

WEIGHTS AND MEASURES

Convention, regulations, and transient provisions signed at Paris May 20, 1875

Senate advice and consent to ratification May 15, 1878

Ratified by the President of the United States May 28, 1878

Ratifications exchanged at Versailles December 20, 1875; by the United States at Paris August 2, 1878

Entered into force January 1, 1876; for the United States August 2, 1878

Proclaimed by the President of the United States September 27, 1878

Superseded in part (arts. 7 and 8 of convention; arts. 6, 8-12, 15, 17, 18, and 20 of regulations) by convention of October 6, 1921¹

20 Stat. 709; Treaty Series 378

[TRANSLATION]

His Excellency the President of the United States of America, His Majesty the Emperor of Germany, His Majesty the Emperor of Austria-Hungary, His Majesty the King of the Belgians, His Majesty the Emperor of Brazil, His Excellency the President of the Argentine Confederation, His Majesty the King of Denmark, His Majesty the King of Spain, His Excellency the President of the French Republic, His Majesty the King of Italy, His Excellency the President of the Republic of Peru, His Majesty the King of Portugal and the Algarves, His Majesty the Emperor of all the Russias, His Majesty the King of Sweden and Norway, His Excellency the President of the Swiss Confederation, His Majesty the Emperor of the Ottomans, and His Excellency the President of the Republic of Venezuela, desiring international uniformity and precision in standards of weight and measure, have resolved to conclude a convention to this effect, and have named as their plenipotentiaries the following:

His Excellency the President of the United States of America: Mr. Elihu Benjamin Washburne, Envoy Extraordinary and Minister Plenipotentiary of the United States at Paris;

His Majesty the Emperor of Germany: His Highness Prince Hohenlohe-Schillingsfürst, Grand Cross of the Order of the Red Eagle of Prussia, and

¹ TS 673, *post*, vol. 2.

of the Order of St. Hubert of Bavaria, etc., etc., etc., his Ambassador Extraordinary and Plenipotentiary at Paris;

His Majesty the Emperor of Austria-Hungary: His Excellency Count Apponyi, his Actual Chamberlain and Privy Counselor, Knight of the Golden Fleece, Grand Cross of the Royal Order of St. Stephen of Hungary, and of the Imperial Order of Leopold, etc., etc., etc., his Ambassador Extraordinary and Plenipotentiary at Paris;

His Majesty the King of the Belgians: Baron Beyens, Grand Officer of His Order of Leopold, Grand Officer of the Legion of Honor, etc., etc., etc., his Envoy Extraordinary and Minister Plenipotentiary at Paris;

His Majesty the Emperor of Brazil: Mr. Marcus Antonio d'Araujo, Viscount d'Itajuba, Grandee of the Empire, member of His Majesty's Council, Commander of his Order of Christ, Grand Officer of the Legion of Honor, etc., etc., etc., his Envoy Extraordinary and Minister Plenipotentiary at Paris;

His Excellency the President of the Argentine Confederation: Mr. Balcarce, Envoy Extraordinary and Minister Plenipotentiary of the Argentine Confederation at Paris;

His Majesty the King of Denmark: Count de Moltke-Hvitfeldt, Grand Cross of the Order of Dannebrog, and decorated with the Cross of Honor of the same order, Grand Officer of the Legion of Honor, etc., etc., etc., his Envoy Extraordinary and Minister Plenipotentiary at Paris;

His Majesty the King of Spain: His Excellency Don Mariano Roca de Togores, Marquis de Molins, Viscount de Rocamora, Grandee of Spain of the First Class, Knight of the Renowned Order of the Golden Fleece, Grand Cross of the Legion of Honor, etc., etc., etc., Director of the Royal Spanish Academy, his Ambassador Extraordinary and Plenipotentiary at Paris; and General Ibañez, Grand Cross of the Order of Isabella the Catholic, etc., etc., etc., Director General of the Geographical and Statistical Institute of Spain, Member of the Academy of Sciences;

His Excellency the President of the French Republic: The Duke Decazes, deputy to the National Assembly, Commander of the Order of the Legion of Honor, etc., etc., etc., Minister of Foreign Affairs; the Viscount de Meaux, deputy to the National Assembly, Minister of Agriculture and of Commerce; and Mr. Dumas, Perpetual Secretary to the Academy of Sciences, Grand Cross of the Order of the Legion of Honor;

