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**ON**  
**NAVAL EVOLUTIONS.**

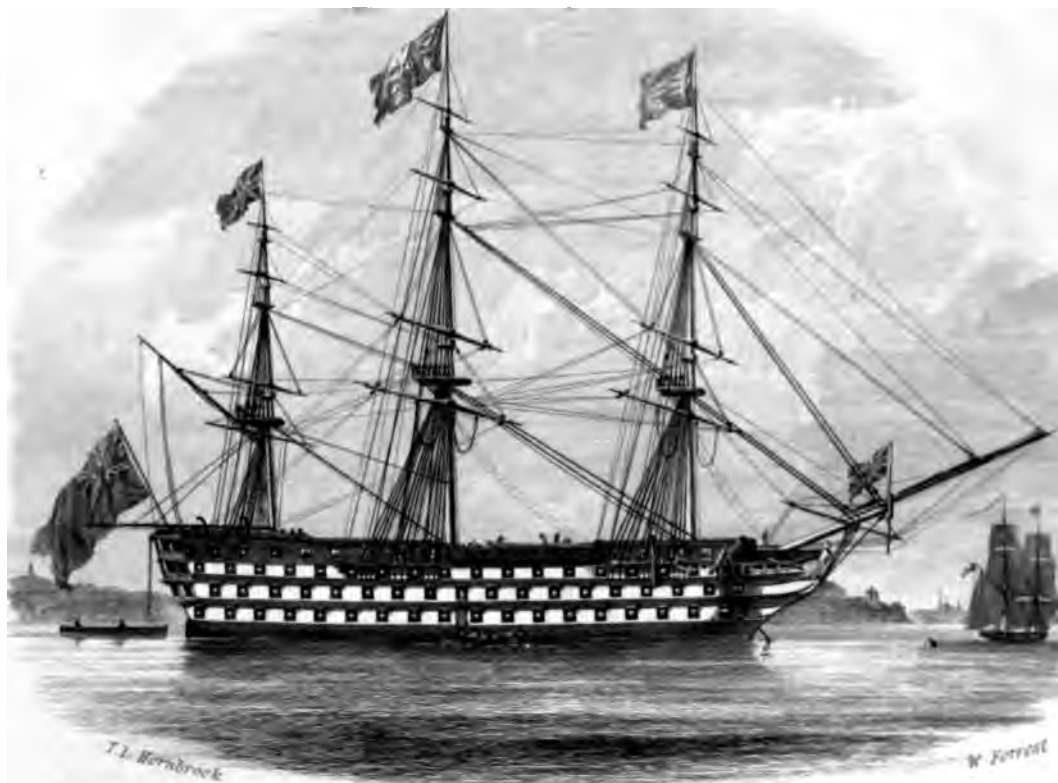
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**NAVAL TACTICS**  
**BY**  
**P. PAUL HOSTE.**

TRANSLATED  
BY  
**CAPTAIN J.D. BOSWALL R.N. F.R.S.E.**  
WITH  
FIFTY TWO PLATES, AND ADDITIONAL NOTES AND ILLUSTRATIONS.



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1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971).

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**J. D. BOSWALL, CAPTAIN, R. N.**

**WARDIE, NEAR EDINBURGH,**

*June 1, 1834.*



## INTRODUCTION.

---

**FROM** the attention bestowed for these few years past on Naval Tactics, by several experienced officers and tacticians, those who follow the Naval service, have been frequently referred to the Treatise of Paul Hoste on Naval Evolutions, as the earliest work of this description on record, and to which all others have been more or less indebted.

As the scarcity of this Treatise has almost entirely excluded it from being accessible to Naval Officers, as an elementary book of instruction, I have been induced carefully to examine the original folio edition, printed at Lyons in 1697, and to conclude, that were it more generally known, it would be of much service to the profession, by furnishing clear, simple, and practical rules for Naval Evolutions, drawn from mathematical principles, and embracing this important subject in every variety of theoretical and practical detail. With these views, and sanctioned by the recommendation and desire of many of my distinguished brother officers, I have translated the whole Six Parts of this Treatise for the purpose of its publication in the English language. The First and Fifth

Parts only have previously appeared in English, in 1762, by Lieutenant Christopher O'Bryen, R. N., who, from not understanding the subject, or the little attention paid to theory in his day, has altogether omitted the Second, Third, Fourth, and Sixth Parts, assigning this reason, "*that the Second Part regards only the changing the dispositions of the several squadrons into the van and rear, &c.: methods obvious and easy in practice, and therefore rather matter of speculation and amusement, than of real use at sea; and so are likewise the Third and Fourth Parts.*" These parts, however, are in fact the substance and most instructive portions of the Treatise, for without them the most important, the Fifth Part, cannot be practically understood. O'Bryen admits the originality of Paul Hoste's Treatise, as well as the following Tacticians; M. Bourde de Villehuit, in 1769; M. de Morogues, and M. du Pavillon, in 1780; The Viscount de Grenier, in 1788; a work published by Steel, in 1794: and Admiral Sir Charles Ekins, in his Valuable Treatise on Naval Battles, considers "that it is the root from which all others have grown." Besides, Paul Hoste was himself in many of the battles he describes so fully to illustrate his Tactics, having served twelve years with and under some of the most distinguished Admirals of France; he was on board the Count de Tourville's ship at the Battle of La Hogue, in 1692, only five years prior to the publication of his Treatise on Naval Evolutions, and of a Treatise on the Art of Naval Architecture, proving that he has added to the theory of his mathematical work, the practice of a good and experienced seaman.

So perfectly has Paul Hoste been master of the technical terms used in detailing his Evolutions, that it affords another proof of his competency to judge both of the theory and practice of his Treatise on naval warfare. The translation has been made literally, and with the greatest fidelity and care.

The additions which I have been enabled to give to the work of so celebrated an Author, I trust will not be unacceptable to those who study naval tactics, or to the intelligent reader. Considering the later improvements of naval architecture, I have thought it expedient also to substitute in the engravings, the best models of modern ships-of-war which it was possible to obtain; likewise, it ought to be explained, that instead of merely repeating the figure of vessels, in the course of their evolutions, simple diagrams are employed, as the preferable mode of illustrating the movements of fleets and squadrons.

In conclusion, I cannot help remarking, that it has afforded me much pleasure, and a great deal of practical knowledge, in executing the Translation of this very interesting work, in conjunction with my relative, Lieutenant William Chambers, R. N.; both of us have received much useful instruction from it, and if it shall be found of equal utility to our brother officers, it will amply repay our humble efforts to add this Treatise upon Naval Tactics to those we already possess in the British service.

Sir Charles Ekins, in his recent work on Naval Battles, expresses his unqualified opinion, that "this Treatise comprises every thing to be known upon sailing, forming in different lines and orders, fighting, and manœuvring a fleet, and the subject is treated in a seaman-like manner."

This undertaking is respectfully submitted to the profession, and others who feel an interest in the naval affairs of this great empire. No other object is in view, than an anxious desire to fill up a most serious blank in our present system of Naval Tactics, namely, "A Book of Instruction," containing rules and examples determined on mathematical principles,

and so practical as to enable the officer and tactitian to render the knowledge of Naval Evolutions familiar upon every occasion of actual service, —preparing him, at the same time, to act with promptitude and energy in all cases at sea, when opposed by winds, weather, or other circumstances to which naval warfare is liable.

J. D. BOSWALL, *Captain, R. N.*

Warpie, *June 1, 1834.*



The following brief account of the Author, is taken from the  
 DICTIONNAIRE HISTORIQUE, Vol. IV., page 460.

“ Father Paul l'Hoste, a Jesuit, was born at the Port de Vesle, at Bresse, in the year 1652, and died Professor of Mathematics in the Royal College of Marine, at Toulon, in 1700, aged 48. He has principally made himself known by his Treatise on Naval Evolutions, in folio, 1697, reprinted at Lyons in 1727, with corrections and augmentations.

“ This celebrated work is not less historical than mathematical, and illustrates all the most remarkable events that took place at sea, during fifty years.

“ L'Hoste dedicated his work to Louis XIV., who received it most graciously, and presented the Author with 100 pistoles, and 600 livres. He is also the Author of a valuable Treatise on the Theory and Construction of Vessels, the fruits of all the conferences which he had with the Marshal Count de Tourville, and other distinguished Admirals of France, who were engaged in the desperate and sanguinary battles fought with the English and Dutch fleets, in the seventeenth century, together with a collection of Mathematical Treatises, of a most important nature to Naval Officers.”



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## ORIGINAL PREFACE.

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THOSE who have any knowledge of maritime affairs will judge, without doubt, that the art of Naval Evolutions is absolutely necessary, since this art is nothing else than the manner of regulating all the movements of a fleet. Without it, a fleet would resemble the Barbarians, who have no knowledge of the art of war, and who do without order all that caprice inspires, or that hazard may offer. Without the art of Evolutions, an Admiral can very imperfectly dispose his fleet. Whether it be to oppose himself opportunely to the enemy, whether it be to break through, cut off, double on, avoid, pursue, or force them to engage. All these things require that the Admiral should controul each different part, as the mind acts on the different members of the body.

Without the art of Evolutions, the least change of wind, or any accident, will derange the fleet; no one will any longer know what he can, or what he ought to do, they will be confused, cutting off, and falling on board of one another, and letting slip the most favourable opportunities of gaining the weathergage, or doubling on the enemy; they themselves will be liable to be doubled on, and will lose the advantage of the wind without perceiving it; the best intentioned will not know what to do, and the others always find something to cover their bad manœuverings. The art of Evolutions corrects all these disorders. It shows so clearly to Admirals, and individuals, what they can, and what

they ought to do, in all rencontres, that no one can be ignorant of his duty, or acquit himself, or fail in it, but, that the least enlightened will be able to render him the justice he deserves.

Besides, the Naval Evolutions are so simple, and without presuming any knowledge of geometry, that a little application, with practice, will suffice to render their use familiar to the dullest comprehension.

I think that officers, who, in other respects, are acquainted with maritime affairs, will not experience more difficulty in learning Naval Evolutions, than military officers do in acquiring their exercise, forming squadrons, battalions, &c., ranging, and giving them all the necessary movements, as well as performing all the Military Evolutions that are practised.

I have added to the rules I proposed, the examples of the greatest naval tacticians of this age, and I have taken occasion to describe the principal battles which have ensued at sea, since large ships have superseded the gallies, that formerly constituted a fleet.

I hope that my Treatise will not only be useful to the profession, but to all who take an interest in Naval affairs, that they may be able to judge of engagements at sea without the danger of being deceived. It must be granted, that the Marine has, up to this time, been a mystery to those not of the profession. The most faithful and exact descriptions of sea engagements appear to them a species of bombast that no one can understand; they learn incontestable facts, but cannot judge if they were deserving praise or blame; they were obliged to give themselves up to the opinion of those in the profession, and, if trusting to their own ideas, they may fall into such an error as that which happened some years ago at Dunkirk, on occasion of a sham-fight, given to divert the King. The Chevalier de Leri and the Sieur Panetier, were chosen to command the vessels; they had run about a league distant from the Risban, where



the Court was assembled, when the two Captains did all that the most experienced could do to prepare for battle. The Sieur Panetier, who was to leeward, wished to gain the weathergage, and for that, performed one of the most delicate manœuvres of the art ; but, instead of obtaining the praises which such dexterity merited, he drew from a minister, otherwise very enlightened, the remark, that Captain Panetier had no inclination to fight. This is what happens every day respecting sea engagements ; there are none so skilful as to be safe from misconstruction and blame thrown on the most praise-worthy, and none so bad but what the authority of a professional man will shower on them applauses.

For the rest, it will not be thought strange that a man of my profession should have written on these subjects, if it is known, that for *twelve years* I have had the honour to be with Monsieur le Marechal d'Estrées, Monsieur le Duc de Montemant, and Monsieur le Marechal de Tourville, in all the expeditions where they commanded our naval forces, and that Monsieur le Marechal de Tourville has communicated to me his ideas, and ordered me to compose a Treatise on a subject which, I think, has not yet been treated of, though of so much importance to the glory of a maritime nation.

*Toulon, 1696.*



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A

**TREATISE**

ON

**NAVAL TACTICS.**

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**NAVAL EVOLUTIONS** are the movements made by Fleets, or Squadrons, for putting themselves into arrangement, and into a situation for attacking an enemy, defending themselves, or retreating with the greatest advantage.

This treatise is divided into six parts; the first explains the order and the manner of forming fleets; the second, the method of changing the squadrons into the different orders; the third gives easy methods to re-establish the order when a change of wind has disturbed it; the fourth shows how a fleet can pass from one order to another without confusion; the fifth will treat of the movements that fleets make without deranging the order; and the sixth contains some remarks made for facilitating the practice of it.

**PART FIRST.**

**THE ORDER OF FORMING FLEETS.**

**I.—THE** order is the various manner of ranging the ships of the fleet. The order is of two things:—1<sup>st</sup>, the situation of each ship with regard to the wind. 2<sup>d</sup>, The situation of each ship with respect to the other ships

composing the fleet. Neither of these two things can be changed without changing the order; and the order remains the same, when neither the one nor the other of these two things are changed.

The different circumstances in which a fleet is placed, and the different plans that an Admiral proposes to act on, give occasion for different orders. If the fleet be to engage, it ought to be ranged differently from what it would be in sailing. If a fleet be sailing in sight of an enemy, it ought to be differently disposed to what it would be if there were no probability of meeting one. A fleet which sails before the wind has its particular order:—that which pursues an enemy; that which retreats; that which defends a passage; that which forces one; that which is anchored in a port or roadstead; and that which is going to insult an enemy. All these different fleets must be ranged in different orders.

Three things will show if the order be good.

1st, If the order render a fleet capable of doing what it is destined to execute. “As, if the order of sailing contribute to accelerate the course of the fleet; if the order of retreat put the fleet in more security from the pursuing enemy.”

2d, If the order take up less room for the fleet, and unite it the more readily. “Because a fleet less spread is more difficult to separate, and can assist one another, and be in close communication.”

3d, If the order be reduced in a short and simple manner, and facilitate the order of battle. “Because the principal object of a fleet, or squadron, is to engage to the greatest advantage;” all these orders, then, must refer to the order of battle.

### FLEETS.

[Fleets are generally divided into three squadrons; the first is the Vanguard, the second the Centre, and the third the Rear-guard. The Admiral of the Fleet, or Commander-in-Chief, leads the Centre squadron, while the Van is commanded by the Vice-Admiral, and the Rear by the Rear-Admiral; each squadron is distinguished by its proper colours, according to the rank of the officer who commands. The Admiral of the British fleet displays the Union flag at the maintop-gallant-mast-head,

likewise the Admirals of the Red, White, and Blue, on the same mast ; those of the Van division carry their respective flags at the foretop-gallant-mast-head, and those of the Rear division at the mizen.

The private ships of the fleet have numbers, and distinguishing pendants for answering signals, and carry vanes of the same colour of their squadrons at the mast-heads of their particular divisions, so that the last ship in the division of the blue squadron carries a blue vane at her mizen-mast-head ; each squadron, as far as possible, consists of the same number of ships, and, as nearly as may be, of the same force. In large fleets, the squadrons are sometimes sub-divided in a similar manner ; the van and rear of a squadron being headed by Rear-Admirals, or senior Captains carrying Commodores' pendants. In the usual mode of forming lines, each commanding officer places his ship in the centre of his own division, excepting when he may lead them into battle, or take his station ahead in any of the orders of sailing, or as circumstances may require. When a fleet is in order of sailing, sloops-of-war, fire-ships, transports, and other small vessels, are stationed to windward, having the frigates to windward of the van and rear of them, to keep a good look-out, to repeat and make signals when necessary, and be prepared to chase on the appearance of an enemy or strange sail. When fleets sail in three columns in expectation of meeting an enemy, the look-out ships and frigates are stationed in various bearings from the flag-ship, to give instant notice by signal to the Admiral of their being seen, whose ship is in the middle of the centre, while the van and rear form the starboard and larboard columns. The disposition of a fleet while proceeding on any service, will in some measure depend on particular circumstances, as the difficulty of the navigation, the necessity of despatch, according to the urgency or importance of the expedition, or the expectation of an enemy in the passage ; the most convenient order, therefore, is to range it in three columns, each of which is parallel to the line of bearing according to the tack on which the line of battle is intended by the Admiral to be formed ; this arrangement is more useful than any, because it contains the advantages of every other order of sailing without their inconveniences, and enables the fleet with greater facility to form itself into the line of battle,—an object at all times to be kept in view in every order of sailing.] T.

## CHAPTER I.

## EXPLANATION OF SOME TECHNICAL TERMS.

II.—THE COMPASS is an instrument employed to determine the ship's course at sea, and consisting of a card and two boxes. The card, which is calculated to represent the horizon, is a circle divided into thirty-two equal parts, by lines drawn from the centre to the circumference, called points, or rhumbs. The intervals between the points are also divided into equal parts, called degrees, 360 of which complete the circle; and consequently, the distance, or angles, comprehended between any two rhumbs, is equal to  $11^{\circ} 15'$ . The four principal rhumbs are called the cardinal points, deriving their names from the places to which they tend, viz., the two which extend themselves under the meridian, opposite to each other, pointing to the north and south, are called the north and south points. That which is towards the right hand as we look north, is termed east, and its opposite the west point. The names of all the inferior ones are compounded of these according to their situation. Along the north and south line is fixed a steel needle below the card, which being touched by the loadstone, acquires a certain virtue that makes it hang nearly in the plane of the meridian, and consequently determines the direction of the other points towards the horizon.

PLATE I. 1. A rhumb being one of the 32 points of the compass, there are 6 rhumbs, or 6 points, from the point A to the point H.

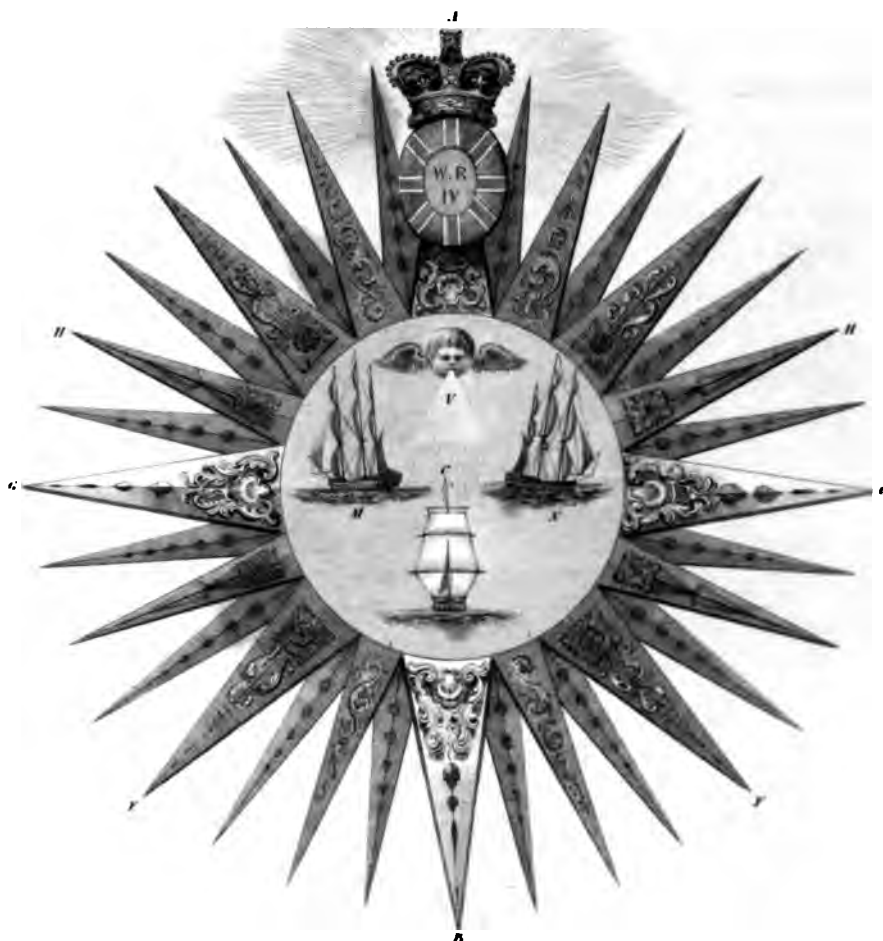
2. The direction of the wind is the line from which it blows; thus the line A B is the direction of the wind V.

*Remark.*—It can be easily conceived that the wind V can blow the ship C along the line C B, and that it cannot blow it along the line C A; it will appear also, that the wind V will make the ship C go on the lines C F, and even C G, but it will not make it pass along the line C H.









IX





III.—The line of bearing is that by which a vessel is impelled, to enable her as near as possible to approach the wind; thus the line C H is the line of bearing with respect to the wind V, in as much as the wind V cannot possibly carry the ship C on any line nearer to itself than the line C H.

There are two lines of bearing, the one on the right of the wind C H, called the starboard line of bearing, in which the ship M sails with its right, or starboard bow, to the wind; and the other on the left of the wind C H, is called the larboard line of bearing, in which the ship N sails with its left, or larboard bow towards the wind. If upon either of these lines a fleet be ranged, whatever course they steer they will, by hauling their wind, or tacking together, be found in order of battle.

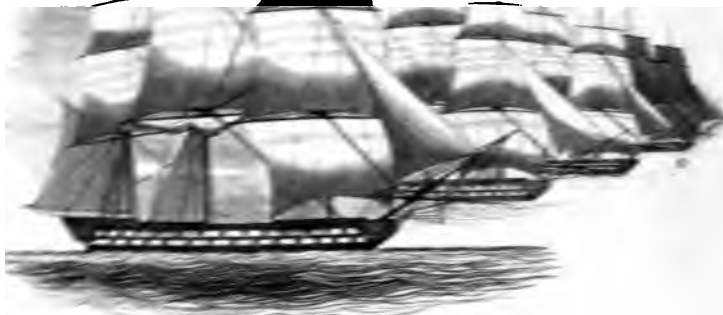
The order of sailing of a fleet on one of the lines of bearing, is that by which they hold in going from the wind, preserving the same direction with respect to each other as on one of the lines of bearing.

The two lines of bearing, when close hauled, is when ships, whither sailing or lying-to, are so situated with respect to each other, that the bowsprit of the one should exactly point to the stern of the headmost throughout the whole line from van to rear, preserving all the same bearing, and keeping their wind clean full on the starboard or larboard tacks. Hence it is clear, that ships may be on one tack but different line of bearing; and accordingly as they are ranged for thus promptly forming the order of battle, they are said to be either in line of bearing for the starboard tack, or in line of bearing for the larboard tack.

*Remark.*—Ships of a fleet are said to be *in line abreast* when their keels are parallel to each other. This line of sailing is most commonly used with the wind right aft, so that the line forms a perpendicular with the direction of the wind.

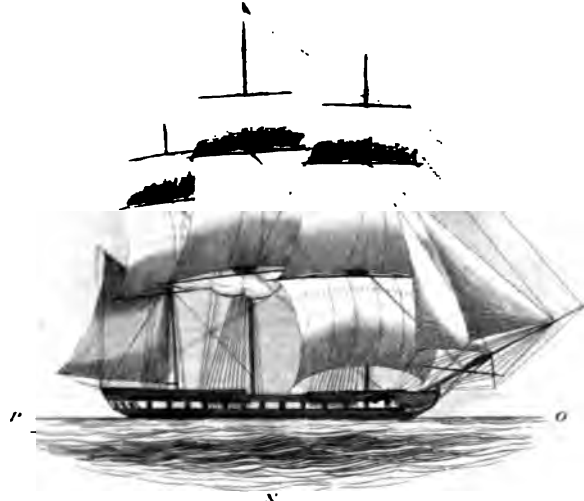
A fleet is said to be *in a line on bow and quarter* when they are ranged in a straight line, cutting their keels obliquely in the same angle, so that reckoning from any intermediate ship, the ship towards one extremity of the line will be on the bow of that ship, while those towards the other extremity will be on her quarter.





XII

XIII







the same direction, they cannot be said to be in line, because it is but for a moment, and by accident on a straight line.

X.—If several ships be on the line M N, or O P, and standing in the same direction, they can be said to be in line, but if the lines M N, O P, be not the lines of bearing, these ships are said to be in the line of convoy, because these sorts of lines are more proper for merchant ships than men-of-war. PLATE II.

*Remark.*—It will be seen hereafter that ships of war are sometimes ranged perpendicular to the wind, and even in lines parallel to the direction of the wind, but at the same time it may be observed that this manner of arranging them will only do, when there is no probability of encountering an enemy.

XI.—If the ships Q R, or S T, be ranged on one of the two lines of bearing, and are not standing on the line of bearing on which they are ranged, are said to be in line of sailing; thus, the ships Q R are on the starboard line of sailing, because being ranged on the starboard line of bearing, they are sailing before the wind, and the ships S T are in larboard line of sailing, because, being ranged on the larboard line of bearing, they are standing to the wind on the starboard tack.

XII.—A ship is said to be hove-to, after having taken in her lower sails, the fore and mizen top-sails are allowed to remain full, and the other is laid to the mast in an inverse manner with reference to the wind, so that, while the sails which are standing full, propel the ship forward, the others, which are laid to the mast, have a contrary tendency, and the ship is kept, as it were, in a stationary position; thus, the ship N is hove-to with the main-top-sail to the mast.

XIII.—A ship is said to bear up when she turns in an opposite direction to that in which she was in; thus, when the ship N quits the course N P for N O, she is said to bear up.



PLATE III. XIV.—If the ships A B, or C D, be ranged on one of the lines of bearing, and standing to the wind on the line on which they are ranged, they are said to be in line of battle ; thus, the ships A B are in larboard line of battle, because they are standing to the wind on the larboard tack, and are ranged on the larboard line of bearing ; the same, we say that the ships C D, are in the starboard line of battle, because they are ranged on the starboard line of bearing, and are standing to the wind on the starboard tack.

*Remark.*—We shall subsequently see the reasons why fleets of men-of-war are thus arranged in time of action, and why the order in which a fleet is so disposed, is called the line ; as also, why a ship is called a ship of the line, which is of sufficient force to engage in the line of battle ; because ships which are not of the requisite force, very far from contributing to the strength of a fleet, by their number, would, for the reasons we shall hereafter explain, inevitably occasion the loss of the action, if they were placed in line with other ships of superior force. By ships of the line, we comprehend those ships which do not carry less than 50 guns, and those on the lower deck, of a calibre of not less than eighteen pounders.

*Note.*—[Ships of the line are now constructed to carry from 74 to 120 guns, with 24 and 32 pounders on their decks.] T.

XV.—A fleet is said to perform successfully any manœuvre, when all the ships perform it one after another ; thus, we say the fleet F E tacks in succession at the point E, and that the fleet H G bears away in succession at the point G, because all the ships F E tack one after another at the point E ; the same of the ships H G, when they bear up successively at the point G.

XVI.—If the line M N be perpendicular to the direction of the wind O P, all the ships which are on the line M N are equally near the wind ; but the ship Q, which is to windward of the line M N, is also to windward of the ship M N ; and the ship R, which is to leeward of the line M N, will also be to leeward of the ship M N. In effect, if the ships M N Q





XIV.



XV.



XVI.















R, are equally good sailors, and making all sail on the lines of bearing, the one starboard, the other larboard, the ships M N will meet at the point S of the line O P, from which they are equally distant, and, at the sametime, the ship Q will be at the point O, on the same line, to windward of the ships M N, and the ship R will be at the point T of the same line, to leeward of the ship M N.

