waters—rights which are generally admitted and are also recognised in a draft of the International Institute of Law (Stockholm 1928).

Accordingly, any exposition of the present regime of international air traffic must proceed from the conception of the full and exclusive sovereignty of the State over the air space above its territory and territorial waters, as something which, even if a serious obstacle to traffic, is nevertheless an incontestable fact.

3. — The question whether and how far State sovereignty also extends to aerial traffic over the high seas is obscure and has not yet found any solution. The only point upon which there is a certain general agreement is that the aircraft itself and its actions are subject to the law and jurisdiction of the State whose nationality it possesses. This rule is mainly envisaging acts which may occur during flight over the sea and which affect private law and the penal code. It is far from satisfactory, especially when the aircraft does not possess the nationality either of the country from which it started or of the country in which it lands. This criticism, which has more than once appeared in recent literature, calls for no further remark here, since it does not directly concern international aviation proper.

On the other hand, we must emphasise the great disadvantages resulting from the absence up to the present of any general regulations governing traffic in space which is not subject to the sovereignty of any State. Air traffic rules and provisions as to lights, signals and marks still remain to be established for oversea air traffic of the future.

Similarly, aviation cannot in the long run dispense with international police regulations such as apply to navigation on the high seas. The legal questions which, in the event of a war involving only one maritime power, would immediately affect all oversea air traffic, have scarcely been raised, far less settled.

Again, the regulation of the legal status of floating islands is a question which has to be decided. There are no legal grounds whatever for assimilating these islands to vessels on the high seas and thereby subjecting them to the regime of the "freedom of the seas."

All these questions will remain, so to speak, in a legal void until some definite legal conceptions have been formed. There is reason, however, to fear that one of these days some countries may appeal to their sovereign rights as an excuse for entering this legal no-man's-land and may then, in spite of the protests of other States, create and succeed in maintaining a situation to which time might lend a semblance of right. The result would then be to apply to oversea air traffic that principle of sovereignty which is already such an obstacle to air traffic over land. We need only consider the possibility of sovereignty being claimed over the air space above battleships and floating islands regarded as national territory; such a development would finally destroy all freedom of oversea air traffic, and it can only be prevented by the adoption of international regulations before it is too late.

(*b*) Limitation by Treaty of Sovereignty in International Aviation.

1. — *The "Peace-time" Clause.* — With a very few exceptions the conventions, such as that between Canada and the United States of America dated August 29th, 1929, grant to the participating States mutual freedom of air navigation in peace time only. This means that the right of free navigation for aircraft ceases not only when one of the two contracting parties is at war with the other or with a third Power, but even when the political atmosphere is disturbed by war without either of the two contracting parties being itself engaged in hostilities. In weighing the effects of the clause in question, we must therefore distinguish between these two eventualities.

It can easily be understood that a State which is itself engaged in war cannot accept a treaty obligation to permit the flight of foreign aircraft over its territory; the control of all transit traffic, which is essential to the conduct of war, and the dangers of espionage from the air impose this solution.

More questionable, however, are the grounds for suspending all air traffic under a treaty regime when the State flown over is itself a neutral. Not every flight over or passage through a country on the part of the contracting State engaged in war necessarily constitutes an act of war which the neutral State would be entitled or bound to prohibit in virtue of its neutrality. Let us only consider how generally desirable it may be to maintain air communications between the belligerent State and the seat of the League of Nations and other neutral capitals. The needs of the

neutral State as regards security would be fully met if it could prescribe that the commercial aircraft of the belligerent States, before flying over its territory, must land at a frontier aerodrome for the examination of its crew and cargo.

It is absolutely untenable that two neutral countries should be able to put a stop to all treaty traffic as soon as a third Power finds itself in a state of war.

Accordingly, the peace-time clause, which has been generally adopted, goes far beyond its purpose. It furnishes the contracting parties with a means of evading their treaty obligations, even when it has no legitimate interests involved. It thereby endangers the maintenance of international traffic even within the narrow limits which the Conventions allow it. In view of these circumstances some general regulations governing neutral rights and the rights of war in regard to aviation are urgently required.

2. — *Mutual Recognition of Registration and Airworthiness Certificates and Certificates of Competency.* — The granting of the right to fly over another State would be impracticable and valueless if the State which granted it insisted upon the foreign aircraft and its crew being furnished with airworthiness certificates and certificates of competence issued by that State itself in conformity with its domestic law. One of the principal clauses in these aviation Conventions, therefore, is the clause by which each country recognises, in respect of traffic over its own territory, the certificates which the other contracting State has granted to registered aircraft and their crews. Similarly each contracting State undertakes not to require of a foreign aircraft any certificates other than those prescribed by the State of origin

Cf. Cina (Article 13) ; *Ciana* (Article 13) ; *Havana Convention* (Article 15), and the other international Conventions.

How this recognition of foreign certificates is applied in air traffic, and what are the consequences which result for the different national administrations from the fulfilment of their undertaking to recognise these certificates, will be shown below (see pages 122 *et seq.*).

The corresponding obligation upon aircraft to carry on board in international traffic all the certificates and licences required by the State of origin, and to produce them whenever requested to do so by the authorities of the State flown over, is self-evident and calls for no further comment.

Cf. Cina (Articles 11 *et seq.*) ; *Ciana* (Articles 11 *et seq.*) ; *Havana Convention* (Articles 12 *et seq.*), and all other international aviation Conventions.

3. — *The Right of Passage,* which States grant each other is limited not only in time but in extent. It only allows " innocent " passage. The texts nowhere explain what is meant by " innocent " or " not innocent ".

The damage which passage may cause may injure existing private rights, especially landed property, or the public interests of the State. In both cases special provisions in the Conventions afford adequate protection. The provision where by the machine and its crew are subject to the domestic law of the State flown over alone ensures the inviolability of all private rights. The interests of the State which have to be protected against the possible dangers of aircraft in transit are also adequately safeguarded by the provisions concerning prohibited transport and the establishment of prohibited areas, to which reference will be made below. The reservation relating to the innocent nature of the passage has, therefore, only the value of a general clause. In so far as its

contents correspond to the special protective provisions contained in the different Conventions, it is superfluous. In so far as it goes farther, it is a subtle clause inspired by fear, for, thanks to this provision, one contracting party can at any moment deprive the other party of the most important advantages which it has to accord it. The best solution, therefore, would be to suppress this clause.

4. — *Right of Landing and Use of Aerodromes.* — The right of passage does not automatically include the right to land on the territory of the foreign State. Nevertheless, the Conventions do not expressly recognise the right of aircraft belonging to the other party to land. In granting each other the right of free passage over their territory, therefore, countries are accustomed to recognise tacitly the right of landing. This follows from the fact that the Conventions which contain no clause concerning the right of landing are precisely those which allow foreign aircraft to make use of public aerodromes, or even compel them to land at specific aerodromes.

The extent of the right to land not as a rule being defined in aviation Conventions, domestic law holds good. The provisions of the latter differ. The most liberal regime obtains in Germany, where, according to Article 12 of the Aviation Law of October 1st, 1922, aircraft are allowed to land on aerodromes or unenclosed land or on water situated outside centres of population. Other countries prescribe voluntary landings and takings-off at aerodromes only :

Examples : *Brazil* (Decree of July 22nd, 1922, Article 49*a*) ; *Belgium* (Decree of November 27th, 1919, Articles 21 and 22) ; *Bulgaria* (Law of June 6th, 1925, Article 14) ; *Chile* (Decree of October 7th, 1925, Article 33) ; *France* (Law of May 31st, 1924, Article 24) ; *Italy* (Decree of August 20th, 1923, Article 31) ; *Latvia* (Law of June 7th, 1926, Article 34) ; *The Netherlands* (Law of July 30th, 1926, Article 18) ; *Switzerland* (Decree by Federal Council, dated January 27th, 1920, Article 20) ; *Hungary* (Decree of December 30th, 1922, Article 8) ; *United States of America* (Law of May 20th, 1926, Section 10) ; *Venezuela* (Law of June 16th, 1926, Article 54).

An intermediate regime is adopted by those laws which impose the obligation to make exclusive use of aerodromes only upon aircraft engaged in transport :

Examples : *Great Britain* (Decree of December 9th, 1923, Article 5) ; *New Zealand* (Decree of February 21st, 1921) ; *Spain* (Decree of November 25th, 1919, Article 12) ; according to Article 13 of the Treaty between *Germany* and *Czechoslovakia*, dated January 28th, 1927, aircraft may only land on and take off from an aerodrome open to public traffic ; exceptions, however, may be allowed.

A clause whereby the aircraft of the contracting parties may make use of public aerodromes under the same conditions as national aircraft is an important rule in international traffic law ; it is contained in most of the Conventions and, if my information is correct, has not as yet given rise to any difficulties.

Cina (Article 24) ; *Ciana* (Article 1) ; *Havana Convention* (Articles 23 *et seq*) ; *Belgium-Germany* (Convention of May 29th, 1926, Article 10) ; *Belgium-Switzerland* (Convention of June 13th, 1922, Article 12) ; *Denmark-Germany* (Convention of April 25th, 1922, Article 11) ; *Denmark-Norway* (Convention of July 27th, 1921, Article 24) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 10) ; *Germany-Austria* (Convention of May 19th, 1925, Article 6) ; *Germany-*

Switzerland (Convention of September 14th, 1920, Article 11) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 12) ; *Germany-Sweden* (Convention of May 29th, 1925, Article 5) ; *France-Switzerland* (Convention of December 9th, 1919, Article 11) ; *France-Spain* (Convention of March 22nd, 1928, Article 10) ; *Great Britain-Switzerland* (Convention of November 6th, 1919, Article 11) ; *Great Britain-Norway* (Convention of July 15th, 1921, Article 10) ; *Italy-Austria* (Convention of November 16th, 1928, Article 10) ; *Italy-Spain* (Convention of August 15th, 1927, Article 10) ; *The Netherlands-Norway* (Convention of January 8th, 1925, Article 5) ; *Netherlands-Switzerland* (Convention of May 18th, 1926, Article 5) ; *Sweden-Norway* (Convention of May 26th, 1923, Article 24) ; etc.

5. — *Equality of Treatment as Regards Transport Prohibitions.* — When the air-traffic Conventions provide for the possibility of a State, for reasons of public safety, restricting the transport of specific articles, they assume that the same treatment shall apply both to national aircraft and to the aircraft of the other contracting State. This rule, which is set forth in Article 29 of Cina, has been embodied in most of the other Conventions and is also contained in Article 17 of the Havana Convention.

6. — *The Most-favoured-nation Clause* may occur in commercial and establishment treaties, or in an air-traffic Convention. In either case the question is how far it affects international air traffic.

Whether the most-favoured-nation clause contained in treaties of commerce and establishment applies to air traffic depends upon the scope of the clause in the treaties in question. To-day it is not usual to adopt an unrestricted most-favoured-nation clause governing all the international relations of the contracting States. On the other hand, we find some commercial and navigation treaties which contain a most-favoured-nation clause applying to every kind of transport or transit.

Examples : *The Netherlands-Poland* (Treaty of Commerce and Navigation, dated May 30th, 1924, Article 10) ; *The Netherlands-Portugal* (Exchange of Notes of August 27th, 1924, No. IV) ; *Denmark-Siam* (Treaty of Friendship, Commerce and Navigation dated September 1st, 1925, Article VIII).

Nevertheless, if we try to ascertain the intention of the parties in all these treaties, it becomes clear that, when concluding them, they were not contemplating air traffic, which should therefore be excluded from the most-favoured-nation clause. At the most its application might be considered in the case of the industrial establishment of air-traffic undertakings.

I only know of one commercial treaty in which air traffic is expressly admitted to the benefits of the most-favoured-nation system. This is the German-Lithuanian Treaty of June 1st, 1923 (Article 10). This treaty, however, has recently been replaced by the new Treaty of Commerce and Navigation, dated October 30th, 1928, which grants most-favoured-nation treatment to maritime navigation, but not to aviation.

On the other hand, air navigation Conventions themselves frequently contain the most-favoured-nation clause, but its scope and the accompanying conditions vary.

The most liberal regime is that of the German-Italian Convention of May 20th, 1927, according to which each of the contracting States grants to the other most-favoured-nation treatment in all matters affecting their mutual relations in the sphere of commercial aviation (Article 1, paragraph 3).

According to this Convention, however, the establishment and operation of regular air lines by an aviation concern, within or over the territory of the other contracting State, are subject to the conclusion of a special agreement and are expressly excluded from the benefits of the most-favoured-nation clause (Article 1, paragraphs 1 and 2).

In view of the fact that, according to European practice, the most-favoured-nation clause pure and simple is regarded as unconditional, any advantage which one of the contracting States accords to a third power is extended to the State benefiting by the most-favoured-nation clause, even if that State does not grant the same advantages to the former State. It will be understood that so far-reaching an effect of the most-favoured-nation clause as that contained in the German-Italian Convention has not been generally adopted by other Conventions ; nor does it apply to regular transport lines, which in practice robs it of a great part of its value. The only treaties in which the clause has the same scope are the Italian-Spanish Air Navigation Convention of August 15th, 1927, and the Italian-Austrian Convention of May 11th, 1928 (Article 1, paragraph III).

In a few other treaties the clause reappears in a conditional form only. Article 2, paragraph 2, of the Air Navigation Agreement between Germany and Great Britain, dated June 29th, 1927, grants to the nationals of each of the two States, as regards the import, export and transit of goods produced in the territories of each of the two States, the advantages reserved to persons and goods by the Anglo-German Commercial Treaty of December 2nd, 1924 ; these advantages include most-favoured-nation treatment. According to paragraph 3 of the same Article, aircraft employed in international traffic, their passengers and cargoes shall enjoy the same advantages and be subject to no duties or charges other or higher than those imposed upon the aircraft (and their passengers and cargoes) of any other foreign country. To sum up, therefore, most-favoured-nation treatment is conditional, is limited to certain articles and does not extend to all traffic.

The Scandinavian treaties establish a most-favoured-nation regime which applies to a still more limited section of aerial law ; *Denmark* and *Norway* in their Air Navigation Convention of July 27th, 1921, grant each other most-favoured-nation treatment in respect of internal trade (*cabotage*) (Article 18) and extend the same treatment to their aircraft as regards cargoes, taking off, flight over their territory, and landing (Article 37) ; the same provisions are found in the Convention between *Denmark* and *Sweden* of November 7th, 1922, and in the Convention between *Norway* and *Sweden* dated May 6th, 1923 (Articles 18 and 37 of both Conventions).

An application of the most-favoured-nation clause which, unlike the above-mentioned cases, is of the greatest value to commercial aviation, is found in the *Franco-Spanish* Convention of March 22nd, 1928 (Article 1, paragraph 3). The two contracting States grant each other most-favoured-nation treatment in the operation of their jointly established air lines.

The same arguments can be advanced for and against the expediency of the most-favoured-nation clause in air navigation Conventions as in commercial treaties generally. In air navigation Conventions, however, the clause may perhaps constitute a special obstacle to the granting of provisions in separate treaties owing to the fact that the State which grants most-favoured-nation treatment will fear the possible effects of this clause.

7. — *Periods of Validity and Time-limits for Denunciation.* — The fact that these air navigation Conventions provide no definite period of validity and contain comparatively short time-limits for denunciation is further proof that, in concluding them, States are very conscious of the uncertainty and instability of the situation.

In the Convention between *Canada* and the *United States of America*, dated August 29th, 1929-October 22nd, 1929 (Section 9), *the period of validity is only two months.*

The period is *three months* in the following Treaties :

Belgium-Switzerland (Convention of June 13th, 1922, Article 20, paragraph 1) ; *Germany-Denmark* (Convention of April 25th, 1922, Article 19) ; *Germany-The Netherlands* (Convention of July 24th, 1922, Article 16) ; *Germany-Austria* (Convention of May 19th, 1925, Article 19) ; *Germany-Sweden* (Convention of May 29th, 1925, Article 17) ; *Germany-Switzerland* (Convention of September 14th, 1920) ; *France-Switzerland* (Convention of December 9th, 1919, Article 19) ; paragraph 1) ; *Great Britain-Switzerland* (Convention of November 6th, 1919, Article 19, paragraph 1) ; *The Netherlands-Switzerland* (Convention of May 18th, 1925, Article 16, paragraph 1).

The Havana Convention (Article 37) may be denounced on giving *six months' notice.*

The period for denunciation is twelve months in the following Conventions :

Cina (Article 43) ; *Ciana* (Article 42, paragraph 1) ; *The Argentine-Uruguay* (Convention of May 18th, 1922, Article 19) ; *Belgium-Germany* (Convention of May 29th, 1926, Article 21) ; *Germany-France* (Convention of May 22nd, 1926, Article 21) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 21) ; *Germany-Italy* (Convention of May 20th, 1927, Article 21) ; *Germany-Norway* (Convention of January 23rd, 1929, Article 23) ; *Germany-Spain* (Convention of December 9th, 1927, Article 24) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 23, paragraph 1) ; *France-Spain* (Convention of March 22nd, 1928, Article 21) ; *Italy-Spain* (Convention of August 15th, 1927, Article 21) ; *Austria-Italy* (Convention of May 11th, 1928, Article 21).

(*c*) The Various Conditions to which International Aviation is Subject under International Conventions.

1. — *Commercial Aviation.* — The air navigation Conventions do not authorise every form of innocent passage. Most of them, in fact, impose restrictions upon the transport of passengers and goods for hire and upon the establishment of commercial air lines. Here we must distinguish between international lines and national lines (*cabotage*).

The important Conventions concluded between groups of Powers prescribe a special authorisation by the State flown over to establish *international lines*, whereas in other cases they grant freedom of entry and passage. Article 15, paragraph 3 of Cina and Ciana may be quoted as examples. The special Conventions concluded by various States, in particular those concluded with Germany, are based upon the system established by Cina and make special arrangements to govern the establishment of international lines.

Examples : *Belgium-Germany* (Convention of May 29th, 1926, Article 1, paragraph 2) ; *Belgium-Switzerland* (Convention of June 13th, 1922, Article 3, paragraph 2) ; *Germany-France* (Convention of May 22nd, 1926, Article 1, paragraph 2) ; *Germany-Italy* (Convention of May 20th, 1927, Article 1, paragraph 2) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927,

Article 1, paragraph 2) ; *France-Spain* (Convention of March 22nd, 1928, Article 1) ; *The Netherlands-Norway* (Convention of January 8th, 1925, Article 12) ; *The Netherlands-Switzerland* (Convention of May 18th, 1925, Article 12) ; *Austria-Hungary* (Convention of August 29th, 1924, Article 15) ; *Austria-Italy* (Convention of November 16th, 1928, Article 1).

In a few cases the State flown over reserves the right to grant a special licence for international lines, but this licence is declared to be unnecessary when the air navigation undertakings concerned contain nationals of both States in equal numbers.

Examples : *Denmark-Norway* (Convention of July 27th, 1921, Article 17) ; *Denmark-Sweden* (Convention of November 7th, 1922, Article 17) ; *Norway-Sweden* (Convention of May 26th, 1923, Article 17).

In opposition to these Conventions are all the other Treaties, the main purpose of which is to establish commercial air lines.

Examples : *The Argentine-Uruguay* (Convention of May 18th, 1922) ; *Canada-United States of America* (Convention of August 29th, 1929, Section 6) ; *France-Switzerland* (Convention of December 9th, 1919) ; *Great Britain-Norway* (Convention of July 15th, 1921) ; *Great Britain-Switzerland* (Convention of November 6th, 1919) ; *Havana Convention* of 1928, Article 12, paragraph 5 and Article 21) ; *Poland-Czechoslovakia* (Convention of April 15th, 1926).

Even under these Conventions, except when their purpose is to establish a specific line, commercial air navigation concerns are not given by any means a free hand, since these Conventions only grant in respect of transport the rights laid down by the national laws, and the latter for the most part require a concession for the operation of air navigation concerns.

Examples : *Brazil* (Decree of July 22nd, 1925, Article 64) ; *Bulgaria* (Law of June 6th, 1925, Article 12) ; *Danzig* (Law of June 9th, 1926, Article 11) ; *Germany* (Law of August 1st, 1922, Article 11) ; *Italy* (Decree of August 20th, 1923, Article 20) ; *The Netherlands* (Law of July 30th, 1926, Article 11) ; *Norway* (Law of December 7th, 1923, Articles 34 *et seq.*) ; *Austria* (Law of December 10th, 1919, Article 7) ; *Sweden* (Decree of May 26th, 1922, Article 33) ; *Switzerland* (Decree by Federal Council, dated January 27th, 1920, Article 16) ; *Czechoslovakia* (Law of July 8th 1925, Article 17) ; *Hungary* (Decree of December 30th, 1922, Article 7).

In countries where no concession is required for the establishment of air navigation concerns, the benefits of this regime are reserved for national lines.

Examples : *Chile* (Decree of October 7th, 1927, Article 18) ; *France* (Law of May 31st, 1924) ; *Great Britain* (Decree of December 9th, 1923) ; *Colombia* (Decree of March 15th, 1920) ; *Latvia* (Law of June 7th, 1926) ; *Portugal* (Decree of April 27th, 1927) ; *United States of America* (Law of May 20th, 1926).

In short, therefore, we find that, in spite of the obligations arising out of general Conventions on air navigation, most countries decide by autonomous regulations whether and how far they will admit foreign aviation undertakings in their territory. Even when an international Convention, like the Havana Convention, establishes a general international obligation to admit these enterprises, the State flown over can still exercise a decisive influence even over international traffic above its territory owing to the fact that it is perfectly free to regulate the organisation of its air routes, aerodromes and transport organisations.

Cabotage, that is to say, national traffic between two points in the territory of the same State, is reserved for nationals in nearly all air navigation Conventions.

Examples : *Cina* (Article 16) ; *Ciana* (Article 16) ; *Havana Convention* (Article 22) ; *Canada-United States of America* (Convention of August 29th, 1929, No. 6) ; *Belgium-Germany* (Convention of May 29th, 1926, Article 2) ; *Denmark-Germany* (Convention of April 25th, 1922, Article 9) ; *Denmark-Norway* (Convention of July 27th, 1921, Article 18) ; *Germany-Switzerland* (Convention of September 14th, 1920, Article 9) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 2) ; *France-Germany* (Convention of May 22nd, 1926, Article 2) ; *France-The Netherlands* (Convention of July 2nd, 1923, Article 6) ; *France-Switzerland* (Convention of December 9th, 1919, Article 8) ; *France-Spain* (Convention of March 22nd, 1928, Article 2, paragraph 3) ; *Great Britain-Germany* (Convention of June 29th, 1927, Article 2) ; *Great Britain-Norway* (Convention of July 15th, 1921, Article 1) ; *Great Britain-Switzerland* (Convention of May 18th, 1926, Article 12) ; *Sweden-Norway* (Convention of May 26th, 1923, Article 17) ; *The Netherlands-Switzerland* (Convention of May 18th, 1926, Article 12), etc.

The reservation concerning *cabotage* also creates obstacles to international air navigation, and we shall have occasion to refer to them later on.

2. — *The Principle of Territoriality.* — The above-mentioned reservation concerning commercial air transport may be one of the weak points in international air traffic, but at least it has the advantage of legal certainty. Where this reservation exists, it is certain that in the absence of special regulations a contracting party cannot claim against a co-contracting party the right to fly over its air routes. If, on the other hand, these special regulations have been made, there is as a rule no doubt as to the authorised extent of the commercial air traffic above the foreign territory. One—and perhaps the most important—element of uncertainty in international aerial law and traffic as they exist to-day is the principle of territoriality, that is to say, the principle which subjects the aircraft, its crew and its passengers to the legal regime of the State flown over. Unless the domestic legislation of the State flown over makes a distinction between foreign aircraft and national aircraft, all the legal rules of the private, penal and administrative law of that State apply to aircraft flying over its territory.

The formula which expresses the principle of territoriality is found in the great majority of air navigation Conventions, but its meaning and wording are not always the same, and its interpretation is sometimes very questionable.

When the Conventions declare that the laws of the State flown over are applicable to foreign aircraft, its passengers and its cargo, this affirmation is a self-evident fact. Once we grant that a State possesses sovereignty over the air space it follows inevitably that the law of the country extends to all acts committed in the territory of the State concerned and that aircraft flying over that territory—as well as the persons and goods on board—are subject to its rules, whether these rules are a part of aerial law in particular or whether they are other rules of law. Thus Cina, Ciana and the Havana Convention make no mention of the principle of territoriality, since it follows automatically from the recognition of sovereignty over the air space. Only from one point of view is an express statement of the principle of territoriality not quite superfluous ; a treaty provision precludes any conflict of laws which might arise owing to the existence of the principle of personality in the foreign State.

We can realise the problems raised by the territoriality clause when we enquire which of the legal rules of the State flown over are completed, replaced or cancelled by international Conventions. This breach which the international Convention makes in the general body of national law varies in extent in the different air navigation

agreements. Some of them employ a negative formula and declare that the law of the State flown over applies " unless the present agreement decides otherwise." or " except in so far as it is inconsistent with the provisions of the present agreement."

Examples : *Germany-Great Britain* (Convention of June 29th, 1927, Article 2) ; *The Netherlands-Switzerland* (Convention of May 18th, 1925, Article 15).

Other Conventions employ a positive formula and stipulate that foreign aircraft shall not be subjected to such regulations of the State flown over " as relate to registration, navigation licences, pilots' certificates and logbooks, which shall be regulated by the laws of the country of origin " (*e.g., Belgium-Switzerland,* Convention of June 13th, 1922, Article 15).

Finally, a third group of Conventions subjects foreign aircraft to the domestic law of the State flown over, but adds a provision whereby the navigation licences, airworthiness certificates and the certificates of competency issued to aircraft and the members of the crew in one country, shall have the same validity in the other country as the corresponding certificates issued by that country itself.

Examples : *Belgium-Germany* (Convention of May 29th, 1926, Articles 2 and 5) ; *Denmark-Germany* (Convention of June 14th, 1923, Articles 13 *et seq.*) ; *Germany-France* (Convention of May 22nd, 1926, Articles 2 and 5) ; *Germany-Italy* (Convention of May 20th, 1927, Articles 2 and 5) ; *Germany-Sweden* (Convention of May 29th, 1925, Articles 6 and 13) ; *Germany-Switzerland* (Convention of December 14th, 1920, Article 14) ; *Germany-Spain* (Convention of December 9th, 1927, Articles 2 and 6) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Articles 2 and 7).

What modification in territorial law results in all these cases from treaty provisions ? If, for example, the provisions of the country of origin concerning certificates of competence are declared to be exclusively applicable, will the country of origin also be exclusively competent for the purpose of applying these provisions or will the State flown over be able, on its own authority, to apply the provisions of the country of origin to foreign aircraft ? Or, again, if the contracting States have mutually undertaken to recognise certificates issued by the other party, what awe will determine the conditions and the period of validity of the legal effects of thles certificates ? Lastly, what national authority is competent to control or withdraw the certificate ?

In order to solve this problem, we must in each particular case weigh the whole of the provisions of a Convention and determine the intentions of the parties as manifested therein. We shall, however, do well when studying this problem to distinguish between the *fundamental rules of air navigation law* (*aa*) and the *administrative authorities competent to ensure their application* (*bb*).

(*aa*) If the principle of territoriality were applied without restriction, no aircraft could enter the territory of a foreign State or fly over it without having first obtained the certificates of registration and competency or the licences required for the machine and its crew by the foreign State in question. In this case, aircraft and their crews, before undertaking any international flight, would have to fulfil the admission formalities of every country which they wished to fly over. In order to facilitate international traffic, the Conventions therefore lay down that certificates issued by one State will be recognised by the other contracting parties. This recognition, by its very nature, must have at least the following consequences : First, the State which recognises the certificate must regard the other State as competent to issue it ; secondly, the certificate must be furnished by the recognising State with full legal effects within its territory. What these legal effects are must depend upon the interpretation of the individual Convention.

Cina and Ciana simply speak of the recognition of validity. This unrestricted formula apparently means that the certificate shall have the same legal effects in the State issuing it as in the State which recognises it. In other words, the legal regulations of the issuing State concerning the conditions and effects of the certificates in question are adopted by the State flown over and regarded by the latter as exclusively governing the matter. The formula in the Belgo-Swiss Convention, according to which these documents " shall be regulated by the laws of the country of origin ", has exactly the same meaning.

This regulation constitutes a substantial undertaking for each State, since it compels it to apply in its territory foreign rules of law concerning conditions and effects, without itself having had any opportunity of contributing towards the framing of these rules—unless it is a State party to Cina which, through its co-operation in the work of the International Commission for Air Navigation, may exercise a certain influence on the contents of the annexes to Cina which govern this question. Even in this case, however, the State remains subject to certain obligations owing to the fact that, as regards the recognition of foreign certificates, it must comply with the minimum requirements of Cina, even if its domestic legislation formulates stricter requirements. Let us suppose, for example, that for the same certificate of admission State A (or Cina) imposes x requirements, while State B imposes x + y requirements ; the latter country will always be compelled to admit any person duly furnished with a certificate of State A. In order, in these circumstances, to prevent intending applicants from all besieging the State which makes fewest requirements, nearly all the Conventions provide that each contracting State may refuse to recognise the certificates issued to its own nationals by another State.