His Majesty the King of Italy: The Chevalier Constantino Nigra, Knight of the Grand Cross of his Orders of St. Maurice and St. Lazarus, and of the Crown of Italy, Grand Officer of the Legion of Honor, etc., etc., etc., his Envoy Extraordinary and Minister Plenipotentiary at Paris;

His Excellency the President of the Republic of Peru: Mr. Pedro Galvez, Envoy Extraordinary and Minister Plenipotentiary of Peru at Paris; and Mr. Francisco de Rivero, formerly Envoy Extraordinary and Minister Plenipotentiary of Peru;

His Majesty the King of Portugal and of the Algarves: Mr. José da Silva Mendes Leal, Peer of the Realm, Grand Cross of the Order of Saint James, Knight of the Order of the Tower and Sword of Portugal, etc., etc., etc., his Envoy Extraordinary and Minister Plenipotentiary at Paris;

His Majesty the Emperor of all the Russias: Mr. Gregory Okouneff, Knight of the Russian Orders of St. Anne of the first class, of St. Stanislaus of the first class, of St. Vladimir of the third class, Commander of the Legion of Honor, etc., etc., etc., Actual Counselor of State, Counselor of the Embassy of Russia at Paris;

His Majesty the King of Sweden and Norway: Baron Adelswärd, Grand Cross of the Orders of the Polar Star of Sweden, and of St. Olaf of Norway, Grand Officer of the Legion of Honor, etc., etc., etc., his Envoy Extraordinary and Minister Plenipotentiary at Paris;

His Excellency the President of the Swiss Confederation: Mr. Jean Conrad Kern, Envoy Extraordinary and Minister Plenipotentiary of the Swiss Confederation at Paris;

His Majesty the Emperor of the Ottomans: Husny Bey, Lieutenant-Colonel of Staff, wearer of a fourth-class decoration of the Imperial Order of Osmania, of a fifth-class decoration of the Order of Medjidie, Officer of the Legion of Honor, etc., etc., etc.;

His Excellency the President of the Republic of Venezuela: Doctor Eliseo Acosta,

Who, after having exhibited their full powers, which were found to be in good and due form, have agreed upon the following articles:

ART. 1

The high contracting parties engage to establish and maintain, at their common expense, a scientific and permanent international bureau of weights and measures, the location of which shall be at Paris.

ART. 2

The French Government shall take all the necessary measures to facilitate the purchase, or, if expedient, the construction, of a building which shall be especially devoted to this purpose, subject to the conditions stated in the regulations which are subjoined to this convention.

ART. 3

The operation of the international bureau shall be under the exclusive direction and supervision of an international committee of weights and measures, which latter shall be under the control of a general conference for weights and measures, to be composed of the delegates of all the contracting governments.

ART. 4

The general conference for weights and measures shall be presided over by the president for the time being of the Paris Academy of Sciences.

ART. 5

The organization of the bureau, as well as the formation and the powers of the international committee, and of the general conference for weights and measures, are established by the regulations subjoined to this convention.

ART. 6

The international bureau of weights and measures shall be charged with the following duties:

1st. All comparisons and verifications of the new prototypes of the meter and kilogram.

2d. The custody of the international prototypes.

3d. The periodical comparison of the national standards with the international prototypes and with their test copies, as well as comparisons of the standard thermometers.

4th. The comparison of the prototypes with the fundamental standards of non-metrical weights and measures used in different countries for scientific purposes.

5th. The sealing and comparison of geodesic measuring-bars.

6th. The comparison of standards and scales of precision, the verification of which may be requested by governments or by scientific societies, or even by constructors or men of science.

ART. 7

The persons composing the bureau shall be a director, two assistants, and the necessary number of employés. When the comparisons of the new prototypes shall have been finished, and when these prototypes shall have been distributed among the different states, the number of persons composing the bureau shall be reduced so far as may be deemed expedient.

The governments of the high contracting parties will be informed by the international committee of the appointment of the persons composing this bureau.

ART. 8

The international prototypes of the meter and of the kilogram, together with the test copies of the same, shall be deposited in the bureau, and access to them shall be allowed to the international committee only.

ART. 9

The entire expense of the construction and outfit of the international bureau of weights and measures, together with the annual cost of its maintenance and the expenses of the committee, shall be defrayed by contributions from the contracting states, the amount of which shall be computed in proportion to the actual population of each.

ART. 10

The amounts representing the contributions of each of the contracting states shall be paid at the beginning of each year, through the ministry of foreign affairs of France, into the *Caisse des dépôts et consignations* at Paris, whence they may be drawn as occasion may require, upon the order of the director of the bureau.

