of the half-breadth plan, as in Plates CCCCLL, CCCCLII., and CCCCLIII. This is generally the case in laying off, because the dimensions of the mould-loft, floor would not admit of any other arrangement.

From the description of the draught we proceed to ex­plain the manner of transferring the various lines from one plan to another.

To run off the diagonals in the half-breadth plan. From the point of intersection of the diagonal with the middle line in the body plan, take the distances of the intersection of every timber with the said diagonal, which distances set off on the corresponding timbers in the half-breadth plan. Through the points thus obtained pass a curve, which will represent a vertical projection of the diagonal on the half-breadth plan, not in its original position, but after it is sup­posed to revolve until it comes into a horizontal position. The axis of revolution is a fore and aft line parallel to the keel, being the intersection of the diagonal plane with the vertical longitudinal plane of the ship. It remains to ex­plain the method of ending the diagonals ; but before the process can be clearly understood, it will be necessary to enter into a brief explanation of the rabbets of the stem and stern-post.

The upper part of the rabbet of the stem, and also of the stern -post, is an equilateral triangle, whose sides are equal to the thickness of the bottom plank, the middle of the rabbet being half the distance between the fore and after edges. But at the lower part of the stem, although the fore part of the rabbet remains fixed, yet the middle and the after edges vary considerably from their relative positions at the upper part.

This variation is technically termed the “ opening of the rabbet,” and it arises from the alteration of the form of the body. Thus, if we conceive the bow to be of the same shape above and below, no alteration would be required in the form of the rabbet Again, if the bow were so sharp near the keel that its horizontal section becomes a fore and aft straight line, then the ends of the bottom plank should be cut off square, and therefore in the sheer plan the middle of the rabbet would coincide with the fore edge. Hence we see that the middle of the rabbet approximates to or re­cedes from the fore edge, according to the sharpness or ful­ness of the lower part of the bow. In general, it will be sufficiently accurate for all practical purposes to place the middle of the rabbet at the lower part one third its breadth from the fore edge, from which point it gradually recedes from the fore edge till it arrives at the upper end of the stem, where, as before observed, it is midway between the fore and after edges.

The same remarks obviously apply to the rabbets of the stern-post and keel ; observing, that with respect to the keel, the rabbet amidships is an equilateral triangle, the middle of which is equidistant between its upper and lower edges, whereas forward and abaft, the projection of the middle of the rabbet of the keel, in the sheer plan, with respect to the lower edge of the rabbet, partakes of a simi­lar variation, as before described with respect to the rabbet of the stem. In general it should be understood, that that form of rabbet is to be adopted which most conduces to its utility as a security of the wooden ends, and the ef­ficiency of their caulking, so that there shall be no tendency to set off the buts of the plank.

For determining the endings of the diagonals, it is further necessary to observe, that the half siding of the stem and stern-post must be drawn in the body plan, to­gether with the depths of their respective rabbets ; observ­ing, that with respect to the stem, it is usual to make it of a parallel siding from the head to the lower side of the lower cheek, in order to afford greater support to the bow-sprit and knee of the head. From the lower cheek down­wards it gradually tapers to the siding of the keel. The stern-post either tapers the whole of its length, or is of a parallel siding from the head to the lower side of the deck-transom, from whence it tapers to the heel. From our preceding remarks, it will be perceived, that in the half­breadth plan the upper diagonals will terminate at the aft part of the rabbet of the stem, and the lower diagonals at the middle of the rabbet. Hence there will be an . inter­mediate point depending on the comparative fulness and sharpness of the bow, at which one diagonal will terminate both at the middle and at the after part of the rabbet ; or rather this one diagonal will break in fair with both the middle and after part of the rabbet.

To determine the endings, we proceed thus : In the body plan take the heights of the intersections of the diagonal with the outside of the stem, and with the inside of the rabbet ; transfer these heights to the sheer plan, to the after side and to the inside of the rabbet ; square down these two spots to the middle line of the half-breadth plan, at which points raise two perpendiculars ; along the diagonal in the body plan take the distances from the middle line to where the diagonal intersects the inside of the rabbet and outside of the stem, and set these distances off on the correspond­ing perpendiculars in the half-breadth plan ; thus will be obtained two points, one of which will be the termination of the diagonal according to the form of the body, as before explained.

Or, in the half-breadth plan, with the fore part of the rabbet as a centre, and the after part of the rabbet as a ra­dius, describe a portion of a circle, and let the diagonal at its termination be a tangent to this circle. The after ends of those diagonals which are below the wing-transom ter­minate in the rabbet of the stern-post, in a similar manner to the fore ends in the rabbet of the stem.

The termination of those diagonals which cross the wing­transom is thus explained. In the body plan, take the dis­tance square to the middle line of the intersection of the diagonal with the margin. Set this distance off in the half-breadth plan, square to the middle line, to intersect the margin. Through the spots thus obtained draw a perpen­dicular to the middle line, on which perpendicular set off the diagonal distance of the intersection of the diagonal with the margin in the body plan. This gives the termination required.

The foregoing remarks will serve to elucidate the plan of terminating water-lines, and also all level lines which are below the wing-transom ; excepting that the distances in the latter cases are taken horizontally instead of diagonally.

To run off the diagonals in the sheer plan : In the body plan, take the perpendicular heights, that is, the heights square to the upper edge of the keel, of the intersection of the diagonal with each of the timbers, and transfer these heights to the corresponding timbers in the sheer plan. Through the points thus obtained draw a curve, which will be the line required.

These lines terminate forward at the aft side of the rab­bet of the stem, and aft at the fore side of the rabbet of the post, at the respective heights of their intersection in the body plan, with the sides of the stem and stern-post.

These lines are chiefly required in the sheer plan, when making a disposition of the timbers of the frame ; as by their means we show the heights above the keel, of the floor-heads, first futtock-heads, &c.

To run off the horizontal ribbands in the half-brcadth plan. Having run off the diagonal planes, as just explain­ed, in their true form, it will be necessary to obtain their vertical projections in the half-breadth plan, without ima­gining them, as before, to revolve into a horizontal position. The diagonals, when projected according to this second me­thod, are called “ horizontal ribbands.”

Observe the points of intersection of the diagonal in the body plan with each timber. Take the horizontal distance