LEAGUE OF NATIONS

Conference for the Reduction and Limitation of Armaments.

AIR COMMISSION.

REPORT TO THE GENERAL COMMISSION

Called for by that Commission's Resolution dated April 22nd, 1932

(Document Conf. D./C.G.28 (2)).

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The questions put to the Air Commission by the General Commission's resolution of April 22nd, 1932, were the following:

What are the air armaments:

(a) Whose character is the most specifically offensive;
(b) Which are the most efficacious against national defence;
(c) Which are the most threatening to civilians?

Although it was made clear in the discussions in the Air Commission that the offensiveness of the air armaments, their efficacy against national defence, and the threat that they represent to civilians vary considerably on account of the wide differences in the geographical position of different countries, the location of their vital centres, and the state of their anti-aircraft defences, and that any qualitative question in connection with air armaments is closely bound up with quantitative considerations, the Commission found it possible to set down certain general conclusions, which form Part I of this report. The Commission also undertook a technical study of the efficacy and the use of air armaments. The results of this study form Part II of the present report. Part III contains several comments in regard to Parts I and II, and Part IV contains statements by various delegations, with an introduction.

PART I.

These conclusions are as follows:

I (a) All air armaments can be used to some extent for offensive purposes, without prejudice to the question of their defensive uses.

If used in time of peace for a sudden and unprovoked attack, air armaments assume a particularly offensive character. In effect, before the State victim of the aggression can take the defensive measures demanded by the situation, or before the League of Nations or States not involved in the conflict could undertake preventive or mediatory action, the aggressor State might in certain cases be able rapidly to obtain military or psychological results, such as would render difficult either the cessation of hostilities or the re-establishment of peace.

(b) Civil aircraft, to the extent that they might be incorporated into the armed forces of a State, could in varying degrees subserve military ends.
(c) Independently of the offensive character which air armaments may derive from their use, their capacity for offensive action depends on certain of their constructional characteristics.

(d) The possibilities of offensive action of aeroplanes carried by aircraft-carriers or warships equipped with landing-platforms (or landing-decks) must be regarded as being increased by the mobility of the vessels which carry them.

(e) The capacity for offensive action of air armaments resulting from such constructional characteristics should first be considered from the point of view of the efficacy of such armaments against national defence, and secondly from the point of view of the threat offered thereby to the civilian population.

Efficacy against National Defence.

II (a) The aircraft forming a part of the air armaments of a country which may be regarded as most efficacious against national defence are those which are capable of the most effective direct action by the dropping or launching of means of warfare of any kind.

(b) The efficacy against national defence of an aircraft forming part of such armaments, and considered individually, depends upon its useful load and its capability of arriving at its objective.

(c) The efficacy against national defence of means of warfare of every kind launched from the air depends upon the material effect which they are capable of producing.

Threat to Civil Population.

III (a) The aircraft forming part of the air armaments of a country which can be regarded as the most threatening to the civil population are those which are capable of the most effective direct action by the dropping or launching of means of warfare of any kind; this efficacy depends primarily upon the nature of the means of warfare employed and the manner in which they are employed.

(b) The degree of threat to the civil population represented by an aircraft forming part of those armaments, and considered individually, is in proportion to its useful load and its capability of arriving at its objective.

(c) The means of warfare, intended to be dropped from the air, which are the most threatening to the civil population are those which, considered individually, produce the most extended action, the greatest moral or material effect; that is to say, those which are the most capable of killing, wounding and immobilising the inhabitants of centres of civil population or of demoralising them, so far as concerns immediate consequences, and so far as concerns future consequences, of impairing the vitality of human beings. Among these means the Commission specially mentions poisonous gases, bacteria and incendiary and explosive appliances.

IV. The useful load of aircraft and their capability of arriving at their objective are determined by a large number of variable factors. Where useful load is concerned, the Air Commission has noted among these variable factors, for purposes of examination, the unladen weight, the horse-power and the wing area for aeroplanes, the volume and the horse-power for dirigibles.1

PART II.

The offensive character of air armaments cannot be determined arbitrarily and must depend on the examination of the conditions they must fulfil in order to be effective against whatever objectives may be assigned to them, and on the defence requirements which they meet.

Moreover, the General Commission will not be in a position to take decisions relating to the qualitative limitation of air armaments until the technical factors which are indispensable to enable it to form a reasoned opinion have been brought to its notice.

The Air Commission accordingly submits the following considerations which seem to it to meet the intentions of the General Commission. It would, however, emphasise that the figures given in Section III below are purely for purposes of indication; they are not absolute, and in no way bind the delegations in the matter of any proposals for qualitative limitation which they may submit elsewhere.

I. General Considerations.

I. While the efficacy of air armaments against the different objectives which may be assigned to them depends on the vulnerability of those objectives and the useful load which the aircraft

1 For the result of this examination see page 6.

2 By "useful load" is meant all that an aircraft can carry in addition to its "unladen weight", as defined in Annex I of this report.
can carry, on the other hand, the radius of action needed for such direct intervention and for scouting operations, particularly at sea, and communications with and between overseas territories depends essentially on the geographical situation and the special conditions of each country.

In particular, the effects of using air armaments cannot be the same for all countries; for examples, those with a small area, with their vulnerable points near the frontiers of other States, and those surrounded by a wide expanse of water.

2. The efficacy of air armaments against national defence depends on the possibility, in the event of an act of aggression, and independently of aerial means of defence, of their destroying the obstacles to the advance of the aggressor, attacking lines of communication, centres of military production and supply depots, air and naval bases, etc.

