

## Leonardo's View of the Human Body

The following excerpt is from Martin Kemp's *Leonardo on Painting* (New Haven, CT: Yale University Press, 1989).

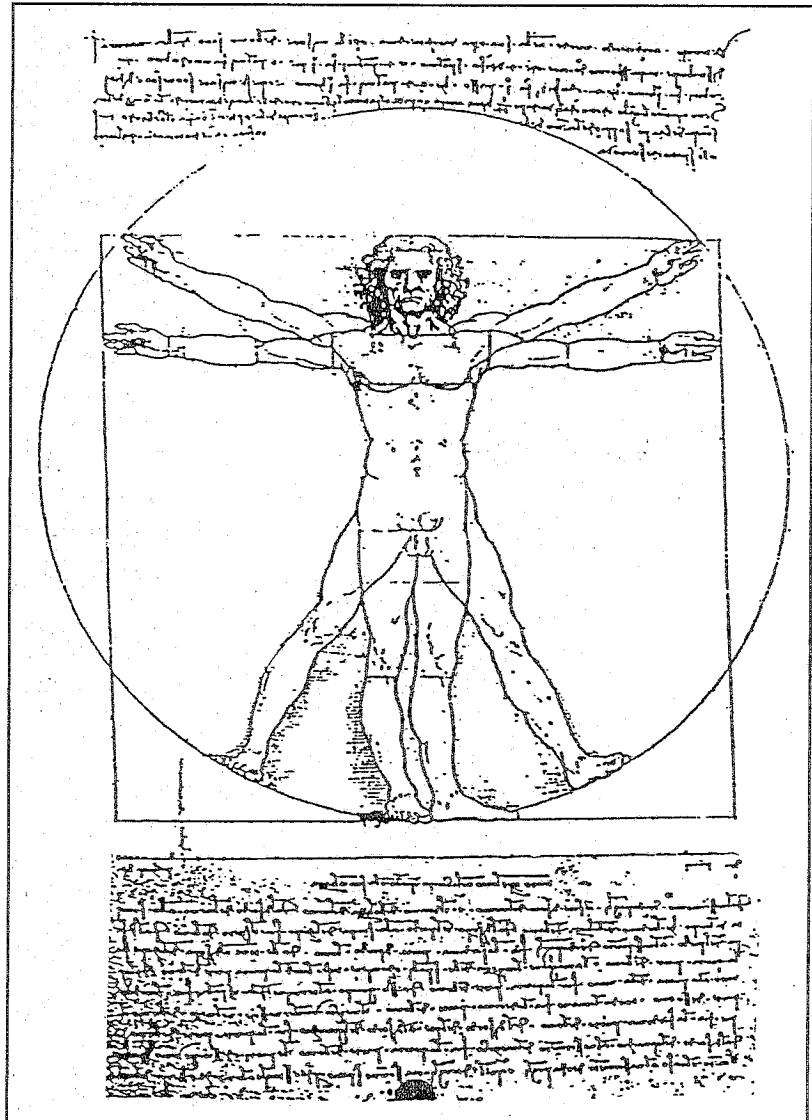
# On the Measurements of the Human Body

Vitruvius, the architect, has it in his work on architecture that the measurements of man are arranged by nature in the following manner: four fingers make one palm and four palms make one foot; six palms make a cubit; four cubits make a man, and four cubits make one pace; and twenty-four palms make a man; and these measures are those of his buildings.

If you open your legs so that you lower your head by one-fourteenth of your height, and open and raise your arms so that with your longest fingers you touch the level of the top of your head, you should know that the central point between the extremities of the outstretched limbs will be the navel, and the space which is described by the legs makes an equilateral triangle.

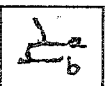
The span to which the man opens his arms is equivalent to his height.

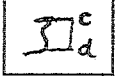
From the start of the hair [i.e., the hairline] to the margin of the bottom of the chin is a tenth of the height of the man; from the bottom of the chin to the top of the head is an eighth of the height of the man; from




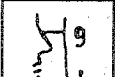
the top of the breast to the top of the head is a sixth of the man; from the top of the breast to the start of the hair is a seventh part of the whole man; from the nipples to the top of the head is a quarter part of the man; the widest distance across the shoulders contains in itself a quarter part of the man; from the elbow to the tip of the hand will be a fifth part of the man; from this elbow to the edge of the shoulder is an eighth part of this man; the whole hand is a tenth part of the man.


If a man of two *braccia* is small, one of four is too large—the mean being the most praiseworthy. Half-way between two and four comes three. Therefore take a man of three *braccia* and determine his measurements with the rule I give you. And if you should say to me that you might make a mistake and judge someone to be well proportioned who is not, I reply on this point that you must look at many men of three *braccia*, of whom the great majority have limbs in conformity with each other. From one of the most graceful of these take your measurements. The length of the hand is a third of a *braccio* and goes nine times into the man; and correspondingly the face, and from the pit of the throat to the shoulder, and from the shoulder to the nipple, and from one nipple to the other, and from each nipple to the pit of the throat.