ART. 11

Those governments which may take advantage of the privilege, open to every state, of acceding to this convention, shall be required to pay a contribution, the amount of which shall be fixed by the committee on the basis established in article 9, and which shall be devoted to the improvement of the scientific apparatus of the bureau.

ART. 12

The high contracting parties reserve to themselves the power of introducing into the present convention, by common consent, any modifications the propriety of which may have been shown by experience.

ART. 13

At the expiration of twelve years this convention may be abrogated by any one of the high contracting parties, so far as it is concerned.

Any government which may avail itself of the right of terminating this convention, so far as it is concerned, shall be required to give notice of its intentions one year in advance, and by so doing shall renounce all rights of joint ownership in the international prototypes and in the bureau.

ART. 14²

This Convention shall be ratified according to the constitutional laws of each state, and the ratifications shall be exchanged in Paris within six months, or sooner, if possible.

It shall take effect on the first day of January, 1876.

² A procès-verbal of Dec. 20, 1875, recording the first deposit of ratifications at Versailles on that date, provided that specified delays in deposit of ratifications would in no way modify the provisions of art. 14 regarding effective date. For text (in French) of procès-verbal, see *British and Foreign State Papers*, vol. 66, p. 674.

In testimony whereof the respective plenipotentiaries have attached their signatures and have hereunto affixed their seals of arms.

Done at Paris, May 20, 1875.

[For the United States:] E. B. WASHBURN	[SEAL]	[For Italy:] NIGRA	[SEAL]
[For Germany:] HOHENLOHE	[SEAL]	[For Peru:] P. GALVEZ	[SEAL]
[For Austria-Hungary:] APPONYI	[SEAL]	FRAN'CO DE RIVERO	[SEAL]
[For Belgium:] BEYENS	[SEAL]	[For Portugal:] JOSÉ DA SILVA MENDES-LEAL	[SEAL]
[For Brazil:] VICOMTE D'ITAJUBÁ	[SEAL]	[For Russia:] OKOUNEFF	[SEAL]
[For the Argentine Confederation:] M. BALCARCE	[SEAL]	[For Sweden and Norway:] For M. LE BARON ADELWÄRD (prevented) H. Akerman	[SEAL]
[For Denmark:] MOLTKE-HVITFELDT	[SEAL]	[For the Swiss Confederation:] KERN	[SEAL]
[For Spain:] MARQUIS DE MOLINS	[SEAL]	[For Turkey:] HUSNY	[SEAL]
CARLOS IBAÑEZ	[SEAL]	[For Venezuela:] E. ACOSTA	[SEAL]
[For France:] DECAZES	[SEAL]		
C. DE MEAUX			
N. DUMAS			

Appendix No. 1

REGULATIONS

ARTICLE 1

The international bureau of weights and measures shall be established in a special building, possessing all the necessary safeguards of stillness and stability.

It shall comprise, in addition to the vault, which shall be devoted to the safe-keeping of the prototypes, rooms for mounting the comparators and balances; a laboratory, a library, a room for the archives, work-rooms for the employés, and lodgings for the watchmen and attendants.

ART. 2

It shall be the duty of the international committee to acquire and fit up the aforesaid building and to set in operation the work for which it was designed.

In case of the committee's inability to obtain a suitable building, one shall be built under its direction and in accordance with its plans.

ART. 3

The French Government shall, at the request of the international committee, take the necessary measures to cause the bureau to be recognized as an establishment of public utility.

ART. 4

The international committee shall cause the necessary instruments to be constructed, such as comparators for the standards of line and end measures, apparatus for the determination of absolute dilatations, balances for weighing in air and in vacuo, comparators for geodetic measuring-bars, &c.

ART. 5

The entire expense incurred in the purchase or construction of the building, and in the purchase and placing of the instruments and apparatus, shall not exceed 400,000 francs.

ART. 6

The estimate of annual expenditures is as follows:

A For the first period—during the construction and comparison of the new prototypes—

(a) Salary of the director.....	15,000 fr.
Salary of two adjuncts, at 6,000 fr. each.....	12,000
Salary of four assistants, at 3,000 fr. each.....	12,000
Pay of door-keeper, (mechanic).....	3,000
Wages of two office-boys, at 1,500 fr. each.....	3,000
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Total for salaries.....	45,000
(b) Compensation to men of science and artists who, by direction of the committee, may be employed to perform special duties, keeping of the building in proper order, purchase and repair of apparatus, fuel, light, and office-expenses.....	24,000
(c) Compensation of the secretary of the international committee of weights and measures.....	6,000
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Total.....	75,000

The annual budget of the bureau may be modified by the international committee as necessity may require at the suggestion of the director, but it shall in no case exceed the sum of 100,000 francs.

