PROPORTIONS
OF THE
HUMAN FIGURE

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1878

Πάντων μέτρον ἄνθρωπος.

THE PROPORTIONS
OF THE
HUMAN FIGURE,

AS HANDED DOWN TO US BY

VITRUVIUS,

FROM

THE WRITINGS OF THE FAMOUS SCULPTORS
AND PAINTERS OF ANTIQUITY:

TO WHICH IS ADDED,

THE ADMIRABLE METHOD OF MEASURING THE FIGURE,

INVENTED BY

JOHN GIBSON,

SCULPTOR;

WITH DESCRIPTION AND ILLUSTRATIVE OUTLINES

BY

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FOURTH EDITION.

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PREFACE.

The ancients, by means of writing, established the wise and useful practice of handing down to posterity their sentiments on different subjects, so that not only those might not be lost, but that by their works continually increasing, a gradual advancement might be made to the highest point of learning. Our obligations to them, therefore, are great and many, from their not having sullenly kept their knowledge to themselves, but, on the contrary, having recorded their opinions on every subject. Had they omitted to do this, we should not have known what happened in Troy, nor the sentiments of Thales, Democritus, Anaxagoras, Xenophanes, and other physiologists, respecting the nature of things; nor the system of ethics laid down by Socrates, Plato, Aristotle, Zeno, Epicurus, and other philosophers.

Vitruvius, Book VII. Joseph Gwilt.

PREFACE TO THE FOURTH EDITION.

It was thought to make the former edition of the "Proportions of the Human Body" more useful to the art-student, by giving Leonardo da Vinci's translation of Vitruvius with an English version, than to give the Latin text, as it appears in the editions now extant.

To this former edition was likewise added a Plate, showing the differences in width between the male and female figures, and a table of the measures of width, taken from the work of M. le Compte de Clerac.

And to this Fourth Edition have been added some notes, and the whole text has been revised.

Large Lithographs of Plates II. and III., to be had separately of the Publisher.

"PROPORTION is the commensuration of the various constituent parts with the whole; in the existence of which symmetry is found to consist." This definition of proportion, given by Vitruvius in the first chapter of the third book of his treatise on Architecture, is laid down, as far as regards the external configuration of the human body, in Plate I., according to a translation of this part of his treatise on Architecture, made by Leonardo da Vinci, and as this book on the proportions of the human figure is addressed to painters and sculptors, it is given in the language of Leonardo, with a translation into English as follows:—

Vitruvio, architetto, mette nella sua opera di Architettura, che le misure dell' uomo sono della natura distribuite ne questo modo, cioè: che quattro diti fa un palmo, e quattro palmi fa un piè; sei palmi fa un cubito; quattro cubiti fa un uomo; quattro cubiti fa un passo; e ventiquattro palmi fa un uomo: e queste misure son ne sua edifizj.	Vitruvius, architect, records in his work on Architecture, that the measures of man are by nature distributed in this wise, that is: that four fingers make a palm, and four palms make a foot; six palms make a cubit; four cubits make a man; and four cubits make one step; and twenty-four palms make a man: and these measures constitute the human edifice.
Se tu apri tanto le gambe che tu cali da capo $\frac{1}{14}$ di tua altezza; e apri e alza tanto le braccia che colle lunghe dita tu tocchi la linea della sommità del capo, sappi che il centro delle estrimità delle aperte membra sia il bellico, e lo spazio che si trova fra le gambe sia triangolo equilatero.	If thou expandest so much thy legs that thou lose $\frac{1}{14}$ of thy height, and expand and raise thy arms that with the longest finger thou shouldest touch the line at the top of thy head, know that the centre of thy expanded members is the navel, and the space that is found between the legs is an equilateral triangle.
Dal nascimento de' capelli al fine di sotto del mento, è il decimo dell' altezza dell' uomo.	From the roots of the hair to the outline of the chin is the tenth part of the height of the man

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* Wilkins' Vitruvius. London, 1812.