If one desire to know whether any given object is either to windward or to leeward of the spot or position on which he is standing, he has only to turn his face directly towards the wind, and whatever is found to be equilateral right and left, is equally near the wind as the spot or position on which he is standing; but every object in advance of him, is to windward, and every object in rear of him, is to leeward.

To render the subject more clear, the wind must be considered as a great current of air blowing on lines parallel to the lines O P, and from whence, the source is at the end O, for then we say, that a ship is to windward of another, when it is nearer the source of the wind, and that she is to leeward when she is farther from the wind than another ship; thus it may easily be comprehended, that the ships M N are equally near the wind, because they are at equal distance from it, and that they are to windward of the ship R, because she is farther from the wind. In short, the ships M N are to leeward of ship Q, because the ship Q is nearer to the source of the wind than the ships M N.

XVII.—A ship is said to tack when it turns, in order to go from the one line of bearing on to the other line of bearing. As, for example, when, after having sailed on the starboard tack, it turns, in order to sail on the larboard tack. There are two modes of tacking: 1<sup>st</sup>, To heave in stays, which takes place when the head of the ship is allowed to come round to the direction in which the wind is blowing. Thus, the ship E is said to heave in stays, when, after having sailed on the line E F, which is the starboard line of bearing, she is turning toward the point G, in order thereafter to run on the line E H, which is the larboard line of bearing. PLATE IV.

XVIII.—2<sup>d</sup>, It is called wearing, when the ship turns or falls off from the wind; thus a ship is said to wear, when, after having sailed on the line

K I, which is the starboard line of bearing, it subsequently turns itself from the wind towards the point L, in order to run on the line L M, which is the larboard line of bearing.

XIX.—A ship A is said to be *abeam* of another ship B, when the line A B is perpendicular to the line C C, on which the ship A is standing; thus, the ship A is not abeam of the ship B, because the line B A is not perpendicular to the line D D, on which the ship B is standing. Attention must be paid to this term, as it will be frequently used, and will serve to render the rules more intelligible.

XX.—A fleet is said to perform simultaneously a manœuvre, when it is executed by all the ships at the same time; thus the fleet K L is said to tack together, because all the ships K L tack at the same time.

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## CHAPTER II.

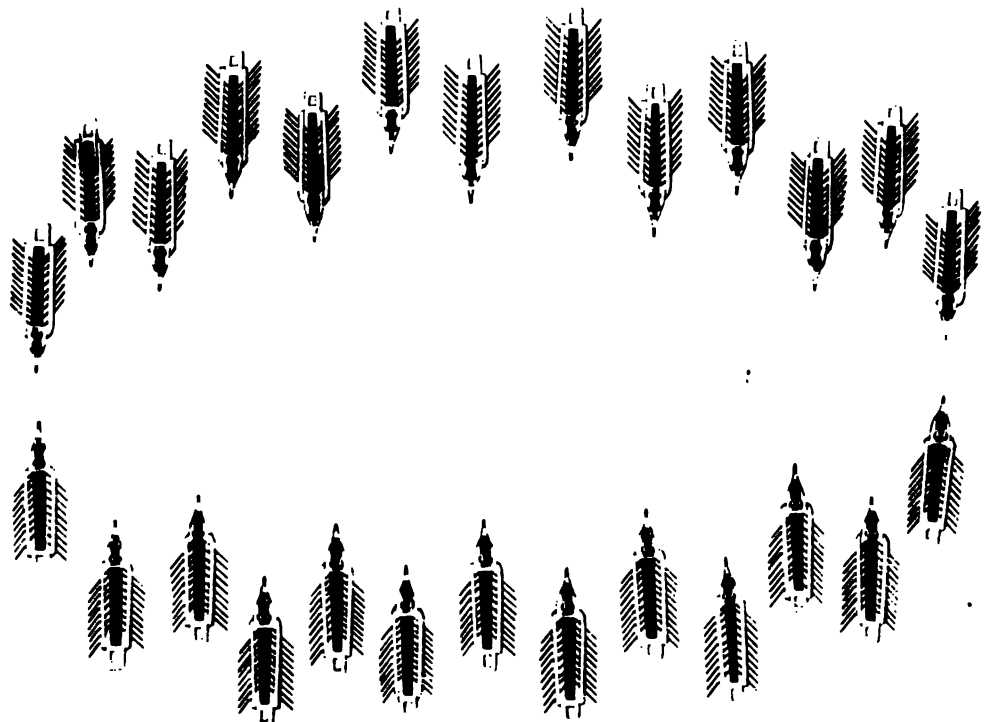
### EXAMPLE TO SERVE AS A PRINCIPLE TO THE WHOLE TREATISE.

XXI.—SHIPS and vessels of war are armed with guns, which are ranged along the length of their sides; from hence it follows, that a ship cannot engage, that does not present her side to the enemy, and that when several ships are engaged with others, their broadsides are ranged on two parallel lines, as the ships A, which are in battle with the ships B.

*Remark.*—The ancients ranged their fleets in such a manner as to present their fronts to the enemy, because the machines with which their vessels were armed, were placed at the prow, to which was attached a brazen point or trident, nearly as low as the surface of the sea, in order to pierce the enemy's ships; it is for this reason that galleys in a battle were ranged in the form of a crescent, the horns of which are turned towards the enemy, and the centre occupied by the Admiral, that he may see more easily every thing that takes place in the fleet. The









two fleets thus disposed approach, and the battle having begun at the horns of the crescent, insensibly extends till the combatants are mingled together, and each take a share in the peril and glory of the battle.—See *Diagram, Plate V.*

*Example.*—The battle of Lepanto is one of the most celebrated sea-fights of this description. It took place in the Gulf of Lepanto on the 7th of October 1751, between the Christians and the Turks. The Christian fleet was composed of 250 great and small galleys, the Turks had nearly 260, both of them forming a great line, the extremities a little inclining towards the enemy. Don John of Austria, Generalissimo of the Christians, was placed in the centre of his fleet, who gave the command of his right wing to the Marquis de Santa Croix, and the renowned Andre Doria,—his left to M. Antony Collona, Sebastian Venino, and Barbarigo. The Basha Hali, General of the Turks, was also in the middle, or centre of his fleet; his right wing was commanded by the Bashas of Alexandria, Mahomet, and Syroca, and he gave charge of his left wing to Ulucciali, Governor of Algiers, an experienced seaman.

At two o'clock in the afternoon, the two fleets approached on their oars, and, with great shouts, the battle commenced; our left being attacked first, performed wonders, under Barbarigo, who fought the Turks with such valour, that the Barbarians, unable any longer to stand the fire of the Christians, turned their vessels to the neighbouring shores, or deserted them, and threw themselves overboard, some succeeding in landing, others perishing in the water, leaving their galleys at the mercy of the victors. Barbarigo did not long enjoy the pleasure of his victory, for one of the last of the Turkish arrows wounded him in the eye; he died on the following day, with a great number of valiant officers, who had imitated his bravery, and partaken of the labour and honours of the battle. Notwithstanding, the two centres continued to fight with a fury not to be described. Don John of Austria, boarded the galley of the Basha Hali, with 300 Janissaries on board, and carried her, sword in hand; the example of this valiant General animated the Christians, right and left, to such a degree, that they threw themselves like lions on the Turks, boarding, sinking, burning, and taking a great number of their galleys, and covering the sea with the dead bodies of the infidels, who



defended themselves well, and mingling their cries with the noise of the cannon, augmented the horror of a combat, where a thousand frightful objects were found to strike terror into the most intrepid.

The Basha Hali sustained, during four hours, the assaults of four Christian galleys; but at last, seeing himself almost alone, without oars or helm, in the middle of a heap of dead bodies, he jumped into a boat, and was killed in his retreat.

The Crescent of Mahomet was then lowered, and the standard of the Cross hoisted in its stead; after which, Don John, in order to intimidate the enemy, gave orders to have the head of the Turkish Admiral fixed upon a long pole, which was fastened to the top-mast, and shouts were sent, from ship to ship, of triumph and victory.

The battle now became a frightful carnage; the Turks, being without a leader, plunged overboard, and tried to save themselves by swimming to the Christian galleys; but, in the fury of the battle, they were received with blows of the sabre, that cut off their arms, cleft their heads, and they were stunned with blows from the oars; never was such a frightful butchery seen. Ulucciali, the celebrated Corsair, having left Doria's right wing, threw himself on our centre, and, in a short time, committed great ravages; but fearing that Doria would attack him from the rear, he retired from the *melée*, and made his escape to Constantinople, through his superior skill in navigation, and knowledge of the seas, with 30 galleys, which escaped from a defeat so general. Of the Turks, 25,000 perished, besides 3,500 prisoners that the Christians saved, and 130 galleys. The Christians lost but 10,000 men, and 15 of their galleys, and would have destroyed the Ottoman Empire, if they had profited by so splendid a victory.

*Note.*—[Plate V. represents a galley or galliasses of war, used by the Venetians at this memorable battle, where they contributed eminently to the defeat of the Turks. "These vessels were 150 to 180 feet in length, and 50 feet of extreme breadth, and propelled by various numbers of oars. Their prows and sterns were furnished, like those of the galleys, with heavy cannon. In addition to these, there were several ports in the top-sides, over the oars, through which guns were

worked, although of inferior calibre to those already mentioned. They were, nevertheless, rendered extremely formidable, as affording, not only protection to, but a power of annoying the enemy from the broadside of the vessel, which the galley was destitute of. We are naturally led, by this historical fact, to point out the different improvements which took place, and the several progressive steps used in converting the galley of the Mediterranean into what is now called a ship-of-war. On comparing the most faithful representations which have been transmitted to us, both of the galley, and its descendant, the galleon, we shall be able to trace, without much difficulty, that progression of ideas which gave birth to the formation of the latter. It was requisite, in the first instance, to raise the side of the vessel considerably higher, after the introduction of cannon, than it had been customary to do before; more particularly towards the fifteenth century, when port-holes were first brought in use, for the few cannon which each vessel carried.”—*Charnock's History of Marine Architecture*.

It may perhaps not improperly be subjoined here, the following note from the same valuable work, of the spoil taken in this naval battle from the Turks, by the Christian Allies, which was divided in the following manner :—“ Philip the Second of Spain, for his share, had 58 galleys, 9 galliots, 68 large cannon, 8 bombs, and 128 light artillery, with 1713 prisoners. To the Venetians was given, a portion agreeable to the number and strength of their shipping; they had for their share, 44 galleys, a number of galliots and galliasses, 131 pieces of cannon, of various sizes, with 1162 prisoners. That of His Holiness Pius V., was the smallest, but the most honourable, as among his prisoners, he reckoned Achmet, and Mahomet, the sons of Hali; the ecclesiastical share amounted to 21 galleys, with a proportion of smaller vessels, 54 pieces of artillery of different sizes, with 881 prisoners.”]—T.

## CHAPTER III.

## CHASING.

**PLATE VI. I.**—THAT a ship may chase another, she ought to have the advantage of sailing ; we shall, therefore, always suppose that the chaser sails better than the vessel chased, because, were the ship chased, as good a sailer as the chaser, she never could come up with her, if they manœuvred equally and at the same time, however full of skill and ability the manœuvre of the chaser might be : it is therefore useless to follow a ship, over which you have not the superiority in sailing, unless you find, from the manœuvre of the chase, she does not know how to take the benefit of her equality.

To know if your ship have any advantage in sailing, you must get on the same tack, under the same sails, and keep the same course with the vessel you mean to chase, and set her exactly with a compass.

If you sail best, the chase will soon be drawn a point more aft ; but if she have the advantage, you will, in a short time, bring her a point farther forward than the first bearing ; if you sail equally, she will remain at the point on which you set her at first, supposing you to keep the same course.

**Fig. 1.** If the ship A stand in the line A E, and the ship B, on the line B E, in such a manner as to come on the lines F G, parallel to A B, they will be on the same course with regard to one another, and will meet at the point E, where the lines A E and B E terminate.

*Corollary 1st.*—If the ship A, which is to windward of the ship B, keep away more than the ship B, and keeping her always on the same course, she will overtake her before she reaches the point E.

*Corollary 2d.*—In order that the ship A may be enabled to give chase to the ship B, by the shortest direction, A must keep away towards B as much as possible, taking very great care to keep the ship B, on the same point of the compass from her.

1st. We say, that the ship A must keep away more than the ship B,







Fig. 1



Fig. 5.

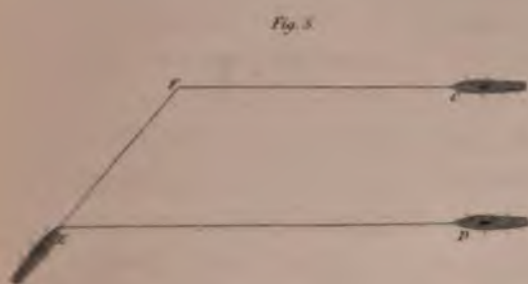


Fig. 2

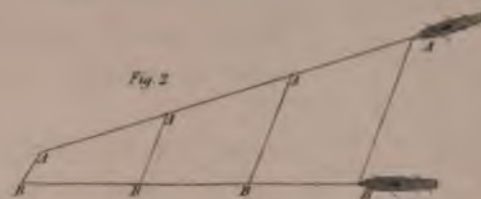


Fig. 3.

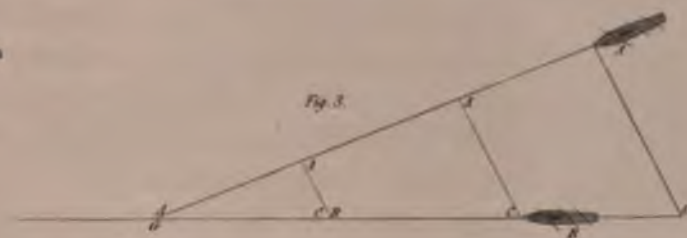


Fig. 4





because, if A were to run on the line A C, which is parallel with the line B E, she would never reach the other ship, although A continued to keep B on the same bearing.

*2d.* That the ship A must keep away as much as possible, (still keeping B on the same point of the compass,) because it might happen, that A could not keep B on the same compass bearing, although A were to run the shorter line A F; for, as ships increase their rate of sailing by bearing away, the ship A will not require more time to cross the line A H, than A G.

*Corollary 3d.*—If the ship A is to range alongside the ship B, passing ahead or astern, she will chase, as has just been explained, and having approached her as near as convenient, will be alongside without difficulty; it may, at the sametime, be observed, that if the ship A is to cross ahead, she will keep the ship B a little more to leeward, and if astern, a little more to windward.

*Remark.*—I know that tacticians will expect more exactness in the practice of the two last Corollaries; for example, if the ship A is to pass the stern of the ship B, they will imagine some point C, astern of the ship B, at the requisite distance, and, in consequence, the ship A will chase to the points G, ahead of the ship B, for, say they, when she shall have reached the point C, the ship A will be in her place; but great difficulty will be found in the execution of this rule, as to the exact position.

II.—If the ship A is to leeward of the ship B, which is to be chased, we shall find several different cases.

If the ship B stand on the tack B G, which approaches to the ship A, this ship will stand on the other tack A G; and if she can keep the ship B at the same point of the compass, she will reach her at the point G, where the two tacks cross.

*Remark.*—The more the ship A keeps away, the sooner she will reach the ship B; but she must also increase her rate of sailing, in order to



keep her at the same point of the compass, because the lines A C lengthen in proportion as the ship A keeps away; if the ship A cannot keep the ship B at the same bearing, and standing, like her, close to the wind, she will have recourse to the following rules, at least, if she do not find that she is inferior, in point of sailing, to the ship B, for then it would be useless to continue the chase.

**Fig. 5.**     *Rule.*—If the ship D is greatly to leeward of the ship C, she will keep on the same course till she can tack on her, when, being at the point E, she will find the ship C, at the point F, in such a manner, that the angle, F, E, D, will be four points.

*Remark 1st.*—The following method is in use among the best manœverers, because it keeps them from being at too great a distance from the chase, and after two tacks will bring them in her wake.

*Remark 2d.*—The ship D can continue on the same tack, till she can cross the ship C, but she will risk losing her, by keeping at so great a distance from her, from a fog, a change of wind, or any other accident so frequent at sea, which may favour the ship C, and assist her to escape; so that this plan ought not to be adopted, unless close to the chase, or when joining company with a friendly ship.

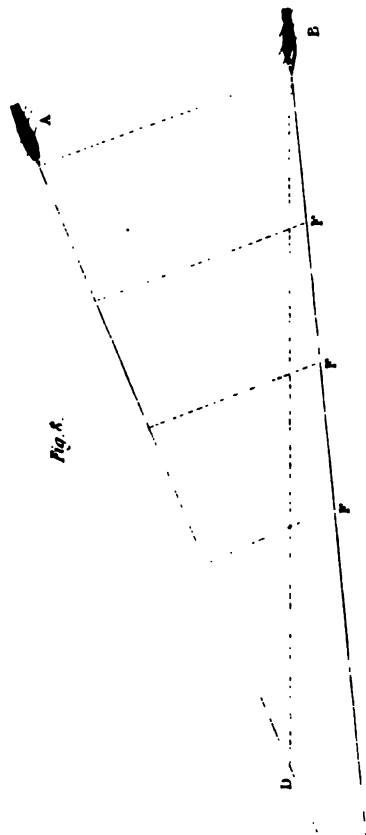
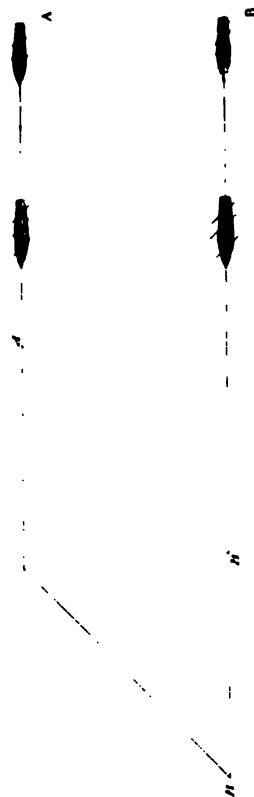
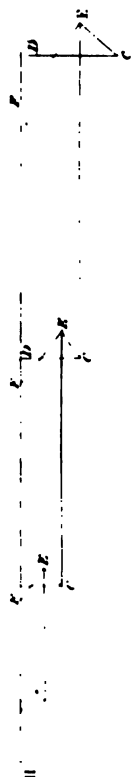
**PLATE VII**  
**Fig. 6.**

*Remark 3d.*—If the ship A, chasing the ship B, which is to windward, finds herself at a great distance from the chase, she must stand upon the same tack, till she has brought her right abeam at C D, the ship A will then tack, and continue on the line C E, till she has again brought the ship B abeam, or perpendicular to her course, at the point F; she will continue thus to manœuvre every time, till she closes sufficiently to prevent escape, or loses sight of her.

I have said, that when the ship A is at a great distance to leeward of the chase, because she would greatly increase it by standing on the same tack, till she could tack on the ship B, so as to close with her, but when the ship A is near the ship B, she will lose a great deal of unnecessary time, if she tack every time the ship B is abeam of her.









*Note.*—"We now practise this method in the Royal Navy, when chasing an enemy, and it is found to be mathematically true, and was first adopted by Commodore Barnet, in the Mediterranean, on reading this Treatise of Paul Hoste."—*O'Brien's Translation*, 1762.

*Remark 4th.*—If the ship to be chased is to leeward, she will keep right away before the wind, unless she sail perpendicularly well with the wind quarterly.

If the ship to be chased be to windward, she will keep on the tack, which will most increase her distance from the enemy, in order to profit by all chances of escape.

[*Note.*—The following case is similar to the last, but taken from the manœuvrier of Monsieur Bourde Villehuit, who, in adopting it from the original of Paul Hoste, page 35, Plate 10, Fig. 2, has given a more distinct illustration of this mathematical problem, in describing an animated chase to windward by the same rules.] T.

**PROBLEM.**—To chase a ship to windward, and the shortest method of joining her.

*Solution.*—When the chaser finds himself to leeward of the vessel he means to pursue, he ought to continue on the same tack as when she was first perceived, till he brings her to bear exactly perpendicular to his course, (if he have not however already passed that point,) then tack, and continue the second board, till he again brings the chase perpendicular to the direction by which he is standing to the wind, or on his beam; he must then heave about again, and always continuing the same manœuvre, by tacking every time he brings the chase perpendicular to his course, on either board; and, by manœuvring in this manner, it is very certain that the chaser will, by the superiority only of his sailing, join the other by the shortest method.

*Demonstration.*—When the ship A, (Fig. 6,) chases the ship B, which is three leagues to windward, with one-fourth advantage of sailing, the chaser is not to tack till he reaches the point C; because he will then

have the ship B right on the beam at the point D; he is then to continue on the tack C E, till he brings the chase perpendicular to his course at the point F; the ship A is to continue thus to manœuvre, every time she brings the vessel B right abreast of her, whether the chase continue on the same tack or not, and thus the chaser will join the other at H, so that she will be able neither to change her course, nor recede from him.

You continue on the same tack as when the enemy was first seen, in order not to lose time, because there is no fear of your bringing always the ship you are in chase of right on your beam, when you have a superiority of sailing, whatever may be the tack she is on, provided you are always particularly careful not to pass that point; for, if you did, there must not be a moment to lose, before you get on the other tack, with all possible dispatch.

The chaser heaves about, as soon as the vessel he is in pursuit of is perpendicular to his course, or on the beam, because she is at this time at the shortest distance, if he chases on the same tack, and steers the same course with the vessel chased. If the chaser run on a different tack from the vessel chased, he is still to tack when the flying ship is on his beam, because the distance is the least between them on the different boards they hold. It is then evident, the chaser cannot better manœuvre, than by tacking every time he brings the ship which is avoiding him, perpendicular to his course, since he never passes the shortest distance between the two vessels, on the same or different boards they hold with respect to each other.

*Remark.*—In manœuvering, as we recommended above, you will be under the necessity of making a good many more boards than if you chased by the ordinary method; but this quantity of evolutions is always advantageous to the chaser, if the ship be well managed, and the sails hauled smartly; then she will always gain to windward in stays, as is found from experience, when the above principles are adhered to, and the ship handled with sufficient dexterity.

The manœuvre here prescribed for the chasing ship, is preferable to all others, not only because it is the shortest, but because you force the ship you are in chase of, to fly from you close upon a wind, in pressing

her more and more from the leeward, by never passing that point before-mentioned, the shortest way possible between the two vessels in plying to windward.

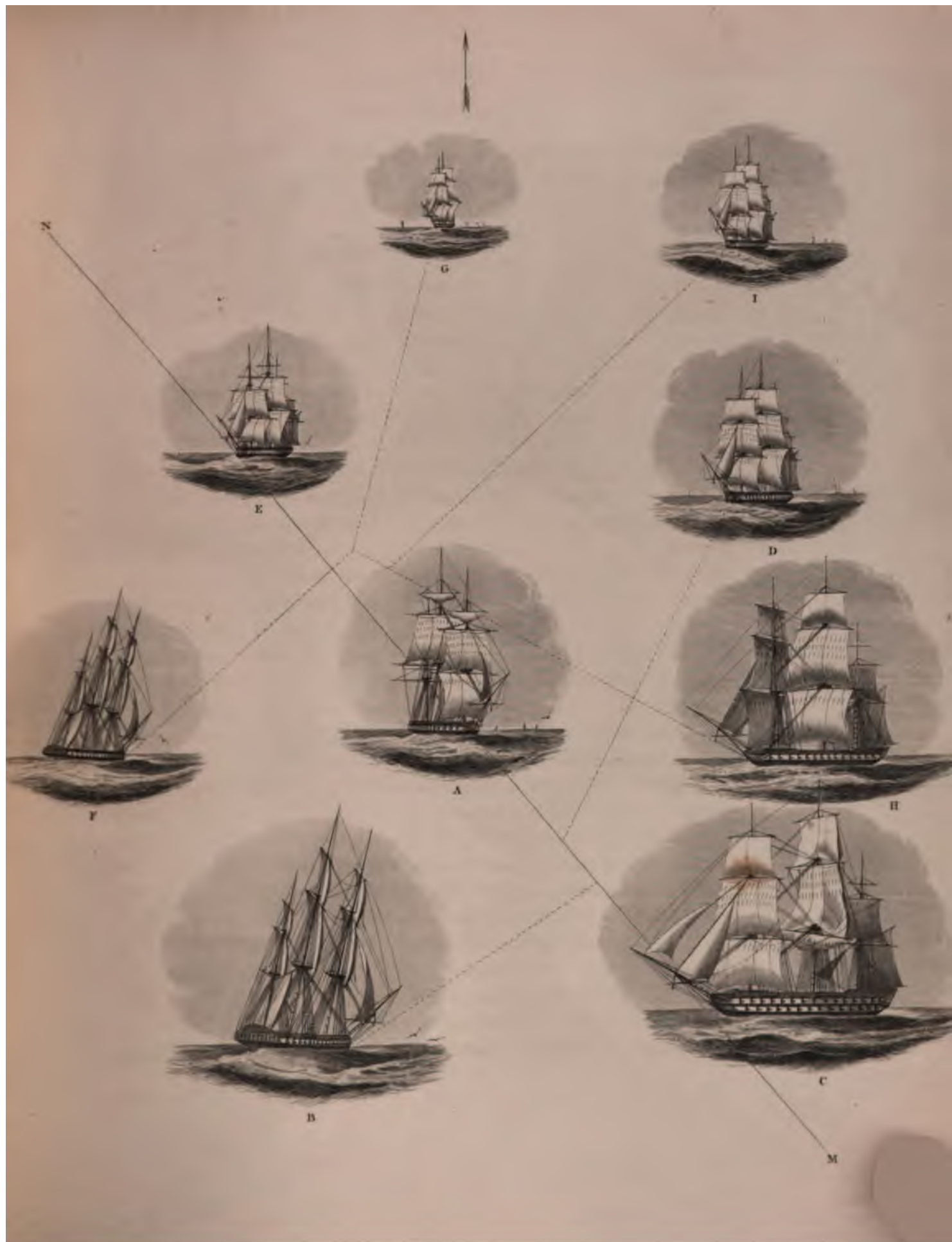
*Remark 5th.*—We have said that the ship B is to leeward of the ship A Fig. 7. she is chasing, and that there is no danger of losing sight of her, because she is near, or sails well with the wind free, or that she is a friendly ship, and wishes to join company, then the ship B ought to stand on the same tack as the ship A, till she can cut her off by tacking. It must at present be considered, how we are to know when the ship B, by tacking, can cut off the ship A. 1st, It is evident if the ship B, “which is supposed to sail better than the ship A, both being equally close to the wind,” stands on, she can cut her off by tacking at the point B. It seems at first that we ought to reject this manner of making the tack of the ship B much longer than is necessary; but nevertheless, it is not altogether to be condemned, because the ship B may be able to make up for the loss of time, for she will then keep away to the ship A, as much as will enable her to keep her on the proper compass bearing, as has been referred to. 2d, The ship B will know exactly the point she ought to tack at, to cut off the ship A, by remarking the time taken, from being on her beam, till she can tack on her at B; and by standing on the line BB, until she brings A abaft the beam, when she will be in a situation to cut her off.

*Remark 1st.*—If the vessel A to windward keeps away, the ship B will Fig. 8. chase as close to the wind as she can, provided she keeps the ship A at the same point of the compass. Thus, when the ship B stands on the line BC, in keeping the ship A at a point parallel to BA, she will join her at the point C; but if the ship B stands on the line BD, and still keeps the ship A at the same point, she will join her at the point D.