The contracting governments shall be notified of any modifications that the committee may think proper to make within these limits, in the annual budget fixed by the present regulations.

The committee may authorize the director, at his request, to make transfers from one subdivision of the allotted budget to another.

B For the period subsequent to the distribution of the prototypes:

(a) Salary of the director.....	15,000 fr.
Salary of one adjunct.....	6,000
Pay of a door-keeper, (mechanic).....	3,000
Wages of an office-boy.....	1,500
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	25,500
(b) Office-expenses.....	18,500
(c) Compensation of secretary, international committee.....	6,000
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Total.....	50,000

ART. 7

The general conference mentioned in article 3 of this convention shall be at Paris, upon the summons of the international committee, at least once every six years.

It shall be its duty to discuss and initiate measures necessary for the dissemination and improvement of the metrical system, and to pass upon such new fundamental metrological determinations as may have been made during the time when it was not in session. It shall receive the report of the international committee concerning the work that has been accomplished, and shall replace one-half of the international committee by secret ballot.

The voting in the general conference shall be by states; each state shall be entitled to one vote.

Each of the members of the international committee shall be entitled to a seat at the meetings of the conference. They may at the same time be delegates of their governments.

ART. 8

The international committee mentioned in article 3 of the convention shall be composed of fourteen members, who shall belong to different states.

It shall consist, at first, of the twelve members of the former permanent committee of the international commission of 1872,³ and of the two delegates who, at the time of the appointment of that permanent committee, received the largest number of votes next to the members who were elected.

At the time of the renewal of one-half of the international committee, the retiring members shall be, first, those who, in cases of vacancy, may have been elected provisionally during the interval occurring between two sessions of the conference. The others shall be designated by lot.

The retiring members shall be re-eligible.

ART. 9

The international committee shall direct the work connected with the verification of the new prototypes, and, in general, all the metrological labors, as the high contracting parties may decide to have performed at the common expense. It shall, moreover, exercise supervision over the safe-keeping of the international prototypes.

ART. 10

The international committee shall choose its chairman and secretary by secret ballot. The governments of the high contracting parties shall be notified of the result of such elections.

The chairman and secretary of the committee, and the director of the bureau, must belong to different countries.

³ For background on the permanent committee and the international commission of 1872, see the historical introduction by D. Isaachsen in Charles Édouard Guillaume, *La création du Bureau international des poids et mesures et son oeuvre* (Paris, 1927), p. 1.

After having been formed, the committee shall hold no new elections and make no new appointments until three months after notice thereof shall have been given to all the members by the bureau of the committee.

ART. 11

Until the new prototypes shall have been finished and distributed, the committee shall meet at least once a year. After that time its meetings shall be held at least biennially.

ART. 12

Questions upon which a vote is taken in the committee shall be decided by a majority of the votes cast. In case of a tie, the vote of the chairman shall decide. No resolution shall be considered to have been duly adopted unless the number of members present be at least equal to a majority of the members composing the committee.

This condition being fulfilled, absent members shall have the right to authorize members who are present to vote for them, and the members thus authorized shall furnish proper evidence of their authorization. The same shall be the case in elections by secret ballot.

ART. 13

During the interval occurring between two sessions, the committee shall have the right to discuss questions by correspondence.

In such cases, in order that its resolutions may be considered to have been adopted in due form, it shall be necessary for all the members of the committee to have been called upon to express their opinions.

ART. 14

The international committee for weights and measures shall provisionally fill such vacancies as may occur in it; these elections shall take place by correspondence, each of the members being called upon to take part therein.

ART. 15

The international committee shall prepare detailed regulations for the organization and the labors of the bureau, and shall fix the amounts to be paid for the performance of the extraordinary duties provided for in article 6 of this convention.

Such amounts shall be applied to the improvement of the scientific apparatus of the bureau.

ART. 16

All communications from the international committee to the governments of the high contracting parties shall take place through the diplomatic representatives of such countries at Paris.

For all matters requiring the attention of the French authorities, the committees shall have recourse to the ministry of foreign affairs of France.