Examples : *Cina-Ciana* (Article 13, paragraph 2) ; *Belgium-Germany* (Convention of May 29th, 1926, Article 5, paragraph 6) ; *Belgium-Switzerland* (Convention of June 13th, 1922, Article 15, paragraph 2) ; *Germany-France* (Convention of May 22nd, 1926, Article 5, paragraph 6) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 5, paragraph 6) ; *Germany-Italy* (Convention of May 20th, 1927, Article 5, paragraph 6) ; *Germany-Norway* (Convention of June 7th, 1929, Article 7, paragraph 2) ; *Germany-Spain* (Convention of March 31st, 1928, Article 7, paragraph 2) ; *France-Spain* (Convention of March 22nd, 1928, Article 5, paragraph 7) ; *Austria-Czechoslovakia* (Convention of February 15th, 1927, Article 12, paragraph 2).

Nevertheless, the unrestricted recognition of foreign certificates issued to nationals of a foreign country is a rule which presupposes mutual confidence between the contracting States in a stable, objective and in the main concordant legislation and administration.

In order as far as possible to limit the obligation to apply foreign law to foreign certificates, a number of other Conventions prefer the clause already mentioned, according to which certificates issued in one contracting State have the same validity in the State flown over as the certificates issued by the latter for the same purpose or " the same validity as the corresponding certificates issued by that State " (the State flown over).

Examples : *Belgium-Germany* (Convention of May 29th, 1926, Article 5, paragraph 5) ; *Denmark-Germany* (Convention of April 25th, 1922, Article 14, paragraph 1) ; *Germany-France*

(Convention of May 22nd, 1926, Article 5, paragraph 5) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 5, paragraph 5) ; *Germany-Italy* (Convention of May 20th, 1927, Article 5, paragraph 5) ; *Germany-The Netherlands* (Convention of June 24th, 1922, Article 6, paragraph 4) ; *Germany-Norway* (Convention of June7th, 1929, Article 7, paragraph 1) ; *Germany-Austria* (Convention of May 19th, 1925, Article 7, paragraph 4) ; *Germany-Sweden* (Convention of May 29th, 1925, Article 6, paragraph 4) ; *Germany-Switzerland* (Convention of September 14th, 1920, Article 14, paragraph 3) ; *Germany-Spain* (Convention of March 31st, 1928, Article 7, paragraph 1) ; *Germany-Czechoslovakia* (Convention of May 21st, 1927, Article 7, paragraph 1).

This clause can only mean that the competence of the foreign State to issue certificates is recognised by the State flown over, but that the legal effects of these certificates are determined in principle by the laws of the latter State. Accordingly, the rules of law must be applied which the State flown over has itself laid down for " corresponding certificates ". But what are " corresponding certificates " ? The answer to this question raises very serious practical difficulties whenever, as is usually the case, the certificates of the two States differ in character, conditions under which they are granted and legal effects. Country A, for example, only admits a single certificate for pilots ; country B, on the other hand, distinguishes between pilots' certificates for sporting planes and transport aircraft ; country C has pilots' certificates varying for each group of aircraft (aeroplanes and hydroplanes, machines with a single engine and machines with several engines, etc.) ; a fourth country, D, issues for each type of machine a special pilots' certificate valid for that type only. How far, then, is it possible to speak of certificates of one country corresponding to those of another country ; Can we take as our criterion the conditions required for the issue of the certificate, so that certificates of country A would have the same legal effects in country C as a certificate issued in the latter country to persons fulfilling the same conditions ? Or is the criterion to be the purpose of the certificate, so that a certificate issued by country B for transport aircraft would then be sufficient in country D for all its types of aircraft ? It would be easy to stress these difficulties by further examples and details, but our illustrations suffice to show that the question of " corresponding certificates ", owing to the defective wording of the clause, is not settled and that it compromises international legal security, since the law applicable in each particular case is not clearly determined.

The position is not greatly improved by the restriction established in more recent Conventions, whereby the State flown over only recognises certificates of competency and licences in the case of the crews of aircraft belonging to the State issuing the certificate. Even in this case, it is not certain to what class of aircraft and under what conditions (inspections, etc.) these certificates are to be valid according to the law of the State flown over.

In regard to the whole question of the recognition of certificates, the Havana Convention does not go so far, but is clearer. According to Article 13, the certificate of competency must satisfy the requirements of all States flown over and even then will only be recognised as certifying that the holder has successfully passed all the examinations required by the provisions of the State of origin and of the States to be flown over. On the other hand, the airworthiness certificate, even if the issuing authority has certified that the conditions required by all the contracting States were fulfilled, may be refused by the State flown over if the latter finds that the aircraft does not comply with local regulations as regards safety (Article 12). According, therefore, to the Havana Convention, the conditions governing the granting of

certificates and the latter's effects are everywhere determined by the local law of the State flown over. The only simplification made by this international Convention is that the contracting parties mutually recognise the competence of their administrations to carry out examinations and to issue certificates.

(*bb*) *The Competent Administrative Authority.* — In order to determine the administration competent in matters of international air navigation, it must be remembered that every administration exercises its functions in virtue of rules of law and that its competence in respect of persons and goods included in international traffic therefore depends upon whether the legal rule which forms the basis of a particular administrative act is exclusively applicable to nationals or whether it also extends to foreigners. The application of the rule to foreigners may result from an international convention, from national legislation or from the general principles of international law.

Various clauses which we find in most of the Conventions expressly proclaim the competence of the authorities of the State flown over in regard to foreign aircraft.

Thus, as regards the order to land, we may quote the following provisions :

Cina, Ciana (Article 15) ; *Havana Convention* (Article 18) ; *Belgium-Germany* (Convention of May 29th, 1926, Article 11) ; *Belgium-Switzerland* (Convention of June 13th, 1922, Articles 13 and 14) ; *Denmark-Germany* (Convention of April 25th, 1922, Article 11) ; *Germany-France* (Convention of May 22nd, 1926, Article 11) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 11) ; *Germany-Norway* (Convention of May 29th, 1929, Article 13) ; *Germany-Austria* (Convention of May 19th, 1925, Article 6) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 14) ; *France-Switzerland* (Convention of December 9th, 1919, Article 13) ; *Great Britain-Norway* (Convention of July 15th, 1921, Articles 11 and 13) ; *The Netherlands-Norway* (Convention of January 8th, 1925, Article 5).

The following provisions apply to the examination of aircraft at the time of departure or landing and to the examination of certificates and lists :

Cina, Ciana (Article 21) ; *Havana Convention* (Article 20) ; *Belgium-Switzerland* (Convention of June 13th, 1922, Article 10) ; *Denmark-Germany* (Convention of April 25th, 1922, Article 8) ; *Denmark-Norway* (Convention of July 27th, 1921, Article 22) ; *Germany-France* (Convention of May 22nd, 1926, Article 9) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 9) ; *Germany-The Netherlands* (Convention of July 24th, 1922, Article 11) ; *Germany-Norway* (Convention of May 29th, 1929, Article 11) ; *Germany-Austria* (Convention of May 29th, 1925, Article 13) ; *Germany-Saar Territory* (Convention of April 30th, 1929, Article 11) ; *Germany-Sweden* (Convention of May 29th, 1925, Article 11) ; *Germany-Switzerland* (Convention of May 29th, 1929, Article 9) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 11) ; *France-Switzerland* (Convention of December 9th, 1919, Article 9) ; *France-Spain* (Convention of March 22nd, 1928, Article 9) ; *Great Britain-Norway* (Convention of July 15th, 1921, Article 8) ; *The Netherlands-Norway* (Convention of January 8th, 1925, Article 11) ; *The Netherlands-Switzerland* (Convention of May 18th, 1926, Article 11) ; *Norway-Sweden* (Convention of May 26th, 1923, Article 22).

As regards the authorisation to have on board photographic apparatus and as regards other restrictions on the carriage of certain objects, we find the following provisions :

Cina, Ciana (Articles 26 to 29) ; *Havana Convention* (Articles 15 to 17) ; *Belgium-Germany* (Convention of May 29th, 1926, Article 7) ; *Denmark-Germany* (Convention of April 25th, 1922, Article 15) ; *Denmark-Norway* (Convention of July 27th, 1921, Articles 26 *et seq.*) ; *Germany-*

France (Convention of May 22nd, 1926, Article 7) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 7) ; *Germany-Italy* (Convention of May 20th, 1927, Article 7) ; *Germany-The Netherlands* (Convention of July 24th, 1922, Article 10) ; *Germany-Norway* (Convention of January 23rd, 1929, Article 9) ; *Germany-Austria* (Convention of May 19th, 1925, Article 10) ; *Germany-Sweden* (Convention of May 29th, 1925, Article 8) ; *Germany-Switzerland* (Convention of July 14th, 1920, Articles 7 *et seq.*) ; *Germany-Spain* (Convention of December 9th, 1927, Articles 8 and 9) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 9) ; *France-Spain* (Convention of March 22nd, 1928, Articles 6 and 7) ; *The Netherlands-Norway* (Convention of January 8th, 1925, Article 9) ; *The Netherlands-Switzerland* (Convention of May 18th, 1926, Article 9) ; *Norway-Sweden* (Convention of May 26th, 1923, Articles 26 *et seq.*).

These various competences, however, are all included in the territoriality clause. If the aircraft, crew, passengers and cargo are subject to the laws of the State flown over, they are also subject to all those rules of domestic law which establish the competence of the administrative authorities in respect of foreigners. The competence of the administration in the State flown over is therefore the rule in this matter, and exceptions can only be based upon formal provisions which depart from the general rule. Such provisions are rare.

For example, domestic legislation and air navigation Conventions both exclude the competence of an administration for the purpose of registering aircraft when the machine is already registered in another State or when it is not the property of nationals or national companies of the State flown over.

Examples : *Cina, Ciana* (Articles 7 *et seq.*) ; *Havana Convention* (Article 7 (corresponding to Articles 6 and 8 Convention of Cina but not to Article 7)) ; *Belgium-Germany* (Convention of May 29th, 1926, Article 15) ; *Denmark-Norway* (Convention of July 27th, 1921, Articles 8 and 9) ; *Germany-France* (Convention of May 22nd, 1926, Article 15) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 15) ; *Germany-Italy* (Convention of May 20th, 1927, Article 15) ; *Germany-Norway* (Convention of January 23rd, 1929, Article 17) ; *Germany-Spain* (Convention of December 9th, 1927, Article 17) ; *Germany-Czechoslovakia* (Convention of May 21st, 1927, Article 18) ; *France-Spain* (Convention of March 22nd, 1928, Article 15) ; *Norway-Sweden* (Convention of May 26th, 1923, Article 8).

Nevertheless, these provisions do not affect the competence of an administration to verify the conditions of registration. It must be accepted that the State flown over is perfectly competent to examine whether the marks affixed to the foreign aircraft correspond to the registration marks, but not to determine whether the registration itself complies with all the conditions required by the law of the foreign State concerned. Nor has the State flown over authority for examining whether, at the time of registration, the persons concerned submitted a valid certificate of airworthiness or whether the owner of the aircraft possessed the nationality required by the rules of the foreign country.

But what is the position as regards competence when it comes to applying the legal regulations concerning certificates ? This question, which is of real importance to international air navigation, is implicitly dealt with by the provisions relating to the obligation to recognise certificates and to the right of inspection. The reply to this question depends upon an interpretation of the text. The purpose of the mutual recognition of certificates is to save the foreign State the need of a fresh examination to see whether all the conditions required for admission to air navigation are fulfilled. This purpose would not be attained if the administration of the State flown over were authorised to examine in its turn the procedure whereby the State of origin had issued the certificate. The right of control over certificates, which is recognised by the

Conventions, is only a right to examine the documents from the point of view of their formal regularity, the right, that is, to examine the authenticity and period of validity of certificates and to ensure their identity with the holder or aircraft.

Competence to control whether the conditions required for the issue of the certificate still obtain is quite another question. It should be pointed out here that the legal effects of certificates (as was stated under (*aa*) are determined either by the law of the State which issued the certificate or by the law of the recognising State ; in point of fact, however, the State in which the aircraft is flown is in both cases alone in a position to ensure the application of these legal rules. To deny the competence of the State flown over in this matter is equivalent to excluding all control by the State over the existence of those guarantees of safety which are the main purpose of these certificates. For this reason the State flown over must always be regarded as competent when the regulations relating to certificates allow of, or even demand, subsequent control. Although this rule must be tacitly admitted, some Conventions expressly formulate it to meet cases in which the airworthiness of an aircraft is seriously impaired.

Examples : *Belgium-Denmark* (Convention of June 28th, 1923, Article 8) ; *Denmark-Poland* (Convention of December 16th, 1924, Article 8) ; *Italy-Austria* (Convention of May 11th, 1928, Article 5, paragraph 7) ; *Austria-Czechoslovakia* (Convention of February 15th, 1927, Article 12, paragraph 3).

On the other hand, the State which issues the certificate will always be competent to withdraw or renew it, for the administrative act consisting in the issue of the certificate can, in the absence of special regulations, only be modified or cancelled by the authority which performed it. This rule, however, does not prevent the State flown over from issuing certificates to foreign aviators for its own territory on its own authority and in conformity with its domestic law, and does not invalidate foreign certificates on the ground that the requisite conditions for their issue are no longer fulfilled.

The main source of all competence of the State flown over would seem to reside in the police regulations which, according to the law of all civilised countries, authorise and pledge the police to take the necessary preventive measures against nationals and foreigners whenever public order and security are threatened. In virtue of these regulations the police of the State flown over can, at any time and in spite of the recognition of foreign certificates, suspend international air traffic if it can claim that public safety is threatened, owing, for example, to constructive defects in foreign aircraft or the incompetence, illness or drunkenness of the foreign crew or passengers. It is not even necessary that the danger involving the prohibition or restriction of traffic should have been caused by the foreign aviator or be due to his fault. It is sufficient that the national air routes should be defective ; examples of such defects are the absence of luminous signals on air-lines used by night, the defective working of existing lights, the bad state of certain aerodromes, unfavourable atmospheric conditions, etc. Nothing is easier than to find or create conditions of this kind when a State administration, which is bound by a convention to permit international traffic, wishes to hamper that traffic over its own territory. The only brake upon the police administration in the arbitrary exercise of its power is the fear lest the foreign State concerned should apply similar measures against its own aircraft. In cases, however, when there is no such convergence of interests in matters of international air navigation —for example, in the case of competing countries or countries which do not operate

air navigation lines—it has been found that the application of police measures dictated by considerations of public safety have constituted a never-failing means of intervention and one which is, in fact, scarcely open to attack from the point of view of international law.

3. — *The Establishment of Air Routes, Prohibited Areas, and Flying Prohibitions.* — Most air navigation Conventions themselves substantially restrict international traffic by recognising the right of the State flown over to establish air routes—that is to say, to fix the routes which aircraft must follow above the territory of that State.

Examples : *Cina, Ciana* (Article 15) ; *Havana Convention* (Article 15) ; *Denmark-Norway* (Convention of July 27th, 1921, Article 16) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 12) ; *Germany-Switzerland* (Convention of May 29th, 1925, Article 12) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 1) ; *The Netherlands-Norway* (Convention of January 8th, 1925, Article 12) ; *The Netherlands-Switzerland* (Convention of May 18th, 1926, Article 12).

The right to establish air routes may obviously include the right to fix areas of entry and departure. Many Conventions content themselves with formally recognising the right to fix frontier zones which the aircraft must fly over on entering or leaving a country.

Examples : *Argentine-Uruguay* (Convention of May 18th, 1922, Article 15) ; *Belgium-Germany* (Convention of May 29th, 1926, Article 12) ; *Belgium-Switzerland* (Convention of June 13th, 1922, Article 13) ; *Denmark-Germany* (Convention of April 25th, 1922, Article 10—a very liberal regime) ; *Denmark-Norway* (Convention of January 27th, 1921, Article 16) ; *Germany-France* (Convention of May 22nd, 1926, Article 12) ; *Germany-Italy* (Convention of May 20th, 1927, Article 12) ; *Germany-Norway* (Convention of January 23rd, 1929, Article 14) ; *Germany-Austria* (Convention of May 19th, 1925, Article 3) ; *Germany-Spain* (Convention of December 9th, 1927, Article 14) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 15) ; *France-Switzerland* (Convention of December 9th, 1919, Article 12) ; *France-Spain* (Convention of March 22nd, 1928, Article 12) ; *Great Britain-Switzerland* (Convention of November 6th, 1919, Article 12) ; *The Netherlands-Norway* (Convention of January 8th, 1925, Article 2) ; *The Netherlands-Switzerland* (Convention of May 18th, 1926, Article 2) ; *Austria-Hungary* (Convention of August 29th, 1924, Article 4).

Against this right of the State flown over to establish air routes and frontier zones, it has frequently been urged, not without reason, that it is too great a concession to the sovereignty of the State flown over, and that the advantages derived from the right of flying over foreign territory may in this way be so curtailed as to lose all value. Specialists, too, point out that the protection against espionage afforded by the establishment of air routes and frontier zones is illusory and that, even when it is thought necessary to maintain these restrictions, they should at least be relaxed for night traffic, which is unsuited to the practice of espionage. It must not be forgotten, however, that if the frontier is wholly open for the entry and departure of aircraft, frontier control becomes extremely difficult and that the legitimate interests of the frontier, Customs and sanitary police may necessitate the fixing of prescribed entry zones and air routes. No sovereign State can or will renounce rights of this kind which appertain to its sovereignty. In my opinion, these sovereign rights are in themselves less prejudicial to international air traffic than the fact that their exercise is not conditional upon the existence of any national interests worth protecting. For the sake of frontier control, it may be admitted that the State may close certain parts of its frontiers, both for land and for air traffic ; but this closed zone should not consist of precisely those

comparatively small areas which constitute the shortest way of entry for a foreign competing line. It is also permissible that the State should fix air routes to regulate internal traffic and control landing ; these rights, however, should not hamper but facilitate international traffic. From the point of view of the application of the law, we are once more faced with the problem we have already mentioned : how can the interests of international air navigation be brought into harmony with the admitted administrative competence of the different States ?

The same considerations also apply to prohibited areas and flying prohibitions. The establishment of prohibited areas, that is to say, the fixing of certain areas, flight over which is forbidden to private aircraft, both national and foreign, for military reasons or other considerations of safety, was already the practice before the great war. A provision of this kind is to be found in a French decree of October 24th, 1913. To-day, all air navigation Conventions contain a reservation concerning prohibited areas (Cina, Article 3 ; Ciana, Article 3 ; Havana Convention, Article 5 ; and all the separate Conventions).

The most recent of them, however, borrowing a clause which The Netherlands introduced into their Air Navigation Convention, contain a further reservation, whereby States situated in extraordinary circumstances may prohibit traffic over all or part of their territory, this prohibition having immediate effect and applying to all foreign aircraft, but not to national aircraft.

Compare, in addition to The Netherlands Conventions, which lapsed when The Netherlands joined the International Commission for Air Navigation, the following :

Belgium-Germany (Convention of May 29th, 1926, Article 3, paragraph 2) ; *Germany-France* (Convention of May 22nd, 1926, Article 3, paragraph 2) ; *Germany-Great-Britain* (Convention of June 29th, 1927, Article 3, paragraph 2) ; *Germany-Netherlands* (Convention of July 24th, 1922, Article 16, paragraph 2) ; *Germany-Norway* (Convention of January 23rd, 1929, Article 3, paragraph 3) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 3, paragraph 2) ; *France-Spain* (Convention of March 22nd, 1928, Article 3, paragraph 2) ; *Italy-Austria* (Convention of May 11th, 1928, Article 3, paragraph 2) ; *Italy-Spain* (Convention of August 15th, 1927, Article 3, paragraph 2).

We can imagine situations (insurrections, disturbances, revolutions) in which it may be justifiable, even in peace-time, to prohibit the circulation of foreign aircraft. At the same time, a reservation of this kind is not without drawbacks. It opens the way for suspending international air traffic in cases where such a measure could not be justified. Nevertheless, it has become more and more frequent in recent Conventions, and the insertion of such a reservation in Article 3 of Cina is also under consideration.

4. — *Restrictions on the Freedom of Landing and Taking-off in Foreign Territory.* — The provisions which prescribe that foreign aircraft shall land and take off from certain specific aerodromes are based upon the same national reasons which have led States to fix air routes for international traffic. As has already been pointed out, all the public aerodromes of a country are in principle open to the aircraft of another country in virtue of Conventions. But foreign aircraft are required to land upon a specific Customs aerodrome on arrival in the country, and to depart from such aerodrome before crossing the frontier to leave the country. This provision is made in most of the Conventions, and in certain national laws on air navigation (see *Cina*,

Article 15, paragraph 2 ; *Ciana*, Article 15, paragraph 2 ; *Havana Convention*, Article 18).

In a very few Conventions, aircraft are permitted to land at and depart from any public aerodrome (for example see *Denmark-Germany*, Convention of April 25th, 1922, Article 11).

The disadvantages of this restriction on freedom of landing and taking-off are mainly felt by sporting and private international aviation. Such traffic becomes quite impossible where there are no Customs aerodromes or when they are situated so far from the national frontiers that sporting machines are unable to reach them without an intermediate landing.

As regards the establishment of international air lines, States have not as yet made any difficulty in establishing the Customs aerodromes necessary for traffic as soon as an agreement has been concluded in respect of routes. They further undertake in all cases to notify one another of the Customs aerodromes where aircraft must land.

Nevertheless, these landing restrictions are also prejudicial to international traffic. The effects are felt when the machine has to make a forced landing outside the prescribed areodromes, as often happens in the present stage of technique. Most of the Conventions lay down that, in this case, aircraft may not leave again until the nearest police or Customs authorities have been informed and have authorised the machine to continue its flight to a specific Customs aerodrome. (For example, see *Cina*, Annex H, No. 4). A similar clause is found in the *Havana Convention*, Article 18, paragraph 5, but while *Cina* makes no mention of the passengers, the Havana Convention expressly observes that passengers must remain on the landing-place until the arrival of the competent authorities, provided these are within 24 hours' reach. A number of older German Conventions deal with the question of a forced landing between the frontier and Customs aerodromes in similar fashion (*e.g.*, *Denmark-Germany*, Convention of April 25th, 1922, Article 12 ; *Germany-Austria*, Convention of May 19th, 1925, Article 6 ; *Germany-Sweden*, Convention of May 29th, 1925, Article 5, paragraph 3 ; *Germany-Switzerland*, Convention of September 14th, 1920, Article 13). On the other hand, more recent German Conventions declare that, in the case of a forced landing, the pilot, crew and passengers must conform to the Customs and passport regulations of the country in which the landing is made. These general provisions allow each country to take account at any moment of the needs of air traffic in greater measure than the above Conventions. The national regulations to which these provisions refer generally lay down that the nearest police authority, who must be communicated with by the pilot, is competent to undertake Customs clearance and passport control. In this way the rapid conveyance of passengers and cargo—a condition indispensable to air traffic—is, as far as possible, ensured, if necessary, with the aid of other means of transport. It is, however, desirable that, in this matter, present practice should receive the sanction of international Conventions (see *Germany-Belgium*, Convention of May 29th, 1926, Article 11 ; *Germany-France*, Convention of May 22nd, 1926, Article 11 ; *Germany-Norway*, Convention of January 23rd, 1929, Article 13, etc.).

Similar regulations to those laid down for forced landings exist to meet the case of an aircraft flying over a prohibited area. As soon as it is aware of the fact, the aircraft has to give the prescribed signals of distress and land outside the prohibited area as soon as possible, and as near to it as possible, at one of the aerodromes of the

State unlawfully flown over (*Cina*, Article 4 ; *Ciana*, Article 4 ; *Havana Convention*, Article 6 and most other air navigation Conventions). An irregular landing of this kind is, in practice, treated as a forced landing, but the administrative control and the verification of the facts are stricter than in the case of a forced landing, with the result that the journey is more seriously interrupted.

5. — *Assistance to Foreign Aircraft.* — Most recent conventions contain the assurance that foreign aircraft shall be entitled to the same measures of assistance, especially in case of distress, as national aircraft.

Cina, Article 22 ; *Ciana*, Article 22 ; (right of assistance on landing in general, and especially in case of distress) ; *Havana Convention*, Article 27 (right of assistance only in case of distress) ; *Belgium-Germany* (Convention of May 29th, 1926, Article 18) ; *Belgium-Switzerland* (Convention of June 13th, 1922, Article 11) ; *Denmark-Germany* (Convention of April 25th, 1922, Article 11) ; *Denmark-Norway* (Convention of July 27th, 1921, Article 23) ; *Germany-France* (Convention of May 22nd, 1926, Article 18) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 18) ; *Germany-Italy* (Convention of May 20th, 1927, Article 18) ; *Germany-Norway* (Convention of January 23rd, 1929, Article 19) ; *Germany-Switzerland* (Convention of September 14th, 1920, Article 11) ; *Germany-Saar Territory* (Convention of April 30th, 1929, Article 16) ; *Germany-Czechoslovakia* (Convention of January 22nd, 1927, Article 20) ; *France-Switzerland* (Convention of December 9th, 1919, Article 10) ; *France-Spain* (Convention of March 22nd, 1928, Article 18) ; *Great Britain-Norway* (Convention of July 15th, 1921, Article 9) ; *Great Britain-Switzerland* (Convention of November 6th, 1919, Article 10) ; *Italy-Austria* (Convention of December 24th, 1928, Article 18) ; *Italy-Spain* (Convention of December 24th, 1928, Article 18) ; *Norway-Sweden* (Convention of May 26th, 1923, Article 23).

Jurists have frequently criticised these provisions on the grounds that the general reference in many Conventions to the provisions of maritime law on assistance and salvage in case of distress at sea do not in any way satisfy the requirements of oversea air navigation. And this is true. The expenses of a steamer which, in response to a wireless call, proceeds to the place of the accident—deviating, perhaps, considerably from its normal course—are out of all proportion to the value of the material salved, upon which salvage is paid. On the other hand, bilateral conventions on air navigation cannot extend to the sailors and aviators of all countries the requisite obligation to co-operate in salvage operations. Lastly, it is doubtful whether, and to what extent aircraft flying over the sea should be obliged to lend each other assistance, and to come to the help of vessels in distress. A special international convention could provide a remedy for this situation.

6. — *Exemption from Seizure.* — In principle, aircraft, like any other movable object, may be seized by creditors in accordance with the law of the State flown over. In only one case do the conventions provide an exception to this rule. If an aircraft, passing or in transit over or through the air space of a contracting State should be seized owing to the infringement of a patent, design or model, the seizure may be avoided on the deposit of security, the amount of which, in the absence of a friendly arrangement, must be fixed as soon as possible by the authority competent in the place of seizure.

Cina, Article 18 ; *Ciana*, Article 18 ; *Belgium-Germany* (Convention of June 29th, 1926, Article 17) ; *Denmark-Norway* (Convention of July 27th, 1921, Article 19) ; *Germany-France* (Convention of May 22nd, 1926, Article 17) ; *Germany-Great Britain* (Convention of June 29th, 1927, Article 17) ; *Germany-Italy* (Convention of May 20th, 1927, Article 17) ; *Germany-Norway*

(Convention of January 23rd, 1929, Article 18) ; *Germany-Spain* (Convention of December 9th, 1927, Article 19); *Germany-Czechoslovakia* (Convention of January 22nd, 1929, Article 19) ; *France-Spain* (Convention of March 22nd, 1928, Article 17) ; *Italy-Austria* (Convention of December 24th, 1928, Article 17) ; *Italy-Spain* (Convention of December 24th, 1928, Article 17) ; *Norway-Sweden* (Convention of May 26th, 1923, Article 19).

When this special provision was inserted in air navigation Conventions, it must have sometimes escaped notice that the same question had already been dealt with by the laws of certain countries by measures which go still farther. Various national laws on patents (for example, those of Denmark, Germany, Great Britain, Japan, Yugoslavia, The Netherlands, Norway, Austria and Hungary) stipulate that " the effect of the patent shall not extend to aircraft installations which are only temporarily on the national territory " (paragraph 3 of Article 5 of the German Law on Patents). Similarly, the Paris Conventions for the Protection of Industrial Property (The Hague text of 1925) provides that in the territories of the contracting States the use of patented installations on an aircraft or its accessories which enter another country temporarily or accidentally (paragraph 2 of Article 5*ter*) shall not be regarded as an infringement of the patent law. This provision in a general convention, like the national laws, contains a legal rule preventing patents from exercising their effects in the special case of an aircraft temporarily entering the territory of a foreign State. The air navigation Conventions, on the other hand, do not go so far. They do not suspend the effect of patents in regard to installations on board aircraft, but are content to establish a procedure whereby the seizure may be avoided on deposit of security.