*Remark 2d.*—Considering that ships sail better before than on a wind, it is not very possible that the vessel B, with two different courses, can come up with the ship A, because, if it keep A on the same point of the compass from it, when it sails on the line BC, it cannot also keep A on the same point of the compass. When A sails on BD, the closer B is kept









in the line M N, will soon be so far apart, others so close together, that they will not have sufficient space for the ships which have to take their places between them ; thus causing much confusion.

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## CHAPTER V.

### ORDER OF BATTLE.

[THE order of battle is the name given to the arrangement, or order in which a fleet of ships-of-war are disposed to engage an enemy.

This disposition, which is the best calculated for the operations of naval warfare, is formed by drawing up the ships in a right line, prolonged from the keel of the sternmost to that of the headmost, and passing longitudinally through the keels of all the rest, so that they are in the wake of each other.

In this line, all the ships composing it are close hauled upon the starboard or larboard tack, at the distance of one hundred fathoms between the bow and stern of each ship, that during the action they may have a sufficient space for manœuvring, to mutually sustain and reinforce each other, or avoid running foul of the ship ahead, should she suddenly have any of her masts or yards shot away, as is often the case in fighting with the sails filled ; or by passing to windward, or to leeward of her in the line, were she unluckily disabled amidst the fire and smoke ; besides, the ships thus placed are always in a situation to support their seconds ahead, or astern, as the intervals are not great ; they are also most effectually enabled to cannonade the enemy, without incommoding the ships of their own squadron, and what is of greater importance in tactics, the line will not be excessively lengthened, for it must be taken as a maxim which has been proved in practice, that there is as much danger in a fleet having its line too much extended, as being too close in the order of battle.

The line close hauled, is eminently chosen as the order of battle, because if the fleet, which is to windward, were ranged in any other line, the enemy might soon gain the weathergage of it, and even if he think it expedient to decline that advantage, it will yet be in his power to de-

termine the distance between the adverse fleets in an engagement, and compel the other to action.

The fleet to leeward being on a line close hauled parallel to the enemy, can more readily avail itself of a change of wind, or of the neglect of its adversary, by which it may, by a dexterous management, get to windward of him; or should it fail in this attempt, it will nevertheless be enabled, by the favourable state of the wind, to avoid coming to action, if the enemy is greatly superior, or prevent him from escaping if he should attempt it.

In addition to these advantages, this order of battle is singularly convenient and proper in other respects; the sails of each ship are disposed in such a manner as to counteract each other, so that the ships of the fleet neither advance nor retreat during the action, so long as they retain their masts, and answer the helm: by this, they are able to keep their station with great stability, and to prosecute the battle with vigour and resolution, yet without perplexity and disorder. The uniformity of the line will be preserved, so that the Admiral's orders may be quickly communicated by signals from van to rear; the distress of any particular ship that is disabled, and rendered incapable to continue the action, will be discovered, and her place supplied by one of the ships in reserve; the circumstance and situation of the enemy's line will be ever open to the view of the Commander-in-chief, so that he may be enabled to convert any disaster that may happen to his own advantage.

It may be alleged, that the same reasons hold good with regard to the enemy, so that this order of battle will be equally beneficial. It may also be observed, that particular occasions have rendered it necessary to break the order of the line, by passing through the enemy's fleet from the windward or leeward, and that in several cases, this expedient has been pursued with great judgment and success.

With respect to ships having advantages corresponding to their position in the weather or lee-line, it may be remarked, that in war, as well as in politics, there are certain general rules, absolutely necessary to be observed by the belligerent powers—rules which are founded on mutual convenience and authority by the universal example of all ages. Whatever tends to facilitate the designs of the adverse parties on each other, or

whatever operates to shorten the duration of war, and renders it less destructive and fatal, are objects which ought never to be disregarded; disorder has not only a tendency to protract the war, but to make it more bloody and ruinous, and to aggravate all the calamities with which it is inseparably attended.

Perhaps the last observation is particularly applicable to our present purpose, in giving this explanation of the order of battle, unless the consequence of disorder in a sea-fight, as related below, should rather be considered as the creation of fancy, than a recital of facts naturally resulting from known causes.

1st, The incessant fire of so large an assembly of ships, in a very short time covers the scene of action with a cloud of smoke, which is constantly accumulating.

2d, The winds that enable the two fleets to approach each other, soon become extremely feeble, or it may be perfectly lulled, by the explosion of a vigorous cannonade; they are of course incapable any longer to dissipate the smoke, which darkens the air, and is almost impenetrable to the eye.

3d, If in this situation, the hostile fleets are promiscuously scattered amongst each other, it is easy to foretel the mischief, perplexity, and distraction, to which the whole will be inevitably exposed. Not only is the most comprehensive skill of the Commander-in-chief rendered useless; the smaller ships abandoned to their fate, it may be torn to pieces by superior force, without relief or succour, and what is infinitely worse than all, the ships of the same fleet may cannonade each other with all the resolution and spirit which they extend against their enemies! If the design of war is conquest, and not massacre, it is thus totally prevented! The battle, instead of being brought to a speedy issue, and decided by victory and defeat, is unhappily protracted into a scene of slaughter and ruin, equally fatal and undecisive to both parties.

4th, If then, disorder and confusion are fraught with such dangerous consequences in a naval armament, it is no less certain that the principal sinews of its strength are discipline, vigilance, and activity.] T.

*Definition.*—Fleets of men-of-war in time of action are to be drawn up

PLATE IX.  
Fig. 1.

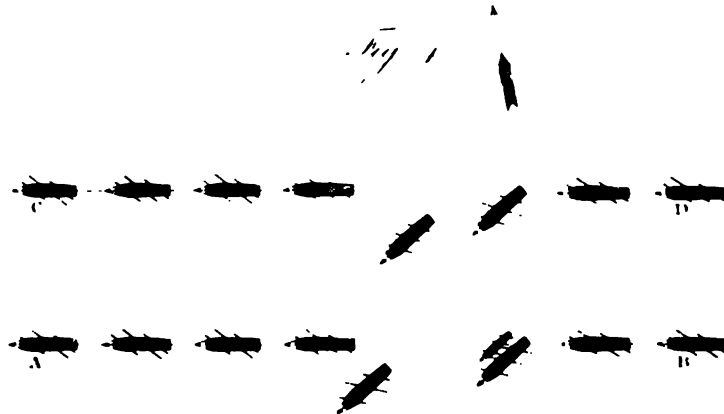
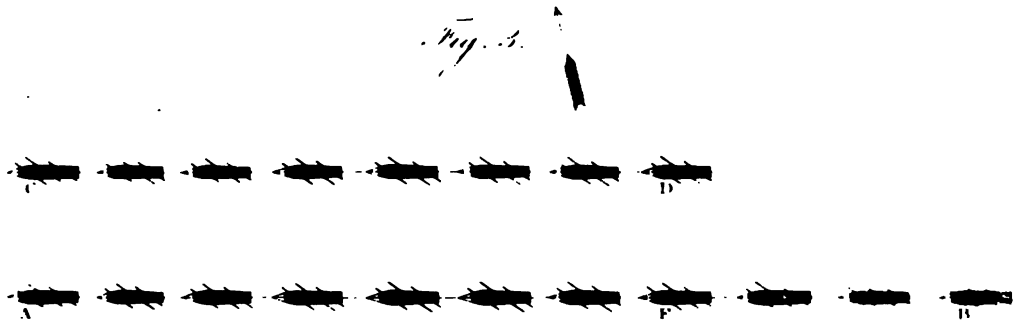
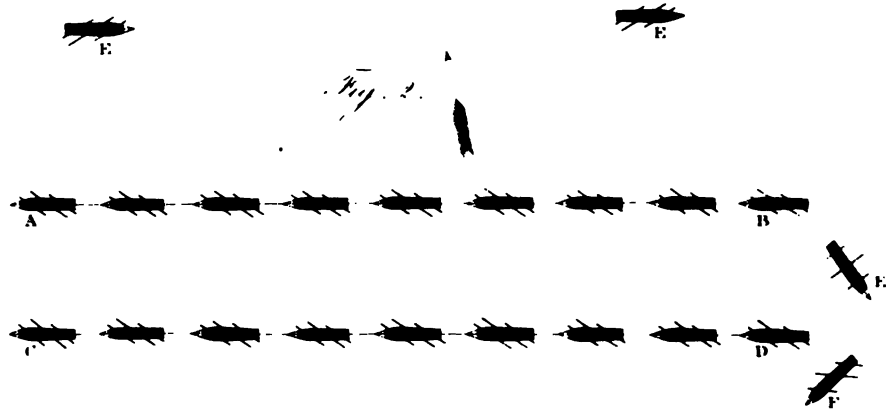
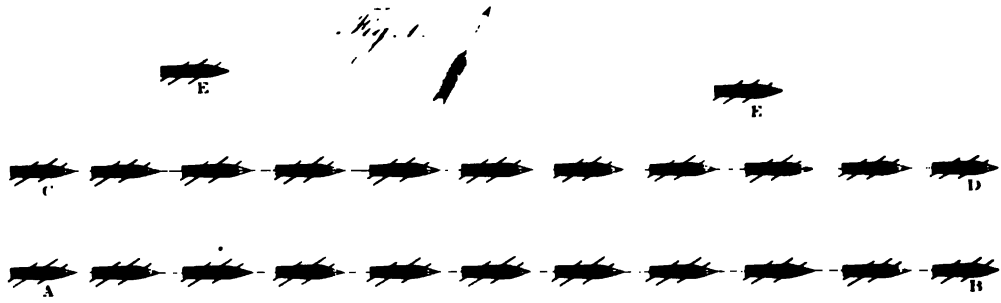
on two lines parallel with one of the two lines of bearing; all the ships ought to stand on the same line as that on which the fleet is ranged, and each ship keep at the distance of a cable's length from that next to it. The fire and store-ships should be stationed half a league from the fleets respectively to which they are attached, and on the contrary side to that in which the enemy's line is drawn up. Thus the two fleets A B and C D, which engage each other, are ranged on the larboard line of bearing; the ships being under easy sail on the larboard tack; the fire and store-ships, E E, attached to the fleet A B, are stationed on the right side of that fleet, because the enemy is on the left, while those attached to the fleet C D are stationed on the left side of the latter, because the inimical fleet A B is drawn up on the right.

*Example.*—This order of battle was exactly observed, for the first time, in the famous battle of the Texel, where the present King of England, James the Second, (then Duke of York,) defeated the Dutch, on the 3d of June 1663, and it is to his Britannic Majesty, *that we are indebted for it in all its perfections.* The English was composed of 100 men-of-war, the Dutch fleet had more, although they had not so many ships of three decks. The two fleets were advancing at break of day, and the wind being from the S.W., they were ranged on two lines, parallel to S. S. E.; their line extended nearly five leagues; the English had the weathergage; the Duke of York, who commanded, and had his flag in the Royal Charles, a ship of 80 guns, was in the centre; the charge of the van was given to Prince Rupert, the rear to Lord Sandwich. Admiral Opdam, the Dutch Commander-in-Chief was also in the centre of his fleet, abreast of the Duke of York, and the Vice-Admiral Van Tromp was opposed to Prince Rupert. The firing was kept up with great spirit, from three o'clock in the morning, to 11 at noon, without victory declaring for either side. The Dutch had taken an English ship, the Charity of 40 guns, which, by an act of temerity, endeavoured alone to cross their line. At 11 o'clock, the Duke of York bore down upon the enemy, with the whole fleet, keeping away himself for Opdam, who had his flag in the Endracht, of 84 guns; this renewed the ardour of the combatants, and a desperate engagement took place, the fury of which it would be difficult











N



G



I



E



D



F



A



H



B



C

M



termine the distance between the adverse fleets in an engagement, and compel the other to action.

The fleet to leeward being on a line close hauled parallel to the enemy, can more readily avail itself of a change of wind, or of the neglect of its adversary, by which it may, by a dexterous management, get to windward of him; or should it fail in this attempt, it will nevertheless be enabled, by the favourable state of the wind, to avoid coming to action, if the enemy is greatly superior, or prevent him from escaping if he should attempt it.

In addition to these advantages, this order of battle is singularly convenient and proper in other respects; the sails of each ship are disposed in such a manner as to counteract each other, so that the ships of the fleet neither advance nor retreat during the action, so long as they retain their masts, and answer the helm; by this, they are able to keep their station with great stability, and to prosecute the battle with vigour and resolution, yet without perplexity and disorder. The uniformity of the line will be preserved, so that the Admiral's orders may be quickly communicated by signals from van to rear; the distress of any particular ship that is disabled, and rendered incapable to continue the action, will be discovered, and her place supplied by one of the ships in reserve; the circumstance and situation of the enemy's line will be ever open to the view of the Commander-in-chief, so that he may be enabled to convert any disaster that may happen to his own advantage.

It may be alleged, that the same reasons hold good with regard to the enemy, to whom this order of battle will be equally beneficial. It may also be observed, that particular occasions have rendered it necessary to break the order of the line, by passing through the enemy's fleet from the windward or leeward, and that in several cases, this expedient has been practised with great judgment and success.

With respect to fleets having advantages corresponding to their positions in the weather or lee-line, it may be remarked, that in war, as well as politics, there are certain general rules, absolutely necessary to be observed by the hostile powers,—rules which are founded on mutual convenience, and authorised by the universal example of all ages. Whatever tends to facilitate the designs of the adverse parties on each other, or

whatever operates to shorten the duration of war, and renders it less destructive and fatal, are objects which ought never to be disregarded; disorder has not only a tendency to protract the war, but to make it more bloody and ruinous, and to aggravate all the calamities with which it is inseparably attended.

Perhaps the last observation is particularly applicable to our present purpose, in giving this explanation of the order of battle, unless the consequence of disorder in a sea-fight, as related below, should rather be considered as the creation of fancy, than a recital of facts naturally resulting from known causes.

1<sup>st</sup>, The incessant fire of so large an assembly of ships, in a very short time covers the scene of action with a cloud of smoke, which is constantly accumulating.

2<sup>d</sup>, The winds that enable the two fleets to approach each other, soon become extremely feeble, or it may be perfectly lulled, by the explosion of a vigorous cannonade; they are of course incapable any longer to dissipate the smoke, which darkens the air, and is almost impenetrable to the eye.

3<sup>d</sup>, If in this situation, the hostile fleets are promiscuously scattered amongst each other, it is easy to foretel the mischief, perplexity, and distraction, to which the whole will be inevitably exposed. Not only is the most comprehensive skill of the Commander-in-chief rendered useless; the smaller ships abandoned to their fate, it may be torn to pieces by superior force, without relief or succour, and what is infinitely worse than all, the ships of the same fleet may cannonade each other with all the resolution and spirit which they extend against their enemies! If the design of war is conquest, and not massacre, it is thus totally prevented! The battle, instead of being brought to a speedy issue, and decided by victory and defeat, is unhappily protracted into a scene of slaughter and ruin, equally fatal and undecisive to both parties.

4<sup>th</sup>, If then, disorder and confusion are fraught with such dangerous consequences in a naval armament, it is no less certain that the principal sinews of its strength are discipline, vigilance, and activity.] T.

*Definition.*—Fleets of men-of-war in time of action are to be drawn up

PLATE IX.  
Fig. 1.

on two lines parallel with one of the two lines of bearing; all the ships ought to stand on the same line as that on which the fleet is ranged, and each ship keep at the distance of a cable's length from that next to it. The fire and store-ships should be stationed half a league from the fleets respectively to which they are attached, and on the contrary side to that in which the enemy's line is drawn up. Thus the two fleets A B and C D, which engage each other, are ranged on the larboard line of bearing; the ships being under easy sail on the larboard tack; the fire and store-ships, E E, attached to the fleet A B, are stationed on the right side of that fleet, because the enemy is on the left, while those attached to the fleet C D are stationed on the left side of the latter, because the inimical fleet A B is drawn up on the right.

*Example.*—*This order of battle* was exactly observed, for the first time, in the famous battle of the Texel, where the present King of England, James the Second, (then Duke of York,) defeated the Dutch, on the 3d of June 1665, and it is to his Britannic Majesty, *that we are indebted for it in all its perfections.* The English was composed of 100 men-of-war, the Dutch fleet had more, although they had not so many ships of three decks. The two fleets were advancing at break of day, and the wind being from the S.W., they were ranged on two lines, parallel to S. S. E.; their line extended nearly five leagues; the English had the weathergage; the Duke of York, who commanded, and had his flag in the Royal Charles, a ship of 80 guns, was in the centre; the charge of the van was given to Prince Rupert, the rear to Lord Sandwich. Admiral Opdam, the Dutch Commander-in-Chief was also in the centre of his fleet, abreast of the Duke of York, and the Vice-Admiral Van Tromp was opposed to Prince Rupert. The firing was kept up with great spirit, from three o'clock in the morning, to 11 at noon, without victory declaring for either side. The Dutch had taken an English ship, the Charity of 40 guns, which, by an act of temerity, endeavoured alone to cross their line. At 11 o'clock, the Duke of York bore down upon the enemy, with the whole fleet, keeping away himself for Opdam, who had his flag in the Endracht, of 84 guns; this renewed the ardour of the combatants, and a desperate engagement took place, the fury of which it would be difficult







Fig. 1.

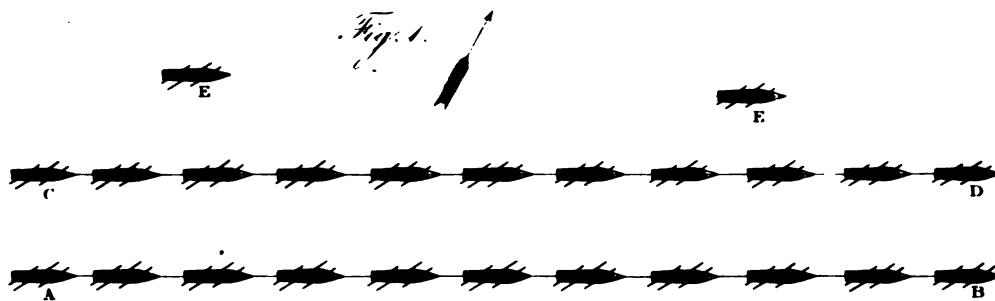


Fig. 2.

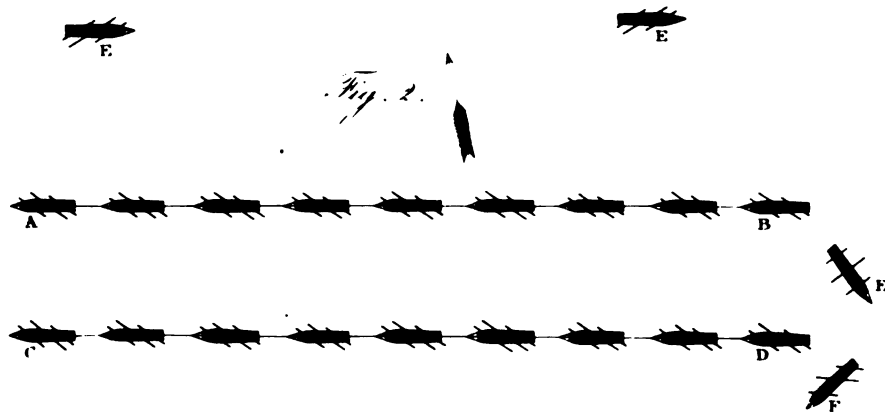


Fig. 3.

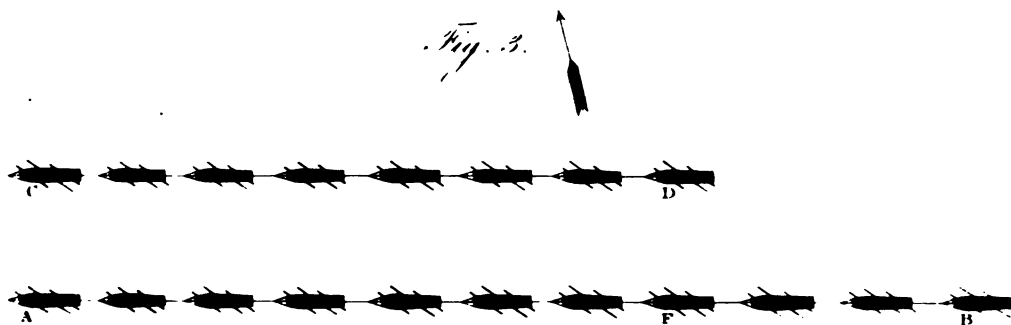
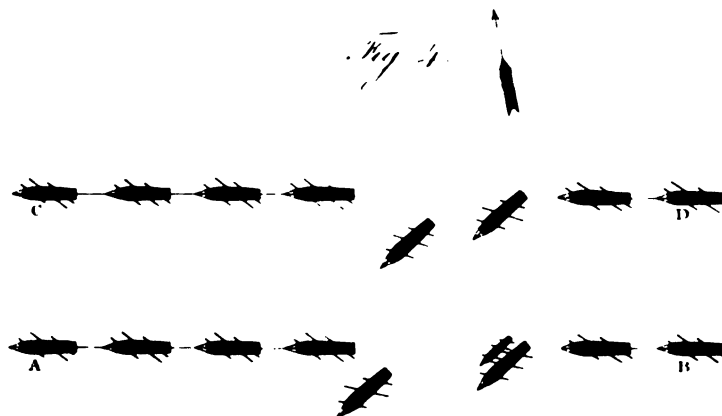


Fig. 4.





to conceive. It is said that Admiral Opdam, was, notwithstanding, seated on the poop of his ship, from whence he surveyed, with wonderful calmness, the dreadful disorder occasioned by the cannonading of the Duke of York. About two o'clock in the afternoon, the Duke made the signal *to bear right down* on the enemy, when the Dutch then began to give way. Opdam's ship, the *Endracht*, and the *Orange of Zealand*, a three deck ship, alone held on their course; but a moment afterwards, Opdam having received the broadside of Duke of York, his ship blew up. It is not known by what accident this disaster happened, for of 500 men and officers, among which were a great number of volunteers, of the best families in Holland, only five of the crew were saved. The Dutch, who had already lost several ships, seeing their Admiral blow up, bore away for the Texel, the Duke of York following them with the greatest perseverance to the entry of their port. He took or burnt 22 men-of-war, of which 20 were from 45 to 50 guns, and gained the most glorious and complete victory that had ever been won at sea. It cost the English but one ship, and from 300 to 400 men. [See *Lediard's Naval History*, vol. II, page 577 :—*Schomberg's Chronology*, vol. I, page 61.]

*Remark 1st.*—Before explaining further the order of battle, the advantages of the fleet to windward must be considered, and also, those of the fleet to leeward.

I.—The fleet to windward can approach the enemy, when, and as near as they please, as has been shown in the battle of the Texel; thus, the fleet which is to windward, can choose the time and the distance which may be most advantageous.

II.—If the fleet to windward be more numerous, it can send a detachment to attack the rear of the enemy, which will cause inevitable confusion; thus, the fleet A B, finding it outnumbered the fleet C D, can detach the ships E F to attack the rear D, which being no longer able to sustain their fire, will give way, and allow the ships E F, and others which may join them, to attack the next ships, and carry their point all the length of the enemy's fleet.

Fig. 2

D

Fig. 3. The fleet A B, being more numerous, and to leeward, has not the same advantage, as its rear, B F, cannot attack the enemy, C D, to windward.

*Example.*—The advantage of the weathergage was never more apparent, than on the 22d of April 1676, in the Battle of Agousta, where the Dutch and Spanish fleet escaped from entire defeat, on account of being to windward. The French fleet, commanded by the Sieur du Quesne, was composed of 27 ships of the line. Lieutenant-General the Marquis d'Almeras had the van-guard, and Gabarat Chef d'Escadne the rear-guard. The enemy had about the same number of ships; they had also nine galleys. De Ruter commanded their van-guard, the Spanish Admiral was in the centre, and the Dutch Vice-Admiral had the rear-guard; the two fleets met on the coast Agousta, early in the morning, but the enemy kept to windward, till four in the afternoon; at that time, De Ruter bore down upon our van-guard, in good order, and was steadily received. The battle was well contested, several ships being disabled on both sides. The Marquis d'Almeras was carried off by a cannon shot, and De Ruter was struck down by a shot, which wounded his foot, and occasioned his death. These two accidents produced a little disorder in both vans, but the Chevalier de Valbelle, Chef d'Escadne, having taken the place of the Marquis d'Almeras, pressed the enemy so hard, that some of them would have fallen into his hands, if the galleys had not towed off the disabled ships. It was late before the centre of the fleets became engaged, and scarcely extended to the rear-guard; the enemy having the advantage of the weathergage, profited by it so well, that they would not engage any more than was necessary to save their credit, and night coming on, withdrew them from the hands of the victors.

III.—If several ships of the fleet to leeward are disabled, either in the van, centre, or rear, the fleet to windward can more readily send fire-ships down on them, and more easily send detachments to catch any vessels attempting to escape; thus, when several ships of the fleet A B are disabled, the fleet C D will send ships and fire-vessels to destroy them, and endeavour to cut off the van or rear of the enemy, and the wind will

give such advantages for executing that object, as will make it difficult for a fleet, A B, to defend itself.

IV.—In addition to other advantages of having the weathergage of an enemy in action, is, *1st*, That the smoke from to windward effects the breathing and sight of the men at the guns on board the leeward fleet, and prevents them taking proper aim. *2dly*, The smoke also prevents the crews from doing the necessary duties on the principal batteries during action; *may*, the wind not unfrequently carries burning matter from the guns, on the sails and rigging, which sets them on fire, and occasions serious consequences.

*Remark 2d.*—It cannot be denied that there are great advantages attending a fleet to leeward, and there are even some people who think that it is equally advantageous to be to leeward as to windward; but I think, if they examine the thing more closely, they would not be entirely of this opinion, and will find that the advantage of the weathergage is the greatest that a fleet can have, whether it be more or less numerous than the enemy; I allow that there are cases where it may be better to be to leeward; for example, when the wind is high, with much sea, when there are few or single ships; but, again, if the two fleets be numerous, and engage with a favourable wind, and fine weather, that which is to windward has a great advantage over the other: here are, notwithstanding, the advantages of a fleet which are to leeward.

I.—The fleet to leeward engages on its weather side, and, in consequence, the ships can make use of their lower batteries, without the risk of the sea breaking into their ports; that, without doubt, is a very great advantage to a fleet to leeward, particularly when it blows fresh, for it is impossible to describe the annoyance which prevails on board a line-of-battle ship, notwithstanding the best imaginable arrangements, when the under battery lays low, and when the wind causing the ship to lean much over, it becomes necessary to close the gun-ports, in order to prevent the ship from filling.

PLATE X. II.—The fleet to leeward can place their disabled ships more easily

Fig. 1. under cover, for if the ships E F, of the fleet C D, which is to leeward, are disabled, they have only to let themselves drift out of the line of fire, in order to repair their damages: the same thing cannot be done by the crippled ships A B, which are to windward.

Fig. 2. III.—The fleet which is to leeward can more easily withdraw from action, in case of being obliged to it, for the fleet G H wishing to withdraw, has nothing to do but to bear up in the order which we will explain hereafter. The fleet E F, to windward, cannot withdraw, without breaking through the enemy, which is extremely hazardous.

*Remark.*—A fleet which bears up before the wind, does it at great risk, if the enemy be in a condition to follow it; but there are circumstances where a fleet to leeward can retire in that manner with impunity, as the approach of night, the wind freshening, with a high sea, or when the enemy is embarrassed with a convoy.