It is also necessary to examine the conditions governing the use of air armaments against mobile forces and other objectives of the land and naval battlefield in order to decide whether their offensive possibilities are greater than the requirements of defence.

3. The discussions of the Air Commission revealed the fact that for many countries the effectiveness of air armaments against national defence was due principally to the circumstance that aircraft could attack the vital centres of a State (towns, centres of population, etc.) and weaken the internal resistance. Leaving aside considerations regarding international engagements, it was thought desirable to examine the conditions governing their effectiveness.

II. SPECIAL POINTS.

For information purposes it should be noted that the useful load of the heaviest aircraft at the present time is about 27,000 kg. for civil aircraft and 15,000 kg. for military aircraft.

Observations relating to the General Conditions of Use.

1. At present, military aircraft must have a crew varying from 1 to 5, together with the arms and ammunition necessary for their own defence. Nevertheless, only aircraft seating more than one and with a crew of at least three men to ensure their defence and an adequate radius of action are capable of flying long distances over other countries and may, in certain cases, offer a more offensive character than others.

2. The radius of action—that is to say, the total distance which can be flown—should take into account not only the absolute distance of the objective but also the additional distance which may have to be covered for tactical reasons or owing to atmospheric conditions.

In general, the radius of action necessary for air armaments depends on the special situation of the countries concerned.

In particular, against countries of small area and great density of population, or against countries whose vulnerable points are situated near their frontiers, air armaments might be effective with a small radius of action, especially if they were employed against the vital centres of these countries.

3. Under the normal conditions of inaccuracy of aerial aim at an objective of small dimensions, results cannot be obtained by the launching of a single projectile, however powerful. A single aircraft cannot hope to obtain appreciable results from its action except by launching a salvo containing enough bombs to obtain at least one impact capable of causing serious damage. The dimensions, the nature and resistance of the objective, the altitude of the aircraft, the nature of the defence and the atmospheric conditions influence the precision of the bombardment and determine the characteristics and number of the bombs which must be carried in one and the same load.

If, however, the objective attacked is very extensive—in particular, when air armaments take the centres of population of a country as their objective—precision of aim becomes less necessary, and even aircraft of low power but in large numbers may prove very effective owing to the moral, if not the material, results which they can obtain.

4. The effectiveness of attack by air against an objective increases with the number of aircraft employed, provided that these aircraft taken individually are effective against that objective.

III. EFFECTIVENESS AGAINST NATIONAL DEFENCE.

A. Action against Permanent Fortifications.

As the greater part of air armaments are at present ineffective against permanent fortifications, it would be unreasonable to use a single military aeroplane in an attempt to destroy such objectives.

It is pointed out, however:

(1) That aircraft capable of carrying a useful load of 5,000-6,000 kg. would be capable of producing serious results against permanent fortifications.
(2) That aircraft capable of transporting a useful load of from 3,000-5,000 kg. would be capable of producing appreciable results, in particular against dug-outs, but without decisive consequences.

B. Action against Vital Centres.

If, regardless of international engagements, air armaments are employed against vital centres of population of a country, they may, both by the moral and material effects which they are capable of producing, exercise very important indirect action against its national defence.

In general, this action may be all the greater, the smaller the country attacked and the denser its population, or if the vital centres are situated near the frontier. It may even be of capital importance if it is directed against the works which, in certain cases, assure the life and existence of a country against a permanent natural menace.

As, however, the centres of population form extensive objectives, particularly vulnerable to the action of gas and especially incendiary bombs, and as the latter may cause very great damage even with a small tonnage, all aircraft having a sufficient radius of action and capable of transporting any useful load in addition to its pilot may, if such projectiles are employed, be effective against the vital centres of a country.

C. Action against Lines of Communication.

In addition to direct action against convoys and troops upon the battlefield, which will be examined below, aircraft may also be used against troops in centres of mobilisation and against railway junctions and bridges. Where such objectives are in centres of population, aircraft attacking them constitute a menace to the civilian population in the immediate vicinity.

To be effective against troops in centres of mobilisation, aircraft must have a tonnage at least as great as those which can be used against columns on the march, and must be equipped with bombs each weighing from 50 to 100 kg.

To be effective against railway junctions and bridges, aircraft must carry the greatest possible number of bombs of from 100 to 500 kg. each.

D. Action against Munition Factories and Supply Depots.

Munition factories and supply depots which would become important objectives in the case of prolonged warfare are not likely to be attacked by aircraft at the beginning of hostilities. At that stage of the war the principal military objectives of the aggressor are the destruction of the defence forces and the occupation of centres or lines of communication and of territory.

The aircraft best adapted for bombarding munition factories, etc., are similar to those required for attacking lines of communication.

E. Action against Air and Naval Bases.

To be effective against military air bases, aircraft must be able to carry from 20 to 40 bombs of from 50 to 100 kg. Consequently, since the distance of one belligerent’s air base from that of another belligerent will make it necessary for them to have a radius of action of from 1,200 to 1,500 km., they must carry a useful load of at least three tons.

To be effective against naval bases, aircraft must be able to carry from three to ten bombs of about 450 kg. each. Their radius of action depends essentially on the geographical situation of each country.