As regards the application of these provisions, there can be no doubt that the laws and conventions on patents, which are *leges speciales* take precedence of air navigation Conventions. When, therefore, two countries are parties to the Paris Convention on the Protection of Industrial Property, or when their national laws on patents contain provisions similar to those mentioned above, international traffic not only may avoid seizure in case of an infringement of the patent laws, but enjoys immunity from seizure. In the interests of commercial aviation it would be well to make this legal rule generally applicable in future international air navigation conventions.

At the same time, it should also be considered whether it is not desirable to establish, as well as immunity from seizure in the particular case of an infringement of the laws on patents, a general immunity from seizure for aircraft engaged in international traffic. Here the analogy is not so much with railway law, which in international traffic provides immunity from seizure for railway trucks in very different circumstances, as with the maritime law of certain countries (relative immunity from seizure for vessels ready to sail, absolute immunity for mail steamers). This question is of much greater importance to international air traffic even than it is for maritime navigation. Aircraft is compelled much more often than ships to land at places where the company to which it belongs has no representative and is, therefore, unable to prevent the seizure of the aircraft, in consequence of some claim, by the immediate deposit of security. Few countries have regulations so favourable to air traffic as Germany, for instance. According to the German law on air navigation (Article 12, paragraph 2), an aircraft which has landed without the authorisation of the owner of the land can in no case be prevented by the latter from proceeding on its way, once the identity of the navigator and pilot have been determined. On the other hand, most laws (for example, those belonging to the Anglo-Saxon system, as well as French law, and still more Swiss law) reserve to a third party who has sustained loss through

the operation of an aircraft, a lien on the property or a right to detain the aircraft. Rights of guarantee and use of this kind are bound to have exceedingly unfavourable results from the point of view of regular international air traffic. On the other hand, it will not be possible to avoid these consequences by simply introducing immunity from seizure for aircraft. It will be necessary at the same time to offer other guarantees as compensation to creditors who, according to long-established conceptions of national law, enjoy a privilege. This compensation might be found in a compulsory insurance organised in all countries on uniform lines, or in some other form of guarantee.

VI. INTERNATIONAL COMMERCIAL AVIATION.

(*a*) State Control over National Aviation Undertakings.

1. — *Aviation undertakings.* — No country in whose territory there are commercial air navigation undertakings is content, in the sphere of law and administration, to issue general measures to protect public safety and maintain the free competition of national undertakings. All countries, even those as a rule opposed to any policy of intervention and to the preferential treatment of commercial undertakings, have, since the war, taken a very keen interest in air navigation concerns and have endeavoured to bring the whole of their activities under strict control by the State.

Various reasons are advanced to justify this policy. It is said that aviation should serve commerce as a whole, since it constitutes by far the speediest means of transport. In countries where the railway system is not yet so developed as to allow of the full economic exploitation of the country, the air is not only the quickest, but also the cheapest means of communication. In oversea trade in particular, aircraft, it is argued, is tending to become the most powerful factor in the development of foreign trade and world trade in general.

These arguments are very often inspired by wishes rather than based upon actual facts. We may, it is true, expect that further technical progress will, in the near future, create the conditions necessary for the fulfilment of these aspirations, but we must seek elsewhere for the explanation of the present and past policy of many countries. If States have in mind only the economic advantages of aviation, it is not easy to understand why most of them have, during the last ten years, been prepared to encourage and control aviation undertakings the return from and prospects of which were doubtful and on which the losses, at any rate until recently, would have frightened private capital away from the industry. If the State had had in view exclusively or mainly the economic services which aviation can render, why has it preferred to reserve the operation of an international line to a national company, requiring substantial subsidies, in cases when a foreign company could have ensured its exploitation without any financial aid at all ?

The State's interest in aviation is not economic but political. This is a generally recognised fact, but confusion reigns as to the aim of this policy and its justification.

An English author, a Member of Parliament and an expert in aviation, in the course of a very detailed study of the subject, recently made the following very frank statement :

> " The number of military aviators and aircraft in the armies of the great Powers, large as it is, is insignificant when we compare it with the number of aviators and aircraft employed in the great war and who would be needed in the event of another war. At the same time, the cost of maintaining a permanent air fleet, the material of which would at all times be abreast of technical progress, would far exceed the financial resources of States. There is only one possible solution, and that is to create and develop a national commercial air fleet, the personnel and machines of which can be used in case of war, and large enough for its requirements to ensure in peace time a sufficiency of work for a national air armaments industry. "

If we examine the air policy pursued by certain great Powers during the last ten years, we find many arguments in support of the theory that commercial aviation policy is inspired by purely military ends. We may mention among these arguments the competence or preponderating influence of the military authorities in all questions of air organisation ; the choice of air material in accordance with military considerations ; the size and employment of subsidies ; the training of personnel ; the hostile attitude towards foreign aviation explained by the fear lest the admission of foreign companies should reinforce the armaments of the foreign State, etc., etc. It is, therefore, not surprising that many people are convinced that commercial aviation policy is a policy of armaments. And yet nothing is more fatal to the development of commercial aviation on lines useful to all countries and calculated to facilitate the co-operation of countries in the interests of world trade than this grave error of identifying the commercial air fleet with the military power of a State.

Even if we deny that any difference exits between military aircraft and commercial aircraft as it has developed during the last few years, it can scarcely be disputed that technically a fighter aeroplane is essentially different from a bombing aeroplane. The difference is in fact so great that one machine could not possibly be used for the purposes of the other. It is also certain that, in these days, war could not be waged by bombing squadrons alone without the protection of fighter flights having offensive power. It follows that no State can pursue an armaments policy with a commercial air fleet unsupported by a suitable number of fighter squadrons. Even countries which have, in addition to their commercial air fleet, a large number of battle planes will more and more be compelled to give up the idea of supplementing their military air fleet in the event of war by civil aircraft. There is no doubt that technical progress will impose even on bombing aircraft conditions as regards armour-plating and armament which are quite incompatible with the constructive features of civil aircraft. The time is not far distant when a battle-plane will be as different from a commercial aeroplane as a battleship is from a merchant vessel or a tank from a limousine. The distrust of commercial aviation which has hitherto been felt in every country owing to the alleged possibility of using civil aircraft for military purposes will, on an impartial examination, be found to be unjustified.

But even if the State no longer has any military interest in developing commercial aviation, or if that interest becomes less and less as technique develops, the State will for political reasons continue to take the same interest in actively controlling or participating in commercial aviation. This is the necessary consequence of the fact that commercial aviation is a means of transport. The policy of the colonial Powers demands of them that they develop every means of transport without regard to its financial return, in order that the scattered possessions of these Powers may be welded to form an organic administrative and political unit by a reduction of distances. Further, the policy of commercial and industrial countries requires that each country shall encourage the development of all means of transport which may facilitate communication with world markets. These political factors have created, by means of State subsidies, the great railway systems and modern steamship lines. If the State had adopted a passive attitude towards them and had awaited the time when they would be self-supporting, the world to-day would not enjoy the means of transport and the international communications assured to it by the railways, shipping, transmaritime cables and wireless telegraphy. The same factors and the same conditions which formerly favoured the spread of railways and shipping are now beginning to contribute towards the development of commercial aviation. Neverthelessl the form which the latter is about to take is not without danger to internationa. traffic, and the effects may be felt by the commercial aviation of the separate countries,

This point of view must be appreciated if we are to understand how and why aviation companies are so closely connected with the public Administration. In every country which took part in the war, with the exception of Germany and the other Central Powers, who had to hand over and destroy their air fleets, private companies were established on the conclusion of peace which tried to ensure commercial air transport by the aid of State subsidies and to some extent with military material handed over to them. In the United States the postal administration for a few years actually operated its own postal air lines. To-day, when technique has made enormous progress, it will easily be understood that the economic results could in no wise even approximately balance the enormous expenditure of public funds. And yet the failure of the first years was due not only to technical imperfections, but still more to the fact that the companies had not created a satisfactory organisation between one another. In France, there were eleven aviation concerns, in England four, and in Germany six, all of which tried by means of State subsidies to maintain a cut-throat competition against one another on a small system of air lines. Reorganisation was essential. In each country it was effected under the direction of the State, without whose aid these companies could not have continued and to whose will they were compelled to submit. In the various countries, however, the influence of the State over aviation companies, has taken different forms.

The United States of America occupy a special position. The Kelley Act in 1925 authorised the Ministry of Posts to offer a contract by tender for the operation of a few subsidised postal air lines, and to grant the concession to a private undertaking. Since 1927, therefore, commercial aviation has been exclusively in the hands of private companies, indirectly connected however, with the State through postal conventions, which govern their administration and their very existence. These measures have given extremely satisfactory results. Thanks to competition between the private companies, it has been possible to reduce the State subsidies to a minimum. Competition is possible because the air transport company, which has a large share in the receipts derived from air mail transport, is able to add to its receipts by efficient exploitation and more especially by means of publicity.

The methods of the American Administration are often held up as a model and their imitation recommended by critics of the organisation in Europe. This is a mistake. Traffic conditions in Europe call for a different policy since they are in many respects entirely different from conditions in America. No European postal administration is in a position to concede postal lines which will realise the considerable profits derived from the American lines. Economic areas are less decentralised, and the distances between them shorter ; the railway communications are denser and, if the principal lines which traverse the territory of the United States were laid down in Europe, they would pass through a considerable number of different countries. For this reason the administrations of European countries, in order to maintain national commercial aviation undertakings, have had to resort to a system of subsidies, the amount of which depends upon technical efficiency and cost of production. The private companies have been unable themselves to create the bases of a paying concern. Nevertheless, competition between the companies (whose disputes were less about the requirements of transport than about the State subsidies !) led to a movement of concentration and rationalisation. In France, the weaker companies have gone to the wall and a number of the more important have amalgamated. In Germany, the many small companies combined in 1923 to form two groups, the Deutscher Aero Lloyd and the Junkers-Luftverkehrs A. G.

The only really satisfactory way of using State subsidies, however, seemed to be by the establishment of a *monopoly of all air transport.* For this reason the monopoly of transport has been granted by legislative measures or a system of subsidies either to a *single* company for all the national lines or to a number of companies, each operating one line. The latter method has been applied in France and Italy, whereas in Great Britain and Germany the threat to withdraw subsidies led to the amalgamation of all important companies within a single national company, Imperial Airways, Ltd., in Great Britain and Luft-Hansa A. G. in Germany.

In this way an organisation was created which allowed of the use of State subsidies under conditions guaranteeing maximum economic efficiency. In order to make sure at the same time that the State would have an influence over the administration of the companies, in the interests of policy, the *State* has in some cases reserved a *right of co-administration, that is to say, a share in the administration of aviation companies.* It seems that the State possesses this right of co-administration in most companies (all without exception are joint stock companies), whenever it holds part of the capital of the company and when the shares have neither been offered to the public (the shares of aviation companies are only placed on the market in the United States of America and, to some extent, in Switzerland and Canada) nor are in the hands of the aircraft factories (as is partly the case in France). The national interests are further safeguarded by a provision which prescribes that shares may only be held by nationals, to whom is also reserved an exclusive right of subscription in case of new issues (this is the case in England, Portugal and Italy). A right of co-administration is expressly granted to the State in the cases of Imperial Airways, Ltd., and K. L. M. Even when an aviation undertaking is in the hands of private capital, the State reserves the right of expropriating it at any moment and nationalising it in the public interest. This right is expressly laid down in Germany and Norway. Lastly, the State secures for itself an indirect but decisive influence over commercial aviation by the conditions to which it may subject the concession and subsidy. This is a question to which we shall have to refer later in order to form a judgment concerning international aviation. First, however, it seems well to mention briefly the steps which have been taken by the State in regard to the auxiliary installations at the service of commercial aviation, namely, aerodromes and ground establishments.

2. — *Aerodromes and Air Navigation Facilities.* — By what are known as air navigation facilities we understand all the installations established on the ground to ensure and facilitate the operation of aerial traffic ; that is to say, aerodromes, landing-places, ground signals, lights, meteorological stations and wireless stations. The importance of air navigation facilities is shown by the fact that without them modern air traffic could not operate with safety and regularity. The most important elements in ground establishments are aerodromes. Before determining their status according to the administrative law of each country, we should realise that the term "aerodrome" has not been uniformly defined. Many laws regard as an aerodrome any area on land or water which is even temporarily intended for the taking-off, landing, or stationing of aircraft :

Examples : *The Argentine* (Decree of July 30th, 1926, Article 51) ; *Bulgaria* (Law of July 6th, 1925, Article 7) ; *Chile* (Decree of October 17th, 1925, Article 32) ; *France* (Law of May 31st, 1924, Article 1, No. IV) ; *Poland* (Decree of March 14th, 1928, Article 21) ; etc.

Recent progress, however, has necessitated the following distinctions to satisfy the requirements of transport technique :

Aerodrome (or airports) : that is to say, places for landing and taking-off provided with installations and premises for the accommodation, upkeep and repair of aircraft, and for the accommodation and transport of passengers and goods ;

Landing-fields: These are areas for landing and taking-off without special arrangements for goods and passengers ;

Emergency landing-fields: that is to say, ground situated between airports and aerodromes which are only fitted up for the purpose of forced landings :

Examples : *Brazil* (Decree of July 22nd, 1925) ; *Italy* (Decree of January 11th, 1925, Article 6) ; *Spain* (Decree-law of July 19th, 1927) ; *United States of America* (Law of May 20th, 1926, Sect. 9, *g* and *h*) ; *Sweden* (Laws of May 26th, 1922, and April 20th, 1928, Article 26) ; etc.

Aviation has benefited to a very large extent from the fact that the installation of aerodromes and landing-fields has been dictated by the general interests of the State. Only a few countries, *e.g.*, Portugal, have imposed upon an aviation company, when granting the concession, the obligation to establish and maintain at its own expense the necessary aerodromes and landing-fields and sometimes even the other air navigation facilities. In most cases, the State has placed at the disposal of the companies concerned its big military aerodromes well kept up and furnished with all the necessary installations ; it has also created new aerodromes (France, Italy, etc.). Towns desiring, for reasons of transport policy, to attract air traffic have also constructed and maintained public aerodromes at their own expense. In these cases the aerodrome is established and operated by the municipality, municipal or provincial organisations (in France the Chambers of Commerce now deal with this question) or by companies (Germany), of which all or most of the capital is in the hands of the municipality. In countries where companies mainly serving the interests of public utility can be constituted in a special form, the latter is usually adopted for the under-

taking which operates aerodromes. Thus, in the United States of America, aerodromes are generally managed by the " Public Service Companies " or " Public Utilities ". An essential point is that these companies are under a public commission of control, responsible for auditing their accounts and approving their charges. In all other countries the aerodromes are administered by bodies constituted in the form of ordinary private companies, especially joint stock companies, limited liability companies and co-operatives. There is no noticeable difference in results between these companies and the " Public Utilities ", as is shown by the clauses in the concessions which constitute the regime everywhere adopted and which usually impose upon the company the obligation to keep their installations at the disposal of public traffic and military aviation.

Neither the military interests of the State nor the transport policy of towns, however, furnish any guarantee that aerodromes are established in every place where they are needed by commercial aviation. Few Ministries of War will recommend the establishment of an aerodrome on the frontier of the country and not all towns are sufficiently wealthy to establish aerodromes at places where commercial aviation would wish them to be. Under what conditions, we may ask, can commercial aviation undertakings themselves construct airports, landing-fields and emergency landing-fields ?

When it is a case of authorising the establishment of an aerodrome or landing-field by private enterprise, questions of general policy, protectionist and military considerations, and the interests of public safety, run side by side. These different factors are only seen to diverge when the law distinguishes between the police authorisation as regards installations and the operating concession, a distinction made for example by the Czechoslovak Aviation Law of July 8th, 1925 (Articles 21 and 17*d*), or the Italian Law of January 11th, 1926 (Article 9, II). In most cases, however, a single authorisation procedure has been fixed in which account is taken of consideration of safety and policy at the same time. In most cases, the competent authority has full freedom of decision as regards the granting of the concession. In Italy, the Air Ministry, after examining the installations, may declare that there is no objection to the operation of the aerodrome (Article 50 of the Law of January 11th, 1925). In Czechoslovakia, the concession is granted by the Ministry of Public Works, which has full freedom of decision (Article 17, paragraph 3). In a few countries the conditions governing installation and operation are separately enumerated. Nevertheless, the conditions are so elastic that a suit claiming the granting of the concession in cases where the Administration was opposed to it would have very little chance of success. Still more important are the restrictions which special laws may impose upon the Administration with regard to the granting of concessions. The construction and operation of public aerodromes are subject to control by the Administration. Sometimes the concessionaire is even required to be a national of the country, or the operation of public aerodromes is reserved to nationals. The establishment of private aerodromes may be entirely forbidden to foreigners on the grounds that their existence would facilitate offences against the Customs regulations—as if this danger were not just as great in the case of private aerodromes operated by nationals ! As an example of recent detailed regulations of administrative law concerning aerodromes, we may mention the *Spanish* Decree of July 19th, 1927 (together with executive regulations embodied in the Decree of July 19th, 1928, and the Ordinance of May 31st, 1929).

Finally, we must draw attention to the terms of the concession, which are often so burdensome that any private company—and especially a foreign company—would hesitate to accept them. Generally, the company will not be free to fix its own charges, which have to be approved by the authorities. The latter have access to the aerodrome at all times (a condition expressly formulated for example in Italy, Article 53). State aircraft have the right to use the aerodrome and all its installations free of charge. In time of war, all aerodromes and landing-fields come under the administration of the military authority. Frequently the concession lays down, under penalty of its withdrawal, that the material required for the establishment or completion of aerodrome installations must be of national origin and, lastly, there is an obligation to conclude special insurance responsibility contracts.

It may be asked whether these burdensome conditions imposed upon land aerodromes could not be avoided, at any rate by hydroplanes, through the use of seaports. This solution, however, would seem to be excluded. Although most laws make no mention of this question, the considerations of policy and public safety which have determined the regime for land aerodromes apply in exactly the same way to landings on waters subject to the sovereignty of the State (see above pages 116 *et seq.*). It is just because the administrative needs of seaplane stations are different from those of seaports that a material and administrative distinction has been established between seaports and seaplane stations. The latter, however, are as a general rule included in the legal definition of an aerodrome. Accordingly, the general rules of law concerning aerodromes also apply to seaplane stations. In *Spain*, it is expressly stipulated (Decree of July 19th, 1927, Article 6) that the laws on seaports also apply to seaplane stations, but that special administrative regulations will be laid down to organise the system of supervision necessary for air traffic. With regard to hydroplanes desiring to alight on inland waterways, *Switzerland* requires that the landing places shall be approved by a special decision of the cantonal authorities or by the railway department (Federal Air Office (Regulations of January 24th, 1921)).

The results of these regulations are that in the last resort aerodromes are everywhere subject to the State Administration and, even when private enterprises are authorised to establish and operate them, are wholly at the mercy of the State. It is thus made impossible for private capital in general, and for foreign aviation companies in particular, to establish and operate aerodromes and landing-fields in accordance with technical and commercial considerations alone. The position of the State and of aerodrome undertakings subject to State administration is correspondingly stronger. The laws of most countries provide a right of expropriation in favour of the State and of these operating companies, whenever this right is required for the establishment or extension of public utility installations :

Examples : *Brazil* (Decree of July 22nd, 1925, Article 37) ; *Germany* (Aviation Law, Article 15) ; *Portugal* (Decree of April 27th, 1927, Article 18) ; *Switzerland* (Cantonal Laws) ; *Austria* (Aviation Law of July 18th, 1929, Article 3) ; *Czechoslovakia* (Law of July 8th, 1925, Article 25) ; *Hungary* (Decree of December 30th, 1922, Article 18).

Nevertheless, aerodromes belonging to private concerns are in the same way subject to expropriation by the State.

As we have seen, aerodromes are dependent upon the public administration and, for reasons connected with technique and organisation, the same regime has to apply to installations which ensure connection between the different aerodromes and which are intended to facilitate air traffic (ground marks, emergency landing-fields, signals and meteorological information). We therefore find that in the legislative texts aerodromes and the organisation of air routes are frequently referred to by the general term " aviation installations ", or by some similar term, and are in principle subject to the same regime. The provisions concerning concessions and the right of expropriation apply therefore to all these installations.

Examples : *Belgium* (Decree of December 27th, 1919, Article 2) ; *Brazil* (Decree of July 22nd, 1925, Articles 33 and 39) ; *Denmark* (Law of May 1st, 1923, Article 26) ; *Germany* (Law of August 1st, 1922, Article 16) ; *Italy* (Decree of January 11th, 1925, Articles 9, 14 and 48) ; *Poland* (Decree of March 14th, 1928, Article 22) ; etc.

The concessions granted to a few aviation companies are accompanied by an obligation themselves to ensure the whole organisation of the lines they operate. An obligation of this kind may involve serious risks for a private company, since the State may subsequently insist upon alterations being made in the air routes and, according to the administrative law of some countries, the company cannot be sure of compensation in the event of installations losing all their value on this account.

All the countries in which air traffic is heaviest have themselves undertaken the organisation of these installations. In the *United States of America*, the Administration, when granting a concession to an air mail line, itself undertakes to organise the installations required by these lines, and it was the Administration which developed the famous night-flying lines. In *Germany*, the installations necessary for the operation of airways are established by the Reich and the Federal States, which have created for the purpose a special company, the Signaldienst G.m.b.H. In *France*, the organisation of airways has, up to the present, been entrusted to the central authority for aviation, but it is proposed in the future to appeal to local services. In The *Netherlands*, too, airways are organised by the State (see Decree of December 6th, 1928, Article 177).

The organisation of the meteorological service, which is indispensable to the safety of air traffic, is everywhere linked up with the existing meteorological establishments under State administration. Further, in a few countries the administrations have created special organisations for air traffic, which forward weather reports and give advice on the matter. The meteorological stations of aerodromes also render immensely valuable services. In *France*, the Office national météorologique is the centre of this organisation ; in *Germany* the competent service is the Amtliche Flugwetterdienst, whose reports are supplemented for oversea flights by reports from the maritime meteorological station at Hamburg, and for land flights partly by weather reports received from the post offices situated along the air line (see also *Brazil*, Decree of July 22nd, 1925 ; *Spain*, Decree of November 25th, 1919, Article 40 ; *Venezuela*, Law of June 16th, 1920, Article 40).

The meteorological service is probably, of all auxiliary installations, the one which, by reason of its special character (extensive organisation and highly-trained staff),

is least suited for organisation under a private enterprise. It is not inconceivable, however, that an aviation company might wish to instal a special meteorological service for the operation of a line. It will, however, rarely be possible to obtain a State authorisation for this purpose (for example : *Bulgaria*, Decree of September 7th, 1925, Article 13). As a rule, the fact that aerodromes are operated by a public administration, and especially the monopoly possessed by the State or by telephone and wireless companies for the transmission of news, will prove obstacles in the way. Here again, therefore, we find that commercial aviation is dependent upon the Administration of the State flown over !

3. — *Subsidies and International Competition in Commercial Aviation.* — The control exercised by a State over its national air traffic allows it to exclude from its territory all competition by national or foreign enterprises. Let us now examine the forms which competition takes in international commercial aviation.

When two countries open their frontiers to one another for commercial traffic, they have it in their power to prevent all competition by each imposing joint tariffs and time-tables. In this case, both enterprises are equally situated as regards traffic receipts. At the same time, there are differences in the competitive capacity and potential efficiency of undertakings, due to the nature and the amount of the subsidy which the State grants to its national undertaking. This is calculated to compromise the very existence of a concession given to a foreign concern. But when enterprises of different nationality operate simultaneously in the territories of third Powers, the competition may become very keen and may even be exceedingly prejudicial to the development of international aviation as soon as ever the amount of its national subsidy and not the efficiency of the undertaking becomes the essential consideration. In order to estimate this danger we must examine more closely the system of air subsidies.

Here we must distinguish between direct and indirect subsidies, according as the enterprise receives financial assistance or other operating facilities without being required to furnish an equivalent return.

Nearly all countries which have their own aviation undertakings resort to both systems—direct subsidies and indirect subsidies. Their methods differ, however, in respect of the advantages accorded and procedure.

Direct subsidies are granted under subsidy contracts concluded between the State and the undertaking, generally before operations start. Owing to the impossibility of calculating at that stage how large a subsidy the enterprise will need in order to be put upon its feet, and owing to the absence of experience in the matters of organisation and operation, these contracts are necessarily provisional. For this reason, subsidy contracts are generally concluded for a few years only. When they are renewed many clauses in the original contract which were of a fortuitous nature are maintained in the later agreements. It is only recently that some countries have concluded subsidy contracts of longer duration. Nevertheless, even in these, the advantages granted also differ according to the credits at the disposal of the State and the different estimates of the probable traffic receipts.

We cannot, therefore, as yet speak of any system in the granting of subsidies. As regards the method of calculating direct subsidies, however, we can group together certain administrative methods. In the early days of flying, subsidies were calculated according to the number of kilometers flown by the machines of the enterprise. The wish to take account of the real returns from transport led to an improvement in this method of calculation. In some countries—for example, in *England*—account was taken both of miles covered and of engine power (in order to encourage the building and use of larger and safer aeroplanes). Or again, the basis taken for calculating the subsidy (in *France* and *The Netherlands*, for examples) was the transport capacity offered (*angebotene Transportleistung*) expressed in ton-kilometres. Another system is based on the principle that the subsidy should correspond to transport actually effected. Thus some countries pay subsidies for units of weight carried with a certain regularity over given lines or distances. When these disbursements by the State on behalf of air transport are balanced by savings or revenue derived, for example, from air mail charges, we can no longer speak of a subsidy in the strict sense.

The public frequently compares with one another the direct subsidies granted by States and draws certain conclusions as to the real advantages accorded to the undertaking in the form of subsidies. This method is bound to give rise to erroneous conceptions. The various methods of granting subsidies referred to above are sufficient to show that the costs of enterprises which determine the subsidy must be very different. This difference, which gives to the subsidy a very variable value, is greatly accentuated by the differences in the charges which the subsidy contracts impose upon the undertaking. In most cases, aviation companies are not allowed to choose lines which seem to promise the best economic return. They are often compelled to operate a line prescribed by political rather than purely economic considerations, or a line which takes account of local interests to an extent incompatible with profitable working. Generally, too, the companies are not free in the choice of their material. They are required to give preferential treatment to national products and sometimes to take into consideration purely military interests.

Accordingly, owing to the differences in the methods of calculation and the conditions under which subsidies are granted, the absolute figures of direct subsidies do not give an accurate idea of the aid which companies really receive. Comparison between the assistance given by the State to aviation in the different countries is made much more difficult still by indirect subsidies. Here, the first thing to be considered is the advantages which civil aviation derives from military aviation. The same industry works for both. When a country gives large orders to its aviation industry for military requirements, places at the disposal of that industry large sums of money and State laboratories to enable it to create new types, and when it encourages its foreign sales by export bounties and military agreements with friendly States, it thereby ensures substantial advantages to its own commercial aviation, which, in these circumstances, is far more favourably situated from the point of view of purchasing machines and engines than the enterprises of a State which has little or no armament industry. And what applies to material is also true of the training and recruiting of qualified staff. In countries which have a military air force, the personnel is trained almost exclusively at the cost of the military administration. Very often soldiers can enter the service of national aviation companies without losing the rights and privileges of their military status. Civil aviation receives similar assistance in countries which command large resources for the development of private sporting aviation.

We can do no more than refer to the existence and importance of indirect subsidies and are far from having furnished a complete list of the forms they take. It need only be added that aviation undertakings sometimes benefit by financial assistance in other forms, for example, fiscal exemption, the granting of credits, State subscription to shares, various guarantees, participation in various financial schemes, etc., etc.

In this general study of the subsidy system, we must forbear to estimate the value of the numerical data at our disposal. This would require a special study, which, in spite of all the scientific methods of investigation, could presumably only give approximate values, for the reason that indirect subsidies cannot be expressed in figures. For the purposes of the present report, therefore, we can only say that the principles of freedom of commerce are at the present time completely disregarded in civil aviation and that, in order to form a judgment of international commercial aviation, account must be taken of the financial strength of each State, upon which the national transport undertakings are dependent.

(*b*) Exploitation of International Commercial Aviation.

Commercial aviation is international when a national aviation concern carries passengers and goods for hire between two or more countries. Although the concern is a single economic unit, it is necessarily subject to the national laws of various countries. According to these national laws, however, the concern can, as a rule, not exist without a special authorisation, and accordingly, in order to enter and fly over foreign countries, the undertaking, in addition to the airworthiness certificate and certificate of competency for the crew already mentioned, must be furnished with a special concession.