*Example.*—The allies profited by this advantage in the Battle of Bantry, 1689; the Count de Chateauneud, Lieutenant-General Commander-in-Chief of the French fleet of 24 ships-of-war, and escorting 3000 troops destined for Ireland. Admiral Herbert, soon after created Viscount Torrington, who had a squadron of about the same number, having learned that the French were disembarking in Bantry Bay, resolved to go and attack them, expecting to find them in disorder; but the Count de Chateauneud had taken every necessary precaution, and advanced in good order to receive the English, and engaging them with such determination, they were soon compelled to bear up before the wind; he pursued them till night, and having afterwards effected the landing of the troops, he returned to Brest, where he was received with the applause he so well deserved, having in 11 days carried succours to Ireland, defeated the enemy, taken a considerable convoy, and brought his fleet to Brest in good order. [*See Lediard's Naval History, vol. II, page 623:—Schomberg's Chronology, vol. I, page 79.*]









## CHAPTER VI.

## A FURTHER AND MORE PARTICULAR EXPLANATION OF THE ORDER OF BATTLE.

It has been already observed, that fleets in battle ought to be drawn up in two straight lines; for if fleets were drawn up in half-moons or crescents, for example, some would be engaged, while others would be out of gun-shot, and could not approach each other, were they ever so much inclined; hence, if the fleets A A, B B, were drawn up in crescents Fig. 3. or half-moons, the ships on the wings A B would be in action, while the centres C D will be entirely out of it; consequently, considering that men-of-war require to present their broadsides to each other, they could never come into battle in the manner here described.

II.—It is necessary then, that fleets should be drawn up on one of the two lines of bearing, for several reasons:—

1<sup>st</sup>, The fleet E F, which is to windward, and ranged in a line perpendicular to the wind, loses its advantage if it do not *haul* up two points more, to be on the starboard line of bearing; for the fleet H G, which is leeward and close to the wind, on the same tack, may pass to windward of it, or cut any part off, from van to rear.

2<sup>d</sup>, The fleet E F to windward, will thus put it in the power of the enemy Fig. 4. to approach it at pleasure, and consequently, to determine the distance and time for engaging. It is no doubt true, that although the fleet E F is not drawn up in the line of bearing, it may haul to the wind; but there are two inconveniences attending this manœuvre in presence of an enemy; 1<sup>st</sup>, The fleet E F will seem to fly; 2<sup>d</sup>, It will have difficulty in keeping its line of battle, as all the ships would come to range crossways, or in chequers, in relation to each other.

III.—Another reason for placing the weathermost fleet on a wind, is that the disabled ships may be the more easily enabled to draw out of action; for if the ship I, in the fleet B A, be disabled, she can keep away Fig. 5. four points on the starboard tack, without falling to leeward on the enemy,

who is ranged on the larboard line of bearing; thus, provided she does not drift more to leeward than a ship would do under storm sails, she will pass without difficulty to windward of her own fleet, and receive all the assistance that may be necessary. The same thing would not be done, if the fleet B A were ranged perpendicular to the wind, as we shall see lower down.

IV.—It seems at first that it is of less consequence for the fleet to leeward, to be ranged on a line of bearing, since it could not avail itself of the above-mentioned advantages; but there are many other considerations, which compel it to avoid this manner of ranging on the line of bearing, absolutely necessary; 1<sup>st</sup>, That it may be able to profit by all changes of the wind, and of all the enemy's mistakes, in order to gain the weathergage of him; because, although a fleet which is ranged on the perpendicular of the wind, may no doubt haul to the wind, we nevertheless know, that ships cannot long remain in one line, when they do not sail on the same tack, as it is called, in chequers. 2<sup>dly</sup>, The fleet which is to leeward, cannot extend itself along the line of the weathermost fleet, if it be not ranged, like it, close to the wind. 3<sup>dly</sup>, If the leewardmost fleet, G H, is ranged perpendicular to the wind, when the fleet C F is ranged on a line of bearing, this fleet can act with impunity on the rear, G, of the fleet G H, and place it between two fires; and even if the fleet C F be less numerous, it has nothing to fear, being able to stand on, without either being doubled upon or cut off, or otherwise exposed to greater risks, than its commander might choose to hazard of his own accord.

Fig. 6.

V.—Fleets ought to stand on the line of bearing on which they are ranged; 1<sup>st</sup>, That each ship may present her broadside to the enemy; for if the vessels of the fleets A B, C D, were to be ranged on the larboard line of bearing, or to stand on the starboard tack, or on the perpendicular of the wind, they will not present their broadsides to each other. 2<sup>d</sup>, If they do not stand to the line of bearing on which they are ranged, they will fall into chequers, and cannot, without great difficulty, keep in the line of bearing. 3<sup>d</sup>, The fleet to windward would lose the great advan-

Fig. 7.

tage it possesses of being enabled to approach the enemy as near as it pleased, without the enemy on the other hand being able to approach it; because, if the fleet A B to windward does not stand to the wind, the fleet C D to leeward would only require to close-haul, to be enabled to run abreast of it, and bring them to close action to leeward.

*Remark.*—These three considerations absolutely determine the courses which fleets in action require to observe. The two first shew that a fleet ought not to stand to the wind, unless it is ranged on the line of bearing on the same tack; and the third shews that the fleet A B, which is ranged on the line of bearing on the one tack, ought not to stand two points off the wind on the other tack, in forming its line of battle; such a mistake may lead to fatal and disastrous consequences.

VI.—The distance ships ought to be ranged are a cable's length, or 600 feet from each other; besides a fleet must be concentrated as much as possible; for if the fleet G H is more open than the fleet E F, each ship of the fleet G H will have to sustain the fire of two ships in fleet E F. It must nevertheless be observed that the ships must not be so close as to risk falling on board one another, when any happen to be dismasted.

Fig. 8.

*Remark.*—It will be seen that the size of ships contributes more to the strength of a fleet than the number, for two reasons; 1<sup>st</sup>, A large ship has more guns, and of heavier metal; thus, a fleet composed of large ships, is better than a fleet of small ships more concentrated, because it engages the enemy with an artillery more numerous and heavy in an equal space. 2<sup>dly</sup>, The large ships are strongly built, and can more easily resist the action of shot.

## ORDERS OF SAILING.

There are five orders of Sailing, on any one of which a fleet may be arranged to advantage according to circumstances.

The first order of Sailing, is that where a fleet is formed in one line, or either of the lines of bearing.

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CHAPTER VII.

## FIRST ORDER OF SAILING.

**PLATE XI.** WHEN it is foreseen on what line of the wind it will be necessary to engage, the ships must be ranged on it before they are in presence of the enemy; and after having arranged the fleet on this line, the most convenient course may be steered; thus, when circumstances have shown to the Admiral of the fleet, that he must engage on the starboard line of bearing, he will range the fleet on that line, and afterwards follow what course may be most convenient, running before the wind as A, or large on the same tack as B, or large on the other tack E, or on the larboard tack as D.

*Remark.*—The fleet ought not to be ranged in this order excepting it is in sight or very near the enemy, for this order is defective on several accounts; 1<sup>st</sup>, The fleet in this order is too extended, and the communication between the Commanders difficult, besides the fleet may be scattered by different winds and currents. 2<sup>d</sup>, A fleet not standing upon the line on which it is ranged, will keep itself with difficulty in line, and liable to be thrown into confusion. Thus, we see in practice that this order is seldom observed when distant from an enemy.

The second order of Sailing is that where a fleet is arranged on a line perpendicular to the direction of the wind.





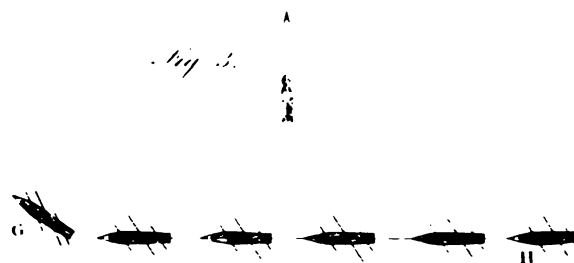
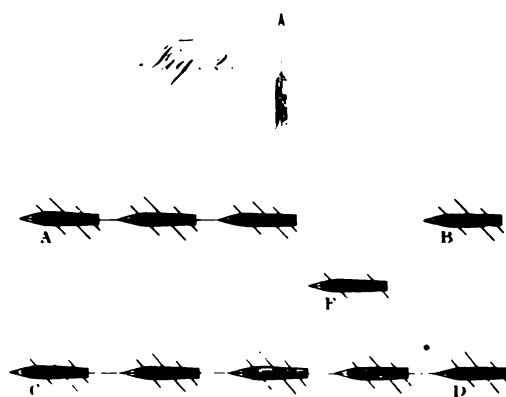
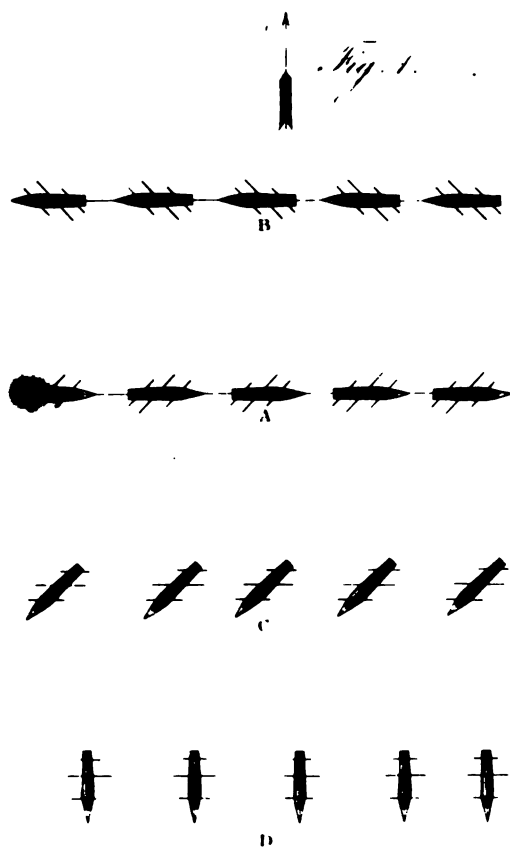
















## CHAPTER VIII.

## SECOND ORDER OF SAILING.

I.—WHEN an Admiral cannot ascertain on what tack he is to engage, he PLATE XII.  
 may draw up his fleet on the perpendicular of the wind, that position not  
 being wide from either of the two lines of bearing, and being so ranged,  
 it will be an easy matter to pass from the perpendicular of the wind, to  
 one or other of the lines of bearing; thus, when he cannot ascertain on  
 what tack he is to go into action, he will draw up his fleet on the per-  
 pendicular of the wind, and then, the ships may either stand on the same  
 line on the starboard tack as B, larboard as A, large as C, or before the  
 wind as D, Fig. 1.

*Remark 1st.*—This order has not only the same defects as the preceding,  
 but others peculiar to itself; it requires a considerable movement to pass  
 from this order to the order of battle. *2d*, The ships cannot tack together,  
 so as to preserve the former position of the fleet on the opposite tack,  
 when it is ranged perpendicular to the wind, which is a defect sufficient  
 to exclude it in practice.

*Remark 2d.*—There are tacticians who think, that in a battle, fleets  
 ought to be ranged in a line perpendicular to the wind, *1st*, That the  
 ships may manœuvre more easily, and keep in their stations, and be  
 able to keep away or come nearer to the wind, according to circum-  
 stances, with the rest of the fleet; for, say they, if a ship of the fleet  
 ranged on a line of bearing, should fall to leeward, it will be impossible  
 for her to regain her place. *2d*, That the fleet may stand to the  
 right or left, without being in chequers, and without falling much to  
 leeward; a fleet being thus ranged, will have a great advantage over the  
 van of that which is on a line of bearing, being enabled easily to double  
 or break through it. I do not think, notwithstanding, that it will be  
 advisable to engage in this manner, from the reasons already stated in the



order of battle which we have established, and besides, we have particularly rejected this order now under discussion. *1st*, In answer to the reasons which seem to prove the necessity of this order, I say, that fleets ranged on a line of bearing, are kept clean full, that is to say, a point less than ships usually steer, and which, when close to the wind, are six points from it; thus, when a ship falls a little to leeward, she must then close to the wind as much as possible, to regain her place. *2dly*, I agree that it is a great advantage to be able to manœuvre as with the wind abeam, but that it is not so sufficiently advantageous as to induce us to abandon the preceding. *3dly*, As for cutting off, and breaking through the van of the enemy's fleet, which is ranged on a line of bearing, it is not necessary that the enemy should range himself in the same manner, when the Admiral may think proper to alter the course; for what difficulty will the van of the enemy's fleet have in bearing away two points, to prevent being doubled on, or broke through? But we shall shew this more clearly in the fifth part of this Treatise.

Fig. 2      II.—If the fleets A B C D, engaged, are ranged perpendicular to the wind, and the ship F, of the fleet A B, is disabled, she will have great difficulty to avoid falling into the hands of the enemy, for it will be impossible for her to keep to the wind, and consequently on the line A B; she will fall then towards the line C D of the enemy. It is not to be doubted that this is the principal reason that has induced the Commanders of fleets to range on a line of bearing, when they happen to be to windward.

Fig. 3.      If the fleet G H is ranged perpendicular to the wind, it cannot tack together, for if the ship G tack, and the rest of the fleet continues to keep its course, in her wake, the ship following G will run on board of her.

The third order of Sailing is formed, when a fleet is arranged on both the lines of bearing at the same time, the centre ship of the fleet being at the point of an obtuse angle, of 135 degrees to leeward.









## CHAPTER IX.

## THIRD ORDER OF SAILING.

THOSE who reject the preceding order, propose another, to serve when it PLATE XIII. is not known on what tack it will be necessary to engage. They range the fleet on an obtuse angle, B A C, in such a manner, that the Admiral is to leeward, at the point of the angle A, and one part, A C, of the fleet, is ranged on the larboard line of bearing, and the other on the starboard line of bearing, as A B. The fleet in this order can go before the wind, as C A B; on the larboard line of bearing, as D; on the starboard line of bearing, as E; or large, as F; and, likewise, on all the other courses.

*Remark 1st.*—There are several advantages in this order.

1st. Only half the the fleet has to come to the wind on either tack, to be in order of battle, and the rest can follow in their wake so easily, that they will be able to act as if the whole fleet had been in the order of battle; we shall see this better lower down.

2d. The fleet is more concentrated, and less in danger of separation, for the two parts command a better view of each other, than if in a straight line.

3d. The Admiral is in a good position for his signals to be observed.

4th. The fire-ships are placed more in safety, being, as it were, in a crescent.

*Remark 2d.*—1st. This order has its faults, it appears to give too much extension to the fleet.

2d. It is difficult to preserve, as the ships will not be able to observe the order on which they are arranged.

3d. When disturbed by a change of wind, it is extremely difficult to be re-established.

The fourth order of Sailing is formed by dividing the fleet into six columns, two for the van, two for the centre, and two for the rear.

## CHAPTER X.

## FOURTH ORDER OF SAILING.

**PLATE XIV.** To unite the fleet more advantageously, it is divided into six columns; **Fig. 1.** the Admiral, A, is in the middle, to leeward of the two columns, E F, G H, which compose his squadron; the other two Commanders are also to leeward, each at the head of the two columns which compose their squadrons; but the Commander B, who is to starboard of the Admiral, is in the same respect in the line B A, or the starboard line of bearing, and the Commander C, in the line A C of the larboard line of bearing. That this order of Sailing may be more easily reduced to the preceding, the distance B A ought to be sufficiently great to contain a third of the fleet, and the same must be observed of the distance A C; these two distances are determined by the angles B A F, B F A, and C A H, C H A, or by the points which the Commander B ought to keep the ships A F, and the Commander C the ships A H.

*Remark 1st.*—A fleet thus ranged in three squadrons, can take whatever course may be most necessary; but this order is better suited for a fleet sailing before the wind. It is, however, liable to be broken in its course, because it is difficult for the ships to preserve their proper bearings with each other.

*Example.*—It appears as if the Admiral, Van Tromp, had ranged his fleet in this order, when he left the Texel, with the wind aft, in search of the English, in the year 1653. Several days before the famous Battle of the Texel, which, without doubt, is the most sanguinary that has ever taken place, a French gentleman, who embarked in a corvette, to be a spectator of it, gives the following relation:—"The 7th of August, I discovered the fleet of Admiral Van Tromp, composed of more than one hundred ships of war; it was ranged in three squadrons, going down on the English before the wind, whom it met the same day, in about an











equal number, ranged on a line on the larboard tack, extending more than four leagues, N. N. E., and S. S. W., the wind being N. W.; the eight and the ninth days were spent in skirmishing, the tenth brought on a decisive battle; the English had tried for the weathergage, but Admiral Van Tromp preserved this advantage, and having ranged himself on a line parallel to the English, came down on them, and began the battle with such fury, that several ships were quickly seen to be dismasted, others burnt and sunk. The two fleets were at length enveloped in so thick a cloud, that the fury of the battle could only be judged by the incessant firing of the contending fleets, and by the columns of fire, which, from time to time, rose out from the smoke, with a fracas which sufficiently marked the blowing up of ships; in fact, several ships were blown up, and it is said, in particular, that Admiral Van Tromp having perceived three English ships foul of one another, sent down a fire-ship so apropos, that they all took fire at the same time, and blew up in the air. The English sustained, (notwithstanding a determination not easily to be imagined,) all the efforts of the Dutch, and were observed to sink rather than surrender, which greatly grieved the Admiral Van Tromp, who resolved to board the English Admiral. The two ships were on the point of closing, when the Admiral Van Tromp was killed by a musket ball. This misfortune greatly discomfited the Dutch, who began to haul to the wind, and only to fight in retreating; the battle was no longer so ardent, and the smoke having cleared away, the two fleets were seen in a condition which showed how destructive the battle had been.

Thirty ships were lost on the one side or the other, and the English having pursued the enemy to the Texel, had the honour of a victory, which cost them as dear as the vanquished.—[See *Whitelock's Memorials*, page 543, and *Lediard's Naval History*, Vol. II. page 554.]

*Remark 2d.*—When at a great distance from the enemy, the fleet can be placed in six columns, in such a manner, that the three Commanders, A B C, should be perpendicular to the wind, and less distant from one another. I think that a fleet ought never to be placed in nine columns, for fear of producing confusion. I know it would be a great advantage to the Commanders, C A B, to be at the head of their divisions, ranged

Fig. 2.

Fig. 3.

in three columns, but the benefit is too inconsiderable to induce an Admiral to adopt this plan ; nevertheless, we give the following examples of the orders of a fleet in three, in two, and one column.

*To Form in Three Columns.*

- Fig. 4. If a fleet be not very large, it may be formed in three columns ; thus, the Admiral A, and the two next senior Commanders, B and C, will observe the same mode of extension, and preserve the same measure of distance between each other, as above-described ; each squadron respectively following in the wake of the Commander to which it is attached, as A D, B E, and C F.

*To Form in Two Columns.*

- Fig. 5. A fleet is occasionally formed in two columns ; thus, the Admiral stands on a little ahead, midway between the two columns ; one-half of the centre, and next to it the whole of the van, follow in the wake of the Admiral's second on the right, as B D ; and the other half of the centre, with the whole of the rear, follow successively in the wake of the Admiral's second on the left, as C E.

*Note.—(Another mode of performing this Evolution.)*

A fleet may also be formed in two columns ; thus, the headmost ship of the fleet will range next to, and on the right of, the Admiral, as B, the van in its wake, and the half of the centre bringing up the rear ; but as a fleet so disposed, can neither so uniformly, nor speedily, form into the other orders, and as it also has this defect, (which singly is of serious importance,) that the Admiral is not in the centre of his squadron, between his two seconds. The previous mode of performing the evolution, is therefore preferable.

*To Form in Single Column.*

There are cases in which it becomes necessary for an Admiral to form Fig. 6. his fleet in single column; that is to say, that all the ships sail in one line, in the wakes of each other. This occurs, either in order to be enabled to penetrate a narrow fairway, or strait, or, in order to cover a convoy, &c., for which reason a line of this description is called *Line-of-convoy*; and in which case, all the others follow in the wake of the leading, or headmost ship of the fleet. The Admiral A, or chief in command, is stationed in the centre of the fleet, (unless when influenced by special reasons to stand ahead,) and the two other Commanders in the centres of their squadrons respectively.

*Note.*—A fleet ought not to be drawn up in the fourth order of Sailing, unless when at a distance from the enemy, on account of the time it takes to form from it into line of battle; more particularly so, when a fleet sails in length, or single column, (as we shall further illustrate in the proper place,) and yet there are cases which may nevertheless render it necessary.

The fifth order of Sailing is formed by dividing the fleet into three columns, each of which is ranged on a line parallel with the line of bearing upon which they are to form the order of battle.

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## CHAPTER XI.

### FIFTH ORDER OF SAILING.

HERE is the order of Sailing most befitting a fleet, and that which is Fig. 7. most in usage. It consists in putting the fleet in three columns, A B, C D, E F, in such a manner that the lines A B, C D, E F, shall be parallel to one of the lines of bearing, that the lines B C, D E, make the perpen-

dicular of the wind, and that the lines  $A C E$ ,  $B D F$ , should be perpendicular to  $A B$ ; these three conditions determine the point, and the distance of the columns, and the place of each ship.

PLATE XV.  
Fig. 1.

*Remark 1st.*—To have exactly the distance of the columns, make  $A G$  equal to  $A B$ , and draw  $B C$ , on which having made  $B H$  equal to  $A B$ , we shall find  $H G$  equal to the distance of the column  $A C$ , supposing that  $E F$  is the weather-column.

*Demonstration.*—Because the van of the centre column  $C$  and the rear  $B$ , are equally near to the wind,  $B C$  is perpendicular to the direction of the wind, of which the angle  $C B A$  is two points, or  $22^{\circ} 30'$ , which is half of the angle  $A B G$ ; thence the triangles  $A B C$ ,  $H B C$ , are equal, and the line  $A C$  equal to  $C H$ , or  $H C$ .

*Corollary 1st.*—All the time that the angle  $C G H$  shall be four points, and the angle  $H$  straight, if  $C H$  be taken for the distance of the columns, the lines  $C G H$  will make the length of each column; and if  $C G H$  is taken for the length of the column,  $C H$  will make the distance between them.

*Corollary 2d.*—If twice the square of the number of the ships in each column be taken, let a sum be given in which the square root is extracted, and deduct from this root the number of the ships in each column, the remainder will be the distance of the columns; it is on this scale that the following table is constructed, supposing that 240 fathoms be the distance of the ships.

|                                    |          | Fathoms. | Distances<br>of<br>Columns. |
|------------------------------------|----------|----------|-----------------------------|
| Number of Ships<br>in each Column. | 5 .....  | 472      |                             |
|                                    | 10 ..... | 944      |                             |
|                                    | 15 ..... | 1416     |                             |
|                                    | 20 ..... | 1888     |                             |
|                                    | 25 ..... | 2360     |                             |
|                                    | 30 ..... | 2832     |                             |
|                                    | 35 ..... | 3304     |                             |
|                                    | 40 ..... | 3776     |                             |







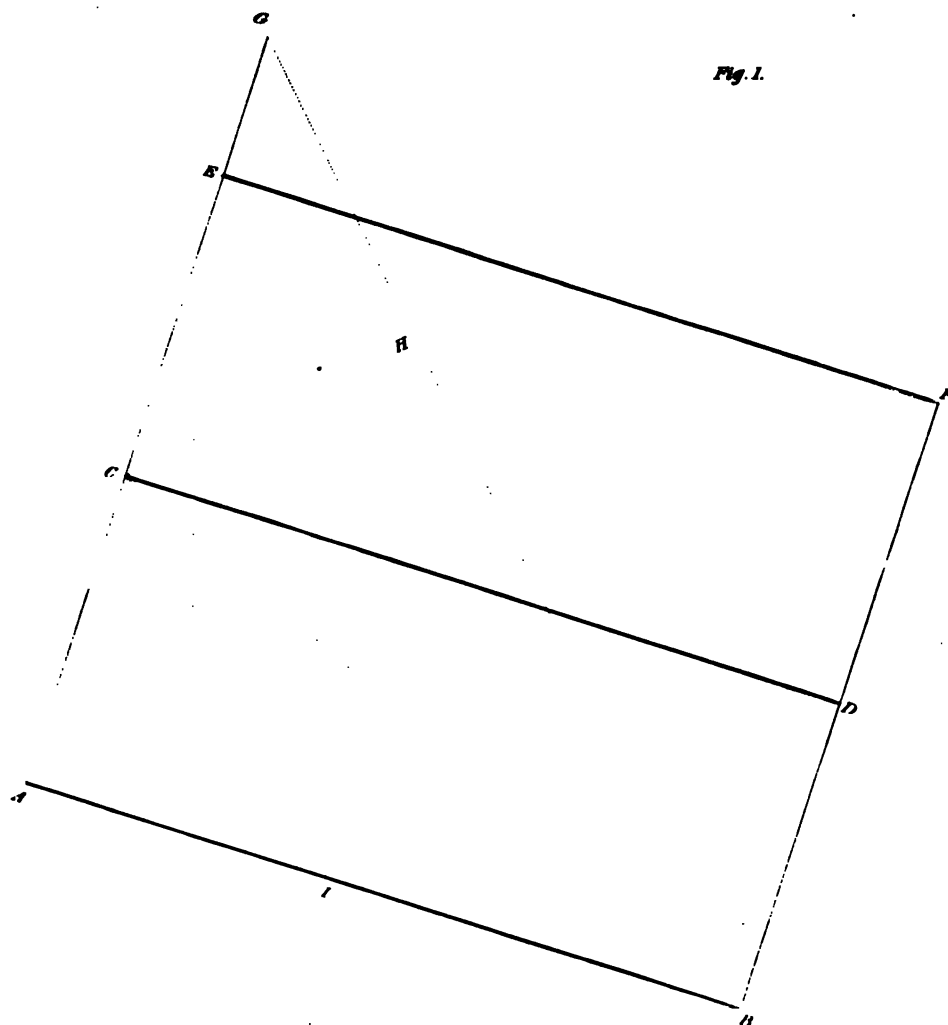


Fig. 1.



Fig. 2

Fig. 3.





*Remark 2d.*—This order of Sailing has none of the defects of the others, Fig. 2 for it concentrates the fleet as much as necessary, and places it in a condition to perform with promptitude and ease all the movements that may be required. Special attention must be paid to the distances of the columns, in order that in tacking, they do not cut each other off, and for that it will suffice, that the rear D of the centre column shall be as near the wind as the van A of the column which is to leeward; but as it sometimes happens that the rear of a column is found too far astern, it will give too great a distance to the columns if it be regulated by the rear, for this reason it is regulated by some ship in the middle of the column to windward, on which the van of the column to leeward can tack, in order that the columns may be at the requisite distance.

For example, in order that the column E F may be at the requisite distance from the column C D, it is necessary that the head A may be able to tack on the ship G of the column C D; and thus the others conform to the following table:—

|                                    |    |       |     |   |
|------------------------------------|----|-------|-----|---|
| Number of ships<br>in each Column. | 3  | ..... | 2°  | Bearings of ships in the<br>weathermost Columns, on<br>which the head of the<br>Column to leeward ought<br>to tack. |
|                                    | 5  | ..... | 3°  |   |
|                                    | 10 | ..... | 5°  |   |
|                                    | 15 | ..... | 7°  |   |
|                                    | 20 | ..... | 9°  |   |
|                                    | 25 | ..... | 11° |   |
|                                    | 30 | ..... | 13° |   |
|                                    | 35 | ..... | 15° |   |
|                                    | 40 | ..... | 17° |   |

*Remark 3d.*—The most natural course for this order is the line of bearing on the same tack, or on the opposite tack, or to go large with the Fig. 3 wind free four points on the opposite tack, as the fleet H; it can nevertheless take any other course, and even run before the wind like the fleet B.

