number of equal parts, according to the number of inter­mediate timbers it is intended to draw. From these points of division draw the lines DI, EK, &c. perpendicular to AC ; and from the points where these lines intersect the arc of the circle draw 15, K4, &c. parallel to AC. Trans­fer the line BC, so divided at 1, 2, *&c.* to BE, in fig. 16, which will give points in which the intermediate sections will cut the diagonal BE. The other diagonals are divided similarly by taking any point O in AC produced (fig. 17), and joining OB, 01, &c. and placing the projection of any dia­gonal as PQ parallel to BC, and with its extreme points in OB and OC. Some constructors prefer dividing each dia­gonal separately, by describing arcs of circles BA with dif­ferent radii; others, instead of dividing the sine AC into equal parts, divide the arc AB into equal parts, and then proceed as before.

The fore-body is formed by nearly the same means, but is always made fuller than the after-body. Let *Abc* (fig. 16) represent the midship section, and *Aed* the extreme section forward ; produce the projection of the diagonal *be* to meet the middle line of the body-plan in *f.* Describe the quadrant of a circle BA (fig. 18) with a ra­dius equal to *fb* (fig. 16), and draw the sine DC equal to *fe,* and parallel to FB. From a point E in FA produced, describe an arc of a circle, with a radius equal to once and a half or twice FB, ac­cording as it is intended to make the fore-body fuller or sharper, meeting CD produced in G. Di­vide the arc FG into as many equal parts as it is required to find spots on the diagonal *be,* for the in­termediate sections ; and from the points of divi­sion H, I, &c., draw HM, IN, &c. parallel to BF ; and draw Pl, 02, &c. pa­rallel to FA. Then transfer BF, so divided, at I, 2, &c. to

*bf* in the body-plan, which will give points in which the intermediate sections will cut the diagonal *bf.* Instead of dividing the arc FG into cqual parts, some constructors divide the sine DG into cqual parts, and, by drawing lines parallel to FD from these points of division, determine the points of division of the arc FG, and then proceed as be­fore. Instead of making similar figures for other diagonals, they are frequently divided proportionally to *fb.*

Bouguer proceeds to show the method of completing the diagonals before and abaft the extreme sections.

One of the easiest methods of constructing ships’ bodies, is by means of an equilateral triangle, and is described by Du­hamel in his *Elémens de F Architecture Navale.* To con­struct the triangle for the after-body, draw any line AB (fig. 19), and divide it at the points 1, 2, 3, &c. so that the distance from 1 to 2 may be three times the distance Al, taken at pleasure, the distance from 2 to 3 five times A1, and so on ; the number of points of division corre­sponding to the number of intermediate sections be­tween the midship sec­tion and the stern-post, to­gether with the after-sec­tion at the stern-post. Suppose the number of intermediate sections to be 7, let the distance from 7 to B be at least equal to the distance between the ver­tical sections on the plan of elevation. Describe on AB the equilateral triangle ABC, and join Cl, C2, C3, &c. The use of this triangle is to divide the projection of the diagonals in the body-plan proportionally to the divisions of the base of the triangle AB.

In the plan of elevation, or sheer plan, take the distance between any two of the vertical sections, and place DE, the line representing this distance, parallel to AB, and so that its extremities may be in the lines C7 and CB. Produce DE to F, and take the horizontal distance from the inter­section of the projection of the diagonal with the vertical section 7, to where the projection of the diagonal meets the projection of the after fashion-piece ; and place this distance DG on DF, keeping one of its extremities in D ; then join CG, and produce it to meet the base. AB pro­duced in H. Take the projection of this diagonal in the body-plan IK (fig. 20) from the midship section LIM to the fashion­piece NKO, and place it in the triangle parallel to the base AB, and with its extremities *i* and *k* in CA and CH ; the lines Cl, C2, C3, &c. will divide the line *ik* pro­portionally to the divisions of the base of the triangle AB. Transfer this line so divided to its place in the body-plan : the points 1, 2, 3, &c. will give spots through which the intermediate vertical sections will pass.

Some who have used this me­thod of forming ships’ bodies placed the projections of all the diagonals parallel to the base of the triangle ; others placed them at different angles with the base. Duhamel recom­mends their being placed as follows. The projection of the lower diagonal representing the floor ribband parallel to the base ; the projection of the second diagonal at an angle of