

THE INTERNATIONAL AGREEMENT FOR THE UNIFICATION OF ANTHROPOMETRIC MEASUREMENTS TO BE MADE ON THE LIVING SUBJECT

REPORT OF THE COMMISSION APPOINTED BY THE XIVTH INTERNATIONAL CONGRESS OF PREHISTORIC ANTHROPOLOGY AND ARCHAEOLOGY AT GENEVA (1912), TO SUPPLEMENT THE WORK COMMENCED BY THE XIIIth CONGRESS IN THE SESSION AT MONACO (1906)

ENGLISH TRANSLATION OF THE OFFICIAL VERSION¹

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(One of the three recorders appointed by the Commission)

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I. INTRODUCTION

During the International Congress of Prehistoric Anthropology and Archeology, held at Geneva from the 9th to the 12th September, 1912, an International Commission was appointed in order to determine the unification of anthropological measurements to be made on the living subject. The meetings had thus as their object, that of supplementing the work accomplished during the Congress held at Monaco in 1906, when the unification of craniometric and cephalometric measurements was achieved.²

The Commission which met at Geneva included the following members of the Congress:

¹ The Anthropological Laboratory of the University, New Museums, Cambridge. Oct. 30, 1912.

² International Congress of Prehistoric Anthropology and Archaeology, Session XIII, Monaco, 1906, Tome II, pp. 377-394.

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Messrs. CHANTRE (France).
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 FRASSETTO (Italy).
 GIUFFRIDA-RUGGERI (Italy).
 GODIN (France).
 HILLEBRAND (Hungary).
 HOYOS SAINZ (Spain).
 HRDLIČKA (United States).
 LOTH (Russian Poland).
 VON LUSCHAN (Germany).
 MACCURDY (United States).
 MANOUVRIER (France).
 MARETT (Great Britain).
 MAYET (France).
 MOCHI (Italy).
 MUSGROVE (Great Britain).
 PITTARD (Switzerland).
 RIVET (France).
 SCHLAGINHAUFEN (Switzerland).
 G. SERGI (Italy).
 SOLLAS (Great Britain).
 VOLKOV (Russia).
 WEISGERBER (France).

The Commission sat on four occasions, as follows:

Sep. 11.	8 a. m. to mid-day.	President: Professor Manouvrier.
Sep. 13.	8 a. m. to 11 a. m. } 3 p. m. to 4 p. m. }	President: Professor G. Sergi.
Sep. 14.	9 a. m. to 10 a. m.	President: Dr. Duckworth.

Messrs. Duckworth, Rivet and Schlaginhaufen were appointed recorders of the proceedings, and were instructed to prepare the report of the Commission.

The full report of the recorders was adopted unanimously by the Commission at the meeting on Sep. 14, and also by the Congress at the concluding meeting on the same day.

II. GENERAL PRINCIPLES

(a) The *erect position* is adopted as that which the living subject shall assume for the purposes of measurement.

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(b) The *method of projection* is adopted in all cases save those in which special mention is made of a different method.

(c) For "*paired*" measurements, the *left* side is recommended; but measurements of both the right and left sides are to be made in the two cases following:

height of the acromion } above the ground.
height of the great trochanter }

(d) Observers are requested to indicate in every case, with precision, their method and the instruments employed.

(e) Those persons desirous of undertaking anthropometric work are very particularly urged to obtain preliminary *practical* instruction in a laboratory, and not to be content with a merely theoretical study of the various methods and processes of mensuration.

III. DETAILED DEFINITIONS OF THE MEASUREMENTS APPROVED BY THE COMMISSION AND THE CONGRESS

1. *Stature*: The subject stands erect on a horizontal and resisting plane surface (hereafter spoken of as "the ground"): no support is to be given by a vertical plane: the upper limbs are pendant, the palms of the hands turned inwards, and the fingers pointed vertically downwards, the heels in contact, and the axis of vision horizontal. The height of the vertex above the ground is to be measured in this position.

2. **Auditory canal*: anatomical landmark (*point de repère*) the bottom of the notch between the tragus and the helix. (This point had been adopted previously at the Monaco Congress: cf. *op. cit.* p. 391.)

3. **Chin*: anatomical landmark: the inferior border of the mandible in the median plane.

4. **Supra-sternal notch*: anatomical landmark: the deepest point in the hollow of the notch.