## CHAPTER XII.

## ORDER OF RETREAT.

PLATE XVI. **WHEN a fleet is pursued by an enemy, it is ranged on an obtuse angle, B A C, the Admiral A, in the centre, and to windward; the part A B, to the left of the Admiral, is ranged on the starboard line of bearing, and the part A C on the larboard line of bearing; the fire-ships, &c., in the middle.**

Fig. 1.

Fig. 2. *Remark 1st.*—This manner of ranging a retreating fleet, appears to me extremely good, because the enemy cannot approach the leading ships, without drawing on themselves, the fire of those to windward; thus, the enemy's ships D D, cannot approach the ships E E, without placing themselves under a fire of the Admiral A, and his seconds; if it is thought that the fleet, in this order, is too extended, the wings may be closed to the form of a half-moon, in the middle of which, fire-ships or convoy may be placed in safety, as at F.

*Example.*—This order was put in practice by Admiral Van Tromp, in the Battle off Portland, 16th of February 1653. The English had 70 ships-of-war, under the command of Admiral Blake; the Dutch had the same number, with a valuable convoy of 200 sail of merchantmen; the two fleets met off Portland, the English did their utmost to bring on a general action; the Dutch were to windward, and should have avoided action that would risk their convoy; nevertheless, Admiral Van Tromp, considering, that if the wind changed, he should be obliged to fight with less advantage, resolved to bear down upon the enemy; after having placed his convoy to windward, he divided his fleet in three squadrons, and fell upon the English with much resolution; they received him with the greatest vigour, and a sanguinary battle ensued; several ships were disabled, burnt, and sunk, and nothing but the obscurity of night could separate such determined enemies, during which, each side was occupied in preparations for renewing the battle, which remained undecided; in the meantime, the English were reinforced by 16 men-of-war, and the







*Fig. 2.*



*Fig. 1.*



*Fig. 3.*



*Fig. 4.*







wind having shifted, gave them all the advantages they could desire. Admiral Van Tromp was much embarrassed, and after great deliberation, decided on retreating; he ranged his fleet in a half-moon, placing his convoy in the middle; that is to say, his ships to windward made the obtuse angle of the half-moon, the rest of the fleet extending on one side or another, on the two lines of bearing, formed the face of the half-moon, which covered the convoy; in this order he sailed before the wind, and maintained a retreating fight towards the French coast, firing to the right and left on all the English who approached to attack his wings, and would have entirely saved his convoy, if several of his ships had not cowardly abandoned their stations. The English frigates, after several bold and hazardous attempts, broke in through the vacancies left by these cowardly deserters, and succeeded in capturing several of the merchantmen, which obliged Admiral Van Tromp to form in order of battle, and renew the action, till night coming on, gave him an opportunity of placing himself in the order of retreat again. He was followed the next morning by the English; but after several broadsides, he succeeded in finding shelter among the sands before Calais, where the English did not choose to follow them, at the risk of losing some of their large ships.—[See *Lediard's Naval History*, Vol. II. page 548.]

*Note.*—Admiral Blake, in this action, for the first time, made use of small arms, a number of soldiers having been embarked on board the fleet, who were employed as marines.—[See *Schomberg's Chronology*, Vol. I. page 51.]

*Remark 2d.*—The most natural course for this order, is before the wind; but, if necessary, it could run with the wind large upon either tack, as the fleet F G H, which is going with the wind four points free, on the starboard tack; it can even stand on a line of bearing, as the fleet I L M, which is standing on the starboard line of bearing.

Fig. 3.

Fig. 4.

*Remark 3d.*—When in chase of a retreating fleet, the fastest sailing ships are detached for picking up the enemy who may be left behind, or to engage with his rearmost ships; the remainder of the pursuing fleet

should range itself in the same order as the enemy, in order to place itself in order of battle, should it be necessary; this is to be understood, only when the fleet is not so inferior to that which it pursues, that it cannot well risk the hazard of a battle; for if the fleet which retreats, is in no proportion to the victorious fleet, it may render the chase general, as if an army had broken into an enemy's camp; because, if the victorious army spent its time in forming, the enemy would take the opportunity of escaping.

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## CHAPTER XV.

### THE ORDER OF A FLEET DEFENDING A PASSAGE.

**PLATE XVII.** To defend a passage efficaciously, it is necessary to have a fleet nearly double in numbers to the enemy; it is then divided in two parts, one to cruize on one side of the passage, the other on the other side; these to guard the strait A B, through which it is necessary to prevent the fleet C passing; the squadron A will cruize on the side A, and the squadron B, on the other side; then, when the enemy C presents himself before the passage, the squadron A, to windward, will bear down on him, while the squadron B stands to the wind, to cut him off. In this manner, it will be impossible for the squadron C to escape, however it may manœuvre.

*Remark.*—If these precautions are not taken, and the fleet which guards the passage is to leeward, as B, the fleet C, by closing the wind a little, may range to the side A of the strait, and thus escape; if the fleet which guards the passage is to windward at A, the fleet C will keep away for the side B of the straits, for a thousand accidents may favour his escape.

*Example.*—The allies could take these precautions in 1690, when they wished to guard the Straits of Gibraltar, and prevent the Count Chataurenard from joining the Brest fleet; the Count had but three large ships-









of-war, and two smaller ones, the allies had more than 20, and it was easy for them to have occupied both sides of the strait, with a squadron so much superior to the enemy. They preferred however keeping to windward of the straits, to fall down more easily on the Count, when he should attempt to pass. The Count appearing several hours before night, with a light wind from the S E, discovered the allies on the coast of Barbary. The bravery so natural to him, made him despise the danger which appeared inevitable, and placing his ships in good order, he advanced with an appearance of endeavouring to preserve the weathergage, but night coming on, he steered for the straits; the wind, the current, every thing favoured him; the enemy wished to pursue him, but the current was against them, and they soon lost sight of him, without comprehending how they suffered him to pass.—[See *Lediard's Naval History*, vol. II, page 632.]

*Note.*—The method of defending a narrow fairway or strait here described, has every appearance of being effectual, and, consequently, that it would be impossible for an enemy to force it, unless he were the stronger party. But, as the subject does not admit of the application of any general rule, each individual case must necessarily depend entirely on the capacity of the commander charged with the defence. He ought to consider well the configuration and other natural properties of the strait; whether it is broad or narrow; whether it admits of ships anchoring in it; whether the fairway is clear, or beset with banks and blind rocks; whether there may not be sunken ships placed in it; if currents run through it; the winds necessary to enable an enemy to attack his force, with the sets of the tides and currents; and having first satisfied these considerations, he ought then, and not till then, to concert his measures, and dispose his fleet accordingly.



## CHAPTER XIV.

## THE ORDER OF A FLEET FORCING A PASSAGE.

I.—SOME are of opinion that a fleet forcing a passage, should be ranged in two columns, the smaller ships-of-war at the head, and the larger ones in the rear, and the fire and store-ships between the two lines. I consider that this order is attended with great difficulty, because, if the two columns are far apart, they may be separated by any accident, or cut off; if they are near they will be doubled upon; that is to say, the enemy attacking them on the one side and the other will place them between two fires.

II.—I prefer ranging the fleet in the order of retreat, closing the wings to render it less extended. In this manner, the fleet cannot be attacked on any quarter, without being able to defend itself.

*Example.*—The most essential thing for an Admiral who wishes to force a passage, is to know how to profit by the wind which may favour his intentions, as was done by the Count de Tourville, at present Marshal of France. In the year 1689, the King had nominated him to command his fleet against the Allies; but it was necessary to effect a junction of our ships of Provence, with those of the western fleet; the thing was not easy, because the Allies were cruising before Brest, where the junction was to take place. The Count de Tourville having armed 20 ships-of-war, at Toulon, and having conducted them to D'Ouissan, learned that the Allies were at the entrance of the Iroise, with 70 ships-of-the line, blockading 40 of our ships in Brest Roads. The Count was too feeble to risk a battle; on the other hand, having been two months at sea, was in want of many necessaries; thus, he could not think of returning to Provence, which, besides rendering the designs of the King fruitless, would place the Ponantois in danger of being insulted at Brest, which was not then secured as is at present; the Count having attended to the manœuvres of the enemy, decided on the part to be taken; he knew that the S. W. wind was the prevailing one, he resolved to await it,

knowing, that with a S. W. gale, the Allies could not keep before D'Ouissan, at the same time he would be able to enter the Iroise ; he remained six days, waiting for a South-wester, 30 leagues from D'Ouissan, where our Admiral had taken every necessary precaution, in case the enemy should come in search of him. It was upon the 29th of July that we steered for Brest, with a strong S. W. wind, sending two frigates ahead to reconnoitre ; at noon, we believed ourselves about 12 leagues to the westward of D'Ouissan, but as we had not seen the land for a long time, there was some risk of being too near it, " through the thickness of the haze," of running on some of the rocks ; for this reason, the Count, who would not act with precipitation, hove-to, with the squadron, to wait for the return of the frigates ; these precautions were not at all relished, in the impatience we were in to enter Brest, and thought it very strange to lose so much precious time ; we waited with the greatest anxiety for the frigates, which joined us in the evening, and learned, with much pleasure, that they had seen D'Ouissan, from which we were 14 leagues to the westward of it. The Count took his measures so well, that the following morning, at day-light, we were at the entrance of the Iroise ; the wind was at N. W., and the enemy being 8 or 10 leagues to windward, had the mortification to see us enter Brest.—[See *Charnock's History of Marine Architecture*, Vol. II. page 321, who notices the arrival of this squadron, notwithstanding the vigilance of Sir George Rooke, who was cruising to intercept them.]

*Conclusion.*—It is to be observed of this, as in the preceding order, that no rule can be laid down applicable to it, and, therefore, each individual case must rest entirely on the natural and artificial impediments a fleet has to contend with ; the chance of success in any interprise of this description, must depend upon the knowledge of the enemy's coast, the depth of water, sets of the tides and currents, sand-banks, or other obstructions ; also, the strength of castles, and towers of defence, on the line of shore the fleet has to pass, which may enable an Admiral to act according to circumstances, and be prepared for every contingency.

## APPENDIX TO PART FIRST.

**PLATE XVIII.** [PAUL HOSTE does not appear to have given his usual concise and explanatory rules in the preceding illustration of his tactics; the arrangement he prefers for a fleet forcing a passage may have been attended with the success he anticipated, when the defences of straits and sea coasts were less formidable than they were in the last and present century.

But his inference, in respect to the advantages to be taken of winds, currents, and other local circumstances peculiar to the navigation of straits, either to be defended, or forced by a fleet, are of great importance in practice. As he has given no satisfactory example in this most difficult, but bold and hazardous enterprise, an opportunity has been taken, “ which, it is trusted, will be acceptable to those for whom this translation is intended,” to substitute the gallant achievement of a British squadron, although detained for a time by the obstacles he alludes to, which enabled the enemy doubly to encrease their defences. Yet, with all these difficulties to contend with, this small, but compact squadron, in a high state of discipline, forced the passage of the Dardanelles, under the command of Vice-Admiral Sir John Duckworth in 1807.

The following summary of its proceedings, with the Plate and diagram, has been given for this treatise by a distinguished officer, Rear-Admiral Sir Richard Hussey Hussey, K. C. B., when in command of one of the ships employed on that occasion :—

“ At day-light on the morning of the 19th of February, the wind, which had been blowing from the north, having shifted during the night to the south; the signal was made for the squadron to weigh from the anchorage it then occupied, mid-way between Rabbit Island and Cape Janissary, consisting of the following ships :—Royal George, 110 guns; Canopus, 80; Pompée, 80; Windsor Castle, 74; Repulse, 74; Thunderer, 74; Standard, 64; Active and Endymion Frigates, 40 guns each; the Lucifer and Meteor bomb vessels. Soon after the squadron was formed in line of battle; the Canopus leading, the Thunderer having the Lucifer, and the Standard the Meteor, in tow.





I

I



II







Engraved by W. Harrison, Esq.

FROM A PAINTING BY T. WHITCOMBE, IN THE POSSESSION OF  
 REAR ADMIRAL SIR RICHARD RUSSELL, B.C.H.



“ As the current, which usually sets rapidly out of the Dardanelles, frequently changes its direction with a southerly wind, although in doing so it acquires but little velocity, it was of great utility in assisting the ships through the passage, and the rate at which they passed the strait, with top-gallant-sails set, was about six or seven knots an hour.

“ The outer castles, Koum-Kali in Asia, and Elles-Baba in Europe, which are about three English statute miles distant from each other, opened their fire as the ships passed them ; at the same time some batteries on the European side followed their example, without doing any material damage, while no fire was returned by the squadron.

“ At half-past nine, the inner castles of Kelidir-Baher, at Sestos, and Sultanie-Kalessie at Abydos, which are little more than a mile apart, opened their fire, and kept up a heavy cannonade on the ships, until they had all passed ; the fire was vigorously returned, and with evident effect upon the castle and town of Sestos in particular, by the squadron keeping very near that side ; both of these castles and towns suffered also by the immense granite and marble shot, some of them weighing more than eight cwt., which were discharged at the ships, but went across the strait.

“ Immediately to the north of the inner castles, and between them and Point Pesquies, on which a formidable new battery had been erected, there is the bay of Nagara-Bournou ; under cover of these guns, a Turkish squadron of one ship of the line, four frigates, five corvettes, and two brigs, were at anchor, one of the frigates displaying the Captain Pasha's flag. The British van fired upon, and received the fire of this squadron, and rounding the Point Pesquies, anchored in the Strait of Gallipoli.

“ The rear division, consisting of the *Pompée*, *Thunderer*, *Standard*, and *Active*, under the command of Sir Sidney Smith, in obedience to a previous signal, anchored with springs on their cables, and, assisted by the *Repulse*, destroyed all the Turkish ships, except a corvette and brig, afterwards restored. One of the frigates, however, during the action, having cut her cable, endeavoured to escape by running towards the European shore, when the *Active*'s signal was made to destroy her.

“ A very heavy battery had been recently constructed on Point Pesquies, of thirty guns, well calculated, from its situation, to annoy the ships, by enfilading them, in passing either way. A detachment of the



marines of the *Standard* landed and spiked the guns. The object in demolishing this battery, which was accomplished, two days afterwards, by a detachment of seamen and marines of the *Pompée* and *Active*, protected by that frigate's fire, was to render the return of the squadron less difficult at this part of the passage, and so it proved.

"On the 3d of March, the wind being northerly, the British squadron repassed Point Pesquies and the castles, in the same order in which it proceeded up the Dardanelles on the 19th of February, with the exception of the *Meteor* being in tow of the *Endymion*; but, in the interim, the defences in the other parts of the strait had been so much extended and improved, that the damage done to the squadron was very considerable; and demonstrated, that if all the advantages were taken of this strait to fortify it, the endeavour to force a passage through it, would be attended with very great difficulty and risk."

- PLATE XIX.** A The British Squadron :—1, *Canopus*; 2, *Repulse*; 3, *Royal George*; 4, *Windsor Castle*; 5, *Standard*, with *Meteor* in tow; 6, *Pompée*; 7, *Thunderer*, with *Lucifer* in tow :—8, *Active*, and 9, *Endymion*, Frigates.  
 B Turkish Squadron taken or destroyed by the rear division.  
 C *Active* destroying the Turkish Frigate.  
 D Van division at anchor. The arrows represent the current running in favour of the squadron.

*Note.*—The distance necessary to pass the Dardanelles is 50 miles about N. E., (true,) being 14 miles from the first castles to those of Sestos and Abydos, 23 from thence to Galipoli, and 13 from that bay to the entrance of the sea of Marmora, with deep water throughout, except where anchorage or shoals shall be pointed out.

Having entered between the first castles, ships may proceed upwards with a strong southerly wind, keeping mid-channel, but it is of importance to pass this strait as quickly as possible, to preserve day-light, on account of the great uncertainty of the direction of a southerly wind; it is necessary to know how to take advantage of the counter-currents and slacks, and to be informed of the anchorages, in the event of the wind becoming contrary, or the approach of night.—[See *Nautical Magazine*, March 1833, for some seaman-like observations on the Navigation of the Dardanelles and Bosphorus.]









## PART SECOND.

### ON CHANGING THE DISPOSITION OF SQUADRONS.

A fleet is divided into three squadrons, the van, centre, and rear. When it is very numerous, each squadron is composed of three divisions, having its Admiral, Vice-Admiral, and Rear-Admiral. When a fleet is ranged in order, the Admiral may be obliged to change the disposition of his squadrons; that is, to place the squadron composing the van, in the rear or centre, or he may be obliged to change the windward, or the leeward squadrons; This does not appear to be of any great consequence in practice, and I acknowledge that it is a part of naval evolutions the least necessary; it is however necessary, and an Admiral will sometimes find himself at a loss, if he have not an easy method of changing the squadrons, which induces me to treat of it here, and to give rules for executing, in the shortest manner, the different changes that may be necessary.

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### CHAPTER I.

#### WHEN A FLEET IS FORMED ON A LINE PERPENDICULAR TO THE WIND.

I.—*To place the Centre squadron in the Van, and the Van in the Centre.*

Let the fleet D F be on the perpendicular of the wind on the larboard tack; if it be necessary to place the centre A B in the van C D, the squadron E F will heave-to, and the squadron C D will stand on under

PLATE XX.  
Fig. 1.

easy sail on the starboard tack, to join it to leeward, while at the same time the squadron A B having stood before the wind a cable length, will come to the wind eight points on the larboard tack, and place itself on II I, till the two other squadrons, one having bore up, the other made sail, place themselves on H K.

*Remark.*—The squadron C D may be hove-to, and the squadron E F, running large two points on the larboard tack, is to occupy A B, while the squadron A B, after having bore away a cable's length, comes to the wind eight points on the starboard tack, and heaves to on F E, while the other two squadrons place themselves on D B.

## II.—*To place the Centre in the Rear, and the Rear in the Centre.*

Fig. 2. If it be necessary to place the squadron E F in the centre, and the squadron A B in the rear on the larboard tack, the squadrons A B, E F, will keep away large two points on the starboard tack, and the squadron C D bear up; then, when the squadron C D has run a cable's length, it will come to the wind eight points on the larboard tack, to occupy G H, while the two other squadrons having occupied A D, will bear up, and place themselves on I G.

*Remark.*—This evolution may be reversed, in making the squadron F E reverse the manœuvre we have marked for C D, and the squadrons A B the reverse of that marked for the squadron F E.

## III.—*To Change the Van and Rear.*

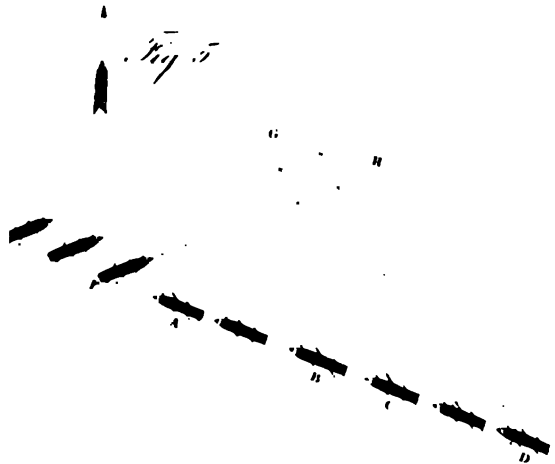
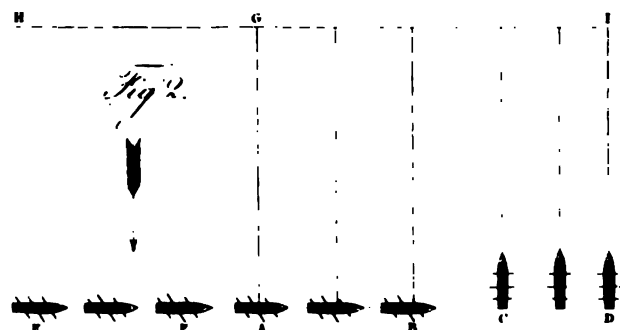
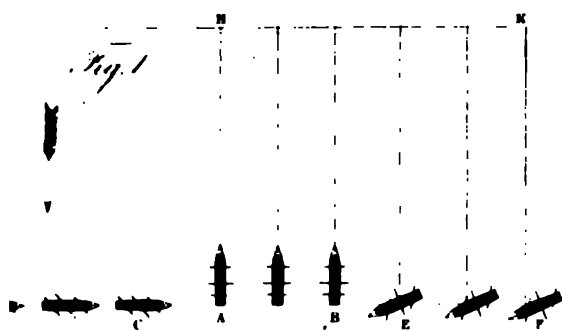
Fig. 3. If it be necessary that the squadron C D should change places with E F, A B will heave-to, and the squadron E F will come to the starboard line of bearing, to place itself on G H, where it will keep away four points to occupy C D; in the meanwhile, the squadron C D will wear short round, and keep away four points to occupy I L, from whence it will reach E F on a line of bearing.

*Remark.*—The preceding evolution may be reversed, if the squadron C D places itself on II G, and the squadron E F on L I; the reason of











which is, that the fleet being ranged perpendicular to the wind, is enabled to perform the manœuvre on either tack; for the rest, it will easily be seen, that in the three preceding evolutions, every thing is exactly determined by the squadron which is hove-to.

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## CHAPTER II.

### CHANGING SQUADRONS IN THE FIRST ORDER OF SAILING.

LET the fleet D E be supposed to be ranged on the larboard line of bearing D E.

#### 1.—*To Change the Van and Rear of the Fleet.*

If it be necessary to change the squadrons E F, C D, the squadron C D Fig. 4. will stand on the larboard line of bearing, and the two others on the starboard; then, when the squadron A B shall have gained the line G H, it will keep away in the wake of the squadron C D, and stand on after it. The squadron E F will continue on its tack, till on the line L M; it will then keep away in the wake of the others, and the evolution is performed.

*Remark 1st.*—The time which will be employed in this movement, is determined by the time necessary for the ships E F to run on the line E L, L C; in order that the movement may be made as quickly as possible, it will be necessary for the ships C D to make sail, for although it seems that the ships C D have less distance to perform, they cannot go so fast, but the ships A B can join them, and the faster the former go, the less the latter have to run to get into their wakes.

*Remark 2d.*—It may be necessary to make some remarks to the objections that may be made to the rules laid down in this part.

*First Difficulty.*—As the evolutions given here are not absolutely necessary, it may be said, it might be as well to omit them, as they may only serve to distract the attention of officers, and, by making them learn

things of little importance, prevent their applying their attention to those which are more so ; besides, a multitude of rules only serves to confuse the ideas.

*Answer.*—I reply, that it is found by experience, that the various movements of fleets aid and assist in the disposition of each other, therefore, the officer cannot be too much practised, if he desires to learn an art of such importance to his country ; it is his duty to study a thousand useless things, to facilitate the practise of those that are easy ; how many unnecessary movements are there not taught in a land army, to render the soldier more familiar with those that are in use ; besides, it is not at first necessary to attend to all the movements that we propose, it will suffice for the young beginner to attend to the most simple and the most necessary, previous to studying others, that at length he may not be ignorant of anything in so important a matter.

*Second Difficulty.*—To what purposes will so many movements of a fleet serve, when they cannot be put in practice in presence of an enemy.

*Answer.*—I grant that it is dangerous to perform complicated movements in presence of an enemy, but if a fleet is well and thoroughly manœuvred, these movements, far from being difficult to perform in the presence of an enemy, would wonderfully assist to confuse and annoy him. Do we not often see in armies, that a movement made in time paralyzes the enemy, and is the first step towards winning the battle.

Let the fleet E D be ranged on the starboard line of bearing D E.

## II.—*To Change the Van, Rear, and Centre of a Fleet.*

Fig. 5. If it be wished that the squadron E F should pass to the rear, and the squadron C D to the centre, the squadrons A B, C D, will stand on the starboard line of bearing, and the squadron E F on the larboard, till it is at G H, it can then keep away in the wake of the two others, and occupy the line C D.

*Remark.*—All the ships may carry sail, to facilitate the execution of

this evolution, for although it seem that the ships E F have a greater distance to run than the others, they can always join them, by keeping away sooner in their wake.

### III.—*To Change the Van and Centre of a Fleet.*

If it be wished that the squadron E F should pass to the centre, and the squadron A B to the van, the squadron C D must heave-to, and the squadron A B stand on the larboard line of bearing, to place itself on E F, while the squadron E F, after tacking, stands on the starboard line of bearing, till it has gained the line G H, it can then bear up to place itself on the line A B. Fig. 6.

*Remark.*—The squadron A B must pay attention to give sufficient time for the squadron E F to pass to windward; that being done, they may both make all sail, the sooner to finish the evolution, without any fear of distancing the squadron C D, which may make sail if necessary to join.

### IV.—*To Change the Centre and Rear.*

If it be wished that the squadron A B should become the rear guard, and the squadron E F the centre, the squadron C D will stand on the starboard line of bearing, and the two others the larboard, till they have gained the line G H; they may then bear up in the wake of the squadron C D. Fig. 7.

*Remark.*—The squadron C D must give sufficient time for the two others to pass to windward of it, and must then carry all possible sail, that the squadrons A B and E F may not be obliged to stand too long on the line of bearing.

### V.—*To Change the Rear and Centre.*

If it be wished that the squadron C D change places with the squadron A B, the squadron E F will heave-to, the squadron C D will stand Fig. 8.

on the starboard line of bearing, and the squadron A B on the larboard, till the squadron C D has joined the squadron E F, and the squadron A B has gained the line G H, from whence it will keep away in the wake of the two others.

*Remark.*—The evolution is more easily performed, when the squadron which is to place itself in the wake of another, does it by bearing up. Thus, it must be observed, in all the preceding movements, that the ships which are to place themselves in the wake of others, stand on till they can bear up before the wind, without troubling themselves about the time employed in doing it.

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### CHAPTER III.

#### CHANGING THE DISPOSITION OF SQUADRONS IN THE THIRD ORDER OF SAILING.

LET the fleet D G F be ranged in the third order of Sailing.

##### I.—*To Change the Centre with the Rear.*

**PLATE XXI.**      If it be wished that the squadron A G B change places with the  
**Fig. 1.**      squadron E F, the squadron C D will heave-to, and the part G F of the fleet will stand on the larboard line of bearing, till the part G B shall be in its wake ; then, the squadron E F, which will be on H I, will tack together, and stand on to the points K L, when it will bear up in the wake of the squadron A B, which will have continued on the same tack, after the ship E, which has been on I H ; then, the squadron, C D will fill, and under easy sail join E F, the squadrons, A B. E F, always carrying sail.