Dal di sotto del mento alla sommità del capo, è l'ottavo dell altezza dell' uomo.	From the outline of the chin to the top of the head is the eighth part of the height of the man.
Dal di sopra del petto alla sommità del capo, sia il sesto dell' uomo.	From the top of the breast to the top of the head is the sixth part of the height of the man.
Dal di sopra del petto al nascimento de' capelli, sia la settima parte di tutto l'uomo.	From the top of the breast to the roots of the hair is the seventh part of the height of a man.
Dalle tette al di sopra del capo, sia la quarta parte dell' uomo.	From the nipples to the top of the head is the fourth part of the height of the man.
La maggiore largezza delle spalle contiene in sè la quarta parte dell' uomo.	The greatest width of the shoulders contains in itself the fourth part of the man.
Dal gomito alla punta della mano, sia la quarta parte dell' uomo.	From the elbow to the end of the middle finger is the fourth part of the man.
Da esso gomito al termine della spalla sia l'ottava parte d'esso uomo.	From the elbow to the end of the shoulder is the eighth part of the man.
Tutta la mano sia la decima parte dell' uomo.	The entire hand is the tenth part of the man.
Il piede sia la settima parte dell' uomo.	The foot is the seventh part of the height of the man.
Il membro virile nasce nel mezzo dell' uomo.	The horizontal line in the centre of the diagram marks the middle of the figure.
Dal di sotto del ginocchio al nascimento del membro sia la quarta parte dell' uomo.	From below the knee to the horizontal line in the middle of the diagram is the fourth part of the man, (and from below the knee to the ground is likewise a fourth).
Le parti che si trovano in fra il mento e il naso nascimento de' capelli e quel de' cigli, ciascuno spazio per sè simile all' orecchio, ed è il terzo del volto.	The parts that are found between the chin and the nose, and the roots of the hair, and that of the eye-brows, each space by itself is equal to the ear, and is the third of the face.

The true or normal proportions which the several parts of the external configuration of the human body should bear to the entire height, could only have been found out by measuring a great number of individuals. As, for instance, the proportion which the expanded arms bears to the entire height differs in almost every person: in some, the measure of the expanded arms exceeds that of the height; in others, it falls short; and in few only is it exactly the same. It follows, therefore, that the true or normal proportion or measure of the extended arms, should equal that of the entire height. So, likewise, in the same way, all the other measures given in Plates I. and III. must have been ascertained, and they may be regarded as setting forth those laws of proportion or rhythmos of the external form of the human body, by the observing of which, as Vitruvius tells us, the famous sculptors and painters of antiquity acquired universal admiration.*

DESCRIPTION OF PLATE I.

It will be seen that the measure of the horizontally extended arms equals that of the height by the figure being enclosed in a square; also, that the head is an eighth, and the face a tenth, of the whole height; and, consequently, each of the three divisions of the face is a thirtieth of the whole height, and the remaining space to the top of the scalp a fortieth of the whole height. It is likewise shown that, from the top of the chest to the top of the scalp is a sixth, and from the nipples to the top of the scalp is a fourth, and from the nipples to the horizontal crossing the centre of the square is likewise a fourth, and from that line to the next horizontal which crosses the figure just below the patella is another fourth, and from that line to the ground is another fourth part of the whole height. Likewise, it will be seen that the cubitus, or forearm, is a fourth; and the hand a tenth.

When the arms are raised so that the middle finger of each hand touches a horizontal line on the top of the head, and the legs so expanded that an equilateral triangle may be placed between them,

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* Vitruvius. Book III., Cap. 1.

then the hands and the feet will touch the periphery of a circle, the centre of which will be the navel.

The horizontal lines which mark these proportional measures, are to be regarded as so many planes cutting the figure in those parts indicated by the lines, and they are in agreement with the words of Leonardo.

Of course it will be apprehended that in no other than in the perfectly upright position would it be possible that these lines should cut the figure in the places given by Vitruvius and Leonardo; even in the nearly upright position of the figures in Plate II., it will be seen, by continuing the lines marked V through the figures, how far they are from cutting them in the places they do in the perfectly erect position of the figures in Plates I. and III.

The application of the right angle isoceles No. iii. in Plate I. is an invention of the celebrated sculptor, the late Mr. John Gibson, by which the proportions given in Vitruvius can be ascertained to exist in a round figure in the perfectly erect position of Plate I., and also in a round figure in the position of the figures in Plate II.

The places to which the measurements obtained by the triangle refer, are marked by dots on the figures in both plates, and they are as follows:—

Taking the measure of the hypothenuse, it will be found to go three times, or, in other words, to mark off three measures in the round figure in the position of that in Plates I. and II., viz.: Firstly, from the dot in the heel under the inner ankle to the dot in the middle of the patella; secondly, from the dot in the middle of the patella to the dot in the superior spinous process of the ilium; thirdly, from the upper dot in the pubis to the dot in the pit of the neck.