1. — *The forms of concessions applying to international lines differ.* — Some of them are to be found in the general air navigation Conventions (see pages 119 *et seq.* above), but, as a rule, we find special agreements in regard to lines or flying operations concluded by the State in whose territory the foreign air transport company intends to operate either with that company or with the country to which the foreign company belongs. In the former case the concession is national and in the latter it takes the form of a bilateral convention concluded between two countries. It is difficult to say which of these two forms is preferable.

The *national concession* is simpler in that it can be granted by an administrative act and therefore does not encounter the same difficulties as the conclusion of international conventions. The company only has legal relations with the State which grants the concession ; the operations carried out under the concession and the disputes to which it may give rise are juridically national matters. But they are also a source of danger to the foreign concessionaire. In view of the fact that the administrative procedure concerning disputes is still imperfectly developed and is not yet generally accepted by all civilised countries, a foreign company is only weakly protected against a restriction or the withdrawal of the concession. If, for example, as most concessions of this kind lay down, the authorities are made responsible for deciding whether the transport undertaking offers adequate guarantees and security, the foreign company will, as a rule, have no redress, supposing the concession is withdrawn on the grounds of insufficient security.

Special international conventions with regard to the admission of foreign air transport undertakings give the companies a better guarantee of the continuity of the concession. For, in this case, the concession is based upon a treaty concluded between States and forms an integral part thereof. In the event of disputes as to its contents, it is not so easy for the authorities to take arbitrary decisions. The concession cannot be withdrawn at the whim of the authorities but only under the conditions laid down in the treaties. According to the latter, a State, in the event of defective management by the foreign undertaking, can for the most part only complain to the authorities of the other contracting State and demand, in the case of serious fault, a change of the persons responsible or of the undertaking itself. Provision is also made for a mixed committee or arbitral tribunal to settle questions connected with the interpretation of the concession or convention. Finally, another advantage of the concession, as embodied in an agreement between States, is that this agreement allows of an interchange between the undertakings to which the concession is granted. In most cases it is stipulated that the State in its capacity of contracting party shall itself determine the transport company which is to ensure international traffic, and may if necessary replace it by another. In this way, continuity of international traffic is assured on the same legal basis, even if the original transport company cannot continue to ensure exploitation by reason of defective organisation, or owing to liquidation or amalgamation.

Cf., for example, *Germany-Czechoslovakia* (Agreement of January 22nd, 1928, on the organisation and operation of regular air transport lines) ; *Germany-Spain* (Agreement of December 16th, 1927) ; *France-Italy* (Protocol to the Convention of March 10th, 1929, Article 5) ; *Italy-Spain* (Convention relating to air lines, dated October 3rd, 1928, Article 3).

2. — Owing to the disinclination of States to bind themselves too closely in matters of aviation, it has been the custom to provide in these concessions, and treaties embodying a concession, a time-limit for denunciation so short as to be practically useless to any economic enterprise. The period of validity of these contracts is still usually one year, but has recently been extended to from two to five years. The time-limits for denunciation are also short. The Conventions concerning lines and exploitation are based upon the General Convention on Air Navigation (see above, page 119 *et seq.*), which was also concluded for a short period, and they expire at the same time as the General Convention. Besides this limited duration we still find in some concessions a reservation stating that the concession may be suspended at any moment as soon as the operation of a line ceases to fulfil the conditions of a regular air service or to benefit the general interests of the country. In cases where this reservation is not expressly stipulated, it is tacitly implied by the obligation imposed on the enterprise to comply with the general police regulations of the country flown over and by the reservations in the General Convention on Air Navigation (see above, pages 127).

3. — *Reciprocity and Parity.* — The reciprocity reservation recurs in all the Conventions. It provides that the rights which one State grants to another and to its concerns shall also be granted by the latter to the former country and to its concerns. With this is associated the idea of parity, whereby national and foreign undertakings, their aircraft and their crews, must be placed on the same footing. This equality of treatment, however, is limited. In most cases it only applies to technical operation and to assimilation as regards the use of technical organisations and installations such as aerodromes, meteorological intelligence services, assistance, etc. This assimilation, however, is open to question from the economic point of view in regard, for example, to the carrying of mails and contracts with the postal administrations. This point is sometimes settled by means of agreements. Ordinarily there is inequality in the subsidy. In the Convention of October 3rd, 1928 (Article 7), between Italy and Spain

concerning regular air-transport lines, the two countries expressly reserve to themselves the right to determine the subsidies they will grant to their own undertakings. This follows indirectly from the Treaty of March 22nd, 1928, concluded between France and Spain, in which the two States agree not to subsidise the undertaking of the other country except through contracts for the carriage of mail (Article 9, paragraph 2).

4. — *Conditions concerning Nationality.* — According to the Conventions, companies authorised for traffic must possess the nationality of one of the contracting States. If both countries belong to the International Air Navigation Commission the nationality of a company can be determined by reference to Cina itself (Article 7, paragraph 2) as we find in the Protocols to the Franco-Italian Convention of March 10th, 1929 (Article 5). But when this reference is lacking or is not possible, a discrepancy can easily arise between the various nationality conditions required (see above, page 102 *et seq.*). On this point, most of the agreements are still incomplete, although in practice no difficulties seem yet to have arisen.

The concession, however, applies as a rule only to aircraft having the nationality of the concessionary company or of the Contracting State. This provision can in some circumstances constitute an obstacle to traffic, for it prevents an undertaking at a time of heavy traffic from chartering aircraft having the nationality of a third State and from placing these aircraft at the service of the international line. Equally unwelcome consequences can follow from the provision occasionally met with which requires that the crew shall be nationals of one of the two contracting States (*e.g.*, the above-mentioned Franco-Italian and Franco-Spanish Conventions). This may, in some circumstances, prevent the speedy recruiting of adequate staff.

5. — *Special Obligations.* — Countries which do not possess or establish air navigation facilities conforming to current technical requirements will only grant a concession if the concessionaire undertakes to establish at his own expense aerodromes, hangars, anchoring-masts, wireless stations, etc., and to place them at the disposal of the public or of the military air force of the conceding State. Up to the present the Conventions concluded between European countries have only rarely contained obligations of this kind, for in these Conventions the Contracting States consider as a rule that it is for the State to develop air navigation facilities. They look to the Conventions rather to ensure international traffic for their own aviation undertakings and to secure for their own country the economic advantages resulting from air communications with foreign countries. For this reason the obligations laid down in the concessions assume another form. The advantages of international air communication are secured for the country by pledging the concessionaire to operate lines or by requiring it to carry mail. The State concerned increases its share in international traffic, not only by reserving to itself the right of reciprocity, but also by requiring the foreign aviation concern, through a contract, to co-operate economically and technically with its own concern (joint operating companies and agreements relating to the establishment of pools).

6. — *Compulsory Exploitation.* — The Conventions relating to lines often make the continuance of the concession dependent upon regular exploitation. The latter must begin at a given moment. Arrangements must be made for a weekly or daily minimum number of flights. In the case of interrupted or irregular exploitation, the concession may be withdrawn (see, for example, the *German* authorisation relating to the Czech line Prague-Dresden-Berlin-Hamburg of April 6th, 1928, No. 1; *Italy-Spain*, Convention of October 3rd, 1928, Articles 1 and 7; *Switzerland*, Terms of Concession of June 18th, 1929, No. 6*a*).

The Agreement of April 15th, 1926, between Poland and Czechoslovakia endeavours to take account of the fact that the operation of a line after the conclusion of the convention may lead to unexpected technical difficulties and interruptions to traffic. No. 2 of the Final Protocol stipulates that the concession granted to air transport lines shall not lose its validity if the other contracting State allows the interruption.

7. — *Agreements dealing with the Creation of Joint-Operating Companies and Pools.* — When the concession which two countries lay down for their companies in a convention covers one and the same airway, its regular operation is technically and economically almost impossible without co-operation between the undertakings concerned. We therefore find this co-operation along all international lines served simultaneously by several concerns. The only differences are in the extent and closeness of the agreements which bind them.

The minimum obligations consist of agreements concluded between enterprises with regard to tariffs, the fixing of routes and the organisation of traffic. Most of these points are already covered by State Conventions regarding air lines and constitute essential conditions for the joint exercise of the concession (*e.g.*, *Italy-Spain*, Convention of October 3rd, 1928, Article 2). When we consider that for purposes of simplification enterprises place at each other's disposal the auxiliary installations in their own country, the use of which demands at regular intervals a settlement of accounts by methods jointly agreed upon, we can understand the necessity of concluding contracts similar to company contracts and which, from the legal point of view, may be regarded as *contracts for the joint exploitation of companies.*

A still more extended form of these joint-operating companies is the *profit-sharing company*. In this kind of organisation we find that, while the receipts from subsidies and even those from postal agreements remain at the free disposal of each company, receipts derived from passengers, luggage and goods carried in the course of regular flights over the association's lines are all pooled. These profits are, in principle, distributed in proportion to the kilometers flown by each company and, in certain circumstances, in proportion to the freight to be conveyed by the aircraft in use. Within their own country the parties place at each other's disposal their administrative organisation for the discharge of commercial services and their ground installations for the technical services. Another important clause is the agreement by which the companies not only place at each other's service their offices for the issue of transport documents on a commission basis, but also mutually undertake the whole representation of the company's line in their country and also bind themselves to lend each other mutual assistance in all negotiations with the authorities of their country. Publicity work for the lines common to both countries is also conducted jointly.

Up to the present, practice has shown that, in spite of many inevitable misunderstandings, international exploitation has, thanks to these joint-operating contracts, been possible. The difficulties lie less in the administration than in the establishment of these joint-operating and profit-sharing companies. For these are not created by private undertakings dependent exclusively upon their own resources and prompted by economic necessities and converging interests, but are established rather between semi-official companies under threat of the exercise of sovereign rights over the air space. Whenever the interests of two States in a joint line are not of equal importance, or when the efficiency of undertakings is unequal, the basis for the establishment of these associations is lacking and the exploitation of the intended route proves impracticable, to the loss of international commercial aviation. Even

where these associations do exist, they are not always able to satisfy the requirements of a rational air service. At the present time only a few international airways are sufficiently paying for their simultaneous operation by different enterprises to be regarded as the most rational form of exploitation.

8. — *Foreign Agencies.* — An aviation company operating commercially in a foreign country, in virtue of a concession, must conform with the industrial regulations and commercial laws in force in that country. It will have to found a commercial branch and establish a regular domicile. In practice, however, an effort is made to avoid the cost of these formalities by refraining from establishing an independent branch and entrusting the necessary representation to a friendly company (generally an aviation or shipping company).

9. — *Insurance Questions in the Operation of International Air Lines.* — Among the questions of insurance raised by international aviation we may here disregard the insurance of passengers and goods and also " Kasko " insurances (covering all risks), which are mainly matters of private law. Civil responsibility and social insurance, however, call for certain observations.

Civil insurance responsibility is intended to cover civil responsibility for damage to the property or person of third parties and has therefore been converted by the law of most countries into a compulsory insurance (see above, page 106). The requirements imposed by States in regard to this class of compulsory insurance differ widely. Some Conventions require that the aircraft of a State, when flying over the other State, shall either have contracted a civil responsibility insurance against all damage which might be caused to third parties in foreign territory or have deposited suitable security.

Examples : *Germany-Norway* (Convention of January 23rd, 1929, Article 5, paragraph 3) ; *Austria-Czechoslovakia* (Convention of February 15th, 1927, Article 10, 3) ; *Poland-Czechoslovakia* (Convention of April 15th, 1926, Article V, 3).

According to other Conventions, aircraft of the contracting State is at all times subject to the regulations governing civil responsibility in force in the State flown over :

Examples : *Denmark-Germany* (Convention of April 25th, 1922, Article 13) ; *Germany-Sweden* (Convention of May 29th, 1925, Article 13).

A third group of Conventions does not expressly mention civil insurance responsibility. Accordingly, in conformity with the principle of territoriality, the laws of the country flown over apply also to civil insurance. This settlement of the matter is the least satisfactory. It leaves gaps, especially when the provisions relating to compulsory insurance in force in the State flown over only cover aircraft of that country entered in its registers. These disadvantages have already been felt in the air relations of a number of European countries.

Existing regulations, however, may also involve an obligation to contract a double insurance. Some States are not satisfied with the foreign insurance contracts (world policies) concluded for their territory by a foreign enterprise, and require that a policy shall be taken out in their own territory (*e.g.*, Switzerland). Other countries like The Netherlands, do not require that the aircraft shall be insured with a national company, but reserve the right to approve the foreign company and demand that that company shall have an agency in The Netherlands.

The social insurance of flying personnel in international traffic is still less homogeneous. The question whether the insurance of personnel is compulsory or optional, the risks it covers, the payments granted and the premiums demanded, the proportion in which these premiums shall be distributed between the aviation undertaking, the insured person and the State, are all matters which are dealt with in the different countries in such different and complicated ways that it would require a special detailed study to explain them. We may be content, in the present report, to show by a few examples how unsatisfactory the situation is from the point of view of international traffic. According to the French regulations of January 26th, 1929, in execution of the law of March 30th, 1928, the payments provided in these regulations for flying personnel in the event of disablement and death, only cover persons of French nationality (Article 1), while general social insurance also includes foreigners domiciled in France (Law of April 5th, 1928, Article 1, No. 4). Nevertheless, this extension to foreigners domiciled in France is not of any practical importance from the point of view of the personnel of aviation companies, because their incomes usually exceed the maximum limit entitling persons to benefit under social insurance. Accordingly, the foreign personnel of French air-transport companies would not be covered by French State insurance. In spite, too, of being domiciled abroad, this personnel would also not be covered by foreign social insurance, if the latter, as often happens, takes account, as regards the compulsory insurance of a commercial undertaking, of the headquarters of that undertaking and reckons the activities of the French aviation undertaking abroad as part of its operations on French territory. According to the British law of November 16th, 1923, the protection afforded by social insurance can be extended to the pilots and crews of a British aircraft flying abroad (Section 27,1). This law, however, also requires that the aircraft in question shall be registered in Great Britain or Northern Ireland and that its owner shall be domiciled or have his commercial headquarters therein. Under this provision, the whole of the crew, whether Englishmen or foreigners, would lose the benefits of British insurance if the British aviation undertaking were to employ on its international lines the services of a chartered aircraft of foreign nationality. The Italian law of January 10th, 1929, concerning compulsory sickness insurance and social assistance for seamen and airmen, marks an advance towards the solution of this question. According to Article 4, all foreigners are brought under the insurance, if the laws or international Conventions of their country of origin grant the same treatment to Italians on board foreign aircraft. However, such an extension of the protection offered by social insurance is only found here and there. German social insurance in the same way covers nationals and foreigners in German territory and in practice also includes persons employed abroad, if their occupations—as is the case with transport undertakings—are in connection with the national exploitation. Nevertheless, the insurance is not complete, since compulsory insurance, if not in the case of accident insurance, at any rate for the other branches of social insurance, is dependent upon a maximum annual wage.

The national laws contain stipulations whereby the personnel on board must be insured against all accidents.

Examples : *Italy* (Aviation Decree of January 11th, 1925, Article 266) ; *Switzerland* (Decision by Federal Council, dated January 27th, 1920, Article 28) ; *Spain* (Decree of August 14th, 1928, Article 10) ; etc.

In virtue of the principle of territoriality, the foregoing also applies to foreign aircraft.

In practice, however, it does not seem that strict account is taken of the application of these provisions in international traffic. Trust is obviously placed in the insurance organisations of the aircraft's country of origin without attention being in every case paid to their limitations and omissions. The protection of flying personnel imperatively demands that this situation be remedied.

The existing treaties regarding social insurance benefits to the nationals of different States do not take enough account of aviation. The present position of personal insurance, however, also involves dangers to the aviation concerns themselves. They may very easily find themselves in an embarrassing position if a foreign State requires them to prove that they conform to the provisions governing compulsory insurance. They would then be forced, for the purposes of traffic in foreign territory, to contract special insurances on behalf of their personnel which might overlap with already existing insurances in their own countries and might, by reason of this duplication, constitute a serious additional financial burden. When, for example, *Spain*, in the Decree of August 11th, 1928, Article 10, stipulates that the whole of the personnel belonging to air transport lines must be compulsorily insured with the Spanish Insurance Office for Air Transport, without expressly exempting foreign undertakings from this obligation, it would seem that, as regards accident insurance, foreign undertakings might be forced to contract a double insurance.

Only a uniform international regulation of the question of compulsory insurance could remedy this situation.

10. — *Wireless Apparatus and Wireless Communication.* — The question whether aircraft shall carry wireless apparatus and the conditions governing its use on board are settled in very contradictory fashion. Wireless apparatus is forbidden without a special authorisation from the State flown over, partly because of the State intelligence monopoly and partly for military reasons. This prohibition appears as a rule both in national Agreements and in international Conventions. On the other hand, the law, recognising that aviation cannot dispense with wireless communication and that its safety depends largely thereon, now provides that aircraft engaged in transport must be furnished with wireless apparatus in good working order.

Examples : *Chile* (Decree of October 17th, 1925, Article 24) ; *France* (Decree of August 19th, 1926, Article 7) ; *Italy* (Decree of January 11th, 1925, Article 173) ; *The Netherlands* (Decree of December 6th, 1928, Article 180) ; *Poland* (Decree of March 14th, 1928, Article 37) ; *Sweden* (Decree of April 20th, 1928, Article 9) ; *Switzerland* (Decision by Federal Council, dated January 27th, 1920, Article 30) ; etc.

With the exception of *Cina*, Article 14, paragraph 2, and *Ciana*, Article 14, paragraph 2, the different international Conventions have hitherto imposed no uniform regulations, but have, in the main, recognised the rules of domestic law. In principle, they forbid the carrying of wireless apparatus without special authorisation, but leave it to each contracting State to stipulate in special provisions that wireless apparatus shall be carried for reasons of safety. In the last resort, therefore, domestic legislation governs both the prohibition and the obligation to carry wireless apparatus.

From the legal point of view this arrangement might lead to conflicts in international traffic According to these regulations, the radio-telegraphic installation of an aircraft engaged in international traffic might in different countries be subject to different rules, or one State might forbid and another order aircraft to

carry wireless apparatus. Italy, for example, requires the installation of wireless on every aircraft in international service, provided that it has to cover more than 160 kilometers without intermediate landing or to fly over the sea for a distance of more than 25 kilometers. Article 6, however, of the Convention between Italy and Austria, dated May 11th, 1928, stipulates that aircraft may only carry wireless apparatus with the permission of both States ; the circulation of Italian aircraft in Austria, therefore, is conditional upon the Austrian regulations concerning the carrying of wireless apparatus.

Where the international legislation of a country requires that wireless shall be carried, no measures are taken to ensure that the conditions laid down by the different countries are equal or that the wireless installation on an aircraft will be approved in several countries.

In practice, however, these difficulties have not yet proved acute. Usually the administrations are content to require that wireless apparatus, its licence and the certificates of competency granted to operators shall be in conformity with the regulations of the country of origin.

On the whole, therefore, the situation is as fixed in the various aviation Conventions, which, as regards the installation and use of wireless apparatus, recognise the laws of the aircraft's country of origin :

Examples : *Cina*, Article 4, paragraph 1 ; *Ciana*, Article 14, paragraph 1 ; *Havana Convention* Article 10 (*g*) ; *Belgium-Switzerland* (Convention of June 13th, 1922, Article 8) ; *France-Switzerland* (Convention of December 9th, 1929, Article 7) ; *Great Britain-Switzerland* (Convention of November 6th, 1919, Article 7) ; *Great Britain-Norway* (Convention of July 15th, 1921, Article 6) ; *The Netherlands-Norway* (Convention of January 8th, 1925, Article 6) ; *Norway-Switzerland* (Convention of August 15th, 1928, Article 7) ; *Sweden-Norway* (Convention of May 26th, 1923, Article 15).

Nevertheless, it would be well to establish uniform international rules. It is not impossible that the requisite conditions for wireless apparatus should be attached to the conditions required for the safety of the aircraft and that, in the absence of international agreement with regard to wireless apparatus, the police might raise objections to a foreign aircraft. The provisions of Cina (see Article 14 and resolutions 265 and 471 relating thereto) might serve as a model for general regulations. Article 16 of the General Regulations in execution of the International Radiotelegraph Convention contains a compulsory international minimum as regards the conditions to be fulfilled by wireless installations on aircraft. The signatory States to this Convention expressly undertake not to impose upon wireless installations on board foreign aircraft temporarily within their territory any technical or operating conditions more severe than those contemplated in the General Regulations (see Article 15, paragraph 4).

With regard to the wireless service, most countries require that the operator shall have a special and personal certificate (certificate of competency and a licence). The International Radiotelegraph Convention (General Regulations, Article 7) prescribes similar certificates. In principle, the country authorised to issue operators' certificates is the State in whose territory the wireless apparatus operates. In recognising these certificates the international Conventions extend to international traffic the validity of national rules relating to wireless operators.

In order that *radiotelegraphy* may be fully effective in international traffic, its service must be assured on uniform lines, since otherwise it is impossible for aircraft and ground stations to be sure of understanding each other. According to the laws of most countries, however, all wireless service on board foreign aircraft is subject to the sovereign rights of the State in whose territory it is situated. The General Regulations of the International Radiotelegraph Convention likewise enounces this stipulation when, in paragraph 2 of Article 15, it authorises the competent authorities of the countries where a mobile station calls to inspect the licence and the radio-electric installation. As regards, however, the service regulations of mobile wireless stations, among which we must include wireless stations on board aircraft, the International Air Convention has limited the sovereign rights of States by issuing uniform regulations for this service (see, in particular, Articles 9 *et seq.* of the General Regulations of the International Radiotelegraph Convention). Reference is made to these provisions in the most recent Conventions on air transport as, for example, those of Switzerland and the Saar Territory. The old agreements must be *ipso jure* regarded as amended or supplemented by the International Radiotelegraph Convention.

At the same time, the service regulations for wireless apparatus provided by this Convention do not yet contain the detailed provisions necessary for international air traffic, but these complementary measures were established by the International Air Conference at The Hague (September 1928), which issued regulations governing international wireless air service. Up to the present, Belgium, Denmark, Germany, France, Great Britain, The Netherlands, Sweden, Switzerland and Czechoslovakia have adopted these regulations as between themselves, so that the question has been satisfactorily settled for the greater part of European air traffic. Nevertheless, on this point, too, general measures would be expedient, especially in regard to air relations with oversea countries.

11. — *Meteorological Intelligence Service.* — The organisation and working of a meteorological intelligence service are matters which fall to the administration in each country. As we have already mentioned, this Service is in exceptional cases only entrusted to aviation enterprises themselves. According to the terms of the big conventions between groups of States, countries are required to co-operate within their territory in organising the meteorological information service necessary to international lines and to extend its benefits to foreign aircraft on the same terms as to national aircraft (*Cina*, Article 36, Annex G ; *Ciana*, Article 35 ; Havana Convention, Article 31). The obligation, however, is not an absolute one. It must be fulfilled " as far as possible ", which to the jurist is obvious. In a particular case, however, it would be hard to determine the proper share of a State in international co-operation of this kind and, even if it were possible, it is difficult to see how a country could be forced to conform to such a legal obligation. In point of fact, the different countries co-operate in regard to meteorological information, not " as far as possible ", but rather to the extent that their own interests are at stake, whether because they desire to secure equivalent services from other States or because they are afraid that if they neglect their duties those other States will take counter-measures against their aircraft abroad. But whenever there are no such cogent interests, the desired co-operation will be lacking, and it is not surprising that aviation undertakings frequently complain of the defects of the meteorological intelligence service on foreign routes. In practice, therefore, the International Commission for Air Navigation has achieved no more satisfactory results than countries which, in their aviation agreements, renounce the idea of any obligation to organise and run a meteorological intelligence service and simply place the existing organisations at the disposal of the air traffic of the other contracting State.

Here, too, the existence of a technical service will only be of value to international aviation if its functions are internationally standardised. Weather observations must be made by the same methods and with the same criteria, their collection and distribution require the same uniform forms and they must be telegraphically transmitted by agreed codes. In practice, these difficulties have hitherto been overcome by admirable international work, partly with the help of the Cina provisions, Annex G, and partly through the agreements of the International Air Conference (on the last occasion at Zurich in October 1929). Although there is still plenty of room for improvement in these provisions, it is doubtful whether any better results could be obtained by creating in this matter any closer legal bond than the mobile committees of the International Air Conference, which have always adapted themselves without difficulty to fresh advances in technical experimentation. The only drawback is that it has not so far been possible to extend these uniform agreements to all Europe and to other continents.

12. — *Air Mails.* — In consequence of the postal monopoly which exists in every country, aviation undertakings cannot ensure the conveyance of mail in their own names, but the postal administrations, which have not as yet organised their own air mail services or have given them up again, have to co-operate in the form of agreements with aviation undertakings. Further, the operation of an international air mail line presupposes an agreement with foreign postal administrations.

Conventions between the postal administration and the national aviation undertakings meet with fewer difficulties than any other form of agreement. These administrations to-day do not for the most part, or at any rate exclusively, consider immediate profits. For them air transport is still in the experimental stage and the agreements they conclude for the conveyance of mail by air are principally intended to show them by experience how aviation could become an important economic instrument in the hands of the postal services. Moreover, the postal administrations, in concluding agreements for the transport of mail by air, deliberately pursue a policy of subsidies. When, for example, they guarantee to air transport companies, for a given mail line, a daily minimum of postal matter, which minimum is in practice often far from being attained, or when they take upon themselves the cost of establishing an air mail line or even run one at their own expense ,these are services out of all proportion to the actual receipts derived from air mails. Nevertheless, this does not mean that the postal administrations, by this policy of subsidies, exceed their functions and safeguard interests which are not their own, for if, with the help of postal subsidies, an air mail service is made to pay, a great part of the profit will certainly find its way into the coffers of the postal administration.

According to the laws of various countries, air transport undertakings are legally obliged to carry mail by air in return for charges apportioned, not by the agreement between the parties but by the courts or administrative authorities. Where no such provisions exist for the compulsory conveyance of mail, it will nevertheless be easy for the State to impose similar obligations upon an air transport undertaking when granting the concession.

At the Congress of London, in 1929, the Universal Postal Union issued regulations for the international conveyance of mail by air *between the different national postal administrations.* " The provisions for the conveyance of letters by air " cover letters, ordinary postcards and reply-paid postcards, business circulars, printed matter of all kinds, including documents printed in Braille for the blind, samples, small packets,

postal money orders, registered letters. Further, " the provisions for the transport of postal parcels by air " apply to countries which have acceded to the Parcels Post Convention. These provisions cover ordinary postal parcels and registered parcels, whether or not consigned payment on delivery. The contracting States mutually undertake the free transit of letters and parcels sent by air. The postal administrations are obliged, as regards consignments entering their sphere of jurisdiction, to deliver them in the ordinary way, to reforward them or return them to their place of origin, to tranship them and to keep them, either free of charge or in return for a fixed fee. Uniform principles have been laid down for the extra charges to be levied on air mail. Each administration retains the whole of the additional charges on these consignments. If a postal administration reforwards by air the consignments of another administration, it is entitled to a fixed fee in the case of letters, which may be exceeded, with the consent of the administrations concerned, if the lines are exceptionally expensive ; in this case they must be the same for all administrations making use of this means of communication. The postal administrations notify each other duly in advance of the amount of their air mail charges, the nature of the consignments accepted with a list of the air mail lines which they use. These notifications are made through the international Bureau of the Universal Postal Union and are also frequently exchanged direct between the administrations themselves.

These regulations appear to ensure for international air mail traffic an organisation which, for the moment, meets all requirements and which can in future be adapted to any modifications resulting from the facilities for revision offered by the International Air Mail Convention.

With regard to the *forwarding of newspapers,* it should be noted that the postal laws of only some countries forbid the transport of newspapers by forwarding firms between two different places. Where this prohibition does not exist, publishers or their forwarding agents can make arrangements with air transport undertakings for the forwarding of newspapers regarded as a transport of ordinary goods. On the other hand, the forwarding of newspapers subject to postal charges requires the co-operation of the postal administration, unless special exceptions are provided by the postal laws. An example of such an exception is supplied by the regulations by which certain countries only apply compulsory postage to comparatively small quantities of newspapers. Other countries, like Germany, exempt from compulsory postage consignments sent " by express." In accordance with this exception, a newspaper with a worldwide circulation could be sent to a German town by special aircraft without infringing the postal monopoly. *The relations of an air transport undertaking with a foreign postal administration* conceal certain possible dangers to international air traffic. The postal administration is free to decide whether and with what undertakings it desires to conclude air mail agreements. In choosing between a national and a foreign enterprise, it will follow the present trend of air policy and as far as possible favour the national undertaking. But even when the foreign concern is not in competition with a national undertaking, it will still not be sure of securing the transport of mail in return for adequate payment. The practice of postal administrations in this matter is not uniform. Just as some administrations entrust their mail to the steamer ensuring the speediest transport, irrespective of flag, so some administrations in their choice of air mail lines are prompted by technical considerations only. Others attach more importance to the protection of national traffic undertakings than to speed in communications, and give preference to national air lines, even at the cost of rapid transport. In practice, these tendencies have not as yet been very pronounced in matters concerning air mail, since, in the organisation and operation of international lines, the principle of reciprocity has also extended to postal consignments. Each postal administration seeks to grant to the foreign transport undertaking as much mail

as its own undertaking receives from the other administration. This, however, only shows the extent to which, from the point of view of an air transport company, the conveyance of international mail may depend upon a possibly fortuitous balance of certain interests in the two countries.