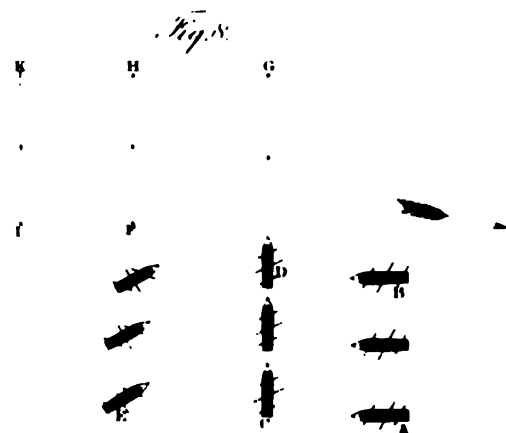
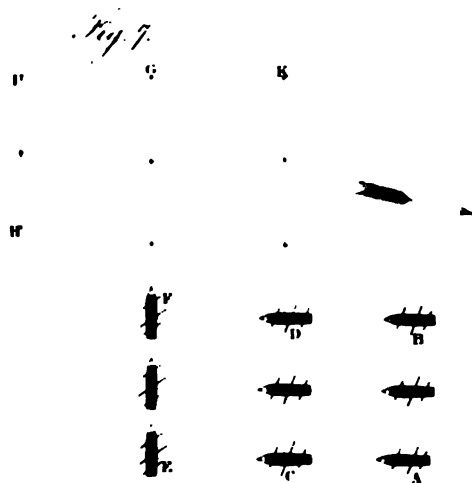
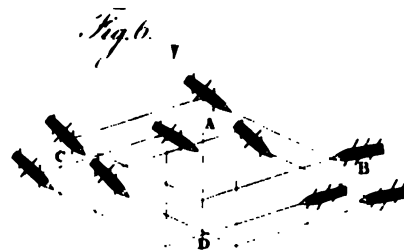
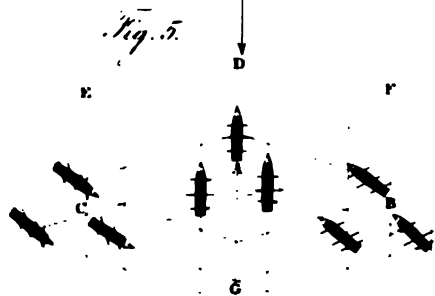
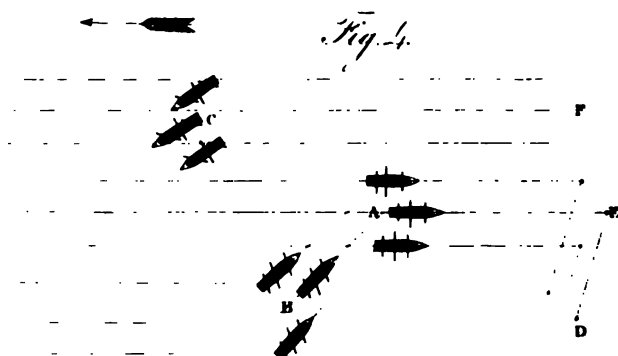
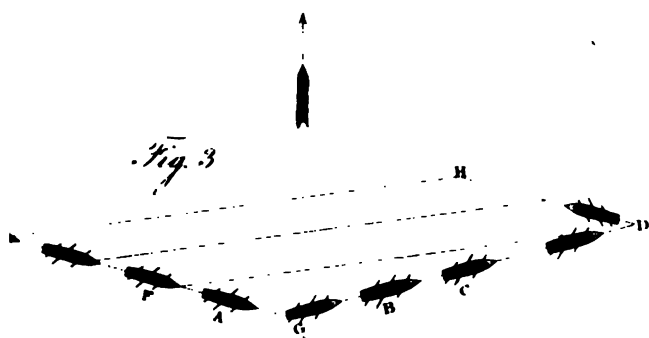
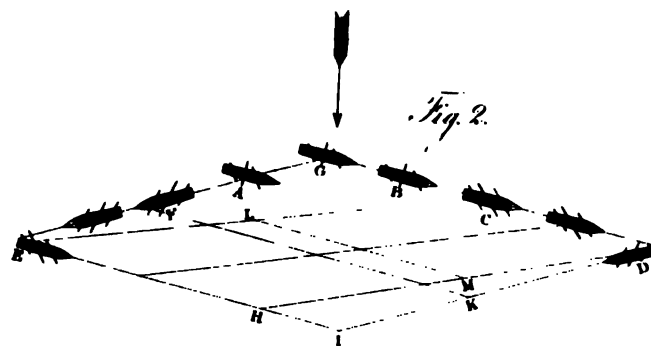
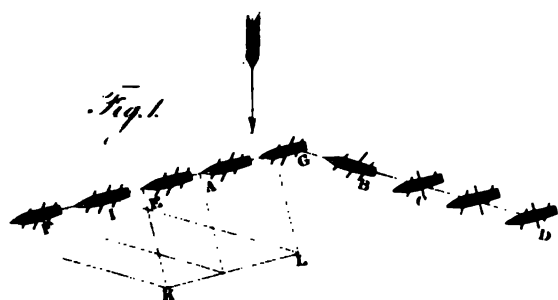
##### II.—*To Change the Van and Rear.*

**Fig. 2**      If it be wished that the squadrons C D, and E F should change places,











the squadron A G B will lye-to, and the squadron E F, having tacked at the point E, will place itself on E H, from whence, bearing up together three points, it will occupy the space C D, notwithstanding, the squadron C D has also tacked at the point D, will be ranged on K I, from whence, keeping away four points, it will place itself on the line E F.

*Remark.*—Although this movement appears embarrassing, it is not so in practice, because the squadron lying-to, determines the movements of the other two; it must only be observed, that the squadron C D must not bear up, till the squadron E F is on the line L M, to leeward of the line E K.

### III.—*To Place the Centre Squadron in the Van, and the Rear in the Centre.*

If it be desirous that the squadron A G B should take the place of the squadron C D, and that the squadron E F be placed in the centre, the squadron C D will tack at the point D, to place itself on D H; from whence, keeping away three points, it will occupy the space E F, notwithstanding the two other squadrons first stand, as if successively to place themselves in the wake of the squadron C D; but when the middle of the squadron E F is at the point G, the two squadrons, E F and A B, finding themselves on the line D G A, will heave-to, till the squadron C D shall be in its station. Fig. 3.

*Remark.*—The squadron C D must carry all sail, the sooner to finish the evolution. The time of which will be determined by that which the ship D takes in running on the lines D H F.

## CHAPTER IV.

CHANGING THE DISPOSITIONS OF SQUADRONS IN THE FOURTH  
ORDER OF SAILING.

LET the fleet CAB be ranged in the fourth order of Sailing.

I.—*To place the Centre in the Van, and the Van in the Centre.*

**Fig. 4.** If it be necessary that the squadron A should change places with the squadron B, the squadron C must heave-to, and the squadron A stand on before the wind, till the squadron B, running large four points on the larboard tack, shall be in its wake; then, the squadron A will come to the starboard line of bearing, and the two other squadrons running before the wind, till they have brought the squadron A to the proper bearing, and the fleet will be then ranged, as FED, on a line of bearing on the starboard tack.

*Remark.*—This movement will be well determined, and consequently a great deal more easy in practice than it appears to be. It must only be observed, that the squadron B must at first carry sail; but, on having gained the wake of the squadron A, it must then shorten sail, while that in its turn is making sail; there is no fear that the head B will cut the column of the squadron A, which is less, by half, in length of the line AB.

II.—*To Change the Van and Rear.*

**Fig. 5.** If the squadron B is to change with the squadron C, the squadron A will stand on before the wind, and the squadron C on the starboard line of bearing, till it shall be at the point G, in the wake of the squadron A, which will then lye-to at the point D. The squadron C keeping away four points to reach the space B, notwithstanding the squadron B has run large four points, to gain the point A, when coming to the larboard line

of bearing, it will have reached the point C ; at length, the squadrons C and B having occupied, reciprocally, the places B and C, run down to bring the squadron A to the necessary bearings, in gaining the places F E.

*Remark.*—The evolution will be much less embarrassing in practice than it seems, because the places D G will be determined, when the three squadrons are on the same line, D A G ; the places C B will be also reciprocally determined, when the squadrons B C are on the perpendicular of the wind ; the time spent in performing the evolution, will be that which the ship C takes in making sail on the line C G, G B, B F.

### III.—*To place the Centre in the Rear, and the Van in the Centre.*

If the squadron A is to take the place of the wing B, and the wing C the centre, the squadrons A and C must heave-to, while the squadron B stands on the larboard line of bearing, to place itself on the space D, to windward of the squadron A, it will then keep away four points on the larboard tack, while the squadron A makes sail, and stands on the starboard line of bearing ; and the squadron C filling, runs large four points on the starboard tack, till the three squadrons shall be in the necessary bearing to one another.

Fig. 6.

*Remark.*—The squadron A must carry, and the two others shorten sail, that the squadron A may more easily gain its place.

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## CHAPTER V.

### CHANGING THE DISPOSITIONS OF SQUADRONS IN THE FIFTH ORDER OF SAILING.

Let the fleet A B, C D, E F, be ranged in three columns, in the manner we have explained in the preceding part.

*I.—To place the Centre Squadron in the place of the one to Leeward.*

Fig. 7. To change the squadron C D with squadron E F, which is to leeward, the squadron E F must run large four points on the starboard tack, carrying all sail to reach F G, where it will heave-to, notwithstanding the two others having kept away eight points on the larboard tack, to keep open order, come under easy sail, A B to occupy C D, and C D to occupy E F, after which the squadron A B, running large four points on the starboard tack, passes from C D to D K, and the squadron C D running large eight points on the starboard tack, will place itself on H I; thus the fleet will soon be on the lines D K, F G, H I, ranged as was desired.

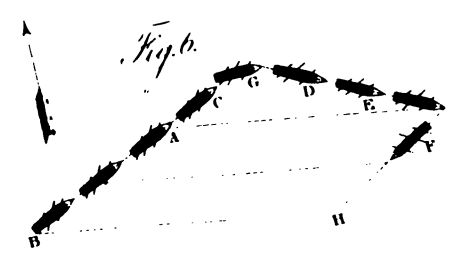
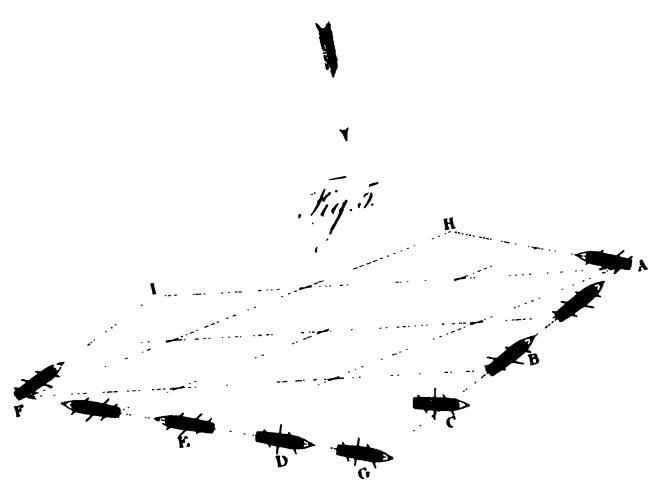
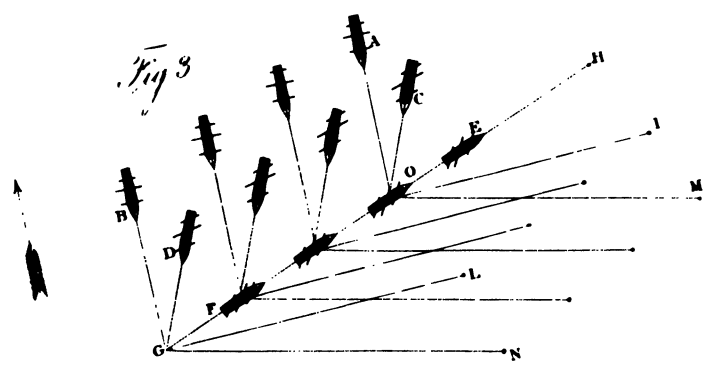
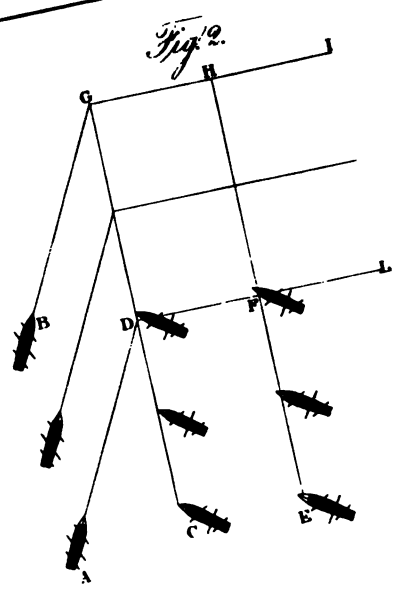
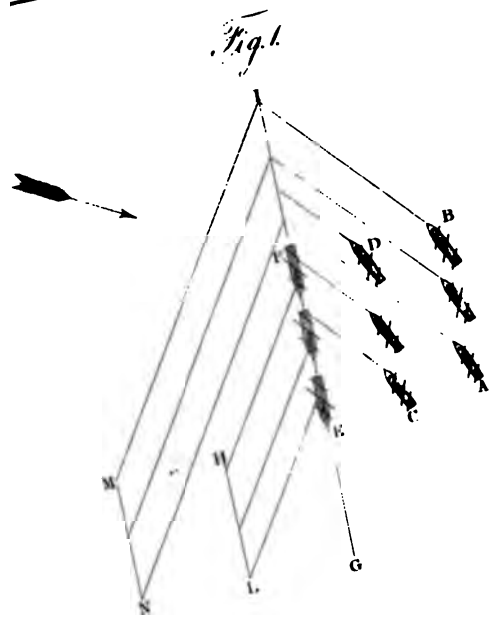
*Remark.*—The squadron A B will know if it be on the line C D, if standing under the same sail as the squadron C D, it marks the time that this was taking to get into the wake of the squadron E F; we have said that the squadrons A B, C D ought to be under easy sail, to give time to the squadron E F to quit the line E F, before the squadron C D comes on it, but then they must carry all sail to render the evolution as short as possible, which will be the time that is taken by the ship C in sailing on the lines C E, E H.

*II.—To place the Centre Squadron in the place of the one to Windward.*

Fig. 8. If the centre squadron C D is to change places with the weather squadron A B, the squadron E F will lye-to, and the squadron C D running large four points on the starboard tack, must carry sail to reach D G, where it will lye-to; in the meanwhile, the squadron A B having gone under easy sail eight points free on the larboard tack, to keep open order, will place itself on the line C D, where it will change its course, and running large eight points on the starboard tack, will reach F H; in the meantime the squadron E F will reach I K, by bearing up and running large eight points on the starboard tack, thus the fleet will be on the lines D G, F H, I K, as was desired.











*Remark 1st.*—We have said that the squadron A B ought to be under easy sail, to enable the squadron C D entirely to quit the line C D; the squadron C D will determine the time at which the two others are to run large eight points on the starboard tack, namely, when the squadron A B shall be in the wake of the squadron C D, the same squadron C D will determine the distance of the two others, for when they are abreast of it, they will be at the requisite distance; when the squadron A B shall have gained the line C D, it will carry sail, as well as the squadron E F, to finish promptly the evolution, which will take as much time as is necessary to the ship A to sail on the lines A C, C F.

*Remark 2d.*—When it is said that the squadron C D occupies D G, and the squadron A B on C D, it seems as if two ships were placed on the same point, it must be then understood that the squadron C D places itself on D G, in such a manner as to leave the place D entirely clear for the ship B, we shall take the same thing as understood in all other evolutions.

### III.—*To change the Weather and Leeward Squadrons.*

If the squadron A B to windward change places with the squadron E F to leeward, the squadron E F carries all sail on the larboard line of bearing to reach E G, where it will heave-to, at the same time the other two squadrons will run large eight points on the starboard tack, to place themselves in the wake of the squadron E F, one on the line E F, the other on the line F I, and afterwards these two squadrons running large four points on the larboard tack, place themselves, one on H L, the other on M N, thus the fleet will be on the lines E G, H L, M N.

PLATE XXII.  
Fig. 1.

*Remark 1st.*—At first, the squadron A B must be under easy sail, to give time to the squadron C D to place itself in the wake of the squadron E F; the squadrons A B and C D, may be hove-to, till the squadron E F has gained the line E G, and then the squadron C D runs large eight points on the larboard tack, to reach E F, and the squadron A B eight points on the starboard tack, to reach F I, and the remainder of the evolution can be done as in the preceding one.

*Remark 2d.*—When the squadrons A B and C D are occupying the lines I F, F E, they will carry sail promptly to finish the evolution, which will require the time that is necessary to the ship A to sail on the lines A F, F N.

IV.—*To place the Windward Squadron to Leeward, and to place the Centre Squadron to Windward.*

Fig. 2. If the squadron A B is to be placed to leeward, and the squadron C D to windward, the squadrons C D, E F will heave-to, the squadron A B running large six points on the larboard tack, will reach D G, where it will change its course, and running large eight points on the starboard tack, reach I L, where it will lye-to; after which, the squadrons C D, E F will fill and run large four points on the larboard tack, to place themselves abreast of it, and the fleet will be on the lines D G, F H, L I.

*Remark 1st.*—This evolution may be performed in another manner, which will place the fleet more to windward, if, instead of passing the squadron A B, to leeward of the squadrons C D, E F, they pass it to windward; for that, it is necessary that the squadron A B run large two points on the starboard tack, till it has placed the squadron C D in its wake, and then run large eight points on the starboard tack, after which the squadrons C D, E F stand on the starboard line of bearing, to place themselves abreast of it; this method is preferable to the preceding one, when time is not an object.

*Remark 2d.*—The squadron A B may be made to keep large four points on the starboard tack, while the two others are running the same on the larboard tack, then when the squadron A B has placed the squadron C D in its wake, the squadrons C D, E F will lie-to, and the squadron A B run large eight points on the starboard tack, till it be at a sufficient distance from the two others, then the squadron A B runs large four points on the larboard tack, and the two others stand on the starboard line of bearing, till the three squadrons are abreast of one another, this manner is, without doubt, effected with more promptitude, but it appears to me too complicated.

V.—*To place the Weather Squadron in the Centre, and the Centre Squadron to Leeward.*

If the squadron A B is to be placed in the centre, and the squadron E F to windward, E F will stand on the larboard line of bearing to reach O H, and then lye-to, the squadron C D will run large eight points on the starboard tack, to O G, from whence it will pass to M N, running four points large on the larboard tack, while the squadron A B going before the wind, will place itself on O G, from whence it will haul to the wind eight points on the larboard tack, to gain L I, thus the fleet will be ranged on the lines O H, L I, N M.

Fig. 3.

*Remark 1st.*—This evolution at first appears rather undetermined, for it seems, there is nothing to indicate to the squadron E F, the place where it ought to heave-to; nevertheless, if the thing be examined more closely, it will be found, *1st*, That the course of the squadron C D is determined by a point which a sufficiency of sail will render necessary, to allow the squadron E F to pass to windward of it. *2dly*, It is determined that the squadron E F ought to heave-to, when in carrying sail, it has left a sufficient space for the squadron C D to pass to leeward. *3dly*, The squadron E F being hove-to, will allow the two others to place themselves in its wake, from whence they will change their course to get abreast of it, by the points which will naturally place them at the requisite distance. It is only to be observed, that the squadrons A B, C D must deaden their way, till they have passed out of the wake of the squadron E F, and then make sail to get into their respective stations.

*Remark 2d.*—The same thing may be done in another manner, by making the squadrons A B, C D pass to windward of the squadron E F; but the evolution will neither be shorter nor more simple, nor more advantageous for getting to windward.

## CHAPTER VI.

## CHANGING THE DISPOSITIONS OF SQUADRONS IN THE ORDER OF RETREAT.

Let the fleet B G F be ranged in the order of retreat.

I.—*To place the Centre Squadron in the room of one of the two others.*

Fig. 4. If the centre squadron C D is to change places with the squadron A B, the squadron E F will heave-to, the squadron C D will stand to the wind on the starboard line of bearing two cables' length, after which one part of it, G C, will bear away four points, and the rest of it will follow in its wake, until it shall all be on the line H I, from whence it can bear up before the wind to the line A B, while the squadron A B will have placed itself on C G D.

*Remark.*—The two squadrons must carry sail to finish promptly the evolution, and there is no fear that the ship A will cut off the rear of the squadron C G D, because the ship A will not start till after the ships C G have passed to windward; besides the line A G is longer than D G.

II.—*To change the Van and Rear.*

Fig. 5. If the squadron A B is to change places with the squadron E F, the squadron C D having hove-to, the ship A will wear short round, and run four points free on the larboard tack, the rest of its squadron following successively in its wake, till they are on A H, it will then come to the wind three points to reach E F; meanwhile, the squadron E F, by wearing in succession, will have placed itself on F I, and after having given time to the squadron A B to pass to windward, it will haul up on the starboard line of bearing, to occupy the space A B.

III.—*To change the Centre and Van, and place the Rear in the Van.*

Fig. 6. If the squadron A B is to be in the centre, and the squadron C D to

take the place of E F, the headmost ship, F, will run four points large on the starboard tack, and the rest of the fleet stand to place itself in her wake; then, when the squadron F E, is on the line F H, it will come to the wind three points, the rest of the fleet lying-to, until the centre of the squadron A B shall have gained the point G.

*Remark 1st.*—The second evolution is extremely exact and simple; it is to be observed, that the squadron E F must not stand too long on the line F H, for fear of getting to leeward of the line A B; thus it must lye-to, till the squadron A B has left it sufficient space to pass to its station.

*Remark 2d.*—The third evolution is still more simple, all the ships may carry sail; but, above all, it is necessary the squadron E F carry sail, because the time of the evolution will be measured by that which the ship F takes to run the lines F H B.

END OF PART SECOND.



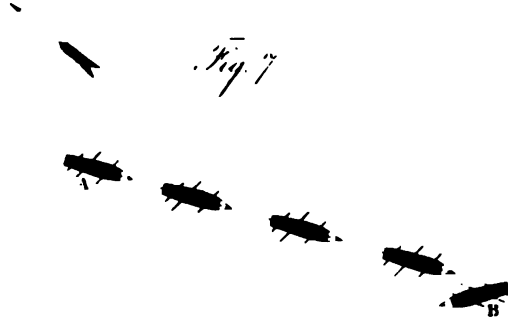
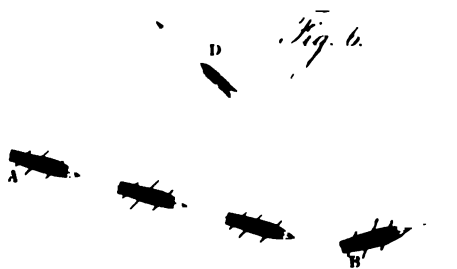
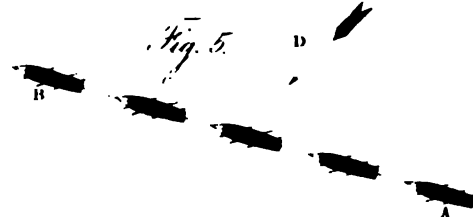
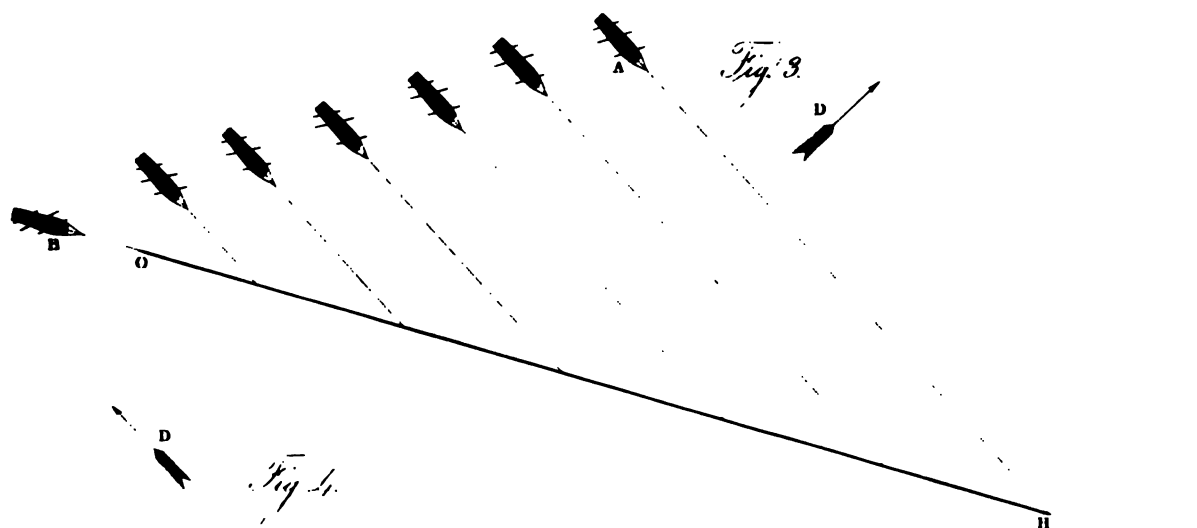
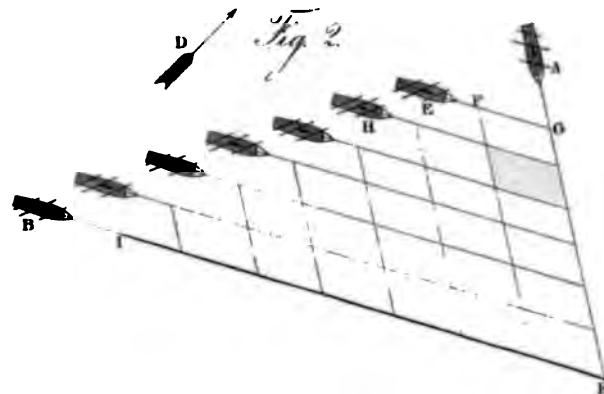
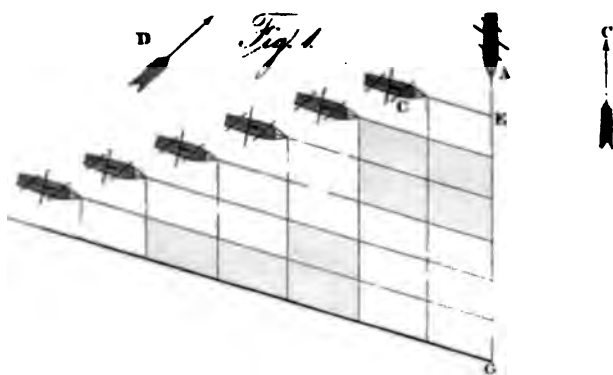


## PART THIRD.

### TO RE-ESTABLISH THE ORDERS ON A CHANGE OF WIND.

A change of wind is liable to throw an undisciplined fleet into confusion : the different orders are formed with regard to the wind, and are deranged on its changing. I know that the order may be re-established by the same method by which it was formed, but it is easy to be seen that this would be a source of accidents, such as squadrons separating, ships running on board of each other, and the whole fleet would be a long time in ranging itself; instead of which, if the rules we shall give are followed, the change of wind will not derange the fleet, each ship will preserve her station, and a trifling movement performed in a manner equally exact and imperceptible, will restore order to the fleet. I do not know if I am mistaken, when I persuade myself, that the good order of a fleet demands that the station and manœuvre of each individual ship shall be so exactly determined in all circumstances, that no officer in command of her shall be under the necessity, or even a pretext, for acting on his own discretion; but I am at least certain, that it would be the means of avoiding accidents so common at sea, when each ship chooses her station, and manœuvres as most convenient. I have marked, by doted lines, the station of each ship during the progress of a manœuvre, by which the fleet restores the order on a change of wind. It is attended with two advantages. 1<sup>st</sup>, All the circumstances attending the evolution will be more clearly seen.







*Remark 1st.*—If required, the fleet may keep away two points, excepting B, which stands on under easy sail, or heaves-to to allow the weathermost ships to pass ahead, they carrying sail to form in the wake of A, at H, and ahead of B. This manœuvre is not so exact as the former, and takes more time; but it seems to lose, in a less degree, the advantage of the weathergage, for the headmost ship, B, standing always on a line of bearing during the evolution, will gain the line O H, and consequently, the fleet will be kept more to windward; it must nevertheless be acknowledged, that this method being more simple, and attended with greater promptitude, ought to be preferred, especially by a fleet not sufficiently exercised in evolutions of this description.