This last measure is the only one that should be found to answer precisely in the profile figure of Plate I., because it is a measure perfectly vertical in the front view, and the deviation from the vertical is given in the profile figure. All the other dots should be found to be more or less too near to each other in the measurements taken on the drawing, but they should be found to answer precisely to the places marked by the dots on the round figure or model.

Either of the two other lines of the triangle will make five measures on round figures in the position of those in either Plate, viz: Firstly, from the dot on the top of the instep to that below the patella; secondly, from the dot above the patella to the lower dot on the pubis; thirdly, from the dot a little above the navel to the pit of the neck; fourthly, from the dot on the knuckle to that on the elbow; and fifthly, from the dot on the elbow to that on the shoulder.

If from the point D, in the centre of the hypothenuse, you draw a semicircle which but just touches the two other lines of the triangle, and divide the radius into four equal parts, and make FH and HA, each, equal to one of those parts; DN, will give you the length of the neck; DF, the length of the face; DH, the length of the head; and DA, the length of the foot.

In the space on the other side of the figure, Fig. 4, are five geometrical views of the foot.*

The vertical line V on the right hand is divided into heads, parts, and minutes. The parts are obtained by dividing one-eighth of the whole line, or one head, into four equal parts; the minutes are obtained by dividing one of those parts into twelve equal parts. With this scale all those measures of width marked on the figures should correspond, and should be found to agree with the dimensions given by the Count de Clarac† in his table of the dimensions of the Apollino.

The measures of width of four other statues are likewise given from the same authority, viz.: the Apollo Sauroktonos, the Achilles of the Louvre, the Venus de Medicis, and the Venus of the Capitol.

The Apollo Sauroktonos is said to be 7 heads and 9 minutes

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* This will be found to measure more than a seventh, although not longer than the foot of the Apollino, and some other antique statues.

In the British Museum is the statue of an athlete (lately acquired for the national collection) in the act of binding a fillet round his head, probably a copy or *replica* of the celebrated statue of Polycleitus called the Diadumenos. The right foot of this statue is exactly a seventh of its height, and the face exactly a tenth. From the ground to the bottom of the patella the measure is 1 foot 7 inches, one-fourth of 6 feet 4 inches, the height of the statue to the top of the scalp if it stood erect. The entire height, however, as it stands, is 6 feet 1 inch. Thus if we allow 1 inch for the hair, the statue has lost exactly 4 inches by reason of the position.

† Clarac, Musée de Sculture. Paris, 1841.

high if he stood upright; thus, he wants 3 parts 3 minutes to complete 8 heads. (See page 14.)

The Apollino of Florence is said to be 7 heads 3 parts and 6 minutes high; thus, he wants only 6 minutes to complete 8 heads.

The Venus de Medicis is said to be 7 heads 3 parts and 10 minutes; thus, she wants only 2 minutes to complete 8 heads.

The Venus of the Capitol is said to be 7 heads 1 part and 4 minutes; thus, she wants 2 parts and 8 minutes to complete 8 heads.

The Achilles of the Louvre is said to be 7 heads 1 part and 11 minutes; thus, he wants 2 parts 1 minute to complete 8 heads.

The measurements of this last statue have been given because it embodies in a high degree those qualifications for the epithet "swift of foot," given to that hero by Homer, namely, the expansive chest, the massive glutei, the muscular thighs and light sinewy legs,—qualities of form conspicuous in the greyhound.

PLATE II.

The measures of Gibson's triangle are given on the staff of the central figure. They refer only to length.

The horizontal lines marked V are those supplied by Vitruvius; they show how much the figure has lost in height by putting the whole weight of the body on one leg or standing at ease.

The horizontal lines marked G are those given by Gibson; they should be found to coincide with the dots.

The line at the left represents four cubits, one of which is divided into palms and digits.

The line on the right is divided into heads, parts and minutes.

N.B. The leg on which a person stands is always some little less in width than that which bears no weight, owing to the contraction of the muscles for sustaining the limb in the position for bearing the weight of the body; so is the measure from the pit of the neck to the shoulder, some little less on that side of the body. This will be seen by the tables.

PLATE III.

In this plate the difference of width between the male and female figure are given from the Tables of the Count de Clarac of the Apollino and the Venus de Medicis. The male figure is in a thicker line than the female, and the measurements referring to it are on your right hand, and those referring to the female on your left.