F. Use in Battle.

The use of aircraft in battle does not give them a specifically offensive character. They are useful to the aggressor both to prepare his attack and to facilitate its development; but they are indispensable to the defence, whether for the purpose of obtaining information as to the dispositions of attack, in regard to which the assailant has the initiative, or for rapid intervention by direct action to delay the progress of attacking columns advancing on open ground or to prevent the offensive action of fleets.

1. Direct Action.

(a) Aircraft which can be effectively employed against objectives of the land battlefield that are unprotected or only slightly protected, particularly against columns of troops in the open or against convoys and means of transport and food-supply, must be capable of carrying 40 to 50 bombs of 10 kg. or 20 to 30 bombs of 50 kg., and must have a radius of action of at least 500 km. Their useful load must amount to between 1,200 and 3,000 kg. according to circumstances.

(b) To be effective against naval forces, aircraft must carry either a torpedo of 800-1,000 kg. or a load of bombs of at least 1,250 kg. for attacking surface vessels (i.e., 3 bombs of 450 kg. for attacking capital ships, or 5 bombs of 250 kg. for attacking light vessels), and 600 kg. (4 bombs of 150 kg.) for attacking submarines.
Their radius of action depends essentially on the geographical situation of each country. The minimum radius of action enabling aircraft of coast or land bases to take part in defensive operations of the fleet against coastal attack may be taken as about 1,500 km.

Such aircraft, with their crew of five, maritime equipment and military defence armament (machine-guns), have a useful load of at least 4,500 to 5,000 kg.

2. Scouting Operations.

Certain aircraft used for scouting purposes must be capable of carrying a crew of at least five persons and their own defensive armament, and should have a radius of action enabling them to travel at least 500 km. from their bases over the land and at least 1,000 km. over the sea—that is to say, taking the wind into account, a radius of action of 1,200 to 2,500 km.; the useful load which such aircraft must be able to carry is 3,000 to 6,500 kg.

G. Action of Pursuit (Chaser) Aeroplanes.

Pursuit (chaser) aeroplanes possess an offensive character when used to facilitate aggression by bombing aeroplanes, but both meet defence requirements when used against an aggressor.

H. Miscellaneous Uses.

Certain aircraft needed for communication with and between overseas territories must have a radius of action of at least 2,000 km. and must carry a crew of not less than 5, which, with the reserves necessary for the safety of the machine and the crew, means a useful load of about four or five tons.

Aircraft for the transport of troops, which are particularly useful for the maintenance of order in peace-time in overseas territories, must also have a useful load of three to six tons.

IV. MENACE OF AIR ARMAMENTS TO CIVILIANS.

All aircraft, without alterations of any kind and whatever their tonnage, may constitute a danger to civilians, whether used directly to attack civilians or against military objectives situated in densely-populated areas.

This threat is due chiefly to the fact that aircraft can make their action felt in the interior of a country in zones beyond the radius of action of land and naval armaments. They can act against a much larger part of the population; but, on the other hand, there is no doubt that the material effects they are capable of producing in the zone of the battlefield are far less than those caused by land or naval armaments.

Actually, the extent of the danger depends essentially on the nature of the projectiles used. Projectiles containing harmful gases or bacteria, and incendiary projectiles, though of small tonnage, may be highly efficient and produce a considerable moral effect. Explosive projectiles may produce a more or less considerable moral effect, but they are not capable of causing serious material damage unless used in large quantities.

PART III.

The conclusions in Part I of this report give rise to the following comments:

In the first place, the German delegation submitted an amendment referring to all the foregoing conclusions, as follows:

"All military aviation, and especially the dropping of means of warfare of every kind from the air, come into the three categories."

In order to specify the material of air armaments for this purpose, the German delegation, on the basis of the arguments advanced during the discussion, desired to supplement the above amendment as follows:

"By military aircraft are to be understood all aircraft (e.g., aeroplanes, dirigibles, free and captive balloons):

"(1) Which are identified by identity-marks as military aircraft, or
"(2) Which have military specifications: that is to say, installations to receive means of warfare of every kind such as guns, machine-guns, torpedoes, bombs, or instruments for aiming or launching such means of warfare, or
"(3) Which are manufactured for the armed forces of a country, or
"(4) Which are manned by a military pilot or a military crew having orders to that effect, or
"(5) Which form part of the equipment of an armed force or are requisitioned by such force."

The primary reasons given by the German delegation for this amendment was that for a country which has no means of anti-aircraft defence, either in the air or on the ground, all air
A number of delegations which opposed the German proposal pointed out that only certain air armaments could be regarded as answering to these questions, while other delegations, which also could not see their way to accept the German proposal, expressed the view that in any case different forms of air armaments answered to these characteristics in different degrees.

The German amendment was rejected by 22 votes to 7—those of Austria, Bulgaria, China, Germany, Hungary, Turkey and the Union of Soviet Socialist Republics. In consequence of this vote, the Austrian and German delegations, though taking part in the discussion, abstained from voting on points I (a), (b), (c), (d), (e), II (a), (b) and (c), and III (a), (b) and (c).

In connection with the conclusion numbered I (a), first paragraph, the Italian delegation proposed the omission of the words: “without prejudice to the question of their defensive uses.” As, however, this amendment was rejected by 18 votes to 12, the Italian, Turkish and Soviet delegations made an explicit reservation against the retention of these words, on the ground that the question of the use of air armaments for defensive purposes was outside the terms of the General Commission’s resolution.