13. — *Air Transport combined* with other means of transport (boats, railways or motor transport) calls for no special comment, if we consider the administrative measures taken by States in the matter of commercial aviation. The legal problems which arise belong mostly to the sphere of private law (transport law). The questions at issue are, in particular, the responsibility of several consignors and the establishment of a uniform through bill of lading. The convenience of passengers will be facilitated if the railways, in agreement with the air transport company and at its expense, convey passengers to their destination on production of the ticket issued by the air transport company, or some similar document, in cases when it is impossible to continue the flight to the end.

14. — *Customs Legislation.* — Customs legislation and Customs police intervene in international commercial aviation to the extent that the Customs formalities they insist upon threaten considerably to reduce the saving of time which it is the purpose of air transport to effect. It is mainly due to the requirements of Customs police that an aircraft entering the territory of a foreign country has to make its first landing at a Customs aerodrome. What is the position, however, with regard to *permission to drop mail and other goods* in the course of flight, with a view to avoiding landing and to saving time and fuel ? From the legal point of view, a distinction must be made between two things : The avoiding of the landing and the authorisation to throw matter out. The landing at the Customs aerodrome is for the purpose of facilitating control by the foreign police and Customs. Although, for this reason, a foreign country cannot for go its control, it can raise no objection if the landing at the prescribed Customs aerodrome is replaced by the throwing-out of parcels, provided that the aircraft lands in conformity with agreements on another aerodrome which is also furnished with a Customs office.

As regards the question of permitting parcels to be thrown out from aircraft, general police interests compete with those of the Customs police. The throwing-out of objects in the course of flight is not without danger to persons and property on the ground. If advertisements, pamphlets or political reviews are thrown out, this may also threaten public order. In view of these dangers, political considerations demand at any rate a restriction of the right to throw out, both as regards the objects thrown and the place where they are dropped. The police can therefore only authorise it in places where the necessary measures have been taken against a disturbance of public order and safety.

On the other hand, the Customs control of imports demands that other objects than ballast shall only be thrown out at places which allow of proper Customs clearance.

On condition that the necessary police and Customs guarantees are given, no objection can be raised against the regular throwing-out of goods on to Customs aerodromes, even in international traffic. If a number of international conventions make the throwing-out of articles other than ballast subject to special permission from the authorities of the State flown over, it may be supposed that this permission will be granted within the above-mentioned limits as soon as the necessary conditions governing the throwing-out of objects have become general in commercial aviation. Compare in this matter the Conventions concluded by *Germany ;* also the Conventions between *France* and *Spain* of May 1st, 1928, (Article 14), and between *Austria* and *Czechoslovakia* of February 15th, 1927 (Article 21).

Cina, on the other hand, (Annex H, No. 15,) provides that the unloading or throwing-out of other articles than ballast may be prohibited except in the case of postal aircraft. It may be presumed that the countries belonging to the International Air Navigation Commission will make use of this right of prohibition in accordance with the principles here set forth.

Among *Customs formalities* the chief obstacle to international goods traffic by air is the diversity of documents—accompanying papers and declarations—required by the different countries. Even railway transport is hampered by the fact that the consignor has to procure the Customs forms of all the countries of transit and of the country of destination and has to fill them in the languages of all these countries in order to make a regular declaration. How much more cumbersome are these formalities in air traffic, when often very little time is provided for the consignment of goods. If the Customs declaration infringes, even formally, any of the Customs regulations or tariff provisions of any of the various countries of transit, the consignment risks being stopped *en route*. In this way, not only may the time gained by air transport be lost but even the consignment itself, if the goods are perishable.

In international railway traffic an attempt has already been made to simplify Customs formalities by creating a uniform model " international Customs office declaration " (see the Conference between the Customs and railway administrations of seven European countries which met in 1929 at Florence and Bolzano at the invitation of the Italian Government). It would be well to extend these endeavours to the international transport of goods by air, since in railway traffic between different countries they have already resulted in appreciable simplification.

The material provisions of Customs law may apply to the aircraft itself and to its fuel and other ingredients.

The Customs duty on aircraft imported by land or water is of only indirect importance to commercial aviation to the extent that it adds to the cost of acquiring aircraft.

According to most of the Customs laws in force and the Customs provisions of air navigation laws, every machine entering Customs territory is liable to pay duty. If the aircraft is only to make a short stay, the Customs duty levied may, according to some laws, be refunded on export, while other laws prescribe in such cases a deposit or security up to the amount of the Customs duty. Gradually, however, Customs authorities have adopted a practice considerably more favourable to air traffic. In the case of *sporting aircraft*, triptychs have been established as the result of agreements concluded by national Aero Clubs with one another and with their authorities ; the use of these triptychs approximates to that of international motor triptychs and dispenses both with the payment of Customs duty and its deposit. In the case of *aircraft engaged in transport*, the present practice of the administration is still simpler. As soon as it is agreed to establish an international line, the undertakings name the machines which they propose to allot for regular traffic. The Customs authorities then refrain from demanding any kind of Customs duty or security. In the case, however, of commercial aircraft not engaged in regular service, some authorities, according to their attitude towards air traffic and their interpretation of Customs regulations, require the deposit of the Customs duty. This procedure varies and is a cause of friction. It would be better if, without prejudice to international interests, it were replaced by an international convention on Customs exemption for commercial aircraft.

The fuel and other ingredients which the aircraft carries with it for its own use on the journey are exempt from Customs duties according to both Cina (Annex H. No. 7) and most recent Conventions. The question of the exemption of the fuel which is to be used in the course of a flight to and over a foreign country is not everywhere uniformly regulated. Some countries exempt this fuel from the consumption tax or refund the whole or part of the tax to the air transport companies, but others continue to levy large taxes on fuel which the machine takes on board in their territory for use in the course of its journey to a foreign country. It may, however, be hoped that all financial administrations, if only to preserve the transport undertakings of their own country from reprisals abroad, will soon adopt a uniform method in regard to the taxation and Customs treatment of fuel.

15. — *Taxation of Aviation Undertakings.* — Businesses in the service of aviation normally enjoy special privileges, even in fiscal matters, and are either granted exemption from or reductions of taxation. What is the treatment of aviation undertakings whose commercial operations include international lines in the territory of another country ? It follows beyond doubt, from the principle of territoriality, that the foreign undertaking is under the fiscal authority of the country flown over. The aviation Conventions do not contain any express clause on this matter. In many cases, however, the commercial and double taxation Conventions now in force show a desire to avoid taxation abroad and the double taxation which it involves. The Austro-Italian Air Convention of May 11th, 1928 (Article 1 of the Additional Protocol) actually refers, as regards the taxation of aviation companies, to the Convention on Double Taxation of April 6th, 1922.

According to the terms of double taxation Conventions, the receipts derived from the operation of industrial enterprises are, in principle, only taxed by the country in whose territory the head office of the enterprise is situated. This provision still applies when the enterprise's activities extend to the territory of the other contracting party without its having any established office in that country. So far as international commercial aviation is concerned, no difficulties have as yet arisen.

VII. CONCLUSIONS.

In conformity with its purpose, the present memorandum has endeavoured to indicate the measures and regulations adopted by Governments which either hamper international commercial aviation or do not take its development sufficiently into account. A critical summary of this kind cannot specify in detail the means by which a satisfactory international solution of these problems could be found. We will be content to complete this criticism of the present situation by a reference to the fundamental diversity of the existing difficulties, which can only be removed by a variety of methods.

In the first place we may group together a number of questions which have not yet found the solution necessary in the interests of commercial aviation. Foremost among these is the question of flight over the sea (see above, pp. 113 and 114) and the regulation of air traffic in times of emergency and in war (see above, pp. 114 *et seq.*). These questions call for the conclusion of a universal convention.

Secondly, we may draw attention to certain questions which have not as yet been settled either nationally or internationally in a manner suited to the needs of commercial aviation and for which an international agreement might also be a satisfactory solution. These questions include, for example, Customs legislation (see p. 155) radiotelegraphy (see p. 151) and assistance to aircraft in distress (see p. 131). To these we may add the immunity of aircraft from seizure and the insurance of flying personnel. At the same time it should be pointed out that these last two questions are closely linked up with private law and cannot be settled without account being taken of such matters as insurance, mortgages and liens, which are themselves questions demanding international unification.

The best way of ensuring international uniformity for the general rules of traffic is to conclude a multilateral convention comprising as many countries as possible. From this point of view it would certainly be well if such regulations as Cina could be developed into a universal convention. Nevertheless, from the practical point of view of transport, the most urgent need is not that all countries should join the International Commission for Air Navigation, but that, in all transport regulations adopted by the different countries, the essential stipulations relating to traffic should be uniform and homogeneous. Under the pressure of like technical conditions, this has so far obtained that the question of an international undertaking by which States would agree to adopt uniform rules of traffic is not for the moment important.

At the same time, the international regulations referred to cannot, under the most favourable circumstances, promote international commercial aviation without the consent of the different States affected. The very limited right to engage in international aviation conflicts with the sovereignty of the different States over the air space (see above pp. 111 *et seq.*). It would be rash, and indeed vain, to prophesy any international restriction of this sovereignty in favour of freedom of commercial aviation. And even if we were to pursue this idea, its practical realisation would meet with an obstacle in the principle of territoriality, which places the aircraft at the mercy of each country, its laws and its administration. International freedom of the air, like freedom of the seas, would only be possible if the administrations of different countries were replaced by an international administration. Even the warmest partisans of freedom in the air would hardly venture to champion such a proposal.

Accordingly, international aviation is, and will remain possible only if and in so far as it is tolerated by the different countries. It follows that it can only exist if it is not opposed to national interests but is, on the contrary, in harmony with them. The purpose of what was said above concerning the principle of territoriality (see pp. 121) was to show that, in spite of existing international agreements, commercial aviation can only prosper if in their turn the national administrations regard it with benevolence and interest. Where there is no such benevolence and interest, international commercial aviation lacks the foundations required for its steady and safe development.

For such development, therefore, international aviation must, above all things, endeavour to attract and retain the national interests. This has already been made manifest by the conclusion of bilateral treaties for the operation of international lines. The administrations of the different countries have found in these Conventions a community of interests, on the basis of which most of the administrative measures have been satisfactorily settled, even without any special legal enactments. In this way some countries have even agreed between themselves to renounce their reservation regarding *cabotage*.

Nevertheless, it remains a fact that this community of interests between only two countries will not suffice where the needs of commercial aviation demand the establishment of a through route entering and passing over a large number of countries. So far no satisfactory form of exploitation has been found for this case. It may however be hoped that the same common ground of agreement may be found as for the bilateral treaties already concluded. In order that the benefits of commercial aviation may, as the result of rational exploitation, be enjoyed by the different countries of at least one continent, it is essential that the interests of these different countries should be united within a multilateral convention. When once the various national air transport companies, while retaining their autonomy, have combined to form a joint-operating or profit-sharing company for the exploitation of certain trans-continental air lines, it will be comparatively easy to co-ordinate the measures of the different administrations, especially with regard to the laying down of routes and ground installations.

PRINCIPLES OF PUBLIC INTERNATIONAL LAW APPLICABLE TO AIR TRANSPORTS

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CONTENTS.

PRINCIPLES OF PUBLIC INTERNATIONAL LAW APPLICABLE TO AIR TRANSPORTS.

INTRODUCTION.

[*Translation.*]

Each stage passed by humanity in its onward march, each of the milestones which it leaves behind, every step it climbs, sometimes laboriously, sometimes with ease, brings it nearer to the realisation of certain ideas dimly conceived in bygone centuries—ideas which each successive civilisation has endeavoured to turn into realities.

Among these ideas of universal origin, these vague yet persistent aspirations, the hope of being able one day to soar in the air, vying with the grace of the swallow and the strength of the eagle, has always excited man's imagination. It was not until a much later epoch that these aspirations took concrete form ; and when, as a result of the patient researches of scientists and the sacrifice of pioneers' lives, the solution of aerial flight was discovered, men were possibly less astonished at the novelty of the conquest than enchanted by the realisation of one of their age-long dreams.

How great are the consequences, both as regards material things and in the nobler realm of ideas, with which each new discovery is fraught ! And since history, in view of the importance of the geographical and scientific discoveries at the end of the fifteenth century, selected this epoch in preference to any other as an ideal landmark for the separation of two ages, the historian of to-morrow may discover in the conquest of the air characteristics which will justify a further symbolical separation between two epochs.

However this may be, even if we confine ourselves to the facts covered by this survey, we cannot fail to recognise that the possibility of mechanical flight seems to mark a very definite division between two parts of a highly important chapter of law ; namely, that dealing with the regulation of international communications and transport.

International agreements regulating these communications have, of course, been in force for many years, and whenever a new discovery makes the establishment of closer intercourse possible, the various countries endeavour to form new international ties and to frame joint regulations enabling their nationals to reap the inestimable benefits of those discoveries. Nevertheless, in the case of posts or railways, telegraphs or telephones, although international co-operation is assuredly useful and very often necessary, the absence of one country does not prevent the others from attaining, more or less completely, certain common aims.

This is not the case with commercial air navigation which, since its earliest days, has been pre-eminently international in character. From the first, the various countries were disposed to grant each other liberal treatment in the matter of communications and transit and this has now become a moral duty which every civilised nation is proud to recognise.

In the meantime, how many traditional theories have been put to the test ! It is to the general interest that no country should hamper the expansion of international air navigation by unduly severe restrictions or excessive precautions : everyone agrees on this point. To what extent, however, is the recognition of this

duty compatible with the principle that each State has sovereign authority over anything affecting its territory ? To what extent does it detract from this principle ?

We should like to dwell for a moment on the influence which air navigation is bound to have on juridical conceptions of international co-operation. To take one of the branches in which this co-operation is perhaps most extensive, namely the postal service—by a definition which is very near the truth, the Postal Union is termed *universal*, and the Convention setting up this Union clearly states that " the countries between which the present Convention is concluded form, under the title of Universal Postal Union, a single *postal territory* for the reciprocal exchange of correspondence ". This principle does not, however, imply any restriction of the right of each country to give effect to engagements entered into by it in regard to the transport of mails within its own territory, by whatever regulations and means it considers most apropriate, provided they are strictly in conformity with those engagements.

This does not apply to air navigation, in regard to which each country, if it is sincerely desirous of helping to attain the aims which it recognises as common to other countries, must necessarily frame rules which are more or less in conformity with the regulations proposed by other countries ; it must bring its technical organisation, the marking-out of its territory, visual signals, ground marks, meteorological system—in short, the whole of its internal organisation—into line with theirs, so that it may meet universal needs. For this purpose, it is necessary to bear in mind not only the object in view but also the practical means of attaining that object.

The novelty of these relations is, moreover, clearly shown by the actual substance of the legal problems which arose as soon as all the possibilities of long-distance air navigation, *i.e.* over the frontiers of several countries which can be crossed by aircraft in a few hours, began to be foreseen. No such problems were encountered at the beginning of any other international form of communication, with the exception of wireless telegraphy.

Should the air be *free* ? Or, on the other hand, should each country have *full and absolute sovereignty* over the air space above its territory ? In the former case, can States be granted essential rights of protection, restricting this freedom which would otherwise be unlimited ? If, on the other hand, it is decided that the State has sovereignty over the air, can this sovereignty be so absolute as to make it legitimate for that State to prevent any foreign aircraft from flying over its territory ?

We have merely touched briefly on a few of the problems connected with air navigation-problems which are, moreover, universally known. A thorough examination of these problems, even from the purely historical point of view, would be out of place in this survey.

Our sole purpose in mentioning them was to indicate the point of departure, which in some cases is obscure and controversial, of the positive rules which we are about to examine.

GENERAL OUTLINE OF THE SURVEY.

A survey of the present position in regard to the principles governing international air traffic can only be based on a careful examination of the many Conventions regulating this question with a view to determining, firstly, the essential nature of each, and, secondly, to drawing attention to differences of form or substance.

This is the method adopted in this survey, the outline of which is as follows :

We shall first examine the principles laid down in the three collective Conventions relating to international air navigation, namely : the *Convention relating to the Regulation of Air Navigation*,dated Paris, October 13th, 1919, the *Ibero-American Convention relating to Air Navigation*, signed at Madrid on November 1st, 1926, and the *Pan-American Convention relating to Commercial Aviation*, signed at Havana on February 20th, 1928.

We shall then pass rapidly in review the numerous agreements relating to air navigation concluded separately by various countries.

We shall complete our survey by the examination of certain special questions : the special treatment of air traffic above the City of the Vatican ; Customs agreements concluded by certain countries for the purpose of facilitating international tourist traffic by air.

The concrete data which we shall give in the course of our survey will furnish us with material for the last chapter, in which we shall endeavour to summarise the present position of public law in regard to international air navigation, which is the purpose of our enquiry.

CONVENTION RELATING TO THE REGULATION OF AIR NAVIGATION, DATED PARIS, OCTOBER 13TH, 1919.

Origin of the Convention.

The Convention of October 13th, 1919, was first mooted at the Peace Conference, when the French Government suggested to the various Government delegations which had met together in Paris to draw up the Peace Treaties that they should jointly endeavour to frame a text for the purpose of ensuring a uniform legal regime for international air navigation.

The proposal was accepted, and by two resolutions, dated March 12th and 15th, 1919, the Supreme Council decided to set up a " Commission for Air Navigation " consisting of representatives of the following twelve Powers :

The United States
British Empire
France
Italy
Japan
Belgium
Brazil
Cuba
Greece
Portugal
Roumania
Kingdom of the Serbs, Croats and Slovenes.

The Commission for Air Navigation at once recognised that it would be expedient if the proposed regulations took the form of an *International Convention on Air Navigation;* it defined its future work by drawing up a list of principles and it set up three sub-committees (technical, legal and military), each of which was responsible for drawing up the part of the Convention with which it was specially concerned.

The text was examined by the Commission at a plenary meeting, was subsequently revised by the Committee of Jurists of the Peace Conference and finally adopted by the Supreme Council under the name of *Convention relating to the Regulation of Air Navigation.*

The Convention, which was opened for the signature of the representatives of the Allied and Associated Powers enumerated in its preamble on October 13th, 1919, was signed between that date and May 22nd, 1922, by twenty-nine countries mentioned below :

United States
Belgium
Bolivia
Brazil
Great Britain
Canada
Australia
Union of South Africa
New Zealand
India
China
Cuba
Czechoslovakia
Ecuador
France
Greece
Guatemala
Italy
Japan
Liberia
Nicaragua
Panama
Peru
Poland
Portugal
Roumania
Kingdom of the Serbs, Croats and Slovenes
Siam
Uruguay

The only Governments enumerated in the preamble of the Convention which failed to sign were those of Haïti, the Hedjaz and Honduras.

Entry into force of the Convention.

Between June 1st, 1922, by which date fourteen of the signatory States had deposited their instruments of ratification and October 19th, 1929, several other States ratified the Convention, to which other non-signatory States, such as the Irish Free State (as soon as it was constituted), Bulgaria, Denmark, the Netherlands and Sweden, have subsequently adhered. On the other hand, Bolivia denounced the Convention in 1924. At the present time (December 1929) the total number of States parties to the Convention is twenty-seven, as follows :

Belgium
Great Britain and Northern Ireland
Canada
Australia
Union of South Africa
New Zealand
Irish Free State
India
Bulgaria
Czechoslovakia
Chile
Denmark
France
Greece
Italy
Japan
Netherlands
Panama
Persia
Poland
Portugal
Roumania
Saar Territory
Siam
Sweden
Uruguay
Yugoslavia

Revision of the Convention.

The efforts of the authors of the Convention of October 13th, 1919, to make its provisions acceptable even to those States which took no part in its preparation are clearly shown by the official documents of the Air Navigation Commission of the Peace Conference. It is not surprising, however, that the text of the Convention which was drawn up at a time when no country had had any practical experience of the actual necessities of international air traffic, should have given rise to a certain amount of adverse criticism during the following years. It is not necessary to go fully into the nature of these criticisms—we need only say that all the States parties to the Convention have at all times displayed a readiness to consider any proposal for the amendment of the Paris Convention which might lead to an increase in the number of adhering States. Attempts in this direction were made on four different occasions:

(*a*) By a Protocol dated May 1st, 1920, followed by another dated October 27th, 1922, the object of both being to meet the objections which certain States might have to adhering to the Paris Convention, on account of the provisions of Article 5.

(*b*) By a Protocol dated June 30th, 1923, amending Article 34 of the Convention and granting equal voting rights to all States represented on the International Commission for Air Navigation.

(*c*) By a Protocol signed at Paris on June 15th, 1929, as the outcome of events which may be briefly recapitulated.

After the adoption of the Protocols mentioned under (*a*) and (*b*), no further criticism was *officially* formulated against the Paris Convention until October 1928, when Dr. Alfred Wegerdt, Ministerial Councillor of the German Reichsverkehrsministerium, published a remarkable article entitled " Germany and the Paris

Convention on Air Navigation of October 13th, 1929 ", containing definite proposals which were subsequently approved by the German Government.[1] One of these proposals was to the effect that the International Commission for Air Navigation should convene an extraordinary session, inviting all the Governments of States not parties to the Convention, for the joint examination of amendments to be made to the Convention with a view to facilitating the accession of all States to this agreement. The International Commission for Air Navigation agreed to this proposal and convened a universal conference in Paris in June 1929 ; the results, which are contained in the Protocol of June 15th, will be mentioned as occasion arises.

(*d*) Finally, by a more recent Protocol dated December 11th, 1929, granting a separate vote to each of the different parts of the British Empire.

Examination of the Principles of the Convention.

Since, from the chronological point of view, the Paris Convention constitutes the first of the international texts under examination, we think it advisable to study its principles in detail, as this will enable us to be more concise when we pass on to the examination of the other Conventions ; in many cases we shall only need to refer to the Paris Convention.

Our examination will be based on the text of the Convention as at present in force, but we shall not omit to mention the effect of amendments to various Articles introduced by the two Protocols of June 15th, 1929, and December 11th, 1929.

The chapters of the Convention proper lay down the principles summarised below :

Ad *Chapter* 1. — *General Principles.*

The four Articles of this chapter lay down the three fundamental principles on which the whole Convention is based, namely :

(a) *Sovereignty of each State over the air space above its territory* (Article 1) : It is explained that the territory of the State includes the territory of the mother country and colonies and also the adjacent territorial waters ;

(b) *Freedom of innocent passage* to the aircraft of a contracting State flying over the territory of another State (Article 2), provided that the conditions laid down in the Convention are observed : the regulations made by a contracting State as to the admission over its territory of the aircraft of the other contracting States shall be applied without distinction of nationality (consequently, this clause provides for complete equality of treatment) ;

(c) *Prohibition to fly over certain areas* (Article 3) : Each contracting State is entitled, for military reasons or in the interest of public safety, to prohibit the aircraft of the other contracting parties, under the penalties provided by its legislation and subject to no distinction being made in this respect between its private aircraft and those of the other contracting States, from flying over certain areas of its territory. The locality and extent of the prohibited areas must be published and notified beforehand to the other contracting States.

This article was supplemented by the Protocol of June 15th, 1929, which provides that, as an exceptional measure and in the interest of public safety, each contracting

[1] It should be noted that, prior to the German proposals, the question of the revision of the Paris Convention had been definitely raised by His Excellency M. Amedeo Giannini at the Fourth International Congress on Air Navigation (Rome, October 1927). M. Giannin's proposals are mentioned several times by M. Wegerdt in his article.

State may authorise flight over the prohibited areas by its national aircraft. The exceptional authorisations issued must be published and notified in the same way as information concerning the position and extent of the prohibited areas. This Protocol also stipulates that each contracting State has the right in exceptional circumstances in time of peace, and with immediate effect, temporarily to prohibit flight over its territory, on condition that such restriction or prohibition shall be applicable without distinction of nationality to the aircraft of all the other States. Such decisions must also be brought to the notice of the other contracting States.

Ad *Chapter II. — Nationality of Aircraft.*

(a) *Conditions governing the Nationality of Aircraft.* — Each aircraft possesses the nationality of the State on the register of which it is entered (Article 6) and cannot be validly registered in more than one State (Article 8). Aircraft cannot be entered on the register of one of the contracting States unless it belongs wholly to nationals of that State. Should the aircraft belong to a company, the latter cannot be registered as the owner unless it possesses the nationality of the State in which the aircraft is to be registered, unless the president or chairman of the company and at least two-thirds of the directors possess such nationality, and unless the company fulfils all other conditions which may be prescribed by the laws of the said State (Article 7). These are the provisions at present in force ; they were, however, radically modified by the Protocol of June 15th, 1929, which lays down the principle that " the registration of aircraft shall be made in accordance with the laws and special provisions of each contracting State ".

(b) *Notification of Registrations.* — Each contracting State must notify every month to the other States through Cina (Commission Internationale de Navigation Aérienne—International Commission for Air Navigation) copies of registrations and of cancellations of registration which have been entered on its official registers during the preceding month (Article 9).

(c) *The Marking of Aircraft.* — All aircraft engaged in international navigation must bear a " nationality mark " and " registration mark " as well as the name and address of the owner (Article 10). The provisions giving effect to this article are contained in Annex A to the Convention.

(d) *Effects of the Principle of Nationality as regards the Flight of Aircraft over the Territory of the various Contracting States.* — In principle no contracting State shall, except by a special and temporary authorisation, permit the flight above its territory of an aircraft which does not possess the nationality of another contracting State. This restriction does not hold good if the said State has concluded a special convention with the State in which the aircraft in question is registered, provided that the stipulations of that convention do not infringe the rights of the State parties to the General Convention and conform to the regulations laid down in the latter and its annexes. Each of the special conventions thus concluded must be forwarded to Cina, which will communicate it to all other States parties to the 1919 Convention.

These are the principles laid down in Article 5, which has proved to be one of the most controversial articles in the whole Convention. It was substantially modified by the Protocol of June 15th, 1929, which provides that each State is entitled to conclude special conventions with any other non-contracting State, provided that such conventions do not infringe the rights of States parties to the 1919 Convention ;

such special conventions, in so far as may be consistent with their objects, must not be contradictory to the general principles of the 1919 Convention. In its amended form, Article 5 will no longer be included in Chapter II of the Convention, but will be inserted as the last article of Chapter I — *General Principles*, which will be a better arrangement from the point of view of classification of subject-matter.

Ad *Chapter III. — Certificates of Airworthiness and Competency.*

(a) *Technical Documents for Aircraft.* — Every aircraft engaged in international air navigation must be provided with a certificate of airworthiness issued or rendered valid by the State whose nationality it possesses (Article 11). The conditions governing the issue of certificates of airworthiness are given in Annex B to the Convention, which is supplemented by special regulations drawn up by Cina.

(b) *Certificates of Competency for Members of the Operating Crew.* — The commanding officer, pilots, engineers and other members of the operating crew of every aircraft must be provided with certificates of competency and licences issued or rendered valid by the State whose nationality the aircraft possesses (Article 12). The conditions governing the issue of these certificates are specified in Annex E to the Convention.

(c) *Principle of the Recognition of the Above-mentioned Documents by any Contracting State.* — Certificates of airworthiness and competency and licences issued by the State whose nationality the aircraft possesses, in accordance with the regulations established by the Convention (Annexes B and E), shall be recognised as valid by the other States ; nevertheless each State has the right to refuse to recognise, for the purpose of flights above its own territory, certificates of competency and licences granted to one of its nationals by another contracting State (Article 13).

(d) *Wireless Communications.* — Article 14 of the Paris Convention establishes the principle that every aircraft used in public transport and capable of carrying ten or more persons shall be equipped with sending and receiving wireless apparatus ; the methods of employing such apparatus were subsequently determined by Cina, in accordance with the powers conferred upon it by this same article. Article 14 also stipulates that no wireless apparatus may be carried by aircraft without a special licence issued by the State whose nationality the aircraft possesses and that such apparatus may not be used except by members of the crew provided with a special licence for the purpose.

Ad *Chapter IV. — Admission to Air Navigation above Foreign Territory.*

(a) *Right of Transit and Obligation to Land.* — The stipulations of Article 2 are to some extent supplemented by Article 15, first paragraph, which provides that every aircraft of one of the contracting States has the right to cross the air space of another State without landing ; it must, however, follow the route fixed by the State over which the flight takes place. It will also be obliged to land if ordered to do so by means of the usual signals. As regards the obligation to land, the second paragraph of the same Article stipulates that every aircraft which passes from one State into another must, if the regulations of the latter State require it, land in one of the aerodromes fixed by the latter (Customs aerodromes), a list of which must be given to all the Contracting States by Cina.