The measurements of length, according to Vitruvius and Leonardo da Vinci, are the same in both sexes, and expressed in long horizontal lines running through both the front and profile figures.

Almost innumerable are the varieties of character to be obtained by alteration of widths without making any change in the measurements of length; nevertheless, some ancient statues differ slightly in these measurements of length, and the statute of the Athlete using the strigil, lately discovered in Rome, is remarkable for a very considerable increase of length in the lower extremities.

N.B. M. de Clarac has given no measurement of the width of the foot, but it may be stated that the normal proportion should be $\frac{1}{16}$ of the height.*

Fig. I. shows the differences in width in the profile figures of the male and female, and the numbers on your right, as in the front figure, belong to the male, and those on the left to the female.

Fig. III., on the left hand, is Gibson's triangle, as already described referring to the dots on both figures. This triangle should be drawn on a slab of marble or piece of slate, or on the stuccoed wall of the studio, for frequent reference, as in the course of modelling the exact measures may be lost. Or the measures, taken from the triangle, may be put down in a straight line, as on the perpendicular on the left hand.

Fig. IV. Five views of the female foot.

Fig. V. The scale of heads, parts, and minutes which ought to agree with the measures set down on each side of the figures.

The horizontal line under the figure No. 1 shows the ancient measures derived from the human body, viz. the Digit, the Palm, the Foot, the Cubit.

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* It would be impossible to ascertain this proportion by measuring the feet of Europeans, because they are so deformed by the fashionable shoemaker. The artist must have recourse to the antique statues, or cross the Mediterranean, before he will meet with a well-formed foot, or a well-formed female waist.

WIDTHS IN FRONT VIEW.		Venus de Medicis.			Venus of the Capitol.			Apollo Sauroktonos.			Apollino of Florence.			Achilles, Louvre.		
		H.	P.	M.	H.	P.	M.	H.	P.	M.	H.	P.	M.	H.	P.	M.
		7	3	10	7	1	4	7	0	9	7	3	6	7	1	11
From the pit of the neck to the humerus...	A Q	1	0	0	0	3	4	0	3	6	0	0	0	1	0	2
Left..	Left	0	3	9	0	3	4½	0	0	0	0	0	0	1	0	6
From one nipple to the other................	J J	1	0	0	0	3	5	1	0	0	1	0	0	1	1	1
The greatest width just below the breast...	R R	1	1	5	0	0	0	1	1	4	1	2	2	1	2	1
The smallest dimensions of the waist at the bottom of the ribs........................	S S	1	1	0	1	0	7	1	0	7	1	1	1	1	1	6
Just above the margin of the ilium.........	T T	1	2	1	0	0	0	1	1	0	1	1	9	1	1	11
The margin of the ilium......................	U U	1	2	2	0	0	0	1	1	0	1	1	9	1	1	7
From one superior spinous process of the ilium to the other............................	K K	*1	2	7	1	0	0	1	0	1	0	3	10	1	0	3
The greatest width of the thigh	V V	0	3	6	0	3	1	0	2	9	0	3	2	0	3	2
Left..	Left	0	3	4	0	2	11	0	2	9	0	3	1	0	3	2
At the middle of thigh	X X	0	2	10	0	2	7	0	2	4½	0	2	8	0	2	9
Left..	Left	0	2	9	0	0	0	0	2	5	0	2	8	0	2	8
At the top of the patella	Y Y	0	2	2	0	1	11	0	1	10	0	2	1	0	1	11
Left..	Left	0	2	1	0	2	0	0	1	10	0	1	11	0	1	11
At the middle of the patella	Z Z	0	2	1	0	1	11	0	1	9	0	2	0	0	1	10½
Left..	Left	0	2	0½	0	1	10½	0	1	10	0	1	11	0	1	11
Below the patella	a a	0	1	11	0	1	9	0	1	8	0	1	9½	0	1	8
Left..	Left	0	1	11	0	1	8½	0	1	9	0	1	10	0	1	9
The greatest width of the calf	b b	0	2	3	0	1	11½	0	2	0	0	2	3	0	2	1½
Left..	Left	0	2	3	0	2	0	0	2	0	0	2	2	0	2	2½
Below the calf	c c	0	2	0	0	1	7½	0	1	8	0	1	11	0	1	9
Left..	Left	0	1	11	0	1	8½	0	1	8	0	1	11	0	1	10
Just above the ankle	d d	0	1	3	0	1	0½	0	1	2	0	1	2	0	1	0½
Left..	Left	0	1	2	0	1	1	0	1	1	0	1	3	0	1	0½
At the ankle	e e	0	1	5	0	1	1½	0	1	4	0	1	4½	0	1	4½
Left..	Left	0	1	4½	0	1	2½	0	1	3	0	1	5	0	1	4
The greatest width of the biceps	f f	0	0	0	0	1	8½	0	1	8	0	1	10	0	0	0
Left..	Left	0	0	0	0	1	7	0	0	0	0	1	8½	0	1	8
Just above the elbow	g g	0	0	0	0	1	6½	0	1	6	0	1	8	0	1	6
Left..	Left	0	0	0	0	1	6½	0	0	0	0	1	7	0	1	7
At the elbow	h h	0	0	0	0	0	0	0	1	8	0	0	0	0	1	9
Left..	Left	0	0	0	0	1	7½	0	0	0	0	1	9	0	1	10
At the thickest part of fore-arm	i i	0	0	0	0	1	9	0	1	10	0	1	10½	0	1	10
Left..	Left	0	0	0	0	1	8	0	0	0	0	1	9	0	1	11
At the wrist	j j	0	0	0	0	1	1½	0	0	0	0	1	1	0	0	11
Left..	Left	0	0	0	0	1	1½	0	0	0	0	1	1	0	1	0½