5. **Mammilla or Nipple*: anatomical landmark: the center of the nipple. This measurement is not applicable to women with pendant breasts.

6. **Umbilicus or Navel*: anatomical landmark: the center of the umbilical cicatrix.

7. **Pubes*: anatomical landmark: the upper border of the symphysis pubis in the middle line. Where this point is impalpable, guidance

* Measurements preceded by an asterisk, thus *, are those in which the subject retains the position already indicated for the measurement of the stature. [In making the measurements 2-8 and 10-18 inclusive the height of the "anatomical landmark" above the ground is to be determined. W. L. H. D.]

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as to its position is given by the cutaneous fold of the lower part of the abdomen in this situation.

8. **Spinous process of the 5th lumbar vertebra*: to ascertain this anatomical landmark with exactitude, the subject shall be caused to bend forwards from the hips, when the spinous process of the 5th lumbar vertebra will become prominent.

9. *Sitting height*: the subject sits on a horizontal and resisting seat about 30 to 40 ctm. high (this height being proportionate to the stature of the subject): the knees are flexed: the dorsal aspect of the trunk is to make contact with a vertical plane, or with the anthropometric rod at two points, viz. in the sacral region and again between the shoulder-blades. The axis of vision is horizontal, as in No. 1 (*supra*). The height of the vertex above the surface of the seat is to be measured.

10. *Pelvic height*: the subject retains the position adopted for the sitting height (No. 9). The height of the summit of the iliac crest above the surface of the seat is to be measured.

11. **Acromion*: anatomical landmark: superior and external border of the acromion process.

12. **Great Trochanter*: anatomical landmark: upper border of the great trochanter.

13. **Anterior superior iliac spine*: anatomical landmark: the summit of the anterior superior spine of the ilium. In cases of difficulty, the point is found by tracing Poupart's ligament to its iliac termination which defines the point precisely.

14. **Elbow*: anatomical landmark: the radio-humeral articulation.

15. **Wrist*: anatomical landmark: the tip of the styloid process of the radius.

16. **Tip of the middle finger*.

17. **Knee*: anatomical landmark: upper border and edge of the inner tuberosity of the head of the tibia.

18. **Ankle*: anatomical landmark: tip of the internal malleolus.

19. *Span*: the subject is placed against a wall, the arms extended horizontally, the palms of the hands directed forwards. Measure the distance between the tips of the middle fingers of the two hands.

If a wall is not available, the rigid anthropometric rod is to be placed behind the subject, who assumes the position described in the preceding paragraph. The same measurement is to be made.

In either case, the *maximum* span of the subject is to be recorded.

20. **Bi-acromial diameter*: maximum distance between the two acromial points (cf. No. 11).

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21. **Bi-humeral diameter*: maximum distance between the two prominences formed by the deltoid muscles. Secondary measurement.⁴

22. **Bi-mammillary diameter*: distance between the two nipple-points (cf. note appended to No. 5). Secondary measurement.

23. **Bi-cristal diameter*: maximum distance between the external margins of the iliac crests. In making this measurement, the observer is to direct the arms of the sliding compass obliquely downwards, and from before backwards.

24. **Bi-spinal diameter*: measured between the two anterior superior iliac spines (cf. No. 13 *supra*).

25. **Bi-trochanteric diameter*: maximum distance between the external surfaces of the great trochanters. In making this measurement the superficial tissues are to be strongly compressed.

26. **External conjugate (antero-posterior) diameter of the pelvis*: anatomical landmarks: in front, the superior margin of the symphysis pubis in the middle line: posteriorly, the tip of the spinous process of the fifth lumbar vertebra.

27.⁵ **Transverse diameter of the thorax* (No. 1). This measurement is to be made in the horizontal plane at the level of the base of the ensiform cartilage. The observer is to record the mean of the measurements taken at the extremes of inspiration and of expiration respectively: alternatively, the measurement may be made in the intermediate stage as regards those two phases of respiration.

28. **Transverse diameter of the thorax* (No. 2). This measurement is to be made in the horizontal plane at the level of the upper border of the fourth chondro-sternal articulation. The same observation (as to the phases of respiration) applied here as to No. 27 *q.v.* Secondary measurement.