(b) *Establishment of International Airways.* — As at present drafted, the last paragraph of Article 15 provides that " the establishment of international airways shall be subject to the consent of the States flown over ". There has been a great deal of discussion among the States adhering to the Convention of October 13th, 1919, as to the precise value of this clause, in regard to which there were considerable differences of opinion, mainly owing to the fact that this paragraph is expressed differently in the three official languages of the Convention : French, English and Italian. The French expression " voies de navigation aérienne " and the English term " airways " (which might mean " a route indicated by successive ground marks ") appears in the Italian text as " linee areree ", which can only mean one thing—*i.e.*, " air lines "—the operation of air traffic. After lengthy discussion the official interpretation of the paragraph in question given by Cina coincided with the Italian text. We would add that the question was definitely settled when the Protocol of June 15th, 1929, was drawn up ; the last paragraph of Article 15 was then amended as follows :

> " Every contracting State may make conditional on its prior authorisation the establishment of international airways and the creation and operation of regular international air navigation lines, with or without landing, on its territory. "

(c) *Flight of Aircraft without a Pilot.* — For obvious chronological reasons, the 1919 Convention, as originally drafted, did not include the question of the admission to a foreign territory of aircraft capable of being flown without a pilot. The question was, however, examined at the session of Cina in June 1929, when it was decided that " no aircraft of a contracting State capable of being flown without a pilot shall, except by special authorisation, fly without a pilot over the territory of another contracting State ". This paragraph was inserted as a new paragraph of Article 15 of the Convention in the Protocol of June 15th, 1929.

(d) *Carriage of Persons and Goods for Hire.* — Articles 16 and 17 of the Paris Convention deal with the reservations and restrictions which each contracting State may establish in favour of its national aircraft in connection with the carriage of persons and goods for hire between two points on its territory. Any decision in regard to restrictions of this kind must be notified to all the contracting States through Cina. Full reciprocity is provided for by the Convention, which also stipulates that each State may apply the same reservations and restrictions to any aircraft belonging to a State which has established restrictions of this kind, even if it grants more liberal treatment to other foreign aircraft.

(e) *Protection of Industrial Property.* — Article 18 contains important clauses concerning the safeguarding of industrial property, which is protected by the International Convention of March 20th, 1883. According to this Article " every aircraft passing through the territory of a contracting State, including landing and stoppages reasonably necessary for the purpose of such transit, shall be exempt from any seizure on the ground of infringement of patent, design or model, subject to the deposit of security, the amount of which, in default of amicable agreement, shall be fixed with the least possible delay by the competent authority of the place of seizure ". The practical nature of this stipulation should be noted ; its obvious purpose is to avoid any unnecessary interference with the international flight of aircraft, such as might possibly be attempted for reasons of commercial competition and on the pretext of claiming an industrial property right.

Ad *Chapter V. — Rules to be observed on Departure, when under Way, and on Landing.*

(a) *Documents which Aircraft are compelled to carry.* — Article 19 enumerates the documents which all aircraft engaged in international flight are compelled to carry. These are as follows :

A certificate of registration ;
A certificate of airworthiness ;
Certificates and licences of the commanding officer, pilots and crew ;
If it carries freight bills of lading and manifest ;
Log books ;
If equipped with wireless, the special licence prescribed by Article 14.

Further particulars in regard to the list given in Article 19 are to be found in various Annexes to the Convention dealing respectively with the certificate of registration (Annex A), the certificate of airworthiness (Annex B), log books (Annex C), certificates and licences (Annex E) and the Customs service (Annex H) ; Cina has also issued several special texts supplementing the regulations laid down in these Annexes. In short, Article 19 and its subsidiary texts regulate in a uniform manner for all contracting States the question of documents to be carried, which is not merely a formal matter, since it enables *inter alia* any aviator belonging to a contracting State to fly over the territory of any other State which he knows will recognise the validity of the documents carried by him and his aircraft.

Article 20 also deals with log books and stipulates that these books must be kept for two years after the last entry.

(b) *Right to visit Aircraft.* — Article 21 provides that the authorities of the country shall have, in all cases, the right to visit the aircraft upon its departure or landing and to verify all the documents with which it must be provided.

(c) *Principle of Equality of Treatment as regards Measures of Assistance and the Use of Certain Aerodromes.* — Article 22 lays down the important principle that aircraft of the contracting States shall be entitled to the same measures of assistance for landing, particularly in case of distress, as national aircraft. Moreover, Article 24 stipulates that every aerodrome in a contracting State which, upon payment of charges, is open to public use by its national aircraft, shall likewise be open to the aircraft of all the other contracting States. These two principles, which are very closely connected, regulate the delicate question of the treatment of aircraft in foreign territory on the basis of complete uniformity.

(d) *Salvage regulations.* — In accordance with Article 23, the principles of maritime law will apply to the salvage of aircraft wrecked at sea, in the absence of any agreement to the contrary. This provision, which is extremely elastic, shows the desire of the authors of the 1919 Convention to avoid framing, in a question so closely related to the principles of maritime law, regulations diverging from those principles— which might easily have been the case if an attempt had been made to draw up special rules of air law. Another, and still more important, consideration is that, by virtue of its general character, this clause makes it possible to adapt, as it were automatically, to the question of the salvage of aircraft at sea any improvement in the rules of maritime law which may be effected as a result of the efforts of all States interested

in maritime navigation. When Article 23 was drawn up, it could only refer to the Brussels Convention of September 23rd, 1910 (signed at London in 1914 and known as the " Titanic Convention ", which was ratified by a small number of States only). However, a new Convention for the safety of human life at sea has recently been signed in London (May 31st, 1929) ; this Convention was very carefully drawn up and is an improvement on the Brussels Convention. There is no doubt that when this Convention has been ratified and has come into force, the application of the stipulations of Article 23 of the Paris Air Convention will be based on the London Convention.

(e) *Obligation of the Contracting States as regards National Aircraft flying abroad.* — The last article of Chapter V under examination (Article 25) is of great importance from the point of view of international flight. Under that article, " each Contracting State undertakes to adopt measures to ensure that every aircraft flying above the limits of its territory, and that every aircraft, wherever it may be, carrying its nationality mark, shall comply with the regulations contained in Annex D ". Annex D to the Paris Convention constitutes a practically complete code of air navigation and contains detailed regulations concerning lights, signals, air navigation in general, ballast, etc. Consequently, in virtue of the engagements entered into by States under Article 25, compliance with these regulations on the part of all aircraft flying over the territory of any contracting State is fully ensured. The authors of the Paris Convention were particularly desirous of ensuring this standardisation of regulations since, in accordance with the last paragraph of Article 25, each State undertakes to ensure the prosecution and punishment of persons contravening these regulations : this special engagement exists alongside the engagements relating to the application in general of any clause of the Convention.

Ad *Chapter VI. — Prohibited Transport.*

This chapter, which includes Articles 26, 27 28 and 29, prohibits in the first place the carriage by aircraft of explosive, and of arms and munitions of war. It also provides that States may prohibit or regulate the carriage and use of photographic apparatus and any other objects, adding that, in this latter case, the restrictions must apply equally to national and foreign aircraft. These regulations, which are imposed for reasons of public safety, protection from espionage, etc., are quite comprehensible and need no comment.

Ad *Chapter VII. — State Aircraft.*

(a) *Definition of Aircraft—Limits of Applicability of the Convention.* — This chapter is a very important one, as a definite distinction is drawn between aircraft coming under the Convention and those to which it does not apply. Article 30 provides that the following are deemed to be State aircraft :

Military aircraft ;
Aircraft exclusively employed in State service, such as posts, Customs, police.

Every other aircraft is deemed to be private aircraft. The article adds that all State aircraft other than military, Customs and police aircraft shall be treated as private aircraft, and as such shall be subject to all the provisions of the Convention.

As can be seen, a very clear distinction is made : it is obvious, however, that the interpretation of this article (*i.e.*, the application of " all the provisions of the Convention " to any particular aircraft) depends on the meaning attributed to these words and especially to the words : *military* aircraft.

(b) *Military Aircraft.* — Article 31 states that :

" Every aircraft commanded by a person in military service detailed for the purpose shall be deemed to be a military aircraft. "

There has been a great deal of discussion as to the precise meaning of this article, in which the subjective factor (the person in charge) and not the objective factor (actual characteristics of the aircraft) determines whether an aircraft is a military aircraft. We have merely touched on this question with a view to indicating its importance.

Articles 32 and 33 which follow lay down the principles regulating the flight of military, Customs and police aircraft beyond the frontiers of their own country ; in principle this flight is not allowed without the special authorisation of the State flown over, and military aircraft enjoys, in the absence of a special stipulation, the privileges customarily accorded to foreign ships of war.

Ad *Chapter VIII. — International Commission for Air Navigation.*

This chapter, which consists solely of Article 34, deals with the organisation and duties of the International Commission for Air Navigation—frequently referred to by its initials " Cina " (Commission Internationale de Navigation Aérienne).

We have already had occasion to say something about the important part played by Cina in the revision of the Paris Convention. We regret that the necessity for preserving the balance between the various parts of our survey prevents us from giving a full description of this important organisation which, in accordance with Article 24 of the Covenant, is placed under the direction of the League of Nations. We should, however, like to draw attention to the difference between the ordinary *bureaux* of international associations, whose *administrative* and *executive* functions are well-known, and Cina, which, in addition to those *same* functions, has extensive *legislative, judicial* and *advisory* powers.

The functions of Cina are set forth in Article 34 of the Paris Convention. We will endeavour to classify them as follows :

(a) *Administrative functions.* — These duties may be summarised as follows :

To receive proposals from or to make proposals to any of the contracting States for the modification or amendment of the provisions of the Convention (Article 34 (*a*)) ;

To notify States of the changes adopted (ditto) ;

To carry out the duties imposed upon it by various articles of the Convention by collecting and publishing information of every kind concerning international air navigation, more especially that relating to wireless telegraphy, meteorology, maps, etc. (Article 34 (*b*), (*d*), (*e*) and (*f*)).

(b) *Legislative Powers.* — These powers, which are very extensive, distinguish Cina from the *bureaux* of other international associations, and also give rise to juridical relations for which there is no precedent in international law.

It should be noted, in the first place, that the provisions of the Convention of October 13th, 1919, fall into two separate groups : the first consists of the Articles of

the Convention proper, together with Annex H (Customs), while the second comprises the first seven Annexes to the Convention (A to G), which are technical regulations.

The powers of Cina to frame rules of law differ according to whether these rules relate to the first or second group of clauses.

As regards proposals to amend the provisions of the first group, Cina (Article 34, sixth paragraph) has the power to examine and discuss any modifications and to *propose* them for the acceptance of the contracting States if they have been approved by at least two-thirds of the total possible votes. Such modifications must be formally adopted by the contracting States before they become effective. As can be seen, Cina possesses in this matter powers similar to those of the revisory organs of other international Unions : it examines rules of law and embodies them in a Protocol, but these rules do not come into force until the Protocol has been ratified by the States concerned.

On the other hand, the powers of Cina as regards the second group of provisions are more extensive. Under Article 34, paragraph (*c*), any modification of those provisions may be made by Cina itself, when such modifications have been approved by the number of votes specified in that Article, and the *modification shall become effective from the time when it shall have been notified by Cina to all* the contracting States. The unique nature of the powers conferred on Cina is obvious : the Commission may, in fact, frame rules of law which become, as it were, automatically binding on the contracting States without the necessity for the latter to signify their accession by the usual procedure of ratification. The explanation of this unique system is to be found in the actual nature of the second group of provisions, which relate to technical regulations, amendments to which need to be examined and brought into force with great rapidity owing to the rapid development of air navigation. These are the reasons which justify this unusual procedure. It constitutes an important innovation from the juridical point of view, and shows an obvious desire to eliminate any obstacles io the fulfilment of the needs of international air navigation, the number of which is tncreasing almost daily by reason of its rapid expansion.

(c) *Judicial Powers.* — The judicial powers of Cina correspond to its legislative powers. In accordance with Article 37, it may settle any disagreement relating to technical regulations, *i.e.*, to the second group of provisions ; on the other hand, any dispute concerning the Convention proper, *i.e.*, the first group of provisions, must be referred to the Permanent Court of International Justice (the Protocol of June 15th, 1929, provides for settlement of such cases by arbitration if one of the States concerned in the dispute has not accepted the protocols relating to the Court of International Justice).

(d) *Advisory Powers.* — Finally, Cina has advisory powers conferred upon it by Section (*g*) of Article 34, under which the Commission is also required to give its opinion on questions which the States may submit for examination. Since Cina is placed under the direction of the League of Nations, its opinion may also be requested by the League. Such requests have already been made by the League on several occasions, as will be seen later.

Having summarised the important powers conferred by the Convention of October 13th, 1919, on the permanent organ set up under that Convention, we should like to say a few words as to the more or less predominant part played by the various States in the decisions of Cina. The regulations relating to the *number of votes* given to each

State in Cina have been substantially modified. Article 34 of the Convention originally assigned two votes to each of the five Great Powers (United States of America, the British Empire, France, Italy and Japan), and only one vote to each of the other Powers. In the Protocol of June 30th, 1923, a step in the direction of equal voting rights was taken, each Power being allowed one vote only ; it was stipulated, however, that the majority required for the adoption of resolutions should include at least three out of the five Great Powers mentioned above. This rule is at present in force ; absolute equality as between all States was, however, introduced into the Protocol of June 15th, 1929, which provides that each State shall have one vote and no votes shall have greater weight than others. This equality was made still more complete by the recent Protocol of December 11th, 1929, which, as already stated, confers a separate vote on each of the different parts of the British Empire.

We should like to add a word or two with regard to the financial organisation of Cina : the expenses of this organ are at present borne by the States in varying proportions, according to their voting rights ; however, this rule was modified by the Protocol of June 15th, 1929, which provides that all States shall have equal voting rights and that Cina shall itself have the right to determine the system of allocation of the Commission's expenses.

Space does not permit of a fuller examination of the nature and operation of this extremely important organ, but we hope that this brief outline of its work will serve to indicate the important part played by Cina in international co-operation for the development of air navigation and also the efforts made by the States participating in the Commission's work to avoid any cause of friction and to ensure equality of treatment for all States, so that they may achieve the object which they so greatly desire—namely, a universal air union.

Chapter IX. — Final Provisions.

(a) *Co-operation of States in regard to Air Navigation.* — Under Article 35 of the Convention, the contracting States undertake to co-operate as far as possible in international measures concerning the collection and dissemination of meteorological information (in accordance with the provisions of Annex G), the publication of standard aeronautical maps (in accordance with Annex F) and the use of wireless telegraphy in air navigation. Article 36, while recognising the importance of special agreements relative to Customs (Annex H to the Convention), accords to States the right to conclude special protocols in respect of Customs, air police, posts and any other matters of common interest. These two Articles merely confirm the possibility for all States parties to the Paris Convention to form closer reciprocal ties in the interest of the development of air navigation, provided that they conform to the general principles laid down in the Convention.

(b) *Settlement of Disputes relating to the Interpretation of the Convention.* — This matter is governed by Article 37. We have already referred to this Article in connection with the *judicial powers* of Cina and need not discuss it further.

(c) *Effect of a State of War on the Paris Convention.* — Article 38 provides that in case of war the provisions of the Convention shall not affect the freedom of action of the contracting States, either as belligerents or as neutrals. This is another principle which reveals the nature of the Paris Convention and shows that it is to apply in

time of peace alone : the authors had no desire to restrict the freedom of contracting States in the event of a conflict. The achievement of a sincere understanding between States which is so greatly desired, with a view to removing the risk of this contingency, has been left to other treaties and other international organisations : the Paris Convention regulates air navigation in peace time only and its limits are defined in Article 38.

(d) *Clauses relating to the Territorial Application of the Convention.* — These provisions are contained in Article 40, the first paragraph of which, in its present wording, states that the British Dominions and India are deemed to be States for the purposes of the Convention. However, this first paragraph was omitted from the Protocol of December 11th, 1929. The deletion is perfectly logical since, in the Protocol, a separate vote is granted to each part of the British Empire—which implies the recognition of each as a State. The second paragraph of Article 40 deals with the question of protectorates and territories administered by mandate in the name of the League of Nations, and provides that these territories and their nationals shall be assimilated to the territory and nationals of the protecting or mandatory States.

(e) *Conditions of Adhesion to the Convention.* — This question is governed by Articles 41 and 42 ; the former stipulates that States which did not take part in the war of 1914-1919 may adhere to the Convention by a notification addressed to the Government of the French Republic. Article 42 deals with the adhesion of States " which took part in the war of 1914-1919 but which are not signatories of the Convention "—*i.e.*, Germany and her allies. Adhesion was permitted *ipso facto* if the State concerned became a Member of the League of Nations ; otherwise this adhesion was subject to the consent of the States parties to the Convention. We merely mention this Article for reference purposes, as it was deleted by the Protocol of June 15th, 1929, in which the question of adhesion was settled by amending Article 41 as follows : " Any State shall be permitted to adhere to the present Convention. This adhesion shall be notified to the Government of the French delegation and by it to all the signatory or adhering States."

Ad *Annexes to the Paris Convention.*

We have mentioned these various Annexes in discussing the articles of the Convention and think it has been clearly shown that these Annexes form supplementary texts to the Convention. We shall therefore merely give their headings, so that the general scope of these *technical regulations* may be seen :

Annex A : The marking of aircraft and call signs ;
Annex B : Certificates of airworthiness ;
Annex C : Log books ;
Annex D : Rules as to light and signals : rules of the air ;
Annex E : Minimum qualifications necessary for obtaining certificates as pilots and navigators ;
Annex F : International aeronautical maps and ground markings ;
Annex G : Collection and dissemination of meteorological information ;
Annex H : Customs.

IBERO-AMERICAN CONVENTION RELATING TO AIR NAVIGATION.

Origin of the Convention.

The Ibero-American Convention relating to Air Navigation, signed at Madrid on November 1st, 1926, owes its origin to Spanish official initiative.

The Spanish Government did not take part in framing the Convention of October 13th, 1919, but shortly after the signature of that Convention it was present at a Conference which met at Copenhagen in December 1919, the participant States being Denmark, Finland, the Netherlands, Norway, Spain, Sweden and Switzerland. The object of this Conference was to examine very closely the Paris Convention and to formulate modifications which might enable the above countries to adhere to it. The observations of the Conference mainly related to Articles 5 and 34 of the Paris Convention which, as already stated, were subsequently amended by Cina by two Protocols dated October 27th, 1922, and June 30th, 1923, which met practically all the proposals of the Copenhagen Conference.

A second Conference of ex-neutral countries, having a similar object, met at Copenhagen in September 1922. Spain did not take part in that Conference ; on the other hand, she appeared to show her desire to ignore the Paris Convention by proposing the formation of a large new Air Union of all the Ibero-American countries. For this purpose she convened a Conference at Madrid, as the outcome of which the Ibero-American Convention, the principles of which we are about to examine, was signed by the representatives of the following twenty-one Powers :

Argentine
Bolivia
Brazil
Chili
Colombia
Costa Rica
Cuba
Dominican Republic
Ecuador
Guatemala
Honduras
Mexico
Nicaragua
Panama
Paraguay
Peru
Portugal
Salvador
Spain
Uruguay
Venezuela

If our information is correct, the Ibero-American Convention has, up to the present, been ratified by the following seven countries alone :

Argentine
Costa Rica
Dominican Republic
Mexico
Salvador
Paraguay
Spain

Consequently, in accordance with the last paragraph of Article 42, the Convention is at present in force for each of these seven Powers only as between it and the other States which have already deposited their ratifications.

Examination of the Principles of the Convention.

The general structure of the Ibero-American Convention is identical to that of the Convention of October 13th, 1919. It consists of forty-three Articles, divided into nine chapters bearing the same heading as the chapters of the Paris Convention. The Ibero-American Convention is supplemented by technical regulations : unlike the Paris Convention, however, there are only five sets of regulations, contained in Annexes corresponding to Annexes A to E of the 1919 Convention. Consequently, the Madrid Convention does not deal with international cartography, the collection of meteorological information and the Customs régime (Annexes F to H of the Paris Convention). Article 36, however, provides that provisions relative to Customs in connection with air navigation shall be the subject of a special agreement and shall be determined temporarily by the laws and regulations in force in each country.

The commendable desire of the authors of the Madrid Convention to make only such differences between their text and that of the Paris Convention as were considered strictly indispensable is obvious, and is clearly shown by certain stipulations such as Section VIII of Annex A, which provides that the nationality mark of the contracting States shall, as far as possible, be the same as the mark assigned to it in other international conventions.

The foregoing explanation will enable us to confine our attention to the stipulations of the Madrid Convention which differ in substance from the principles of the Paris Convention. The chief stipulations are :

Ad *Article* 5. — In accordance with this article, the contracting States are entirely free either to authorise or to prohibit the flight over their territory of aircraft possessing the nationality of a non-contracting State, The difference between this provision and the corresponding article of the Paris Convention is obvious, even if we base our comparison on the amended formula contained in the Protocol of June 15th, 1929. The Madrid Convention leaves each contracting State entirely free to establish air relations with any other non-contracting State. It is somewhat surprising that unrestricted freedom should be granted and that the Convention does not even provide that it is the duty of each contracting State to reserve, at all events, most-favoured-nation treatment for the aircraft of all other contracting States. On the other hand, Article 5 of the Paris Convention, even in its new drafting, provides that air relations between contracting and non-contracting States can only be established by the conclusion of special agreements, the stipulations of which must not infringe the rights of the other States adhering to the general Convention, and their objects must not be contradictory to the principles of that Convention. Accordingly, strict conformity must be maintained between the juridical relations established by the Paris Convention and the relations which may be established by each of the States adhering to that Convention with any other State—conformity as regards form by the conclusion of special agreements, and conformity as regards substance by the fact that these agreements must be based on the general Convention and not infringe the rights of the other adhering States. This matter is not dealt with in Article 5 of the Ibero-American Convention.

Ad *Article* 7. — The first two paragraphs of this article reproduce word for word the text of the Paris Convention (original drafting still in force) ; two new paragraphs are, however, added, enabling each State to lay down regulations for the registration of its aircraft. If any Ibero-American State finds any incompatibility between the

requirements laid down in the said article for allocating the nationality to an aircarft and its own legislation, it may incorporate the necessary reservation in an additional Protocol to the Convention. Any State making such a reservation shall be free to lay down regulations for the registration of its aircraft and flight above its territory. Article 7 also endeavours to reconcile this right with the rules laid down in the first two paragraphs, by adding that the State in question may in no case grant the advantages specified in the Convention to the other adhering States except in the case of aircraft which fulfil all the requirements expressly defined in the first two paragraphs of the article.

As can be seen, the treatment of this extremely delicate question in the Madrid Convention marked a considerable improvement over the original wording of Article 7 of the Paris Convention. This is no longer the case, however, now that this article has been amended by the Protocol of June 15th, 1929, under which, as stated above, each State is free to register its aircraft in accordance with its municipal law.

Ad *Article* 12. — The only difference between this article and the corresponding article of the Paris Convention is that it requires " *tout membre du personnel de bord* " of an aircraft to be provided with certificates of competency and licences, whereas the Paris Convention refers solely to the " *personnel de conduite* ". The difference does not appear to be a purely formal one ; the term " *personnel de conduite* " apparently means members of the operating crew of any aircraft, whereas the term " *personnel de bord* ", also includes members of the crew whose duties have nothing to do with the actual running of the aircraft, such as the wireless operator.

It should be noted, however, that Annex E of the Ibero-American Convention lays down the conditions for the issue of pilots' and navigators' certificates only, in accordance with Annex E of the Paris Convention, so that it is doubtful whether the formula " *personnel de bord* " should be interpreted as above, since, in that case, the Annex to which this article refers would be to some extent incomplete.

Ad *Article* 18. — A comparison of the text of this article with that of Article 18 of the Paris Convention shows that a slight addition has been made : it provides that aircraft to which this article applies shall be exempt from any seizure or sequestration (embargo). The addition was probably made with a view to adapting the stipulations of this article to the special form of seizure in force under the legislative system of certain countries which are to apply the Convention.

Ad *Article* 34. — Just as under Article 34 of the Paris Convention, the permanent organ of the Air Union set up by the 1919 Convention was instituted under the name of the International Commission for Air Navigation, under the corresponding article of the Ibero-American Convention an Ibero-American Commission for Air Navigation (Ciana) was constituted. As regards the constitution and operation of these two organs the following differences may be mentioned :

(*a*) The Convention does not place Ciana under the direction of the League of Nations ;

(*b*) Each contracting State has only one representative on Ciana and only one vote ; consequently this system differs from that at present in force in the case of Cina ; however, once the Protocol of June 15th, 1929, comes into operation, this difference between Cina and Ciana will be eliminated.

(*c*) The first meeting of Ciana will be held at Madrid and will be convened by the Spanish Government as soon as the majority of the contracting States have ratified the Convention.

(*d*) The expenses of organisation and operation of Ciana will be borne by the *State on whose territory it meets*. This clause is somewhat vague since, according to the third paragraph of Article 34, the Ciana will be free *to meet* in such places as it may deem convenient. While it is understandable that the expenses connected with the organisation and running of any particular session should be borne by the State in whose territory the meeting is held, it is not clear what system will be adopted for the allocation as between the contracting States of the overhead expenses of the offices, which must be kept open even in the intervals between the various sessions.

(*e*) As regards the system proposed for the amendment of the Convention, the differences between the powers of Ciana and those of Cina are purely formal : we do not think it necessary to mention them, and will merely state that these differences relate solely to the formulation of the rules referring to the majority required for the adoption of certain amendments.

Ad *Article* 36. — We have already touched on this article, which provides that questions relative to Customs shall be the subject of a special agreement and shall be determined temporarily by the laws and regulations in force in each country, The Paris Convention was supplemented from the outset by a special agreement of this kind which appears as Annex H : consequently, Article 36 of that Convention merely refers to this Annex.

Ad *Article* 37. — As we have seen, Article 37 of the Paris Convention recognises the competence of the Permanent Court of International Justice to settle any dispute relating to the interpretation of the Convention ; this procedure was confirmed by the Protocol of June 15th, 1929, which also provides for settlement by arbitration in cases where one of the States concerned has not accepted the protocols relating to the Court. On the other hand, the Ibero-American Convention contains no reference to the Permanent Court of International Justice but the Convention provides explicitly for arbitration as the normal procedure for the settlement of any disagreement relating to the interpretation of the Convention. Any dispute relating to the Annexes is to be settled by Ciana, whose powers in this connection are similar to those of Cina.

Ad *Article* 41. — As we have seen, Articles 41 and 42 of the Paris Convention in their original drafting adopted different criteria for the adhesion of various States to the Convention, according to the part played by each in the war of 1914-1919. No discrimination of this kind exists in Article 41 of the Ibero-American Convention and, needless to say, this Convention contains no stipulations corresponding to those of Article 42 of the Paris Convention, which was, moreover, deleted by the Protocol of June 15th, 1929. The former Convention simply provides that States which are not Ibero-American shall be permitted to adhere to the Madrid Convention.

Ad *Article* 43. — This article which, for obvious reasons, has no counterpart in the Paris Convention, stipulates that the signature of the Ibero-American Convention does not imply the cancellation of agreements concluded on aeronautical questions

in previous Conventions by the Ibero-American contracting States. This clause, which is of great political importance, clearly shows a desire on the part of the Governments which participated in the framing of the Madrid Convention to respect engagements undertaken by each as a result of the signature of the Paris Convention or other agreements. We would point out, however, that this article refers solely to the past and does not provide in any way for the future : in other words, it does not state whether a country after signing the Madrid Convention, may adhere to other collective air conventions or conclude other separate air agreements. It is true that Article 5 provides that the contracting States shall be entirely free either to authorise or prohibit the flight over their territory of aircraft possessing the nationality of a non-contracting State, but this article does not make it clear whether this freedom includes the signature of formal acts (stipulations of new conventions) or refers solely to the occasional admission of the aircraft in question.

Ad *Annexes*. — As regards the Annexes, we have already stated that the Ibero-American Convention reproduces practically word for word the first five Annexes of the Paris Convention. The differences between the two texts are too small to mention, with the exception of Section VIII of Annex A, regarding the registration marks of aircraft, to which we have already referred.

To complete our comparison of the two Conventions, we would add that all the powers conferred by the 1919 Convention on the French Government as regards the deposit of the instruments of ratification, the notification of denunciations and the convening of the Commission for the first time, etc., are conferred by the Ibero-American Convention on the Spanish Government.

PAN-AMERICAN CONVENTION RELATING TO COMMERCIAL AVIATION.

Origin of the Convention.