After a discussion in some detail, the Commission, not wishing to go at present into the question of the internationalisation or control of civil aviation, adopted conclusion I (b), with the two abstentions already mentioned. The Hungarian delegation made a declaration maintaining that the civil aircraft of a country which has no military aircraft cannot be incorporated in its armed forces. The Soviet delegation made a declaration to the effect that it held that all military aircraft were specifically offensive in character, whether they were built specially for military purposes or were subsequently converted to such purposes; and that it saw no need to mention civil aircraft in the report, as they could not be regarded as a weapon.

Conclusion I (d) was adopted by 16 votes to 2 (United States of America and Portugal). In consequence of this vote, the United States delegation made the following declaration:

“The delegation of the United States considers that the statement in Paragraph I (d) as to the increased possibility of offensive action of ship-based aircraft is inappropriate for inclusion in a report which deals with aircraft generally and which does not otherwise discuss specific types of aircraft of the influence of the base of action upon their offensive capabilities.

“One of the tests already contained in the report is that of capability of arriving at an objective. Thus the mobility feature of ship-based aircraft if already taken into account and any further reference in the report which might give the impression that individual ship-based aircraft are more specifically offensive than individual aircraft taking off from bases close to land frontiers is misleading.”

The Portuguese delegation associated itself with this declaration, and the United Kingdom delegation stated that it shared the views therein expressed.

As regards the efficacy of air armaments against national defence, the following delegations: South Africa, Argentine Republic, Australia, Bolivia, Brazil, United Kingdom, Canada, Chile, Czechoslovakia, France, Greece, India, Japan, New Zealand, Poland, Portugal, Roumania, United States of America and Yugoslavia, voted for the inclusion in the text of the following statement:

“The air armaments most efficacious against national defence may also in certain circumstances be the most efficacious for their own national defence.”

Twenty-two other delegations—Afghanistan, Austria, Belgium, Bulgaria, China, Denmark, Estonia, Finland, Germany, Hungary, Italy, Latvia, Lithuania, Mexico, the Netherlands, Norway, Persia, Siam, Spain, Sweden, Turkey and the Union of Soviet Socialist Republics—though they did not deny the truth of this statement, considered that it was unnecessary to insert it in the reply to the General Commission.

In its consideration of the question of the threat to civilians constituted by air armaments, the Commission constantly bore in mind the existence of certain international undertakings for the protection of civilians in time of war. It considered, however, that its reply to the questions asked by the General Commission must be prepared solely from the point of view of technical possibilities, and apart from any legal or political considerations.

During the discussion on the question as to which criterion or criteria should be adopted among those considered by the Commission and set out under IV of Part I—namely, unladen weight, horse-power and wing area for aeroplanes, volume and horse-power for dirigibles—a profound difference of opinion was manifested in the Commission. It was generally felt that there were great difficulties in the way of establishing formulae which, in view of the constant progress made in technique, were subject to modification. It was nevertheless agreed that unladen weight was an essential criterion for aeroplanes and volume for dirigibles and must be adopted.

A provisional definition of unladen weight was unanimously accepted by the Commission, and figures as Annex I to the present report.
Eighteen delegations—South Africa, Australia, United Kingdom, Canada, Czechoslovakia, Estonia, France, India, Japan, Latvia, Lithuania, the Netherlands, Poland, Portugal, Roumania, Siam, the United States of America, Yugoslavia—considered that for purposes of practical comparison unladen weight alone was an adequate criterion. They held that the addition of two other criteria for aeroplanes would considerably complicate the question owing to the facility with which wing area and especially horse-power could be modified. They added that they thought it impossible to obtain a satisfactory definition of horse-power and to form a practical estimate of its value and of the value of wing area, and, further, that the adoption of these two criteria might hinder the sound development of technique.

Twenty-one delegations—Afghanistan, Argentine, Austria, Belgium, Bolivia, Brazil, Bulgaria, Chile, China, Denmark, Finland, Germany, Greece, Hungary, Italy, Mexico, Spain, Sweden, Switzerland, Turkey and the Union of Soviet Socialist Republics—held that unladen weight alone was inadequate, and that horse-power and wing area should also be adopted. Certain of the delegations mentioned above considered that in dividing aeroplanes into categories it was necessary to take into consideration, not only the unladen weight, but also the horse-power and the ratio between horse-power and wing area, as criteria of equal value. They pointed out that unladen weight as the sole criterion could not give satisfactory results, since, even were the unladen weight constant, the useful load could vary considerably if there were a more powerful engine or a different wing area.

As regards the definitions of horse-power and wing area, the Commission’s discussions have shown that sufficient light has not yet been thrown on the technical aspect of these questions to enable a number of the delegations in favour of the three criteria to express an opinion on the definitions to be established for the two criteria mentioned above.

As regards horse-power, certain of those delegations referred to the conclusions of the report of the Committee of Experts to fix rules for the adoption of a standard horse-power measurement for aeroplane and dirigible engines (document C.259.M.II5.I93I), while the Italian delegation submitted a slightly different definition, which is annexed (Annex III) to the present report.

As regards wing area, proposed definitions have been furnished by the Spanish and Italian delegations and figure as Annexes II and III to the present report.

Certain delegations who declared themselves in favour of the three criteria added that they considered that both horse-power and wing area could be computed with sufficient accuracy (though less accurately than unladen weight) to enable them to be effectively used in the comparative measurement of the useful load of aircraft, and that three criteria, however imperfect, would be more reliable than one.

Other delegations among the group favouring the three criteria considered that the question whether a single criterion should be adopted or whether the two others should be added as auxiliary criteria could not be finally settled until the Commission had come to a definite decision as to the figures to which those criteria would apply.