Fig. 3.

*Remark 2d.*—If going to leeward is not attended with inconvenience, the rearmost ship, B, may be made to run four points large, and the rest of the fleet following in her wake, will find itself in order of battle. On hauling their wind, or if it be preferred to reverse the head and rear of a fleet, the rear ship, B, keeping her wind, and the rest of the fleet following in succession, will be in order of battle.

*Remark 3d.*—By this last evolution, the advantage of the wind is not so much lost as in the preceding, but it still loses it greatly, and likewise reverses the arrangements of squadrons and divisions. It is for this reason that it is never made use of, except under pressing circumstances, such as to lengthen on an enemy, to avoid an engagement, or to double on a cape or headland.

*Another Manner.*—If the wind does not change much, the Admiral, E, will heave-to, and the part A E of the fleet will bear away four points, following his movement on the line E F; the part E B will stand on a line of bearing on the larboard tack, and heave-to successively on the line E G, when the fleet will be in order of battle, on the starboard line of bearing, F G.

Fig. 4.

*Remark.*—This method will not do for a large fleet, because the rear

ship, B, will have too great a distance to go, in order to reach her station; besides, the fleet will fall greatly to leeward, in lying-to for so long a time; and the intervals of the ships arriving on the line E G, will greatly augment it, by giving an extent to the fleet which must be avoided.

**Fig. 5.** *Another Manner.*—If the wind changes twelve points, the order of a fleet will not be disturbed, and it will only be necessary to trim sails; thus, the fleet A B, being in order of battle on the starboard tack, with the wind at C, will be in order of battle on the larboard tack, with the wind at D.

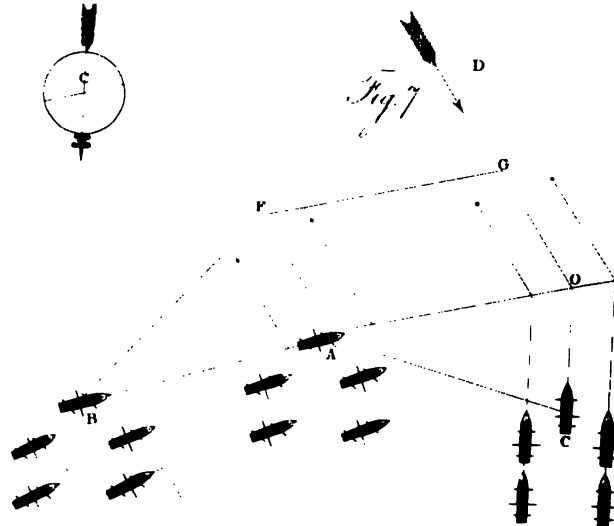
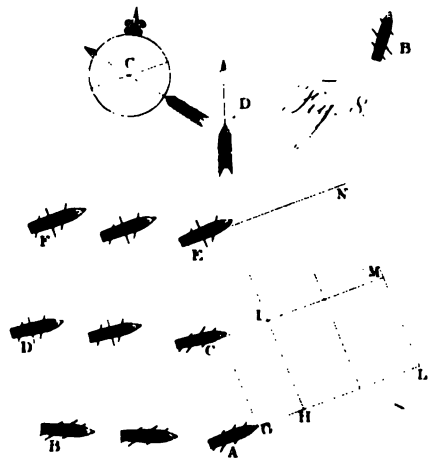
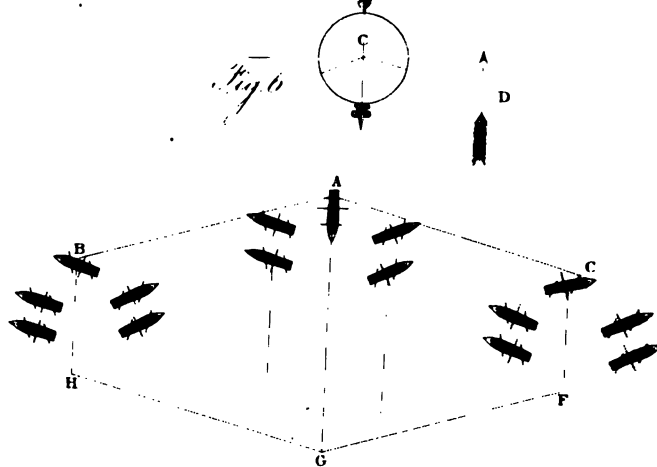
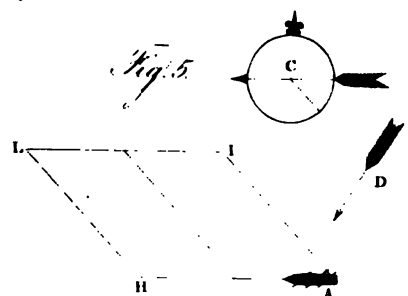
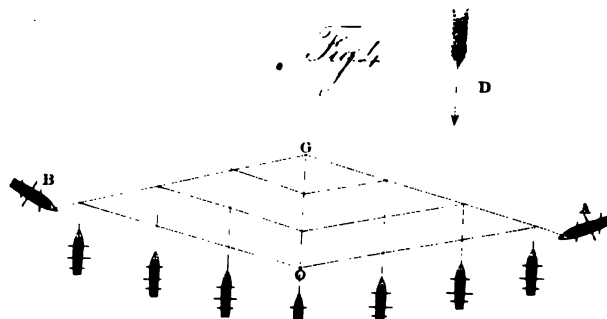
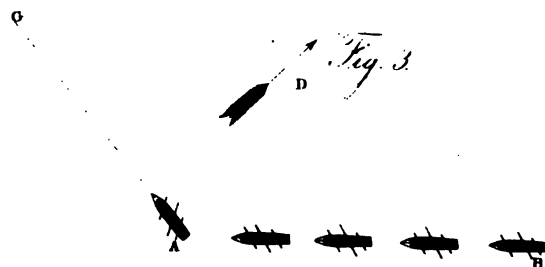
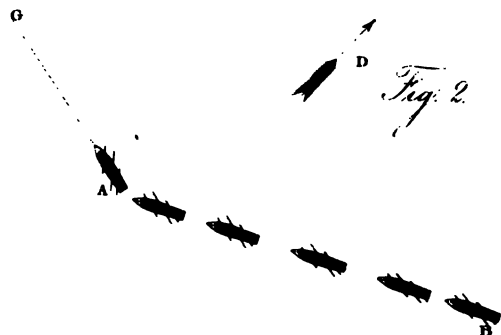
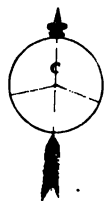
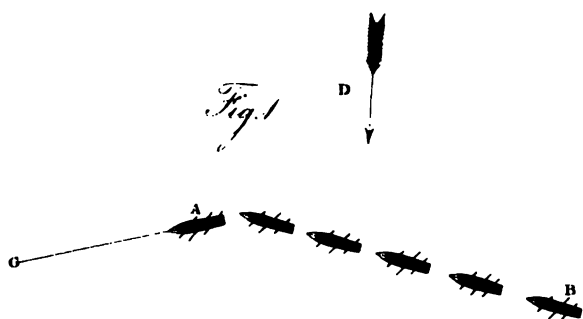
*Remark.*—This is a point of sufficient importance, and if it be profited by, many evolutions will be avoided. *1st*, The wind cannot change more than sixteen points in coming ahead, for if it changes seven points, the ships can brace their yards round. *2dly*, When the wind changes more than twelve points it will be aft; for if the wind D change fourteen points from C, it would be as if the fleet being ranged on the starboard tack on the line A B, the wind had drawn aft two points; we will give more examples of this, as it appears of importance.

**Fig. 6.** *Example 1st.*—We have before said, that if the wind changes four points ahead, the ship B can run large as many points on the larboard tack, and the rest of the fleet following in her wake, order will be re-established by a very simple manner; supposing, then, the wind on the larboard side of the fleet, and that it changes eight points, the rearmost ship, B, will run large four points on the larboard tack, and the fleet will re-establish itself by the same evolution.

*Remark.*—When the wind changes four points, the preceding evolution will re-establish the order precisely as it was; for the fleet, which was in order of battle on the starboard tack, before the change of wind, will be in order of battle on the same tack, after the evolution; but if the wind change eight points, the fleet, after the evolution, will not be precisely in the same order, on the same tack, for it was on the larboard line of battle











before the wind changed, and on the contrary, will be in the starboard line of battle after the evolution.

*Example 2d.*—We have before said, that if the wind changes four points aft, the ship B will come to the wind, and the rest of the fleet follow successively in her wake, the order will be re-established without difficulty; suppose, then, the wind to change eight points, they will perform the same manœuvre; they will have the advantage of keeping the fleet on the same line of bearing, with the sails trimmed the same way, instead of which, the fleet would change its tack, if the wind only altered four points.

*Remark.*—It seems, that to preserve the fleet on the starboard line of bearing, when the wind has changed four points, the ship B may be made to stand to the wind on the starboard tack, but the thing is not to be done in practice, without placing the ship B in danger of falling on board of her seconds astern, because the angle A B G is too acute to avoid this inconvenience; the ship B may run large for a short time, and then come to the wind on the starboard tack.

Fig. 7.

*Example 3d.*—If the wind changes sixteen points, the fleet which was on a wind on the starboard line of bearing, will trim for the larboard, then the headmost ship, A, will come to the wind on the larboard tack, and the rest of the fleet following in her wake, will be in line of battle on A G.

PLATE XXIV.

Fig. 1.

*Remark.*—If the fleet wear short round in reversing the order of the van and rear, and trim on the starboard tack, it will be in line of battle, with two considerable advantages; *1st*, The evolution will be more prompt. *2dly*, The fleet will be more to windward; this deserves attention, because, in some cases, a movement of this nature will place the fleet to windward of the enemy.

## CHAPTER II.

TO RE-ESTABLISH THE FIRST ORDER OF SAILING, WHEN THE WIND COMES  
AFT.

Fig. 2. If the wind comes aft, the headmost ship, A, of the fleet A B, will stand to the wind, on the line A G, and the other ships place themselves successively in her wake, at the point A.

*Remark 1st.*—This manner is exceedingly simple, and ought to be observed in practice, to avoid accidents inseparable from other methods. It is true it is a little long, but the time it takes will not prevent a fleet from doing that, which it would, if the order were re-established in a moment. The headmost ship, A, may carry sail to lengthen on the enemy, or pass to windward of him, without fearing that the rest of the fleet will be unable to follow, because the ships which are not in line will run large, and follow in line.

*Remark 2d.*—It must also be observed, that in reversing the order of the van and rear, the fleet will find itself sometimes sooner re-established, and more to windward; for if the wind come from C to D, in changing four points, and the fleet trims for the larboard tack, giving the van to the ship B, it will be in line without a single ship keeping away.

II.—*To establish the Second Order of Sailing, when the wind changes.*

Fig. 3. Let the fleet A B be ranged perpendicular to the wind, C, and that the wind shifts to D, the headmost ship, A, to leeward, will stand on the line A G, perpendicular to the wind D, and the rest of the fleet will place itself successively in her wake, at the point A.

*Remark.*—If it be wished to preserve the advantage of the wind, the ship B may be made to stand perpendicular to the wind, provided the fleet can follow in her wake, for the rest of the evolution is very simple,

from whatever quarter the wind may come; but as it is long, if the wind only change a little, it will be sufficient for the ships which are too far to windward, to bear up.

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### CHAPTER III.

#### TO RE-ESTABLISH THE THIRD ORDER OF SAILING, ON A CHANGE OF WIND.

##### I.—*When the wind changes sixteen points.*

Let the fleet A O B be ranged in the third order of sailing, with the wind at C, and that it shifts sixteen points to D, the wings A and B will lie to; the other ships bearing up, will place themselves successively hove-to on the lines of bearing, A G, B G. Fig. 4

*Remark.*—In order to avoid accidents, which may cause confusion in the fleet, the ships will keep themselves during the evolution, in lines, parallel to the lines A O, B O, till they shall heave-to on the lines G A, G B.

##### II.—*When the wind does not change sixteen points.*

The wing A, to leeward, will come to the larboard line of bearing, and the rest of the fleet will stand on, as if to place themselves successively in its wake; then, when the centre ship G of the fleet, shall be at the point A, the part A G, which will be on H A, bears away four points, and the remainder continue to place themselves in the wake of the ship G; thus the fleet will be on the obtuse angle A I L. Fig. 5

*Remark 1st.*—It seems that this evolution is so simple, that it ought to change the opinions of those who have rejected the third order of sailing, as being difficult to re-establish on a change of wind; it suffices for the

ships A and G to make the necessary manœuvre, to regulate all the others; and all the manœuvres of these two ships, consist in coming to the wind once, and keeping away another time.

*Remark 2d.*—I grant that this evolution takes up a considerable time, namely, that which is necessary for the ship B to stand under easy sail, on the lines B G, G A, but the duration of the evolution must not be counted for any thing, because it does not place the fleet in any danger of being thrown into confusion.

*Remark 3d.*—When the wind does not change much, it is not necessary to have recourse to this evolution, but it will be sufficient for the ships too far to windward to carry sail, if the fleet is before the wind; or, if on a wind, the ships to leeward must carry sail.

*Remark 4th.*—What we have said must be understood of all the evolutions given in this third part of the treatise. It may likewise be observed, that it is not necessary to be in haste to re-establish the order on a change of wind, because the wind sometimes veers back to the same point; therefore, a fleet ought to preserve, for some time, the position in which it has been placed by the change of wind, and to keep its course as much as possible, until the change is ascertained to be durable.

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## CHAPTER IV.

### TO ESTABLISH THE FOURTH ORDER OF SAILING ON A CHANGE OF WIND.

#### *I.—When the wind changes sixteen points.*

**Fig. 6.** Let the fleet A B C be ranged in six columns, and that the wind C shifts to D, all the fleet will heave-to, and the ship A will bear up on the line A G; then, when her two seconds find themselves in a line of bearing with her, they will do the same, the other ships of each column following them; when the commanders G and B also find themselves in

lines of bearing with the Admiral, A, they will bear up as he did, their squadrons performing the same manœuvre as the Admiral, A. The fleet will be re-established in the same order as before a change of wind, and occupy the place F G H.

*Remark 1st.*—It must not be feared that the fleet will fall to leeward in remaining hove-to so long, because it is only placed in this order, in running before the wind.

*Remark 2d.*—The ships of each squadron must pass between the columns they belong to, which will concentrate them, and it will be easy to put the columns in open order after the evolution.

*Remark 3d.*—Hence it comprehends how the fourth order of Sailing may be established, when the fleet is drawn up in two or three columns. It is not therefore necessary to enter into details on this evolution, nor for the following, because it is not in usage, for as the fleet is only placed in this order, when it has the wind aft, it is not re-established when the wind changes.

## II.—*When the wind does not change sixteen points.*

If the wind does not change sixteen points, and that the lines of bearing for the wind D, are B F F G, and A O, the squadrons A and B will heave-to, and the squadron C will carry sail on the point which will keep it at the same distance from the squadron A, till the commander, C, shall be on the starboard line of bearing, O A; then the squadron A will fill and stand on as the squadron C, till the commanders A and C are on the points F G, where they will lye-to, to give time to the six columns to range themselves astern of their respective commanders.

Fig. 7.



## CHAPTER V.

## TO RE-ESTABLISH THE FIFTH ORDER OF SAILING ON A CHANGE OF WIND.

I.—*When the wind changes six points.*

Fig. 8. LET the fleet A B C D E F be in three columns, and that the wind changes from C to D, the headmost ship, A, of the column A B will run on the larboard line of bearing, and the rest of its squadron will place themselves successively in her wake to reach H L, the two other squadrons remaining hove-to, till the headmost ship, A, shall be abreast of the headmost ship, C, at the point G; then the headmost ship, C, will fill as the headmost ship, A, her squadron following in the same manner, to place themselves on I M; then when the headmost ship, E, shall find herself abreast of the two others at I H, she will fill, and do the same with her squadron, thus the fleet will soon be on the lines H L I M E N in the order required.

*Remark 1st.*—The columns will find themselves too much closed, but they can easily open afterwards, if those farther to windward, E F C D, keep their wind a little more than the lee column.

*Remark 2d.*—If it is wished to reverse the order of the van and rear, the fleet will veer short round, and trim on the starboard tack, which will re-establish it in an instant for the rest. These two evolutions change the order of the squadron with respect to the wind, but things may afterwards be replaced by the rules we have given in the preceding part.

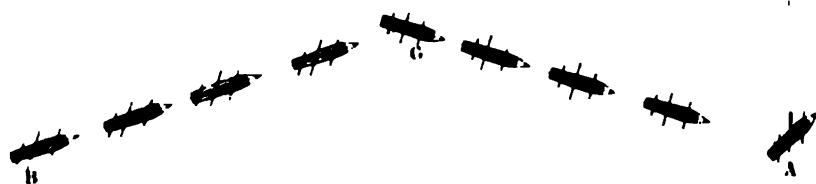
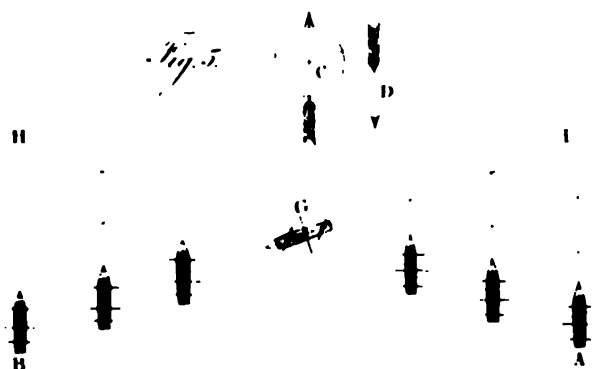
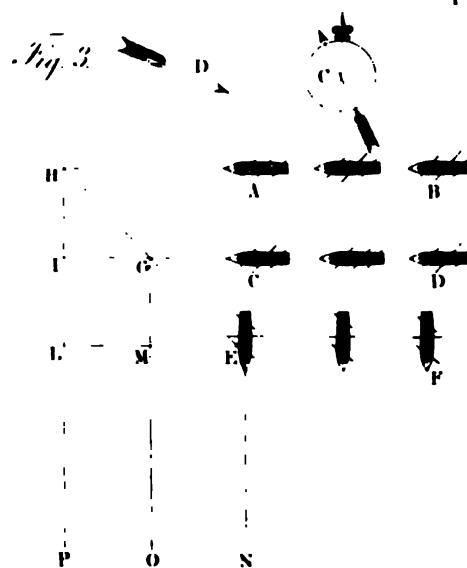
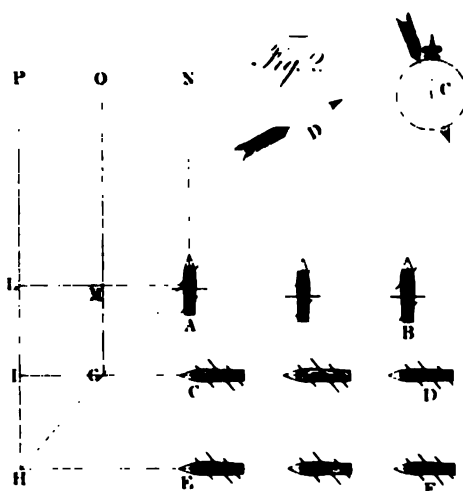
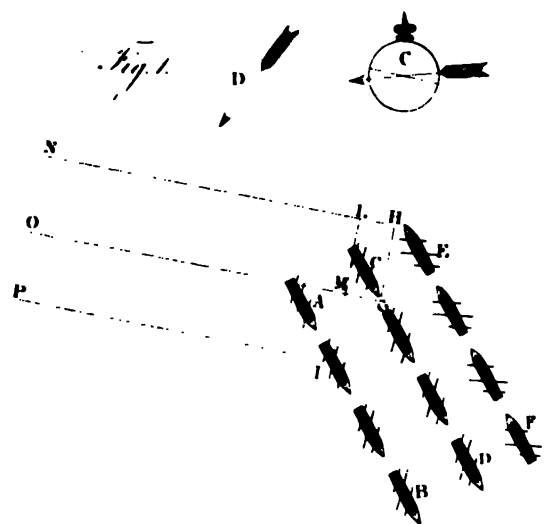
II.—*When the wind comes aft, not changing more than four points.*

PLATE XXV. The headmost ship, E, of the squadron comes up to the larboard line of bearing, L N, and the rest of her squadron place themselves successively in her wake, the two other squadrons will tack together, and having wore short round, will run on the lines C D A B, then when the headmost ship,

Fig. 1.









C, is at the point G, abreast of the headmost ship, E, at the point H, the headmost ship, C, stands on the larboard line of bearing M O, her squadron following successively in her wake, the headmost ship, A, will do the same thing, when it is at the point I, abreast of the two others at the point M L, thus the fleet is soon ranged on the columns I P, M O, L N.

*Remark 1st.*—The squadrons A B C D may heave-to, instead of running on the lines C D A B, and I think in practice it is the better plan, and avoids the movements the squadrons A B C D make in tacking and wearing.

It is true, that the columns will be extremely close after the evolution, but the inconvenience is not much, as the columns may be opened afterwards.

*Remark 2d.*—If the first evolution is put in practice, the better to preserve the advantage of the wind, the headmost ship, E, must carry sail, and the rest of the fleet manage so that the headmost ships shall be about the same distance from each other.

*Remark 3d.*—We only give this evolution on a change of wind not exceeding four points, because if the wind changes more, the ships cannot stand on the lines C D A B; it may be used when the wind changes more, if the squadrons A B C D, are hove-to, without making them stand on the starboard line of bearing, to preserve the distance of columns.

### III.—*On the wind coming aft eight points.*

If the wind change eight points, the squadron A B will heave-to, and the two others continue their course by the lines D C F E; then, when the headmost ship, C, shall be at the point G, four points to leeward of the headmost ship, A, the squadron C D will also lye-to, and when the headmost ship, E, shall be at the point H, in a straight line with the two other headmost ships, A and C, she will come to the starboard line of bearing, her squadron following successively in her wake; the headmost

Fig. 2

ship, C, will do the same thing with her squadron, when the headmost ship, E, shall be at the point I, abreast of her; at last, the headmost, A, with her squadron, will do the same thing, when in a straight line with the two others, and the fleet will be in the columns A N M O L P.

*Remark.*—This evolution appears long, because it takes all the time which is necessary for the ship E, to run on the lines E H P, which is equivalent to the whole length of the fleet; nevertheless, we prefer it to the other, because it is general, for if the wind changes more or less than eight points, the headmost ship, C, must be placed more or less to leeward than the ship A, taking a point of elevation for two points, if changing from four points to twelve.

#### IV.—*When the wind changes aft twelve points.*

Fig. 3. The fleet will trim sails, and after having hove the squadron E F to, the evolution will be the same as the preceding, with the difference that the headmost ship, A, perform the movements which the leading ship, E, would have done had the wind come aft eight points.

*Remark.*—The same thing is to be observed if the wind change more or less than twelve points, the headmost ship, C, must be placed more or less to leeward, taking half a point of elevation for one point of change; in this manner we have a general method when the wind changes aft from four to twelve points.

#### V.—*When the wind comes Ahead.*

Fig. 4. If the wind comes ahead, the weather squadron A B will heave-to, the two others having bore up, will run on the lines C D, E F, then, when the rearmost ship, D, at the point G, has passed the rearmost ship, B, as many half points as the wind has changed points, the squadron C D will heave-to; the same when the rearmost ship, F, being at the point H, shall have passed the rearmost ship, D, at the point G, as many half points as the wind has changed points, the rear F will haul up four points on the

larboard tack, the rest of her squadron following successively in her wake; the rear D will do the same with her squadron when the rear F is abreast of it at the point I, and the rearmost ship, B, will also do the same thing with her squadron, when she shall be in a straight line with the other two; in this manner the fleet will be on the lines B P M O L N.

*Remark.*—It will be clearly seen that this evolution is nothing more than the preceding reversed; it will therefore be necessary to reverse all the precaution given for it.

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## CHAPTER VI.

### TO RE-ESTABLISH THE ORDER OF RETREAT ON A CHANGE OF WIND.

#### I.—*When the wind changes sixteen points.*

Let the fleet A G B be ranged in the order of retreat, and that the wind shifts from C to D, changing sixteen points, the Admiral, G, will heave-to, and the other ships bearing up, place themselves successively hove-to on the lines of bearing G I G H. Fig. 5.

*Remark.*—The wing A may be made to haul up four points on the starboard tack, and the remainder of the fleet following successively in her wake, till the Admiral shall be at the point A, then the fleet will be ranged in the order of retreat with the wind at D. This method is more simple and exact than the preceding, but it is also longer.

#### II.—*When the wind changes less than sixteen points.*

If the wind changes less than sixteen points, the ship A to leeward will run large four points on the larboard tack, the rest of the fleet following as if to place themselves successively in its wake; then, when the Admiral, G, shall be at the point A, the part A G of the fleet, which by Fig. 6.



that time is on A L, will come to the wind, and the rest continuing in the wake of the Admiral, will also come to the wind, the fleet will then be on the obtuse angle A H I, in order of retreat. This evolution is extremely easy, but it must be observed, if the wind change much, the Admiral, G, in coming to the wind, will encounter the rest of the fleet; to avoid this inconvenience, the wing A will run large four points on the starboard tack, instead of the larboard tack. It is true that this manœuvre will place the part A G of the fleet to the right of the Admiral, when it was to the left before the change of wind, but if it is wished to keep it on the left, the Admiral G will continue to run on the line A L, till in coming to the wind, he cannot encounter the rear of the fleet.

END OF PART THIRD.

## PART FOURTH.

### TO CHANGE A FLEET FROM ONE ORDER TO ANOTHER.

NOTHING is more important in the art of evolutions, than the manner of changing the orders one with another; nothing occurs oftener in practice, and nothing occasions more disorder, then when these changes are not performed with exactness and regularity; the principle on which we have established our rules, are, that during every movement, the station of each ship shall be determined, that the fleet may not lose time, and fall as little to leeward as possible. It seems to me, in order that an evolution should be perfect, it must be so uniform, that two or three ships shall direct all the others, and put the fleet under the necessity of doing that which it ought. It is with this idea, that among the several methods that present themselves, I have always chosen the most simple and general, in preference to the most exact. I do not doubt that my readers will find evolutions different from mine, which will sometimes appear to be better; I advise them to put them in practice, after they have examined those proposed, with all the accompanying circumstances, on the principles we are going to give.

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### SECTION FIRST.

#### CHANGING THE ORDER OF BATTLE.

1.—*To change the Order of Battle to the First Order of Sailing.*

1st.—*Without changing the Tack.*

Let the fleet A B be ranged in order of battle; to reduce it to the first PLATE XXVI.

order of sailing, all the ships must bear up at the same time, and it will be in the order of sailing on the line C D.

*Remark.*—Several reasons oblige an Admiral to pass his fleet from the order of battle to the first order of sailing, the principal are, to approach an enemy, to gain a station, or to change the squadrons.

*2d.—In changing the Tack.*

If it be wished that the fleet shall change the tack in the same time as changing the order; that is to say, being in order of battle on the larboard tack, it is to pass to the first order of sailing on the starboard tack; it will be necessary to begin by tacking, and then perform the evolution as the preceding.

*Fig. 2. Remark.*—The fleet may wear short round, after which the rearmost ship, B, keeps away four points on the larboard tack, and the remainder of the fleet following successively in her wake, will be ranged in the first order of sailing on the starboard tack.