The Pan-American Convention relating to commercial aviation is the most recent of the three collective agreements regulating air traffic between a large number of States. It forms part of the important work of juridical co-operation undertaken by all the American countries in application of the principle that all the American Powers should endeavour to regulate certain questions in common, in accordance with purely continental interests.

As is known, in application of this principle, Pan-American Conferences are held periodically. At the fifth of these Conferences, which met at Santiago de Chile in 1923, the desirability of framing a draft collective convention relating to air navigation was recognised and a special technical commission, known as the Inter-American Commission for Commercial Aviation, was set up for the purpose. The findings of this Commission which were co-ordinated at a meeting held at Washington in 1927, were used as a basis by the Council of the Pan-American Union for the drafting of a Convention which was submitted to the Sixth Pan-American Confrence held at Havana from January 10th to February 20th, 1928. This draft, which was discussed at length by the Conference, was signed, after considerable amendments had been

made, on February 20th by the representatives of the twenty-one Powers mentioned below :

Argentine
Bolivia
Brazil
Chile
Colombia
Costa Rica
Cuba
Dominican Republic
Ecuador
Guatemala
Haiti
Honduras
Mexico
Nicaragua
Panama
Paraguay
Peru
Salvador
United States
Uruguay
Venezuela

If our information is correct, the Pan-American Convention has, up to the present, been ratified by the three following countries only : Mexico, Nicaragua and Panama.

In accordance with Article XXXIV, the Pan-American Convention is at present in operation only as between the three Powers mentioned above.

Examination of the Principles of the Convention.

As we have seen, the Ibero-American Convention relating to air navigation, both as regards its articles and annexes, is practically a word-for-word translation of the Convention of October 13th, 1919, and only diverges from that text in cases where substantial changes were necessary. This does not apply to the Pan-American Convention which, although it also is based on the Paris Convention, differs appreciably from the latter even in drafting. From this point of view, it should be noted that :

(*a*) The Pan-American Convention has only thirty-seven articles ;

(*b*) The arrangement of the subject-matter is different and the articles are not divided into chapters ;

(*c*) No technical regulations are attached to the Convention either in the form of annexes or in any other form.

The differences in substance between the Havana Convention and the two collective Conventions which preceded it are, however, still more marked, and the precise nature of these differences can only be made clear by an examination of the various Articles, which we will endeavour to make as short as possible.

Ad *Article I.* — This article recognises the sovereignty of each State over the air space above its territory ; the fundamental principle of the Havana Convention is thus the same as that of the two Conventions which preceded it. It should be noted, however, that, in referring to national territory, the Pan-American Convention does not mention colonies, so that the application of the principle in question appears to be limited to the home country.

Ad *Article II.* — In accordance with this article, which has no counterpart in the Paris and the Madrid Conventions, the Pan-American Convention applies exclusively to private aircraft, *i.e.*, any aircraft which is not deemed to be State aircraft in accordance with *Article III* which follows. The definition of State aircraft contained

in that article, is identical to that given in Article 30 of the Paris Convention, except as regards the formula : " military and naval aircraft " which replaces the general formula : " military aircraft ".

Ad *Article IV.* — This article, which deals with the right of innocent passage, is identical to Article 2 of the Paris Convention.

Ad *Article V.* — Under this article, each State has the right to prohibit, " for reasons which it deems convenient in the public interest ", flight over fixed zones of its territory. This article corresponds to Article 3 of the Paris Convention. Equality as between national and foreign aircraft, as regards this prohibition, is also provided for ; it is stated, however, that this equality applies only to aircraft " employed in the service of international commercial aviation ". This article also stipulates that each contracting State may prescribe the route to be followed over its territory by foreign aircraft, except in cases of *force majeure,* covered by Article XVIII.

Ad *Article VI.* — This article provides that every aircraft over a prohibited area shall be obliged to land in the nearest aerodrome " which is considered as an international airport by the subjacent State ". It should be noted that Article 4 of the Paris Convention merely stipulates that the aircraft shall land " at one of the nearest aerodromes of the State unlawfully flown over ".

Ad *Articles VII and VIII.* — These two articles deal with the nationality and registration of aircraft. The former provides that aircraft shall have the nationality of the State in which they are registered and cannot be validly registered in more than one State ; consequently, it conforms to the principles of the Paris Convention. Article VIII lays down the principle that the registration of aircraft shall be made in accordance with the laws and special provisions of each contracting State : it thus differs from the present wording of Article 7 of the Paris Convention. It should be borne in mind, however, that this latter article was amended by the Protocol of June 15th, 1929, in accordance with the principle laid down by the Pan-American Convention.

Ad *Article IX.* — After establishing the principle that every aircraft must carry a distinctive mark of its nationality, this article authorises the various contracting States to agree upon the nature of that mark. There is thus a considerable difference between the Havana Convention and the Paris Convention, Annex A of which regulates all the technical details concerning the question.

Ad *Article X.* — This article corresponds to Article 19 of the Paris Convention and specifies the certificates and documents to be carried by every aircraft engaged in international navigation. We would merely add that this article, the purpose of which is to ensure uniformity in these matters, is supplemented in the 1919 Convention by Annex C, which contains full details of the particulars to be given in the log-book.

Ad *Article XI.* — In virtue of this article, each contracting State must file with every other State party to the Convention and with the Pan-American Union, a copy of all registrations and cancellations of registrations of aircraft " engaged in international navigation as between the several Contracting States ". This clause appears to differ from Article 9 of the Paris Convention, which provides for the exchange of information in regard to all aircraft and not merely aircraft engaged in international navigation.

Ad *Article XII.* — This article stipulates that every aircraft engaged in international navigation must be provided with a certificate of airworthiness. This certificate issued by the competent authority of one of the contracting States is, in principle, recognised as valid by any other State. These clauses are very similar to the stipulations of Article 13 of the 1919 Convention ; however, the fifth paragraph of Article XII of the Havana Convention contains a new clause of considerable importance. In virtue of this paragraph, each State reserves the right " to refuse to recognise as valid the certificate of airworthiness of any foreign aircraft where inspection by a duly authorised commission of such State shows that the aircraft is not, at the time of inspection, reasonably airworthy in accordance with the normal requirements of the laws and regulations of such State concerning the public safety ". In such cases, the State concerned may refuse to permit further transit by the aircraft through its air space. As can be seen, the absolute value of any certificate of airworthiness issued by the competent authority of another State, as recognised by the Paris Convention, is in this case impaired by the fact that each State may subject any aircraft to technical inspection and may forbid further flight above its territory. It should be borne in mind, however, that, in virtue of the stipulations of Annex B and of the detailed technical regulations drawn up by Cina, States adhering to the 1919 Convention are required, when issuing certificates of airworthiness, to conform to uniform principles and rules. No regulations of this kind are in force as regards States adhering to the Havana Convention, so that the measures referred to above appear to be justified by that fact ; at the same time, they may cause considerable inconvenience to aircraft.

Ad *Articles XIII and XIV.* — These two articles govern the question of the certificates of competency with which every member of the crew of an aircraft engaged in international navigation between the several contracting States must be provided. In principle, the stipulations of these articles do not differ from the rules formulated by the Paris Convention in Articles 12 and 13 ; the absence of technical regulations in the Pan-American Convention has, however, compelled its authors to amplify certain paragraphs of these articles. For instance, Article XIII stipulates that each certificate must set forth that its owner not only fulfils the requirements of the State issuing the document, but has also passed a satisfactory examination with regard to the traffic rules existing in the other contracting States over which he desires to fly. A clause of this nature would obviously be superfluous in the Paris Convention, Annex D of which lays down uniform traffic regulations for all contracting States.

Ad *Article XV.* — The only point which needs to be mentioned in this article, which stipulates that the carriage by aircraft of explosives, arms and munitions of war is prohibited, is that it expressly prohibits the transport of these articles by aircraft which are " simply in transit ".

Ad *Article XVI.* — This article, which deals with the carriage and use of photographic apparatus by aircraft, corresponds exactly to Article 12 of the Paris Convention.

Ad *Article XVII.* — This article deals with the right of any contracting State to prohibit the transport and use of articles other than those mentioned in Articles XV and XVI. It corresponds, except as regards wording, to Articles 28 and 29 of the Paris Convention.

Ad *Articles XVIII and XIX.* — These two articles contain stipulations concerning the crossing of frontiers between the points previously indicated by the States concerned, the obligation to land only at Customs aerodromes, and the safeguarding

in general of the Customs interests of States. They have no exact counterpart in the articles of the Paris Convention but correspond to the general principles laid down in that Convention, and more especially in Annex H (Customs).

Ad *Article XX.* — On the other hand, this article corresponds to Article 21 of the Paris Convention, which deals with the right of the authorities of a contracting State to visit foreign aircraft, the documents with which it must be provided, etc.

Ad *Article XXI.* — This article deals with the treatment on a footing of complete reciprocity enjoyed by the aircraft of any contracting State, as regards the exercise of commercial operations in the territory of the other States. These clauses have no counterpart in the Paris and Madrid Conventions ; they emphasise the eminently commercial nature which the authors of the Havana Convention desired their text to have.

Ad *Article XXII.* — This article grants to each State the right to establish reservations and restrictions in favour of its own national aircraft in regard to commercial transportation between two points of its territory. It corresponds to Article 16 of the Paris Convention ; it should be noted, however, that the latter, in virtue of Article 17, provides that the aircraft of any State which establishes reservations may be subjected to the same reservations in any other contracting State, even though the latter State does not itself impose these reservations on other foreign aircraft ; this principle of reciprocal treatment is not provided for by the Pan-American Convention.

Ad *Article XXIII.* — In virtue of this article, the establishment and operation of aerodromes will be regulated by the legislation in force in each country, equality of treatment being observed. It is supplemented by *Article XXIV*, which provides for equality of treatment for all aircraft, whether national or foreign, as regards aerodrome charges. These articles reproduce in another form the principles laid down by Article 24 of the Paris Convention.

Ad *Article XXV.* — According to the stipulations of this article, the commander of an aircraft, so long as a contracting State shall not have established appropriate regulations, shall have rights and duties analogous to those of the captain of a merchant steamer, according to the respective laws of each State. This clause, which establishes a connection between maritime law and air law, has no counterpart in the Paris Convention ; it should be noted that, in this article, an attempt is made to regulate the question, which had hitherto remained outstanding, of the juridical status of an aircraft commander. Moreover, the clause in question introduces into a conventional text of public law principles which may have important consequences, even in the domain of private law, if the general formula " duties of the commander " is taken to mean " responsibility of the commander ".

Ad *Articles XXVI and XXVII.* — These two articles refer respectively to Articles 22 and 23 of the Paris Convention, since they refer to the salvage of aircraft lost at sea (which matter, in the absence of any agreement to the contrary, is regulated by the principles of maritime law) and the right of any aircraft in distress to receive " all possible aid ".

Ad *Article XXVIII.* — According to this article, which has no counterpart in the Paris Convention, reparations for damages caused to persons or property located in the subjacent territory shall be governed by the laws of each State. In this clause, the authors of the Havana Convention appear to recognise the impossibility of regulating by a uniform conventional text the delicate question of compensation to third parties. We should like to stress the importance of this conclusion, which ignores

the efforts made by various official or private international organisations for some years past to find a satisfactory solution of the problem, and to mention the important work which is being done in this connection by the Technical Committee of Legal Experts on International Air Questions. (T. C. L. E. I. A. Q.).

Ad *Article XXIX.* — This is an exact reproduction of the provisions of Article 38 of the Paris Convention. It provides that in case of war the stipulations of the Pan-American Convention shall not affect the freedom of action of the contracting States either as belligerents or as neutrals.

Ad *Article XXX.* — This article grants contracting States the right to conclude between themselves special agreements relating to international air navigation, provided that these agreements do not impair the rights of the other contracting States. It reproduces in a very different form the provisions of Article 36 of the Paris Convention. It should also be noted that the last paragraph of Article XXX provides that nothing in the Pan-American Convention shall affect the rights and obligations established by existing treaties. Consequently, the Havana Convention, like the Madrid Convention (see Article 43), is careful to state that signature of the Convention does not imply cancellation of obligations previously entered into through the adhesion to other air Conventions.

Ad *Article XXXI.* — Under this article, the States parties to the Pan-American Convention undertake to co-operate in inter-American measures concerning the collection and distribution of meteorological information, the publication of uniform aeronautical charts, the use of wireless telegraphy, and the establishment of the necessary wireless stations. These clauses are based on Article 35 of the Paris Convention ; the latter, however, contains regulations governing this delicate and important work. Annex G to the Convention lays down the principles governing the operation of meteorological services and Annex F sets forth rules for the making of international aeronautical maps ; the Convention also provides for the setting-up of a permanent organ—Cina—which seems to us to be indispensable for the collection and distribution of technical information. No provisions of this kind exist in the Havana Convention, and it is highly probable, therefore, that many practical difficulties will be encountered in regard to the co-operation contemplated in Article XXXI.

Ad *Article XXXII.* — All States parties to the Pan-American Convention must procure as far as possible uniformity of laws and regulations governing aerial navigation. This principle is laid down in Article XXXII, which has no counterpart in the Paris Convention. The Pan-American Union will co-operate with the Governments of the contracting States in order to attain the desired uniformity of legislation. This article also provides that each of the contracting States shall exchange with the other States copies of its air traffic rules and " requirements as to competency for members of the operating crew and the requirements for airworthiness of aircraft intended to engage in international commerce ". It should be noted that the necessity for all these exchanges, which obviously involve a great deal of work, is due to the summary nature of the Havana Convention : this work would not have been required if that Convention had been supplemented by technical regulations containing uniform provisions regarding the competency of the members of the crew, or if it had entrusted to a

central organ similar to Cina and Ciana the task of framing uniform regulations for the issue of certificates of airworthiness for aircraft and any other regulations relating to technical questions of general interest.

Ad *Articles XXXIII, XXXIV, XXXV.* — These articles contain formal clauses concerning the deposit of ratifications of the Convention, its entry into force and possible accessions. In this respect it should be noted that any State may adhere to the Havana Convention simply by giving notice to the Cuban Government. It may be concluded that the Convention, although it has been drawn up in the special interests of American countries, is open to the accession of States of any other continent. This universal tendency is shared by the Havana Convention with the Madrid and Paris Conventions —in the latter case in the form assumed by that Convention as a result of the amendments introduced by the Protocol of June 15th, 1929, to Article 41.

Ad *Article XXXVI.* — The settlement of disagreements relating to the interpretation and execution of the Pan-American Convention is to be submitted to arbitration, as specified in Article XXXVI. In this respect the Havana Convention is similar to the Madrid Convention ; consequently it differs considerably from the Paris Convention, which recognises the competence of the Permanent Court of International Justice and only provides for arbitration in exceptional cases, where States have not accepted the Protocols relating to the Court.

Ad *Article XXXVII.* — This final article refers to the denunciation of a Convention by any contracting State. It is based on Article 43 of the Paris Convention and Article 42 of the Madrid Convention, except as regards the period after which the denunciation shall take effect, which is six months instead of one year.

SEPARATE AGREEMENTS CONCLUDED BETWEEN VARIOUS COUNTRIES.

Various countries which have acceded to one or other of the collective Conventions examined above and also others which have not adhered to any of the said Conventions have concluded separate agreements of varying origin and scope relating to air navigation.

In some cases the agreements are of a *general character* and regulate the general juridical relations in regard to air navigation between the two contracting countries in the same way as the collective Conventions of Paris, Madrid and Havana regulate those relations as between the adhering States.

In other cases the separate agreements relate to *special questions* and are supplementary to the collective Conventions or separate general agreements already concluded by the States concerned.

These two classes of agreements must therefore be discussed separately.

Separate Agreements of a General Character.

The number of these agreements is comparatively large and we therefore give in Annex B a table showing the relations between various countries on this matter. A list of these agreements is given below :

List of Separate Agreements of a General Character at present in force.

1. GREAT BRITAIN-SWITZERLAND : Provisional Convention relating to Air Navigation	November 6th, 1919
2. FRANCE-SWITZERLAND : Convention relating to Air Navigation.	December 9th, 1919
3. GERMANY-SWITZERLAND : Provisional Convention regulating the Aerial Circulation between Germany and Switzerland.	September 14th, 1920
4. GREAT BRITAIN-NORWAY : Provisional agreement relating to Air Navigation. (Supplemented by an additional agreement dated February 22nd, 1923.) (See No. 10.)	July 15th, 1921
5. DENMARK-NORWAY : Convention relating to Air Navigation.	July 27th, 1921
6. GERMANY-DENMARK : Agreement relating to Air Navigation.	April 25th, 1922
7. THE ARGENTINE-URUGUAY : Convention relating to Air Navigation.	May 18th, 1922
8. BELGIUM-SWITZERLAND : Provisional Convention concerning Air Navigation.	June 13th, 1922
9. GERMANY-THE NETHERLANDS : Provisional Convention regulating Air Navigation between Germany and the Netherlands. (See No. 28.)	July 24th, 1922
10. GREAT BRITAIN-NORWAY : Agreement supplementing the Provisional Agreement relating to Air Navigation dated July 15th 1921. (See No. 4.)	February 22nd, 1923
11. SWEDEN-NORWAY : Convention relating to Air Navigation.	May 26th, 1923
12. AUSTRIA-HUNGARY : Convention relating to Air Navigation.	August 29th, 1924
13. NORWAY-THE NETHERLANDS : Provisional Convention relating to Air Navigation	January 8th, 1925
14. THE NETHERLANDS-SWITZERLAND : Provisional Convention regulating Aerial Navigation.	May 18th, 1925
15. GERMANY-AUSTRIA : Treaty concerning Aerial Navigation.	May 19th, 1925
16. GERMANY-SWEDEN : Provisional Convention relating to Air Navigation	May 29th, 1925
17. FRANCE-GERMANY : Convention relating to Air Navigation.	May 22nd, 1926
18. BELGIUM-GERMANY : Convention relating to Air Navigation.	May 29th, 1926

19. GERMANY-CZECHOSLOVAKIA : Agreement concerning Air Navigation.	January 22nd, 1927
20. AUSTRIA-CZECHOSLOVAKIA : Treaty relating to Air Navigation.	February 15th, 1927
21. ITALY-GERMANY : Convention relating to Aerial Navigation.	May 20th, 1927
22. GREAT BRITAIN-GERMANY : Agreement relating to Air Navigation.	June 29th, 1927
23. ITALY-SPAIN : General Convention relating to Air Navigation.	August 15th, 1927
24. GERMANY-SPAIN : General Convention relating to Air Navigation.	December 9th, 1927
25. FRANCE-SPAIN : Convention regarding Air Navigation.	March 22nd, 1928
26. ITALY-AUSTRIA : Convention relating to Air Navigation.	May 11th, 1928
27. SWITZERLAND-SAAR TERRITORY : Provisional Convention regulating Air Navigation between Switzerland and the Saar Territory.	August 15th, 1928
28. GERMANY-THE NETHERLANDS : Additional Protocol to the Provisional Convention dated August 24th 1922. (See No. 9.)	August 17th, 1928
29. GERMANY-NORWAY : Convention relating to Air Navigation.	January 23rd, 1929
30. GERMANY-SAAR TERRITORY : Convention relating to Air Navigation.	April 30th, 1929
31. GERMANY-POLAND : Convention relating to Air Navigation.	August 28th, 1929
32. CANADA-UNITED STATES OF AMERICA : Agreement regulating International Air Navigation.	October 22nd, 1929

The foregoing list consists only of agreements which are *in force*. It should be noted, however, that other similar agreements were concluded :

(*a*) Between States both of which subsequently became parties to the Paris Convention ;

(*b*) Between States parties to the Paris Convention and States which, on the date of the Agreement, had not yet acceded to that Convention.

For obvious reasons, these agreements expired as soon as both the contracting States became parties to the Convention of October 13th. 1919. This was the case with the agreements concluded between Sweden and Denmark and between Denmark and the Netherlands and with various agreements concluded by Belgium, Great Britain, France and Poland with Denmark, Sweden, etc.

A list of these agreements is given below for reference purposes, and because this list supplements that of the agreements in force and shows the interest taken by the various countries in regulating international air traffic in general.

List of Separate Agreements of a General Character which have now expired.

1. Great Britain-Denmark :	December 20th, 1920
2. Great Britain-Sweden.	February 16th, 1921
3. The Netherlands-Belgium.	July 8th, 1922
4. Sweden-Denmark.	November 7th, 1922
5. Belgium-Denmark.	June 28th, 1923
6. France-The Netherlands.	July 2nd, 1923
7. Great Britain-The Netherlands.	July 11th, 1923
8. Denmark-Poland.	December 16th, 1924
9. Poland-Sweden.	November 4th, 1925
10. Poland-The Netherlands.	November 4th, 1925
11. Sweden-The Netherlands.	November 21st, 1925
12. Denmark-The Netherlands.	July 23rd, 1926

To mention only agreements now in force, we would point out that :

The form of these agreements differs from each other in some cases to a very considerable extent ; some contain detailed regulations and are supplemented by technical annexes similar to those of the Paris Convention of October 13th, 1919 (see *inter alia* the Convention between Sweden and Norway, dated May 26th, 1927, which contains forty-two articles and annexes). The majority of these texts are, however, comparatively short, since they merely lay down the fundamental principles of air traffic between the two contracting States.

On the other hand, all the agreements mentioned above are very much alike in substance, and a detailed examination of each is therefore unnecessary.

We need only point out that the common substance of these separate agreements is to be found in the main principles formulated in the Paris Convention of October 13th, 1919, and subsequently recognised by the two other collective Conventions of Madrid and Havana.

All these agreements (frequently termed *provisional* agreements or *provisional* conventions) recognise the sovereignty of each State over the air space above its territory, and in some cases this recognition is explicitly formulated. Each of these agreements also lays down the principle that its provisions apply solely to private aircraft, the clauses being practically the same as those in the Paris Convention even as regards the reservation concerning the special regulations to be applied to State aircraft, and in particular to military aircraft.

The principle of the freedom of innocent passage in peace time is also laid down in the majority of these agreements, subject to the right of each State to establish prohibited areas (the locality and extent of which are sometimes indicated in the actual text of the agreement) ; to fix special routes for the crossing of its frontiers or for other purposes ; to reserve inland commercial transport for national aircraft etc.

The following principles are likewise recognised by these agreements :

Every aircraft must have a nationality, that is to say, it must be entered on the register of the country to which it belongs ;

Every aircraft must be provided with a technical document certifying that it is airworthy (navigation permit, certificate of airworthiness, etc.) and also with a log book ;

Every member of the crew of an aircraft must be in possession of documents proving his identity and competency to undertake his duties ;

No aircraft must carry wireless apparatus without special authorisation ;

Every aircraft used for commercial purposes must carry a list of passengers' names and documents required by the Customs in regard to the transport of goods ;

The authorities of one contracting State are entitled to visit aircraft belonging to the other State ;

The principle of equality of treatment for national aircraft and aircraft belonging to the other contracting party as regards the operation of aerodromes open to public use and measures of assistance and salvage ;

Both contracting States must communicate to each other periodically full particulars concerning the regulation of air navigation in general (laws regulations, decrees) or particular operations (customs, aerodromes, prohibited areas, etc.).

On the whole, the separate agreements concluded by the various countries for the regulation of their mutual air relations in general, are obviously based on common principles, which rarely deviate from the fundamental principles laid down by the important collective Conventions, and only in regard to questions which are of slight importance from the point of view of substance.

Separate Agreements concerning Special Questions.

In addition to separate agreements of a general nature concluded between various countries and imposing similar regulations on each of the two countries to those imposed by the collective Conventions on the adhering States, other separate agreements have been concluded dealing with special questions, such as :

The establishment and operation of regular air lines ;

The transport of mails by air ;

Customs service.

The difference between these special agreements and the separate agreements of a general nature which we have just examined, should first be noted. The latter can only be concluded by countries one of which at least is not a party to the general collective Conventions. On the other hand, separate special agreements are frequently concluded between States parties to the Convention of October 13th, 1919 (they can also be concluded by any State adhering to the Ibero-American or Pan-American Convention, although we are not aware that any such agreements have actually been concluded). As we have already seen, Article 36 of the Paris Convention provides for the conclusion of agreements of this kind and the last paragraph of Article 15 of that Convention stipulates that direct agreements shall be reached between States with regard to the establishment of regular air lines.

The table given in Annex C shows the relations existing between the various countries in regard to these special agreements, of which a list is also given below :

List of Separate Agreements relating to Special Questions.

1. GREAT BRITAIN-BELGIUM : September 23rd, 1920
   Agreement concerning the transport of mails by aeroplane, concluded between the postal administration of the United Kingdom of Great Britain and Northern Ireland and the postal administration of the Kingdom of Belgium.
2. GREAT BRITAIN-FRANCE : October 10th, 1921
   Agreement concerning the transport of mails by air between France and Great Britain.
3. POLAND-AUSTRIA : May 5th, 1925
   Agreement concerning the establishment and operation of airways between Vienna and Cracow.
4. BELGIUM-GREAT BRITAIN-FRANCE-THE NETHERLANDS : September 24th, 1925
   Agreement relating to the organisation of direction-finding services for aircraft.
5. POLAND CZECHOSLOVAKIA : April 15th, 1926
   Agreement relating to the establishment and operation of regular airways.
6. BELGIUM-GREAT BRITAIN-FRANCE : May 5th, 1926
   Customs agreement relating to air navigation concluded between the British, Belgium and French Governments.
7. GERMANY-CZECHOSLOVAKIA : January 22nd, 1927
   (*a*) Convention between the Ministry of Communications of the German Reich and the Ministry of Public Works of the Czechoslovak Republic, concerning the establishment and operation of regular airways.
   (*b*) Agreement concerning the establishment and operation of regular airways between Germany and Czechoslovakia.
8. AUSTRIA-CZECHOSLOVAKIA : February 15th, 1927
   Treaty between the Czechoslovak Republic and the Austrian Republic, relating to the establishment and operation of regular airways.
9. ITALY-SPAIN : September 9th, 1927
   Convention relating to a regular air service between Genoa and Barcelona. (N.B. — This Convention was superseded by another dated October 3rd, 1928.)
10. PERSIA-UNION OF SOVIET SOCIALIST REPUBLICS : November 23rd, 1927
    Protocol relating to air mails, concluded between the Persian Government and the Government of the Union of Soviet Socialist Republics.

11. Union of Soviet Socialist Republics-Afghanistan : November 28th, 1927

Agreement concerning the air transport service between Kabul and Tachent.

12. Italy-Germany : May 7th, 1928

(*a*) Protocol relating to the establishment and operation of regular airways between Italy and Germany ;

(*b*) Agreement between the Italian Air Ministry and the German Ministry for Communications concerning the establishment and operation of regular airways.

13. Italy-Austria : May 11th, 1928

Agreement between the Italian Air Ministry and the Austrian Federal Ministry of Commerce and Communications, relating to the establishment and operation of regular airways.

14. Italy-Spain : October 3rd, 1928

Convention between Italy and Spain relating to the regular air service between those two countries.

15. Italy-France : March 10th, 1929

(*a*) Convention relating to the establishment of airways ;

(*b*) Protocol relating to the methods of application of the said Convention.

The above list shows that a large number of countries which acceded to the Convention of October 13th, 1919, have availed themselves of the right accorded them by that Convention to conclude subsidiary agreements concerning mails (Great Britain-Belgium ; Great Britain-France), Customs (Belgium-Great Britain-France) and more especially concerning the operation of regular airways (Italy-France ; Poland-Austria ; Poland-Czechoslovakia). Other similar agreements have been concluded between States parties to this Convention and Powers which have not adhered to it, but which had already concluded with those States separate general agreements (Italy-Spain ; Italy-Germany ; Italy-Austria ; Czechoslovakia-Germany ; Czechoslovakia-Austria). Lastly, special agreements have been concluded between States which, if we are rightly informed, have not concluded any general agreement with each other (Union of Siovet Socialist Republics-Afghanistan ; Union of Soviet Socialist Republics-Persia).

As regards the substance of these special agreements, we would point out that :

(*a*) So far as agreements concluded between two (or in exceptional cases three or four) States parties to the Convention of October 13th, 1919, are concerned, complete uniformity exists between the clauses of those agreements and the stipulations of that Convention and its annexes. In some cases it is provided that the agreements in question will be denounced *ipso facto* should either of the two contracting parties denounce the Convention (see Article 2 of the Italo-French Convention relating to the establishment of airways, dated March 10th, 1929). These separate agreements

merely serve to emphasise the spirit of co-operation which causes States already bound by the general Convention to establish closer ties, with a view to contributing by their joint efforts, to the development of international air navigation.

(*b*) These remarks also apply to the special agreements between States which have acceded and States which have not acceded to the Convention of October 13th, 1919. All these agreements, from the point of view of substance, conform to the rules laid down in that Convention and its annexes, and also to the definite stipulations contained in Article 5 of the Convention (present drafting), which are binding on all States which have acceded to it.