PART IV.

Although certain delegations maintained that in view of the General Commission’s three questions it was impossible to draw a distinction between the different kinds of air armaments, it will nevertheless be seen from its deliberations that the Commission was unanimously of opinion that air bombardment is a grave threat to civilians.

In this connection, certain delegations which were in favour of the absolute prohibition of air bombardment contemplated the possibility of designating bombing aeroplanes as the most

1 Declarations by the delegations of Austria, Bulgaria, Germany and Hungary (see pages 8-9) and of Persia (see page 11).
specifically offensive air arms, the most efficacious against national defence, and the most threatening to civilians. The Commission was unable to accept this solution, however, for the following reasons: The technical explanations given in different quarters have shown that bombing aeroplanes cannot simply be designated by name, as the same aeroplanes may be used for entirely different purposes. Thus, in several important countries, exactly the same aeroplanes form part of bombing and scouting units.

After considering the aeroplanes at present in service in the air armaments of different countries, however, certain delegations thought it would be possible to fix a limit based on technical data, above which the majority of aeroplanes were, in the opinion of these delegations, specially suitable for air bombardment. 1

It should be noted that one delegation put forward definite proposals suggesting a very low limit, based on technical data, above which it considered that all military aviation answered to the General Commission's three criteria. 2

Finally, it should be noted that one delegation proposed to classify among arms which are the most offensive, the most efficacious against national defence, and the most threatening to civilians, all kinds of air bombs and all appliances for the aiming and launching of such bombs. 3

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**Declaration by the German Delegation.**

**I. Reservation relating to the Findings contained in Part I of the Report.**

The German delegation was not in a position to accept the "findings" of the Air Commission's report. The Air Commission, in accordance with the General Commission's decisions, should have considered what are the arms which, in view of their specific character, are most likely to lead rapidly to success, assuming that a State adopts a policy of armed aggression.

The German delegation considers that military aviation as a whole should be regarded as aggressive from this point of view. This consideration applies in particular to a country which possesses no military air force, or which has already abolished it by disarmament, and which has also no means of defence against aircraft either in the air or on the ground. In view of the situation of such a country, the German delegation considers that it is not possible to draw a distinction between the different categories of air arms according to their more or less offensive character, or their greater or lesser efficacy against national defence, or their greater or lesser threat to civilians. In the case of such a country, the air arm as a whole, without any distinction, comes, for purely technical reasons, under the three heads into which the question raised by the General Commission is divided. Germany, who was disarmed under the Treaty of Versailles, also bases her conception on the technical disarmament clauses which form part of that treaty.

The German delegation also wishes to point out that, in compiling its report, the majority of the Air Commission considered that the offensive character of air arms could only be determined after an examination of the degree of their efficacy against national defence and the extent of the threat constituted by them to civilians. However, after carrying out this examination, the Air Commission failed to reply to the first and most important of the questions asked by the General Commission, and did not reach any definite decision as to the arms which have a specifically offensive character.

Lastly, the German delegation considers that means of warfare of every kind capable of being launched from the air should be regarded in general as specifically offensive, particularly efficacious against national defence, and specially threatening to civilians. This applies a fortiori to a country without any anti-aircraft defence.

**II. Reservations concerning Part II of the Report.**

With reference to the foregoing reservation, the German delegation states that:

At the plenary meeting of the Air Commission the German delegation stated that it was opposed to the proposal to submit the General Commission's three questions to a through examination by a discussion of the French questionnaire—a procedure which would take a good deal of time in view of the necessity of clearing up these problems from the point of view of the science of warfare. It considered that this study was unnecessary in order to give a clear and adequate reply to the questions put by the General Commission. However, the Air Commission having decided that the French questionnaire should be discussed by a sub-committee, and the French delegation having itself submitted a draft reply to that questionnaire, the German delegation endeavoured, with a view to co-operating in this examination, to amend the draft reply in order to take into account the position of countries which do not possess any military air force, and have no means of defence against aircraft.

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1 Declaration of Belgium, Mexico, Netherlands, Portugal, Spain, Sweden and Switzerland (see page 10).
2 Italian declaration (see page 10).
3 Netherlands declaration (see page 11).
Since the second point of this report as it results from the somewhat brief discussions in the Sub-Committee does not take into account the position of those countries, the German delegation does not consider it possible to accept this point.

Declaration by the Austrian Delegation.

In the course of the discussion in the Air Commission, the Austrian delegation demonstrated that in certain conditions the capacity of an aircraft to attain its objective is decisively increased. In Austria's case, this increased capacity results from the present geographical and military circumstances of the country. These circumstances confer an offensive character even on aircraft which would be completely unfitted to act against the national defence or the civil population of another country.

Consequently it is impossible to make a general classification of aircraft corresponding to the three questions put by the General Commission.

The Austrian delegation urges that it is absolutely essential to take into account the present circumstances of each individual country, if any accurate definition of the offensiveness of aircraft is to be arrived at.

The Austrian delegation therefore associates itself with the reservation made by the German delegation.

Declaration by the Bulgarian Delegation.

The Bulgarian delegation considers that the answers to the three questions put by the General Commission present a different aspect in the case of countries which have no military air force and no anti-aircraft defence, thus:

1. For countries which have no anti-aircraft defence, all military aircraft are covered by the three criteria laid down by the General Commission.
2. For countries which have no military air force, it is very difficult, if not impossible, to make use of civil aircraft, owing to the absence of personnel trained for the purpose.