TO PLATES I., II., & III.

WIDTHS IN PROFILE.		Venus de Medicis.			Venus of the Capitol.			Apollo Sauroktonos.			Apollino of Florence.			Achilles, Louvre.		
		H.	P.	M.	H.	P.	M.	H.	P.	M.	H.	P.	M.	H.	P.	M.
From the greatest projection of the chest to just below the base of the scapula ...	J J	1	0	9	1	0	1	0	1	2	0	1	3	1	0	10
At the arch below the pectorals...............	l l	1	0	2	0	3	6	0	1	2	0	1	3	1	0	7
From the front to just above the loins......	m m	0	3	10	0	3	0	0	3	7	0	3	11	0	3	9
From the bottom of the abdomen to the gluteus	L n	0	3	11	0	3	11	1	0	2	1	0	8	1	0	4
From the bottom of the abdomen to the greatest projection of the gluteus.........	L *	1	0	4	1	0	4	1	0	6	1	0	1	1	0	7
Left..	p p	0	3	8	0	3	5	0	3	4	0	3	7	0	3	5
The widest part of the thigh	Left	0	3	9	0	3	5	0	3	4	0	3	8	0	3	6½
Left..	q q	0	3	5	0	3	4	0	3	0	0	3	4½	0	3	5
In the middle of the thigh.....................	Left	0	3	3	0	0	0	0	2	11	0	3	5	0	3	5
Left..	r r	0	2	5	0	2	2	0	2	2	0	2	4½	0	2	1½
Just above the patella	Left	0	2	6	0	0	0	0	2	1	0	2	3	0	2	2½
Left..	s s	0	2	6	0	2	2	0	2	1½	0	2	5	0	2	2
In the middle of the patella	Left	0	2	5	0	0	0	0	2	3	0	2	4	0	2	1
Left..	t t	0	2	2	0	1	11	0	1	11	0	2	1	0	1	11
Just below the patella......	Left	0	2	2	0	0	0	0	1	10½	0	1	11	0	1	11½
Left..	u u	0	2	4	0	2	2	0	2	1	0	2	5	0	2	3½
At the calf of the leg	Left	0	2	3½	0	0	0	0	2	2	0	2	3	0	2	4
Left..	v v	0	1	11	0	1	9½	0	1	9	0	1	11	0	1	10½
Below the calf	Left	0	1	11	0	0	0	0	1	9	0	1	10½	0	1	11
Left..	x x	0	1	8	0	1	8	0	1	7½	0	1	7	0	1	8
At the height of the instep	Left	0	1	8½	0	0	0	0	1	7	0	1	8	0	1	8
Length of the foot	O P	1	0	8	1	0	6	1	0	0	1	1	0	1	0	9
Left..	Left	1	0	8	1	0	6	0	0	0	1	1	0	0	0	0
ARM.																
At the insertion of the deltoid	y y	0	0	0	0	1	10½	0	2	1	0	0	0	0	2	3½
Left..	Left	0	0	0	0	1	9½	0	0	0	0	0	0	0	2	3½
At the middle of the biceps	z z	0	0	0	0	1	10½	0	2	0	0	0	0	0	2	2½
Left..	Left	0	0	0	0	1	9	0	0	0	0	0	0	0	2	4½
From the insertion of the biceps to the elbow	o G	0	0	0	0	0	0	0	1	11	0	0	0	0	1	6½
Left..	Left	0	0	0	0	1	5	0	0	0	0	0	0	0	2	2
At the widest part of the fore-arm	æ æ	0	0	0	0	1	7	0	1	6	0	0	0	0	1	8
Left..	Left	0	0	0	0	1	5½	0	0	0	0	0	0	0	1	9½
At the wrist	& &	0	0	0	0	0	10½	0	0	0	0	0	0	0	1	1
Left..	Left	0	0	0	0	0	10½	0	0	0	0	0	0	0	1	2½