ART. 17

The director of the bureau and the adjuncts shall be chosen by the international committee by secret ballot.

The employés shall be appointed by the director.

The director shall have a right to take part in the deliberations of the committee.

ART. 18

The director of the bureau shall have access to the place of deposit of the international prototypes of the meter and the kilogram only in pursuance of a resolution of the committee and in the presence of two of its members.

The place of deposit of the prototypes shall be opened only by means of three keys, one of which shall be in possession of the director of the archives of France, the second in that of the chairman of the committee, and the third in that of the director of the bureau.

The standards of the class of national prototypes alone shall be used for the ordinary comparing work of the bureau.

ART. 19

The director of the bureau shall annually furnish to the committee: 1st. A financial report concerning the accounts of the preceding year, which shall be examined, and, if found correct, a certificate to that effect shall be given him; 2d. A report on the condition of the apparatus; 3d. A general report concerning the work accomplished during the course of the year just closed.

The international committee shall make to each of the governments of the high contracting parties an annual report concerning all its scientific, technical, and administrative operations, and concerning those of the bureau. The chairman of the committee shall make a report to the general conference concerning the work that has been accomplished since its last session.

The reports and publications of the committee shall be in the French language. They shall be printed and furnished to the governments of the high contracting parties.

ART. 20

The contributions referred to in article 9 of the convention shall be paid according to the following scale:

The number representing the population, expressed in millions, shall be multiplied by the coefficient three for states in which the use of the metrical system is obligatory;

by the coefficient two for those in which it is optional;

by the coefficient one for other states.

The sum of the products thus obtained will furnish the number of units by which the total expense is to be divided. The quotient will give the amount of the unit of expense.

ART. 21

The expense of constructing the international prototypes, and the standards and test copies which are to accompany them, shall be defrayed by the high contracting parties in accordance with the scale fixed in the foregoing article.

The amounts to be paid for the comparison and verification of standards required by states not represented at this convention shall be regulated by the committee in conformity with the rates fixed in virtue of article 15 of the regulations.

ART. 22

These regulations shall have the same force and value as the convention to which they are annexed.

E. B. WASHBURNE

HOHENLOHE

APPONYI

BEYENS

VICOMTE D'ITAJUBÁ

M. BALCARCE

MOLTKE-HVITTFELDT

MARQUIS DE MOLINS

CÁRLOS IBAÑEZ

DECAZES

C. DE MEAUX

DUMAS

NIGRA

P. GÁLVEZ

FRAN'CO DE RIVERO

JOSÉ DA SILVA MENDES-LEAL

OKOUNEFF

For M. le Baron Adelswärd (prevented)

H. ÅKERMAN

KERN

HUSNY

E. ACOSTA

Appendix No. 2

TRANSIENT PROVISIONS

ARTICLE 1

All states which were represented at the international meter commission which met at Paris, in 1872, whether they are contracting parties to the present convention or not, shall receive the prototypes that they may have ordered, which shall be delivered to them in the condition guaranteed by the said international commission.

ART. 2

The principal object of the first meeting of the general conference of weights and measures shall be to sanction these new prototypes, and to distribute them among the states which shall have expressed a desire to receive them.

In consequence, the delegates of all the governments which were represented in the international commission of 1872, as likewise the members of

the French section, shall, of right, form part of this first meeting for the sanction of the prototypes.

ART. 3

It shall be the duty of the international committee mentioned in article 3 of the convention, and composed as provided in article 8 of the regulations, to receive and compare the new prototypes one with the other, in accordance with the scientific decisions of the international commission of 1872, and of its permanent committee. Such modifications may, however, be made as may in future be suggested by experience.

ART. 4

The French section of the international commission of 1872 shall continue to have charge of the labors intrusted to it in the construction of the new prototypes, with the co-operation of the international committee.

ART. 5

The cost of manufacturing the metrical standards prepared by the French section shall be reimbursed by the governments interested, according to the cost-price per unit which shall be fixed by the said section.

ART. 6

The immediate formation of the international committee is authorized, and that body, when formed, is hereby empowered to make all necessary preparatory examinations for the carrying into effect of the convention, without, however, incurring any expense before the exchange of the ratifications of the said convention.

E. B. WASHBURNE
HOHENLOHE
APPONYI
BEYENS
VICOMTE D'ITAJUBÁ
M. BALCARCE
MOLTKE-HVITFELDT
MARQUIS DE MOLINS
CÁRLOS IBAÑEZ
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H. ÅKERMAN
KERN
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