Declaration by the Hungarian Delegation.

From the beginning of the proceedings in the Air Commission, the Hungarian delegation has felt that the Commission was working on lines that could not lead to a satisfactory result. Instead of enquiring into the fighting force represented by the air arm as a whole and the destruction which, as a whole, it is capable of causing, the Commission has devoted chief attention to highly complicated technical details which have, no doubt, great scientific value, but whose relation to the problem set is exceedingly vague.

The essential object of the Disarmament Conference should be to bring under international regulation all such arms as are calculated to favour sudden and unexpected attacks. Now it is not unreasonable to ask whether there is any arm possessing more properties calculated to favour such attacks than the air arm as a whole. Convinced that this was so, the Hungarian delegation associated itself with the German proposal, and deeply regrets that that proposal was not accepted by the majority of the Commission.

The Hungarian delegation has continued none the less to take part in the proceedings of the Air Commission, in the hope that its collaboration might induce the Commission to decide upon an acceptable text.

Unhappily, the proposals that the Hungarian delegation had the honour to put forward during the discussion were not accepted by the Commission. The latter decided to submit to the General Commission a reply which, in the Hungarian delegation's view, cannot result in a radical reduction of air armaments. The Hungarian delegation therefore sincerely regrets that it was unable to accept the texts established by the Commission and was forced to vote both against the conclusions in Part I of the report and against the inclusion of Part II in the report.

The Hungarian delegation must therefore again state that:

"For Hungary, who is disarmed in the air and excessively vulnerable to air attacks, aircraft as a whole constitute:

"The most offensive of all weapons;
"A weapon that could easily crush her too feeble national defence, and that would expose:

"(a) Her civil population, deprived of anti-aircraft defence, to certain death;
"(b) Her capital and her industrial areas, situated only a few kilometres from the frontier, to complete destruction; and
"(c) All movement on her system of communications to an abrupt stoppage."
The delegations of Belgium, Mexico, the Netherlands, Portugal, Spain, 1 Sweden 1 and Switzerland 2:

Having examined a large number of aeroplanes at present in use in various countries with a view to finding numerical criteria to determine what aeroplanes come under the three categories indicated by the General Commission—namely:

- The most specifically offensive,
- The most efficacious against national defence,
- The most threatening to civilians,

have come to the following conclusions:

1. There is a limit, based on technical data, above which almost all aeroplanes possess the three characteristics mentioned above;
2. There is a limit below which no aeroplane can be deemed to possess these three characteristics;
3. For aeroplanes the characteristics of which lie between the two limits, it is impossible to lay down a simple rule enabling those possessing the three above-mentioned characteristics to be distinguished with certainty.

The limit under (1) might be fixed at an unladen weight of 1,500 to 1,600 kg. (with the addition of 300 to 400 kg. for seaplanes).

The limit under (2) might be fixed, in general, at an unladen weight of 600 kg., a horse-power of 200, and a wing area of 25 sq.m., on the understanding that any aeroplane exceeding any one of these three limits would come under the category of (3) above.

**Reservation by the Italian Delegation.**

The Italian delegation took no part in the discussion and drafting of the second part of the report.

It considers that the statements and figures given in this part do not correspond to the present situation of mobilisable military aviation, and that, by leading the General Commission astray, they render more difficult the decisions which it will be called upon to take.

The Italian delegation considers that, among the means of aerial warfare at the disposal of military aviation, the following should be regarded as being the most specifically offensive, the most efficacious against national defence, and the most threatening to civilians:

1. Dirigibles of any volume whatsoever.
2. Aeroplanes seating two persons and over; always excepting two-seater aeroplanes used in schools, provided that their unladen weight does not exceed 400 kg. and the horse-power 100, and that the ratio between horse-power and wing area is not less than 4 to the square metre.
3. Seaplanes seating two persons and over, always excepting two-seater seaplanes used in schools, provided that their unladen weight does not exceed 450 kg. and their horse-power 100, and that the ratio between horse-power and wing area is not less than 4 to the square metre.
4. Aeroplanes which, although single-seaters, are of over 650 kg. unladen weight, over 200 h.p. and with a ratio between horse-power and wing area of less than 1 to the square metre.
5. Single-seater aeroplanes of unladen weight less than 650 kg., which, although of horse-power between 200 and 100, have a ratio between horse-power and wing area less than that obtained by linear interpolation:
   - Between 16 and 12 h.p. to the square metre for machines of horse-power between 200 and 150.
   - Between 12 and 5 h.p. to the square metre for machines of horse-power between 150 and 100.
6. Seaplanes which, although single-seaters, are of over 700 kg. unladen weight, over 200 h.p. and with ratio between horse-power and wing area less than 16 to the square metre.
7. Single-seater seaplanes of unladen weight less than 700 kg., which, although of horse-power between 200 and 100, have a ratio between horse-power and wing area less than that laid down in paragraph 5.

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1 The Spanish and Swedish delegations state that their participation in the attempts to find as precise as possible a technical reply to the questions asked by the General Commission does not prejudice their attitude regarding the total abolition of military aviation, accompanied by the internationalisation or strict control of civil aviation.
2 The Swiss delegation had in mind a lower figure for the limit proposed under (1) — namely, 1,200 kg.
DECLARATION BY THE BOLIVIAN DELEGATION.