H stands for heads, P for parts, M for minutes.

* This in an error in the copy of the British Museum.

PLATE I.

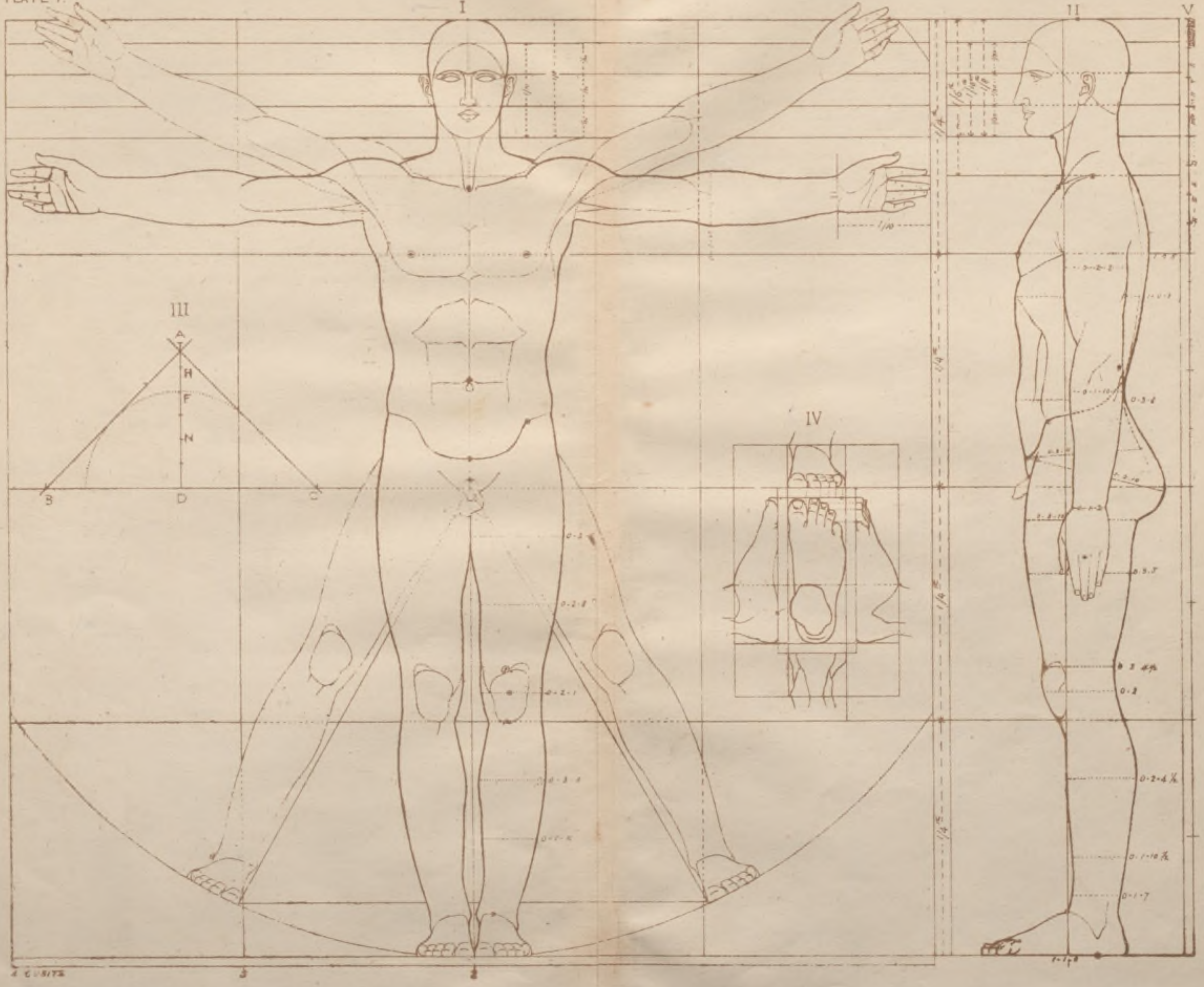

I
II
V
III
A
H
F
N
B
D
C
IV
1/4th
1/4th
1/4th
1/4th
1/16th
1/10
0-2-1
0-3-8
0-3-5
0-3 4½
0-2-4½
0-1-10½
0-1-7
4 CUBITS
3
2

PLATE II.