29. **Antero-posterior diameter of the thorax* (No. 1). This measurement is to be made in the same horizontal plane as is defined in the case of the transverse diameter of the thorax No. 1 (cf. No. 27). The same observation (as to the phases of respiration) applies to this measurement as to No. 27 *q.v.*

30. **Antero-posterior diameter of the thorax* (No. 2). This measurement is to be made in the same plane as is defined in the case of the transverse diameter of the thorax No. 2 (cf. No. 28). The same

⁴ A certain number of measurements are thus described in accordance with the instructions of the Commission.

⁵ In making measurements Nos. 27 to 30 inclusive, care is to be taken that the extremities of the calliper-arms are wide, since with the ordinary pointed arms there is a danger of error owing to the points slipping on to an intercostal space.

observation (as regards the phases of respiration) applies to this measurement as to No. 27 *q.v.* Secondary measurement.

31. **Sternal height*: measured with sliding callipers: from the suprasternal notch (cf. No. 4 *supra*) in its deepest part, to the base of the ensiform cartilage.

32. *Bi-condylar diameter of the humerus*. Secondary measurement.

33. *Bi-styloid diameter of the fore-arm*. Secondary measurement.

34. *Bi-condylar diameter of the femur*. Secondary measurement.

35. *Bi-malleolar diameter*. Secondary measurement.

36. **Thoracic circumference*: this circumference is to be measured in the horizontal plane, passing through the base of the ensiform cartilage. The same observation applies here as to No. 27. Secondary measurement.

37. *Circumference of the neck*. Secondary measurement.

38. *Circumference of the upper arm*. The maximum circumference obtained *below* the insertion of the deltoid muscle, the arm being held in the position of rest.

39. *Circumference of the upper arm* with the biceps muscle in the contracted state. Proceed as in the case of No. 38. Secondary measurement.

40. *Maximum circumference of the fore-arm*. This measurement is to be made in the region of the epitrochlear and epicondylar muscles and extensors, *i. e.*, immediately below the joint-level.

41. *Minimum circumference of the fore-arm*. This measurement is to be made above the level of the styloid processes of the radius and ulna.

42. *Maximum circumference of the thigh*. This measurement is to be made at the level of the gluteal fold.

43. *Minimum circumference of the thigh*: measured above the level of the knee-joint.

44. *Circumference of the calf of the leg*: the maximum value.

45. *Minimum circumference of the leg*. This measurement is to be made above the level of the malleoli.

46. *Minimum circumference of the waist*. This measurement is to be made at the level of the most constricted portion of the abdomen.

47. *Contour of the hand*. The right hand is applied to a sheet of paper, the fingers being very slightly separated, and the axis of the middle-finger forming a prolongation of that of the fore-arm. The two ends of the bi-styloid line are to be marked by pencil dots. Starting from these points the contour of the palm and fingers is to be traced

with a pencil split longitudinally and held vertically. Special dots are to be added, marking (a) the extreme ends of the interdigital clefts, and (b) on each side, the position of the metacarpo-phalangeal articulations.

48. *Contour of the foot.* The right foot rests on a sheet of paper, the leg being perpendicular to the plane of this surface. Draw four short lines to mark the positions of the ends of the malleoli, and of the metatarso-phalangeal articulation of each side. Then the contour of the foot is to be traced in the same way as described for the hand (cf. No. 47). The extreme end of each interdigital cleft is to be marked by a dot. It is useless to trace the inner border of the foot between the malleolar point and the metatarso-phalangeal point, for this part of the tracing is always unreliable.

49. *Height of the plantar arch.* The foot being placed in the position requisite for tracing its contour (cf. No. 48), the vertical distance is to be measured between the plane of support and the upper border of the navicular bone. Secondary measurement.

IV.

The Commission and the Congress also adopted unanimously the following proposal and resolutions:

(a) *For the reconstruction of the stature from observations on the long bones of the skeleton.*

For the reconstruction of the stature with the aid of the long bones, the maximum length shall be measured in all cases save in those of the femur which is to be measured in the oblique position, and the tibia which is also to be measured in the oblique position, the spine being excluded.

(b) The Commission wishes to state that it is desirable that in the graphic representation of cranial forms, either the plane of Broca or of the Frankfort Agreement should be employed by anthropologists.

(c) The Commission holds that it is desirable that anthropologists should append complete lists of measurements to their publications.

(Signed)

W. L. H. DUCKWORTH
(One of the Recorders of the
International Commission).