In accordance with the declaration made by the Bolivian delegation at a plenary session of the Air Commission, it makes a reservation regarding the whole idea of figures; this reservation is due to Bolivia's special geographical situation, and in particular to its altitude (averaging 4,000 metres). The delegation would merely point out that the fixing of figures would have a negative value where aircraft beginning to operate at that altitude were concerned.

DECLARATION BY THE CHINESE DELEGATION.

The Chinese delegation, in view of the fact that the Air Commission is to submit its report to the General Commission without achieving a unanimous decision, wishes to place on record the following declaration:

The Chinese delegation maintains its original standpoint that all military aircraft are by nature offensive armaments, while bombing aeroplanes are armaments whose character is most specifically offensive, most efficacious against national defence, and most threatening to civilians, thus combining all the three characteristics mentioned in the General Commission's resolution of April 22nd, 1932.

The Chinese delegation considers that the proposal of the Belgian, Mexican, Netherlands, Portuguese, Spanish, Swedish and Swiss delegations (see page 10), which provides for the division of all military aeroplanes into three categories, is acceptable. It is, however, of the opinion that the limit fixed in the said proposal is somewhat high. The Chinese delegation is, in this connection, inclined to support the suggestion of the Swiss delegation that the limit set for unladen weight should be 1,200 kg. instead of 1,500 to 1,600 kg., in the interest of those countries whose air defence is still inadequate and whose undefended towns and cities are in consequence exposed to the dangers of aerial bombardment.

The Chinese delegation would further reiterate its proposal that all aerial bombardment as a means of carrying on civilised warfare should be abolished (see document Conf.D.88).

DECLARATION BY THE FRENCH DELEGATION.

The French delegation considers that the statements of fact contained in the second part of the Commission's report show how impossible it is from the technical point of view to draw a clear dividing line between offensive aircraft and those more specifically offensive in character. Even if it is possible to fix a limit above which aircraft cannot be considered purely defensive, there is on the other hand a whole zone covering both specifically machines, threatening to the civil population, and machines indispensable for national defence.

The French delegation would state that these were the considerations which led it to submit its proposals of February 5th last, and to fix for the capacity of aircraft two series of limits which it has reserved the right to define later: the first—the higher—above which no machine may be retained in a national air force; the second—the lower—below which the use of military aircraft shall be subject only to those restrictions arising out of the quantitative limitation provided for in the convention to be drawn up and already laid down in the Preparatory Commission's draft.

All the aircraft included between these two limits, whether their predominant character be offensive or defensive, may only be retained by national air forces subject to a preliminary undertaking to place such machines at the disposal of the League of Nations in the event of the application of Article 16 of the Covenant.

DECLARATION BY THE NETHERLANDS DELEGATION.

On Part I.

The Netherlands delegation considers that bombing aircraft, all types of aerial bombs, and all instruments for aiming or launching such bombs, should be designated as weapons most specifically offensive, most efficacious against national defence, and most threatening to civilians.

On Part II.

The Netherlands delegation states that the division of the load of bombs required for effective action against a certain objective among as large a number of aeroplanes as possible would result in lower tonnage figures for aircraft than those given in the report. These figures would be still further decreased if the radius of action of aircraft were reduced.

DECLARATION BY THE PERSIAN DELEGATION.

Since the Persian delegation has, since the outset of the Commission's work, made it clear that it is in favour of the abolition of military aviation provided civil aviation be regulated by
international statute, it is impossible for it to express an opinion on the aggressive character of military aviation alone, since the General Commission has as yet taken no decision regarding civil aviation. For this reason, the Persia delegation abstained from voting on Part II of the report.

DECLARATION BY THE DELEGATION OF THE UNION OF SOVIET SOCIALIST REPUBLICS.

As the moment has come to draw conclusions from the Air Commission's work carried out in response to the three questions asked by the General Commission, the Soviet delegation feels bound to make the following declaration:

"(1) The Air Commission has not found it possible to recognise the soundness of the statements of certain delegations—among them the Soviet—that all military aviation comes under the head of the General Commission's questionnaire. Nevertheless, the Air Commission has not indicated the limits above which military aeroplanes acquire the properties which bring them into the category of armaments envisaged in the General Commission's questionnaire.

"(2) The drafting of certain articles, as well as certain statements in the report, which, moreover, exactly correspond to the declarations made by the different delegations, show that the majority of the Commission considers that air armaments are only offensive and threatening to national defence and the civil population when used for purposes of aggression or attack on specified localities. The Soviet delegation is firmly opposed to this point of view, considering that it is the technical characteristics of aircraft which determine the offensive properties of military aviation, and that the very existence of military aircraft, as well as of aerial bombs and other means of warfare intended to be dropped or launched from the air, are a danger to national defence and constitute a threat to the civil population.

"(3) For the above reasons the Soviet delegation is unable to support the view that the offensive character of military aviation can only be determined after a review of the possibilities of its employment for defensive purposes. The Soviet delegation feels that it is the Air Commission's duty to determine the aggressive characteristics of air armaments, and not to defend such armaments by mere reference to the various possibilities of their defensive use.

"(4) The references to be found in the report to the necessity for taking into account the geographical situation and special circumstances of each country, as well as atmospheric conditions and other factors, seem to the Soviet delegation to be an attempt to divert the questions asked by the General Commission into a discussion very far removed from the concrete task assigned to the Air Commission.