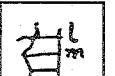
 The space between the slit of the mouth and the base of the nose is one-seventh of the face.


 The space from the mouth to below the chin, *cd*, will be a quarter part of the face, and similar to the width of the mouth.


 The space between the chin and below the base of the nose, *ef*, will be a third part of the face, and similar to the nose and the forehead.


 The space between the midpoint of the nose and below the chin, *gh*, will be half the face.

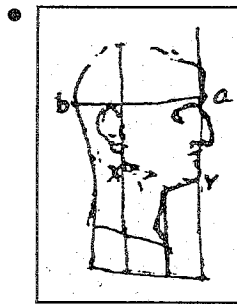
 The space between the upper origin of the nose, where the eyebrows arise, *ik*, to below the chin will be two-thirds of the face.

 The space between the slit of the mouth and above the beginning of the upper part of the chin, that is to say, where the chin ends at its boundary with the lower lip, will be a third part of the space between the parting of the lips and below the chin, and is a twelfth part of the face. From above to below the chin, *mn*, will be a sixth part of the face, and will be a fifty-fourth part of the man.

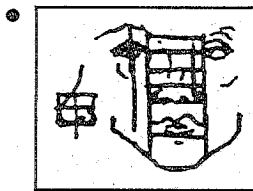
 From the furthest projection of the chin to the throat, *op*, will be similar to the space between the mouth and below the chin and is a quarter part of the face.

 The space from above the throat to its base below, *qr*, will be half the face and the eighteenth part of the man.

 From the chin to behind the neck, *st*, is the same as the space between the mouth and the start of the hair, that is to say three-quarters of the head.



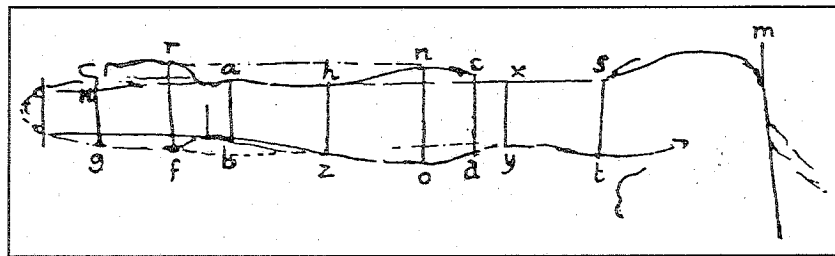
From the chin to the jawbone, *vx*, is half the head, and similar to the width of the neck from the side.



The thickness of the neck goes one and three-quarter times into the space from the eyebrows to the nape of the neck.

The distance between the centers of the pupils of the eyes is one-third of the face.

- The space between the edges of the eyes towards the ears, that is to say, where the eye ends in the socket which contains it (at its outer corners), will be half the face.
- The greatest width which the face has at the level of the eyes will be equivalent to that between the line of the hair at the front and the slit of the mouth.
- The nose will make two squares, that is to say, the width of the nose at the nostrils goes twice into the length between the tip of the nose and the start of the eyebrows; and, similarly, in profile the distance between the extreme edge of the nostril—where it joins the cheek—and the tip of the nose is the same size as between one nostril and the other seen from the front. If you divide the whole of the length of the nose into four equal parts, that is to say, from the tip to where it joins the eyebrows, you will find that one of these parts fits into the space from above the nostrils to below the tip of the nose, and the upper part fits into the space between the tear duct in the inner corner of the eye and the point where the eyebrows begin; and the two middle parts are of a size equivalent to the eye from the inner to the outer corner.
- The hand to the point at which it joins with the bone of the arm goes four times into the space between the tip of the longest finger and the joint at the shoulder.
- $Ab$  goes four times into  $ac$ , and nine times into  $am$ . The greatest thickness of the arm between the elbow and the hand goes six times into  $am$ , and is similar to  $rf$ . The thickest part of the arm between the shoulder and the elbow goes four times into  $cm$ , and is similar to  $hng$ .



- The least thick part of the arm above the elbow,  $xy$ , is not the base of a square, but is similar to half of the space  $bz$ , which is found between the inner joint of the arms and the wrist. The width of the arm at the wrist goes twelve times into the whole of the arm, that is to say, from the tip of the fingers to the shoulder joint, that is to say, three times into the hand and nine times into the arm.
- If a man kneels down he will lose a quarter of his height. When a man kneels down with his hands in front of his breasts, the navel will be at the midpoint of his height and likewise the points of his elbows.