(*c*) The agreements concluded between States which have not acceded to the Paris Convention have, of course, no formal connection with it. It should be noted, however, that these agreements are extremely simple : they merely lay down special rules and do not deviate in any way from the principles of the 1919 Convention. They merely prove the desire on the part of the contracting States to co-operate with each other for the development of air services in which they are both interested.

SPECIAL REGIME GOVERNING THE CIRCULATION OF AIRCRAFT IN FORCE IN THE TERRITORY OF THE VATICAN CITY.

We must say a few words regarding the special juridical regime governing the circulation of aircraft above the Vatican City. We wish to do so, first on account of the unique nature of this regime, and secondly in view of the importance of this question for any State which is desirous of establishing even occasional air relations with the Vatican State.

We would add in passing that, although the present condition of the territory of that State and the lack of appropriate installations make the landing or departure of aircraft impossible, the possibility of laying out on that territory a ground suitable for a limited number of aircraft has been examined by technicians.

The juridical regime in question is established by the treaty known as the Lateran Treaty, which was signed at Rome on February 11th, 1929, between the Holy See and Italy. According to the last paragraph of Article 6 of this historic document,

> ". . . agreements will be made between the Holy See and the Italian Government for the circulation in the latter's territory of the vehicles and aircraft of the Vatican City."

The second paragraph of Article 7 of that Treaty states that :

> " In conformity with the regulations of international law, aircraft of any kind are prohibited from flying over the territory of the Vatican. "

Consequently, the first of these clauses provides that aircraft of the Vatican State may circulate in Italian territory, the regime applicable to such aircraft to be determined later by agreement. On the other hand, Article 7 formally prohibits the circulation of Italian aircraft above the Vatican State. In accordance with this article, the whole territory of that State is to be regarded by Italian aircraft as a single prohibited area.

The unique nature of the juridical relations thus established consists in the adoption of a principle excluding all reciprocity of treatment for aircraft of the two

contracting parties. For the time being, of course, this principle merely concerns the two States parties to the Lateran Treaty ; nevertheless, while we need not concern ourselves with the political grounds on which this regime was based, we considered it advisable to mention it, because it differs fundamentally from the principles underlying all other collective or separate air agreements which have so far been concluded.

SPECIAL TREATMENT FOR AIRCRAFT ENSURING COMMUNICATIONS AFFECTING THE WORKING OF THE LEAGUE OF NATIONS.

The question of measures to facilitate any kind of communications of importance to the League of Nations, particularly at times of emergency, has for some years been the subject of careful investigation by the Council, which, in 1926, requested the Advisory and Technical Committee for Communications and Transit to draw up a report on the subject. This report naturally took into consideration the important part that air navigation might play in such measures ; accordingly, by a resolution dated December 8th, 1926, the Council requested the Advisory and Technical Committee " to keep in touch with all the administrations and organisations concerned, in order to facilitate the application of the measures named in its report ".

The international organisation concerned with air navigation being the Cina, which is placed under the authority of the League of Nations in accordance with Article 24 of the Covenant, the Advisory and Technical Committee requested the Cina to investigate " . . . in what manner aircraft effecting transport of importance to the League of Nations at times of emergency might be identified ".

As a result of this request, the Cina, at its twelfth session (London, April 1927), adopted a resolution regarding the identification of national aircraft affecting the above-mentioned transport ; it also decided to study the question of aircraft used by the League of Nations and not registered in any State. With regard to such aircraft, the thirteenth session of the Cina (Rome, October 1927) decided that " . . . should the League of Nations desire to use aircraft not registered in any country, it should request that special marks be reserved for this purpose both by the Cina and by the States parties to the Washington Radiotelegraph Convention ". The marks borne by aircraft are, in point of fact, connected with their radiotelegraphic call signals.

The identification of aircraft, however, does not solve all the questions relating to the use which the League of Nations might make of aeroplanes, particularly at times of emergency ; another question appears to be of even greater importance, namely, the *facilities* granted to such aircraft. In cases of serious emergency, measures restricting air navigation will, it may be anticipated, be taken by the States concerned, and such measures may extend to the total prohibition of flying over the territory of these States. This would endanger the freedom of transit of aircraft set apart for the use of the League of Nations (just at the moment when it would be the most useful), unless special conditions were provided for ensuring their transit.

This question was referred to the Cina, and the latter, at its thirteenth session (Rome, October 1927), expressed the view that " . . . the best procedure for ensuring to the aircraft of the League of Nations the possibility of flying freely, even at times of emergency, over the territory of States parties to the Convention of October 13th, 1919, consists in inserting provisions to that effect in the said Convention ". The Cina accordingly declared its readiness, as soon as the League

of Nations should express the desire, to undertake the investigation of this question and the study of new provisions which, if necessary, should be inserted in the 1919 Convention.

This desire having been expressed, the Cina undertook the examination, which it concluded during its seventeenth session (December 1929), and drew up a " draft text to be inserted in the Convention on Aerial Navigation of October 13th, 1919".

The draft was communicated to the League of Nations, and underwent a first examination by the Advisory and Technical Committee for Communications and Transit at its fourteenth session (Geneva, March 1930; see document C.168.M.77.1930.VIII). The Committee did not examine in detail the proposals submitted by the Cina, as these were to be studied by the Committee on Arbitration and Security. It thought, however, that the attention of the latter should be drawn to the fact that the Cina, which was set up by the Convention of October 13th, 1919, very naturally drafted its proposals in the form of amendments to the said Convention. In the view of the Committee, if this were the only procedure contemplated, it " . . . would offer the serious inconvenience of discriminating between States which were and States which were not parties to the 1919 Convention. It would also delay the application of its provisions and the opening of the necessary negotiations between the Secretary-General of the League and the Governments until the suggested amendments to the 1919 Convention have been put into force." The Committee was therefore of opinion " . . . that it would save time and be more satisfactory if the Assembly adopted a resolution laying down the general rules to be applied by Members of the League, with due regard to their obligations, defining the aircraft to be used for air communications of importance to the working of the League, and enunciating the principles on which negotiations could be opened immediately between the Secretary-General of the League and the Governments ". Under these circumstances, it thought it should assist the Committee on Arbitration and Security by redrafting on the above lines the proposals of the Cina, while, however, making two observations of great importance, namely :

> " . . . that the draft resolution of the Assembly must . . . be consistent both with the provisions of the 1919 Convention and with those of Conventions in force between States parties to the 1919 Convention and States not parties to that Convention.
>
> " . . . that the adoption by the Assembly of such a draft resolution would not prevent States from subsequently codifying the provisions adopted to facilitate air transport of importance to the League, by inserting the necessary provisions in international Conventions dealing with air transport questions. "

The Committee on Arbitration and Security, at its fourth session (Geneva, April-May 1930; see document A.11.1930.VII, pages 23 and 24) agreed with the view of the Advisory and Technical Committee for Communications and Transit and decided to propose the following draft resolution to the Assembly :

> Draft Resolution Concerning the Regime applicable to Aircraft.
>
> " The Assembly :
>
> " Recalling that the Members of the League of Nations are under the obligation to facilitate by all means in their power the working of the League ;
>
> " Considering that the use of air transport may be necessary in times of emergency to enable the League to take rapid action to safeguard the peace :

" Adopts the following resolution :

" 1. It is necessary that the Members of the League, in order to discharge this obligation, should grant to aircraft used for air communications of importance for the working of the League all facilities for navigation and passage to enable them to discharge their missions. Such aircraft should enjoy all the rights granted by existing international Conventions to Government aircraft other than military, Customs or police aircraft, and should at no time be subject to any exceptional and temporary restrictions that might be imposed on air navigation.

" 2. The conditions on which the various Governments will grant the facilities mentioned in the previous paragraph shall be laid down in advance by each of the Governments concerned after consulting the Secretary-General of the League. In particular, the rules and routes to be normally followed by aircraft and the procedure contemplated for notifying the Secretary-General without delay of any changes in such rules and routes should be fixed in advance.

" 3. Aircraft used for communications of importance to the working of the League shall enjoy all facilities in regard both to supervision and to the routes to be followed.

" 4. Aircraft used for communications of importance to the working of the League within the meaning of the present resolution are aircraft permanently or temporarily engaged in conveying League correspondence, League officials or persons entrusted by the League with a special mission, or in conveying delegations accredited to the League or their correspondence.

" 5. The Secretary-General shall keep a list of the aircraft referred to in the foregoing article ; he shall communicate this list to all the States Members of the League of Nations, with any modifications which may occur in this list.

" In urgent cases these communications would be telegraphed to the States concerned.

" 6. All detailed regulations regarding conditions of registration, communication of entries and cancellation of entries, identification marks on aircraft showing that they are on the service of the League, certificates and licences for the crew and other documents generally laid down by international Conventions, shall be laid down by the Council of the League of Nations after consulting the competent bodies. The same shall apply, in cases in which the Council recognises this to be necessary, in regard to all provisions relating to aircraft assigned to the exclusive service of the League and not registered in any State.

" 7. Should aircraft used for communications of importance to the working of the League be required to fly over a State, the Secretary-General of the League will give that State due notice by suitable means of the identification marks of the aircraft, of the route to be taken and of the composition of the crew, and, whenever possible, will communicate in advance the names of the persons on board—the crew and the passengers to be provided with documents certifying their status and mission.

" 8. In the event of the aircraft mentioned above being in difficulties, the States whose territory is crossed will assist the crew and persons on board, if possible, to complete the journey by air, and, in any case, to carry out their mission as quickly as possible.

" 9. Each State shall retain the right to prohibit the whole or part of its territory being crossed by aircraft registered in another State or manned by a crew of foreign nationality, when such prohibition appears necessary for reasons of national safety. In such cases, the State in question should do everything to ensure the transfer of the passengers as quickly as possible to an aerodrome or frontier point and the continuation of air transport under conditions to be determined by the negotiations referred to below.

" 10. With a view to the application of the foregoing provisions, the Secretary-General of the League of Nations will immediately undertake the negotiations which may be necessary with the Governments of the States Members of the League, and will report to the next Assembly on the steps taken to ensure the execution of this resolution.

" 11. The present resolution should not be regarded as in any way prejudging the question of the advisability of the League of Nations having aircraft of its own at its disposal."

Such at the present moment (July 1930) is the position of this question, the great importance of which is self-evident—relating, as it does, to the substantial part that air navigation is called upon to play in the immediate starting of the League's mechanism for the application of the system provided for in the Covenant.

CUSTOMS FACILITIES FOR TOURING AIRCRAFT: SYSTEM OF THE " CARNET DES PASSAGES EN DOUANE ".

For the purpose of completing our survey of international agreements to promote air traffic, we should like to say a few words about the special system proposed by the International Aeronautic Federation to facilitate the movement of *touring* aircraft from one country to another.

This is a Customs regime similar to that in force for motor-cars, which make use of a document known as a triptych. A similar document, known as a *carnet des passages en douane*, has been adopted for air traffic, and touring aircraft possessing this document may be temporarily imported into any State adhering to the *carnet* system, duty free. By agreements concluded with the Customs administrations, the National Aero Clubs have undertaken to pay the duties and charges on aircraft which are not re-exported within the period of validity of the *carnet*, which is fixed at one year.

The *carnet des passages en douane* has so far been accepted by the following countries :

Belgium
Czechoslovakia
France
Germany
Great Britain
Italy
Japan
Netherlands
Roumania
Spain
Switzerland

It is to be hoped that this extremely practical system will become more general, since it encourages the movement of touring aircraft and thus contributes to the expansion of air navigation in general.

CONCLUSION.

The foregoing survey may possibly appear too detailed and in some respects superfluous. It is true that certain principles mentioned have no direct bearing on the subject of our enquiry, which, although it deals with air navigation in general, is mainly concerned with the rights which it at present enjoys : freedom of flight and passage and the right to undertake commercial operations. Nevertheless, the only way to make a complete survey of the principles with which we are concerned was to examine in detail the conventional texts governing the matter, since the resemblances and divergencies between these texts enable us to understand those principles as a whole.

Moreover, this survey cannot be regarded as unnecessary, since it has enabled us to conclude that the principles governing international air traffic are set forth so clearly that they can be summarised in a few lines. This summary will conclude our survey.

Sovereignty.

The principle of the sovereignty of each State over the air space above its territory is universally admitted, in some cases explicitly by a formal declaration, in others implicitly. This is a fundamental principle which cuts short any discussion and theoretical dispute and, in fact, constitutes the point of departure of any rule.

Freedom of Innocent Passage.

The principle of sovereignty in no wise excludes the possibility of the freedom of peaceful, innocent passage, which is provided for in all the texts examined. This freedom is naturally subject to compliance with any regulations issued by the State flown over for the purpose of safeguarding its essential interests and to respect for any reservations formulated by that State in regard to any other activities. The guarantees and reservations usually provided for may be summarised as follows :

Guarantees :

As regards existing air regulations, three classes of guarantee are generally required by States before they allow foreign aircraft to fly over their territory :

(*a*) *Guarantees relating to material :* Every aircraft must possess a nationality and distinctive marks proving that it belongs to such and such a country, and enabling it to be identified ; it must be provided with a technical document testifying to its airworthiness and with all the instruments and installations necessary for its safe flight ;

(*b*) *Guarantees relating to personnel :* Every member of the crew of an aircraft must possess a document proving his competence to carry out the duties entrusted to him : aircraft engaged in important services must have certain specialists on board (navigator, wireless operator, etc.) ;

(*c*) *Guarantees relating to air traffic :* Every aircraft must respect the regulations of the State flown over. As we have seen in some of the Conventions examined, complete uniformity has been obtained by the joint adoption of regulations on this matter.

Reservations :

In addition to the guarantees required by States for the purpose of ensuring that their material interests shall not be jeopardised by foreign aircraft, reservations are made in some cases for similar purposes. These reservations may be classified in three groups :

(*a*) *Reservations concerning the safeguarding of military interests :* Determination of " prohibited areas " ; compulsory routes to be followed by foreign aircraft, more especially in crossing frontiers ; regulation or prohibition of the taking of photographs from the air ;

(*b*) *Reservations concerning the protection of public safety :* Prohibition to carry arms, munitions and any other injurious objects ;

(*c*) *Reservations concerning the protection of purely commercial interests :* The principle that no commercial aircraft may fly over the territory of a State without its permission ; protection of national trade by prohibiting foreign aircraft to carry persons and goods for hire in its territory.

Discrimination between State and Private Aircraft.

This principle can be recognised by the fact that the liberal treatment accorded by the Conventions to the private aircraft of a foreign State does not apply to aircraft belonging to the Government of that State. Even as regards the latter, however, a distinction is generally made. State aircraft not actually employed on Government service (posts, Customs, police) are assimilated to private aircraft and, as such, enjoy the facilities granted to the latter. Special treatment is provided in all the Conventions for military aircraft whose admission to the territory of a foreign State is usually subject to the authorisation of that State and to special treatment.

Equality of Treatment of Aircraft.

This principle may be examined from two different aspects. In the first place, we can take the equality of treatment accorded by each State to all aircraft of any other State with which it has concluded air Conventions. This applied to the Paris Convention (Articles 2, 15, 24, etc.) and to the corresponding clauses of the other Conventions examined. The second aspect of the question concerns the equality of treatment accorded by a State to its own and to foreign aircraft in respect of certain facilities granted to air navigation : the right of landing in its aerodromes, the right to measures of assistance, etc.

Freedom of Action of States in War Time.

Nearly all the Conventions, the purpose of which is to regulate international relations in regard to commercial aviation, are careful to state that the accession of States to other Conventions does not affect the rights and duties of those States in time of war, whether as belligerents or neutrals.

Reciprocal Treatment.

Mention must also be made of the important principle which is clearly established in all Conventions dealing specifically with air navigation, of complete reciprocity of treatment enjoyed by the aircraft of the contracting States, and, in general, by air activities which give rise to mutual relations between States.

Concrete Explanation of Aerial Co-operation.

Finally, another important principle emerges from the texts examined—namely, that international co-operation in regard to aviation is not confined to the conclusion of treaties and the conscientious application of their provisions, but is being extended in a concrete form, thanks to the constant efforts of certain organs, the importance of which cannot escape the jurist, and to which we wish to refer before concluding our survey.

The table attached (Annex A) shows in a succinct form the large number of countries interested in air navigation which have already acceded to Conventions ; it also shows the relation between each of those countries and the various conventional texts.

A careful examination of this document and of the two supplementary tables (Annexes B and C) will show that a large number of countries, already bound by collective or separate general agreements, have subsequently formed closer ties and have given effect, by means of special agreements, to all the practical possibilities afforded by the general Conventions.

But that is not all. This profitable co-operation has taken other forms at the instigation of the common organs. In the case of States parties to the Paris Convention, Cina, which is under the direction of the League of Nations, has through its powerful organisation and untiring efforts made this additional co-operation possible. In the case of States parties to the Madrid and Havana Conventions, Ciana and the Pan-American Union will be able to fulfil the same task in future, unless events—which seem to be moving in that direction—bring about a unification of effort, which is greatly to be desired.

The same applies to States which have so far held aloof from collective treaties and have preferred to conclude separate agreements : such States are tending to establish permanent and close co-operation with each other in view of the necessity for exchanging legislative texts, technical and practical information, etc.

Is it not legitimate to recognise in this close co-operation—notwithstanding the number of centres which organise it—the beginnings of a universal air union ?

Rome, January 8th, 1930 (revised on July 20th, 1930).

Salvatore Cacopardo.

ANNEX A.

TABLE SHOWING STATES PARTIES TO COLLECTIVE CONVENTIONS AND SEPARATE AGREEMENTS.

Country	Convention of October 13th, 1919			Ibero-American Convention		Pan-American Convention		Separate Agreements	
	States which took part in its elaboration	Signatory States	States which ratified or have subsequently adhered to it	Signatory States	States which have ratified it	Signatory States	States which have ratified it	General (See Annex B)	Special (see Annex C)
1. Afghanistan....	—	—	—	—	—	—	—	—	yes
2. Germany	—	—	—	—	—	—	—	yes	yes
3. America (United States).....	yes	yes	—	—	—	yes	—	yes	—
4. The Argentine .	—	—	—	yes	yes	yes	—	yes	—
5. Austria	—	—	—	—	—	—	—	yes	yes
6. Belgium	yes	yes	yes	—	—	—	—	yes	yes
7. Bolivia.....	yes	yes	[1]	yes	—	yes	—	—	—
8. Brazil.....	yes	yes	—	yes	—	yes	—	—	—
9. British Empire : Great Britain and Northern Ireland	yes	yes	yes	—	—	—	—	yes	yes
10. Canada.....	yes	yes	yes	—	—	—	—	yes	—
11. Australia	yes	yes	yes	—	—	—	—	—	—
12. Union of South Africa	yes	yes	yes	—	—	—	—	—	—
13. New Zealand...	yes	yes	yes	—	—	—	—	—	—
14. Irish Free State	—	—	yes	—	—	—	—	—	—
15. India.....	yes	yes	yes	—	—	—	—	—	—
16. Bulgaria	—	—	yes	—	—	—	—	—	—
17. Chile.....	—	—	yes	yes	—	yes	—	—	—
18. China	yes	yes	—	—	—	—	—	—	—
19. Colombia	—	—	—	yes	—	yes	—	—	—
20. Costa Rica.....	—	—	—	yes	yes	yes	—	—	—
21. Cuba	yes	yes	—	yes	—	yes	—	—	—
22. Denmark	—	—	yes	—	—	—	—	yes	—
23. Dominican Republic	—	—	—	yes	yes	yes	—	—	—
24. Ecuador.....	yes	yes	—	yes	—	yes	—	—	—
25. Spain.....	—	—	—	yes	yes	—	—	yes	yes
26. France.....	yes	yes	yes	—	—	—	—	yes	yes
27. Greece.....	yes	yes	yes	—	—	—	—	—	—
28. Guatemala	yes	yes	—	yes	—	yes	—	—	—
29. Haiti.....	yes	—	—	—	—	yes	—	—	—
30. Hejaz.....	yes	—	—	—	—	—	—	—	—
31. Honduras	yes	—	—	yes	—	yes	—	—	—
32. Hungary	—	—	—	—	—	—	—	yes	—
33. Italy.....	yes	yes	yes	—	—	—	—	yes	yes
34. Japan	yes	yes	yes	—	—	—	—	—	—
35. Liberia.....	yes	yes	—	—	—	—	—	—	—
36. Mexico	—	—	—	yes	yes	yes	yes	—	—
37. Nicaragua.....	yes	yes	—	yes	—	yes	yes	—	—

[1] The Convention which was ratified by Bolivia in 1922 was subsequently denounced by her in 1924.

Country	Convention of October 13th, 1919			Ibero-American Convention		Pan-American Convention		Separate Agreements	
	States which took part in its elaboration	Signatory States	States which ratified or have subsequently adhered to it	Signatory States	States which have ratified it	Signatory States	States which have ratified it	General (see Annex B)	Special (see Annex C)
38. Norway	—	—	—	—	—	—	—	yes	—
39. Panama	yes	yes	yes	yes	—	yes	yes	—	—
40. Paraguay	—	—	—	yes	yes	yes	—	—	—
41. The Netherlands	—	—	yes	—	—	—	—	yes	yes
42. Peru	yes	yes	—	yes	—	yes	—	—	—
43. Persia	—	—	yes	—	—	—	—	—	yes
44. Poland	yes	yes	yes	—	—	—	—	yes	yes
45. Portugal	yes	yes	yes	yes	—	—	—	—	—
46. Roumania	yes	yes	yes	—	—	—	—	—	—
47. Salvador	—	—	—	yes	yes	yes	—	—	—
48. Siam	yes	yes	yes	—	—	—	—	—	—
49. Sweden	—	—	yes	—	—	—	—	yes	—
50. Switzerland	—	—	—	—	—	—	—	yes	—
51. Czechoslovakia	yes	yes	yes	—	—	—	—	yes	yes
52. Saar Territory	—	—	yes	—	—	—	—	yes	—
53. Union of Soviet Socialist Republics	—	—	—	—	—	—	—	—	yes
54. Uruguay	yes	yes	yes	yes	—	yes	—	yes	—
55. Venezuela	—	—	—	yes	—	yes	—	—	—
56. Yugoslavia	yes	yes	yes	—	—	—	—	—	—

ANNEX B.

LIST OF SEPARATE AGREEMENTS OF A GENERAL CHARACTER CONCLUDED BETWEEN THE VARIOUS COUNTRIES.

I. Germany :

1. Austria . . . . . May 19th, 1925.
2. Belgium . . . . . May 29th, 1926.
3. Denmark . . . . . April 25th, 1922.
4. Spain. . . . . December 9th, 1927.
5. France. . . . . May 22nd, 1926.
6. Great Britain . . . . . June 29th, 1927.
7. Italy. . . . . May 20th, 1927.
8. Norway . . . . . January 23rd, 1929.
9. The Netherlands . . . . . (*a*) July 24th, 1922.
   (*b*) August 17th, 1928.
10. Poland. . . . . August 28th, 1929.
11. Sweden . . . . . May 29th, 1925.
12. Switzerland . . . . . September 14th, 1920.
13. Czechoslovakia . . . . . January 22nd, 1927.
14. Saar Territory. . . . . April 30th, 1929.

II. America (United States of) :	
15. Canada	October 22nd, 1929.
III. Argentine :	
16. Uruguay	November 18th, 1922.
IV. Austria :	
Germany	May 19th, 1925 (see No. 1).
17. Hungary	August 29th, 1924.
18. Italy	May 11th, 1928.
19. Czechoslovakia	February 15th, 1927.
V. Belgium :	
Germany	May 29th, 1926 (see No. 2).
20. Switzerland	June 13th, 1922.
VI. Canada :	
America (United States of) . .	October 22nd, 1929 (see No. 15).
VII. Denmark :	
Germany	April 25th, 1922 (see No. 3).
21. Norway	July 27th, 1921.
VIII. Spain :	
Germany	December 9th, 1927 (see No. 4).
22. France	March 22nd, 1928.
23. Italy	August 15th, 1927.
IX. France :	
Germany	May 22nd, 1926 (see No. 5).
Spain	March 22nd, 1928 (see No. 22).
24. Switzerland	December 9th, 1919.
X. Great Britain :	
Germany	June 29th, 1927 (see No. 6).
25. Norway	(*a*) July 15th, 1921 ; (*b*) February 22nd, 1923.
26. Switzerland	November 6th, 1919.
XI. Hungary :	
Austria	August 29th, 1924 (see No. 17).
XII. Italy :	
Germany	May 20th, 1927 (see No. 7).
Austria	May 11th, 1928 (see No. 18).
Spain	August 15th, 1927 (see No. 23).
XIII. Norway :	
Germany	January 23rd, 1929 (see No. 8).
Denmark	July 27th, 1921 (see No. 21).
Great Britain	(*a*) July 15th, 1921 ; (*b*) February 22nd, 1923 (see No. 25).
27. Netherlands	January 8th, 1925.
28. Sweden	May 26th, 1923.

XIV. Netherlands :		
	Germany	(*a*) July 24th, 1922 ; (*b*) August 17th, 1928 (see No. 9).
	Norway	January 8th, 1925 (see No. 27).
29.	Switzerland	May 18th, 1925.
XV. Poland :		
	Germany	August 28th, 1929 (see No. 10).
XVI. Sweden :		
	Germany	May 29th, 1925 (see No. 11).
	Norway	May 26th, 1923 (see No. 28).
XVII. Switzerland :		
	Germany	September 14th, 1920 (see No. 12).
	Belgium	June 13th, 1922 (see No. 20).
	France.	December 9th, 1919 (see No. 24).
	Great Britain	November 6th, 1919 (see No. 26).
	Netherlands	May 18th, 1925 (see No. 29).
30.	Saar Territory.	August 15th, 1928.
XVIII. Czechoslovakia :		
	Germany	January 22nd, 1927 (see No. 13).
	Austria	February 15th, 1927 (see No. 19).
XIX. Saar Territory :		
	Germany	April 30th, 1929 (see No. 14).
	Switzerland	August 15th, 1928 (see No. 30).
XX. Uruguay :		
	Argentine	November 18th, 1922 (see No. 16).

ANNEX C.

LIST OF SEPARATE AGREEMENTS RELATING TO SPECIAL QUESTIONS CONCLUDED BETWEEN THE VARIOUS COUNTRIES.

I. Afghanistan :		
1.	Union of Soviet Socialist Republics	November 28th, 1927 (Airways).
II. Germany :		
2.	Italy	May 7th, 1928 (Airways).
3.	Czechoslovakia . . .	January 22nd, 1927 (Airways).
III. Austria :		
4.	Italy	May 11th, 1928 (Airways).
5.	Poland	May 5th, 1925 (Airways).
6.	Czechoslovakia . . .	February 15th, 1927 (Airways).
IV. Belgium :		
7.	France and Great Britain	May 5th, 1926 (Customs).
8.	France-Great Britain-Netherlands . . .	September 24th, 1925 (Direction finding).
9.	Great Britain.	September 23rd, 1920 (Mails).

V. Spain :	
10. Italy	September 9th, 1927 (Airways) (superseded by the following) :
11. Italy	October 3rd, 1928 (Airways).
VI. France :	
Belgium and Great Britain	May 5th, 1925 (Customs) (see No. 7).
Belgium-Great Britain-Netherlands . . .	September 24th, 1925 (Direction-finding) (see No. 8).
12. Great Britain. . . .	October 10th, 1921 (Mails).
13. Italy	March 10th, 1929 (Airways).
VII. Great Britain :	
Belgium	September 23rd, 1920 (Mails) (see No. 8).
Belgium-France-Netherlands . . .	September 24th, 1925 (Direction-finding) (see No. 8).
Belgium and France .	May 5th, 1926 (Customs) (see No. 7).
France	October 10th, 1921 (Mails) (see No. 12).
VIII. Italy :	
Germany	May 7th, 1928 (Airways) (see No. 2).
Austria	May 11th, 1928 (Airways) (see No. 4).
Spain	September 9th, 1927 (Airways) (see No. 10).
Spain	October 3rd, 1928 (Airways) (see No. 11).
France	March 10th, 1929 (Airways) (see No. 13).
IX. Netherlands :	
Belgium-France-Great Britain	September 24th, 1925 (Direction-finding) (see No. 8).
X. Persia :	
14. Union of Soviet Socialist Republics	November 23rd, 1927 (Mails).
XI. Poland :	
Austria	May 5th, 1925 (Airways) (see No. 5).
15. Czechoslovakia . . .	April 15th, 1926 (Airways).
XII. Czechoslovakia :	
Germany	January 22nd, 1927 (Airways) (see No. 3).
Austria	February 15th, 1927 (Airways) (see No. 6).
Poland	April 15th, 1926 (Airways) (see No. 15).
XIII. Union of Soviet Socialist Republics :	
Afghanistan.	November 28th, 1927 (Airways) (see No. 1).
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