"(5) Without raising any objection to the view of the majority of the Commission that aeroplanes become more aggressive and dangerous to national defence and the civil population with any increase in their useful load (provided they be considered singly), the Soviet delegation, basing its view on a technical study of the properties of military aircraft, once more declares that all military aircraft clearly come within the three categories referred to by the General Commission. The Soviet delegation is thus the less able to support the view that only large bombing aircraft should be considered offensive, even if the figures contained in the report are only given for purposes of indication. It feels that such a classification is far removed from reality, and can but prejudice qualitative disarmament.

"In view of the foregoing, the Soviet delegation desires to state that the Air Commission, in confining itself to general statements, has failed to reply to the three questions asked by the General Commission. The Soviet delegation is therefore obliged to continue, in the General Commission, to defend its view as expressed in the present declaration as well as in earlier discussions."

Annex I.

DEFINITION OF UNLADEN WEIGHT.

The unladen weight of an aeroplane is the weight of the aeroplane complete with all the elements necessary for flying but without crew, fuel, oil, cooling liquids, or military equipment. The unladen weight of an aeroplane comprises exclusively the weights of the following parts:

- Complete aeroplane without engine (wings, movable or fixed, without safety slots, fuselage or hull, undercarriage or floats);
Power plant or plants complete; empty motor or motors\(^1\), propeller or propellers with, all the necessary accessories\(^2\) required for their immediate operation and control;
Empty tanks, with release or drainage appliances (if any), but excluding supplementary tanks.
Permanent fixtures required for mounting instruments and equipment of all kinds.

### Annex II.

**Definitions of Wing Area Proposed by the Spanish Delegation.**

**First Definition.**

The wing area is that of the lifting areas contained in the wing unit, wing flaps included, in its maximum extension.

**Second Definition.**

The wing area is the geometrical area of the projection of each lifting area contained in the wing unit, wing flaps included, on the plane of their greatest extension.

### Annex III.

**Definition of Horse-power and Wing Area Proposed by the Italian Delegation.**

**Horse-power.**

The power index of an engine given by the Experts' formula in document C.259, M.I15 1931 might be adopted as a first approximate criterion for qualitative disarmament purposes.

This formula is:

\[
W_I = V/K_1 U T_P
\]

The Italian delegation considers, however, that it would be desirable to improve the method by adopting for the constant \(K\) different values according to the basic types of engines and to take into account in measuring the weight the material used in the fixed parts.

It therefore proposes the constants \(K_1\) and \(K_2\) for liquid-cooled engines with and without reduction gear respectively; \(K_3\) and \(K_4\) for air-cooled engines with and without reduction gear respectively; \(K_5\) and \(K_6\) for Diesel engines, liquid and air-cooled respectively.

For surcharged engines these values will have to be multiplied by a coefficient depending on the supercharging system and the degree of compression produced by the supercharger.

**Notes.**

1. Liquid-cooled engines are distinguished from air-cooled engines because in measuring the weight due allowance cannot be made for the radiators.
2. The values \(K_1\), \(K_2\), \(K_3\), etc., and the supercharging coefficient cannot be fixed until the maximum value of the horse-power has been determined, and in fixing these values technical and statistical considerations will be taken as bases.
3. It is also desirable to establish the equivalence between aluminium alloys and magnesium alloys used in the fixed parts (about 1.4), in order that a change from one of these materials to the other may not unfairly affect the measurement of the horse-power.
4. The Diesel engine will no longer be handicapped if it is considered separately.

**Wing Area.**

1. The supporting surface of a wing mounted on an aeroplane is the normal projection of its perimeter on a plane passing through the chord traversing the span centrally and perpendicular to the longitudinal plane of symmetry of the aeroplane.
2. The wing area of an aeroplane is the sum of the supporting surfaces in its wing unit.

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\(^{1}\) The empty motor comprises the motor proper with all the accessories necessary for its immediate operation, which form an integral part of it—that is to say:
- Carburettor, with controls, feed pipes, ignition and connections, cooling liquid and oil pumps with piping on the motor, charging or supercharging gear forming part of the motor, various attachments for revolution counters and auxiliaries forming part of the motor, reduction gear and propeller hub.

\(^{2}\) Accessories to power plant:
- (a) Motor controls complete.
- (b) Fixed self-starters and accessories, starting magneto, claws and handles, and tanks.
- (c) Fuel supply system; pumps not forming part of the motor, piping accessories, intermediate tanks, and various indicators.
- (d) Lubrication system; pipes not forming part of the motor, radiators, shutters and controls.
- (e) Cooling system; piping not forming part of the motor, radiators, shutters and controls, ventilators and ventilator shutters in the case of air-cooled motors, and their controls.
- (f) Transmissions of propellers.
- (g) Accessories; various instruments, revolution-counters, and fixed extinguishers.
NOTES.

I. The surface of the ailerons in the rest position is included in the wing area.

II. In the case of wings having a safety beak, the projection of the wing itself must be taken with the safety beak in the rest position.

III. In the total, the surfaces must be calculated in excess per square metre. Wings which are partly or wholly cut away to allow for the fuselage or nacelles, etc., are regarded as continuous.

IV. In the case of a wing with a variable area, the area must be calculated at its maximum extension.

V. Horizontal tail units and any other supporting surfaces included in the air frame are excluded, provided that their total surface, calculated in the same way as that of the wings, does not exceed $x\%$ of the wing area of the wing unit.

VI. The wing profile chord mentioned in the definition is that established by the C.I.N.A. at its sixth meeting (March 1924) and communicated to the Council of the League of Nations.