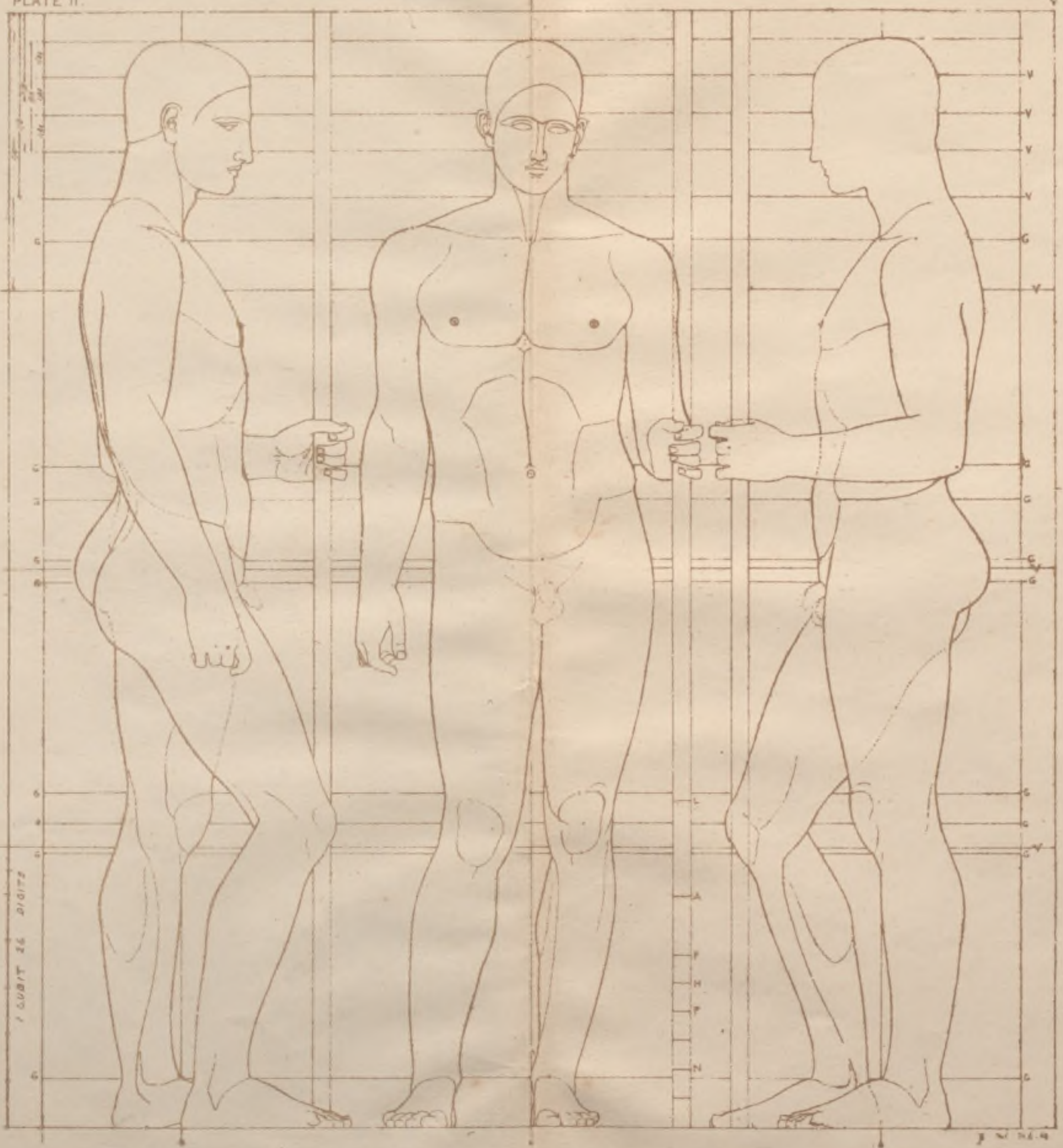
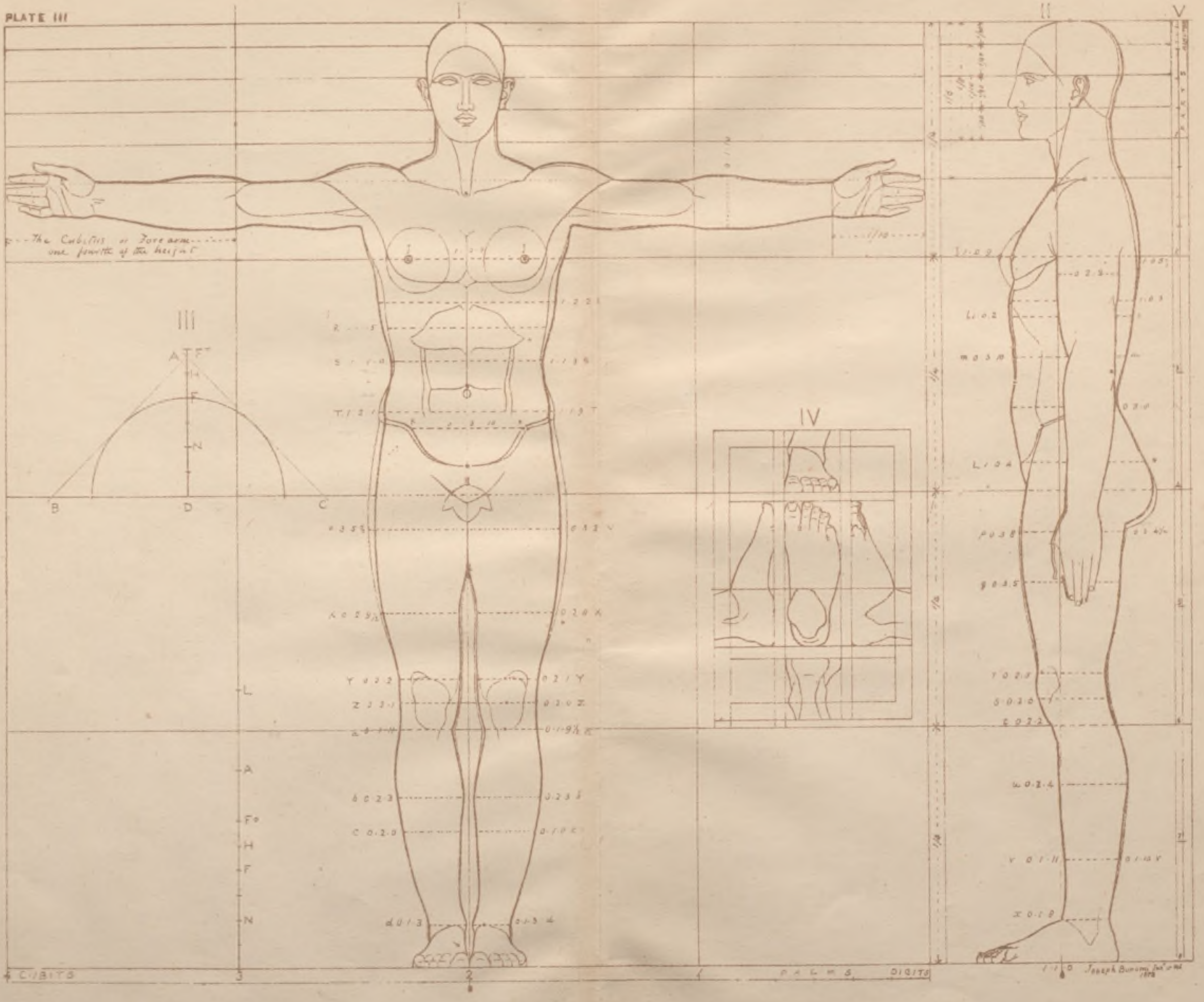


PLATE III


I
II
V
III
IV
The Cubitus or Fore arm one fourth of the height
A
H
F
N
B
D
C
L
A
Fo
H
F
N
4 CUBITS
3
2
1
PALMS
DIGITS
1/10
1/4
1/4
1/4
1/4
Joseph Bonomi fec't & del
1876