It is true this manner will place the fleet greatly to leeward, but the fleet is not reduced to this order of sailing to gain the wind, and it is often of more consequence to gain time, than to windward; in this case it is evident that the last method is preferable to the preceding, which takes a considerable time.

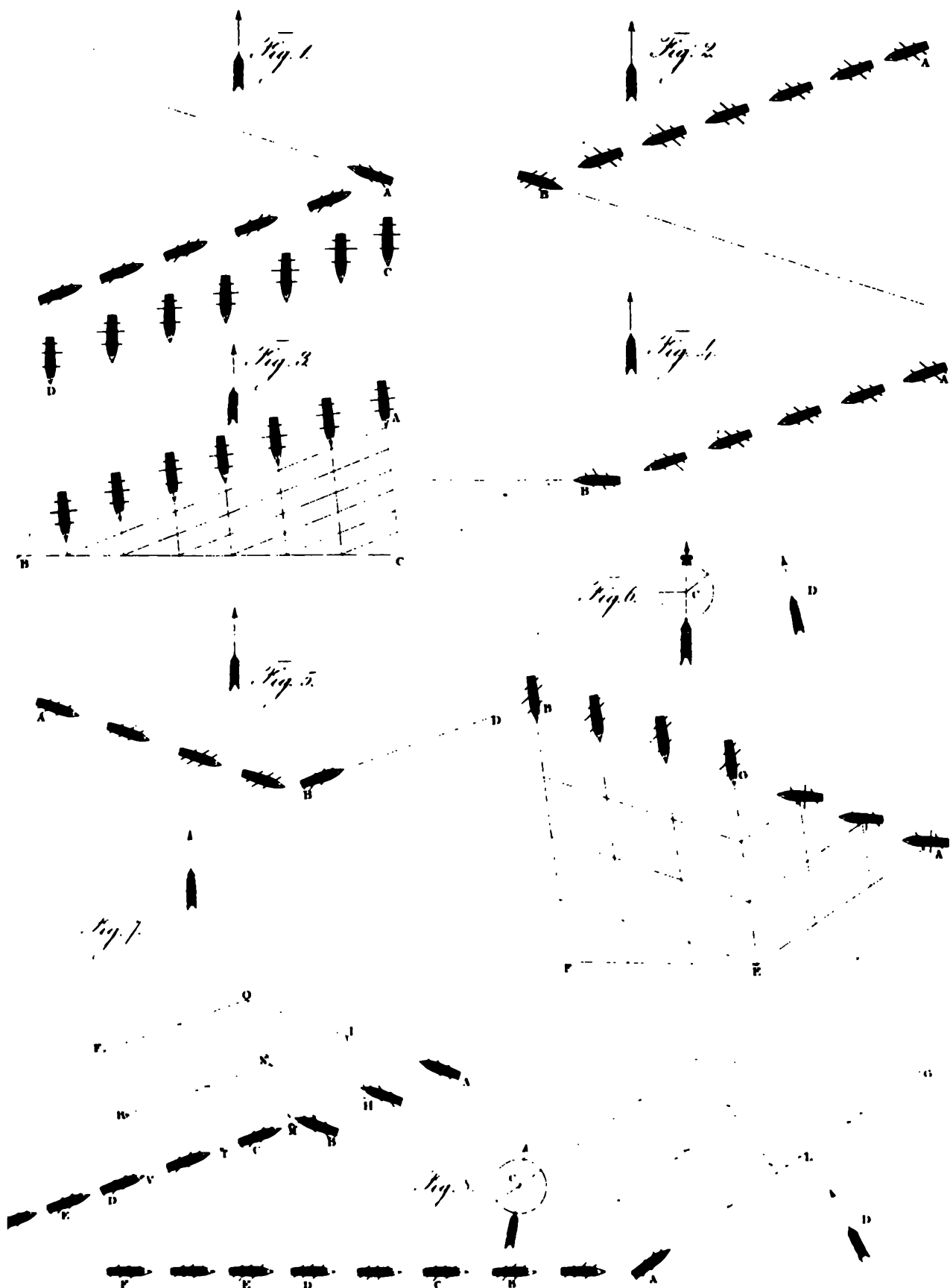
*II.—To change the Order of Battle to the Second Order of Sailing.*

*Fig. 3.* Let the fleet A B be ranged in order of battle on the line A B, and that it is necessary to place it on the perpendicular of the wind B C. The rearmost ship, B, heaves-to, and all the other ships bear up till they can successively heave-to on the line B C.

*Remark 1st.*—This manner is very simple, and not subject to any confusion, provided that the ships which have not hove-to, keep themselves









on the lines parallel to the line A B, which they occupied before the evolution.

*Remark 2d.*—The rearmost ship, B, may be made to run on the perpendicular of the wind, and the rest of the fleet keeping large four points on the starboard tack, will come successively in her wake; this manner is more regular and exact than the preceding, but it is extremely long, and will place the fleet greatly to leeward. Fig. 4.

*Remark 3d.*—In order that the fleet should fall less to leeward, some are of opinion that the headmost ship, A, should run on the perpendicular of the wind, and the rest of the fleet on a line of bearing, to place themselves successively in its wake; it cannot be denied that this method is more exact than the two others, but it is not advisable in practice, from the length of time it takes to execute; besides, as fleets are not ranged on the perpendicular of the wind to get on a close hauled line of bearing, the advantage of preserving the wind is not of sufficient consequence.

*Remark 4th.*—One circumstance may be changed in the first method, that is, to make the rear B stand on a line of bearing, and the other ships bear up, till they are, with respect to her, on the perpendicular of the wind, then haul to the line of bearing. The evolution will be more prompt, and the fleet placed farther to windward, but it will be less simple.

### III.—*To change the Order of Battle to the Third Order of Sailing.*

Let the fleet A B be ranged on the line A B; to make it pass to the third order of sailing, the rearmost ship, B, will come to the larboard line of bearing, B D, the remainder of the fleet following successively in her wake, till the middle of it shall be at the point B, then the fleet will be ranged as desired. Fig. 5.

*Remark 1st.*—The order of battle is often changed with the third order of sailing, because the wind changes and comes aft; then the fleet



can be replaced in the order of battle, with respect to the wind which has changed, after which they will have recourse to the preceding evolution. This method will be extremely long, and ought not to be adhered to.

Fig. 6. *Remark 2d.*—Let the fleet A B be ranged in order of battle, with the wind at C, and that it draws aft to D, in order to place the fleet on the obtuse angle A E F, the Admiral, G, will make all the ships bear up which are too much to windward, and the ships too far to leeward will heave-to, and will fill as they find themselves on the line of bearing with the Admiral; then, when all the ships which were to leeward are ranged, they will lye-to, and the others stand on as much as is necessary, to place themselves in the required position, with respect to the Admiral.

*Remark 3d.*—It seems that this method is not sufficiently exact in theory, because the place of each ship is not clearly determined during the whole movement; nevertheless, it must be observed in practice, and it will be found, that the place of each ship is always determined, if it be reflected, that the ships which at first stand with the Admiral, ought to keep themselves on the same line, till they have successively hove-to on the starboard line of bearing, if they are to the right of the Admiral, or on the larboard line of bearing, if they are to the left.

#### IV.—*To change the Order of Battle to the Fourth Order of Sailing.*

It is first necessary to pass the fleet into the third order of sailing, then perform the evolution which we will give, to change the third order of sailing into the fourth.

#### V.—*To change the Order of Battle to the Fifth Order of Sailing.*

Fig. 7. Let the fleet A B F be ranged in order of battle, and that it is to be placed in three columns, on the same tack, the squadron A B will tack together, and the rest of the fleet stand on, till the headmost ship, C, coming to the point H, finds itself abreast of the headmost ship, A, which will be at the point I, then the squadron C D, which will be on H T,

will tack together, and stand as the squadron A B, till they shall be one, and the other abreast of the squadron E F, then the squadrons A B C D, which are on O P N R, tack together, and the fleet will be ranged in the columns O P N R M V.

*Remark 1st.*—This method is as exact in practice as in theory, supposing the column to be equal in sailing; for since the angle H A I is four points, and that the lines H A I are equal to the length of a column, the line H I will be equal to the distance that the columns ought to have, which we demonstrated in showing how to form the fifth order.

*Remark 2d.*—This evolution is sufficiently prompt, for it will be done in the time which is necessary for the ship E to run the line E M, which is a little more than a third of the length A F.

*Remark 3d.*—If it is a change of wind that obliges the Admiral to place the fleet in three columns, the headmost ship, A, to leeward, will come to the line of bearing, the rest of the fleet following successively in her wake, till the centre of the fleet is at the point A, then the squadron A B, on L G, will tack together, and the evolution will be finished as the preceding. Fig. 8.

*Remark 4th.*—If the rearmost ship, F, was to leeward, it would perform the same manœuvre as the headmost ship, A, but if it is not desirable to reverse the van and rear, the rearmost ship, F, instead of standing on a line of bearing, will run large four points.

*Remark 5th.*—It will be seen, by what we have remarked in the preceding evolution, that this is very exact, for it only differs from that, by the time it takes the headmost ship, A, to run the line A G; it is far less prompt than the preceding. Shorter methods may be found, but they will be less simple, and less general; besides, the fleet will not lose any time, because the squadrons which are to be the weather-columns, always stand to the line of bearing.

*Remark 6th.*—If it be apprehended that the squadron A B, after having tacked together, will run foul of the squadron E F, on account of the sharpness of the angle F A G, the headmost ship, A, must run large on the other tack, and if she is to stand on the starboard tack, she will run so long on the line A G, before tacking again, that the rearmost ship, B, shall not be in danger of cutting off the squadron E F, when the squadron A B tacks together.

*Remark 7th.*—I am of opinion that these two methods suffice to change the line of battle in three columns, but as this change is constantly practised in a fleet, it will be satisfactory to see, at the time the line of battle is changed in three columns, how the squadrons may be disposed of, which we will now explain.

#### VI.—*Another Method of changing the Order of Battle in three Columns.*

Let the fleet A F be ranged in line of battle. It can be placed in three columns in such a manner, that whichever squadron is ordered, may be placed to windward, or to leeward, or in the centre.

##### 1st.—*To place the Centre Squadron to Leeward.*

PLATE XXVII.

Fig. 1.

If it be wished that the centre squadron C D should be to leeward, the squadron A B will tack together, and the squadron C D bear away eight points, while the squadron E F continues on the starboard tack, in this manner the fleet will soon be in three columns, L K C D R I.

*Remark 1st.*—The squadrons A B E F must carry sail, that the evolution may be as quickly formed as possible, and the squadron C D may not be too much separated; for this reason, the squadron C D will stand under easy sail, and heave-to, if necessary, to give time for the other two to gain their stations.

*Remark 2d.*—If after the evolution, the distances of the columns do





Fig. 1.

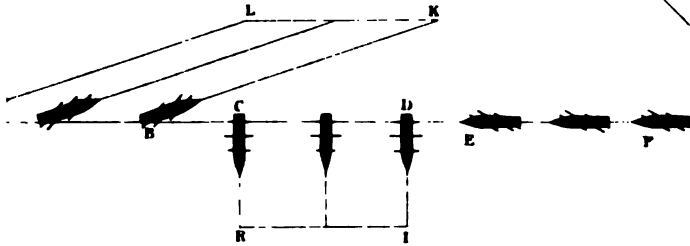


Fig. 2.

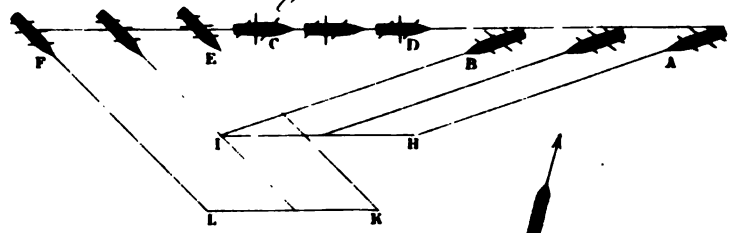


Fig. 3.

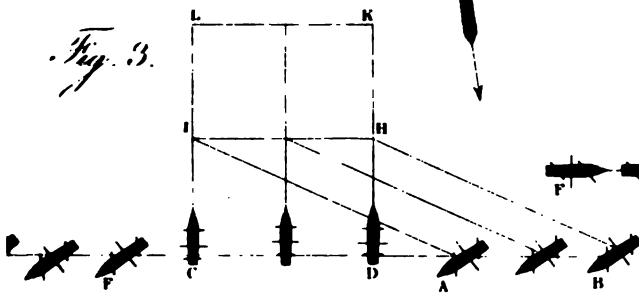


Fig. 4.

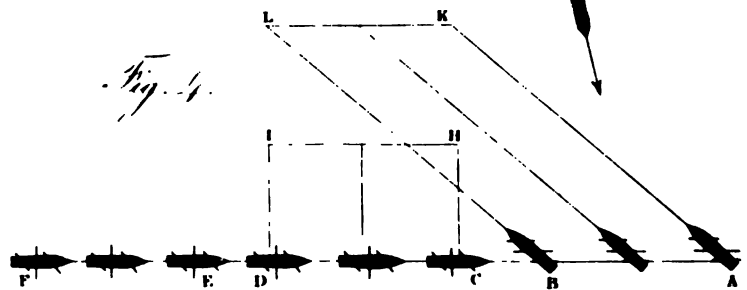


Fig. 5.

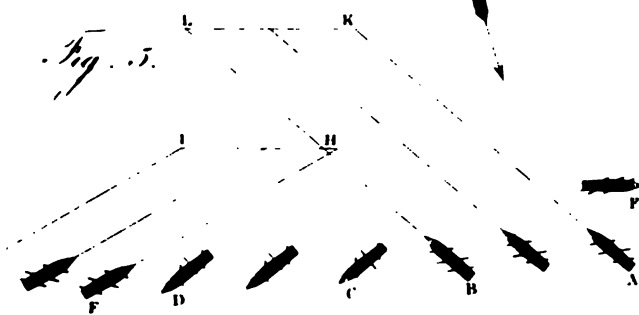


Fig. 6.

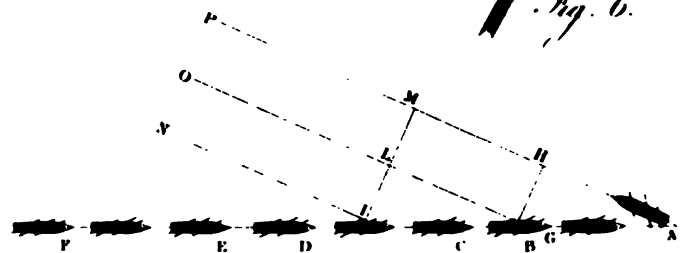


Fig. 7.





not conform to the rules we have given, it will be easy for those too far to windward to keep away, and the others to close the wind.

*Remark 3d.*—The evolution may be performed by another method: Laying the squadron A B to, while the squadron C D runs large four points, and the squadron E F two points, on the starboard tack, till the one and the other have lengthened on the squadron A B. There are some advantages attending this evolution; 1st, The distances of the columns will be more regularly determined. 2dly, The squadron A B will not be obliged to tack twice. We have preferred the preceding method, because it is more prompt, and places the fleet more to windward.

*2d.—To place the Centre to Windward.*

If it be wished that the squadron C D should be the weather-column, and the squadron A B the centre, the squadron C D lyes-to, and the squadron A B runs large six points on the starboard tack, to place itself on H I, while the squadron E F runs large four points on the larboard tack, to occupy K L; thus the fleet will be on the lines C D H I K L. Fig. 2

*Remark 1st.*—The squadron E F will carry sail, to render the evolution prompt, and that its headmost ship, E, may not be cut off by the weathermost ship, B, of the squadron A B, which, for the same reason, will keep under easy sail, the distances of the columns will be exactly determined by the squadron C D, for when the two others are abreast of it, on the points assigned them, they will be at the requisite distance.

*Remark 2d.*—The same evolution may be otherwise performed, if the squadron A B keeps away eight points on the larboard tack, while the squadron C D, continuing on its course, will occupy the line A B, and the squadron E F keeping away two points on the larboard tack, will get abreast of the two others, the squadron E F must carry sail to avoid the squadron A B, which will keep under easy sail.

*Remark 3d.*—It appears that the second method has a great advantage



over the preceding, because it places the fleet more to windward ; nevertheless, I do not think it ought to be practised without good reasons ; *1st*, It is extremely slow, requiring all the time which is necessary for the ship E, to run on a line much longer than E A. *2dly*, The distance of the columns is undetermined, there being nothing to fix the line where the squadron A B ought to stop. *3dly*, The evolution is less simple, more embarrassing, and composed of movements not so uniform.

*3d.—To place the Van in the Centre, and the Rear to Windward.*

**Fig. 3.** If it is wished that the squadron A B be the centre, and the squadron E F the van, the squadrons A B E F lye-to, while the squadron C D runs large eight points on the starboard tack, the distance of two cables' length, to place itself on K L, the two others will fill, the squadron E F tacking on the starboard line of bearing, and then wearing short round, to place itself on C D, while the squadron A B bears up six points on the larboard tack, to place itself on H I, thus the fleet will be in three columns, C D H I K L.

*Remark 1st.*—This evolution has two considerable defects ; *1st*, The distances of the columns are not determined, there being nothing to fix the line K L, on which the squadron C D is to stop. *2dly*, The fleet will fall greatly to leeward, from the length of time the squadron E F is hove-to, besides having to tack and wear into its station. The first defect may be remedied, if after the evolution, the columns that are too far to windward keep away a little more than the others ; the second, in some sort, may be remedied, if the squadron E F is only hove-to, for a moment, till the squadron C D has left its place vacant.

*Remark 2d.*—The same manœuvre may be performed in another manner by the squadrons A B C D, bearing up, and the squadron E F standing on the starboard line of bearing, then when the squadron E F has lengthened on the squadron C D, it will come to the wind eight points on the starboard tack, and the squadron A B will lye-to, till the two others have lengthened on it.

*Remark 3d.*—This second method places the fleet a little more to windward, and better determines the distance of the columns; thus I agree that it is preferable to the preceding, although not so uniform. It must be observed that in both evolutions, the squadron E F must carry sail, to render the manœuvre more prompt.

*4th.*—To place the Rear to Windward, and the Van to Leeward.

If it be wished that the squadron E F should be to windward, and the squadron A B to leeward, the squadron A B will run large eight points on the larboard tack, and the two others lye-to, till it has run two cables' length, and wore round to gain K L, then the squadrons C D E F will fill, the squadron C D running large eight points on the starboard tack to gain H I, and the squadron E F on the starboard line of bearing to gain C D; thus the three squadrons will be on the columns C D H I K L. Fig. 4.

*Remark 1st.*—The distance of the columns A B E F, will be sufficiently determined by the points of the wind they hold, till they shall be abreast of the squadron C D; for C D has nothing to do but to place itself in the centre of the two others, to determine exactly the distance of the three columns.

*Remark 2d.*—To perform this evolution with more uniformity, the squadron E F will lye-to, and the two others run large six points on the larboard tack, till they are abreast of the squadron E F, when they will wear, which will place the fleet as desired.

*Remark 3d.*—This second method would be, without doubt, preferable to the preceding, if it did not place the fleet too much to leeward, for it is extremely simple and prompt; and it cannot be denied, that in several situations, it may be put in practice with great effect, particularly when preserving the advantage of the wind is not an object.

*5th.—To place the Centre in the Van, and the Van in the Rear.*

Fig. 5. If the squadron C D is to be the weather-column, and the squadron A B to leeward, C D lyes-to, and the squadron A B runs large eight points on the starboard tack under all sail, to place itself on the line K L, while the squadron E F bears up under easy sail, and gains the line H I, by keeping away two points on the starboard tack, when it comes to the wind on the larboard; thus the fleet will be in the columns C D H I K L.

*Remark 1st.*—It is necessary for the squadron A B to carry all sail to perform the evolution with promptitude, but it is necessary for the squadron E F to keep under easy sail to avoid being cut off by the squadron A B, the distance of the columns will be determined by the point of the wind by which the two squadrons A B E F are sailing, till they are abreast of the squadron C D.

*Remark 2d.*—If the squadron A B keeps away eight points on the starboard tack, and C D stands on the same line of bearing till it has lengthened on A B, the squadrons A B and C D will lye-to, until the squadron E F having kept away two points, places itself in the centre of the two others.

*Remark 3d.*—The distance of the squadron A B is not quite determined by the second evolution, but it is otherwise so simple and uniform, that many prefer it to the preceding. I am of opinion, that in many cases it may be practised, when not pressed for time, for it yields to no other, with the exception that it is less prompt.

*6th.—To change the Order of Battle in three Columns on the opposite tack.*

Till now we have changed the order of battle in three columns, in



such a manner that the columns were on the line of bearing, occupied by the fleet in the order of battle, at present the three columns must be on the opposite line of bearing.

Let the fleet A F be ranged in line of battle on the larboard tack; to be placed in three columns on the starboard tack, the headmost ship, A, will tack, followed by the rest of the squadron, then when the headmost ship, C, coming to the point G, finds itself abreast of the headmost ship, A, at the point H, the headmost ship, C, will tack, the rest of her squadron following in succession; at length, when the headmost ship, E, is at the point I, abreast of the two others, at points L M, the headmost ship, E, with its squadron, will also tack in succession, and the fleet will be ranged in the columns M P L O I N. Fig. 6.

*Remark 1st.*—The distance of the columns will be very exact, for as the angle G A H is four points, and as the lines are equal to the length of the column A B, the line G H will be the distance. This evolution is very prompt, only requiring the time necessary for the ship A to run on the line A P, which is but little longer than the half of the fleet. It is very simple and uniform, since it requires no other manœuvre than that each ship should tack in the wake of the headmost ship of its column, and as the places where the two headmost ships C and E are to tack, is so well determined, they cannot be mistaken.

*Remark 2d.*—Other methods may be given, at the same time, to change the arrangement of the squadrons, but as some of them would be too embarrassing, recourse may be had to the methods already given.

*Remark 3d.*—If it is a change of wind which obliges the Admiral to place the fleet in three columns on the opposite tack, there may be two cases.

*First Case.*—If the headmost ship, A, is to leeward of the rest of the fleet, she will come to the wind, and they will place themselves successively in her wake; then, when the half of the fleet shall have passed the Fig. 7.

point A, it will be placed in three columns, by the preceding evolution, or by that we have given in the beginning of the Fourth Part.

*Second Case.*—If, after a change of wind, the headmost ship, A, is so much to windward of the rest of the fleet, that they cannot get in her wake, the order of the van and rear may be reversed, and the rearmost ship, F, may be taken for the leading ship of the fleet.

Fig. 7.

*Remark 4th.*—If, in the second case, it is not desirable to reverse the order of the van and rear, recourse may be had to the following method: Let the fleet A F be ranged in the line of battle, with the wind at C, and that it shifts to D, coming two points ahead, the rearmost ship, F, will run large four points on the larboard tack, her squadron following successively in her wake, the rest of the fleet lyeing-to; then, when the rearmost ship, F, being at the point H, is abreast of the rearmost ship, D, this ship, with her squadron, will bear up, and run the same as the rear F, till the rears F and D, come to the points I L, where they will find the rear B abreast of them; then, the rear B will run as the two others, and when her squadron is in her wake, the fleet will be in the three columns B O L N I M.

*Remark 5th.*—When the angle A F M is eight points, the three rearmost ships run large four points at the same time; but if the angle A F M is more than eight points, the rear B runs before the two others; as for the distance of the columns, it is nearly exact.

#### VII.—*To Change the Order of Battle to the Order of Retreat.*

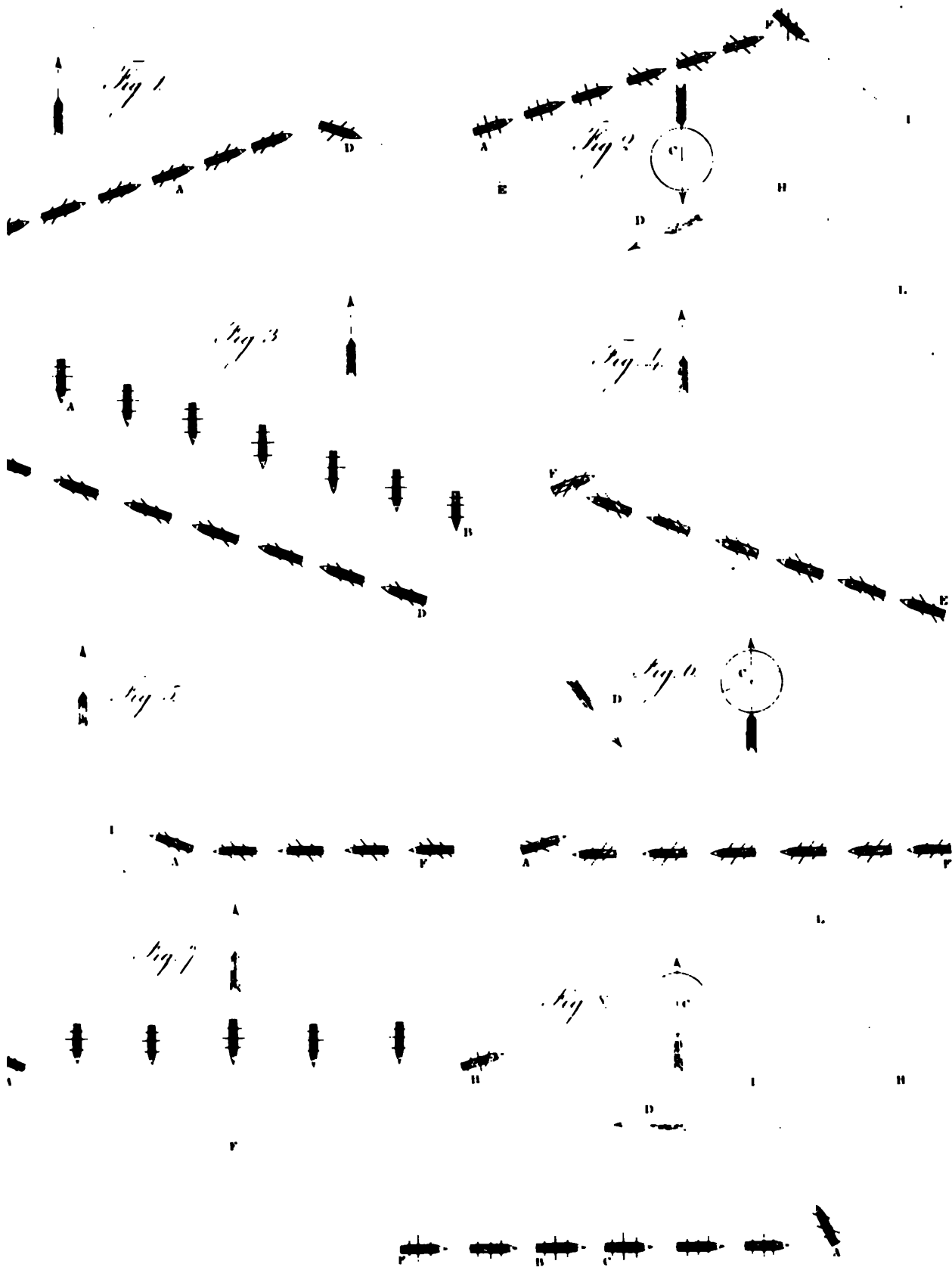
PLATE XXVIII.

Fig. 1.

Let the fleet D F be ranged in line of battle, to place it in the order of retreat, the headmost ship, D, keeps away four points to E, the remainder of the fleet following successively in her wake, till the centre A is at the point D.

*Remark 1st.*—If the Admiral is obliged to place the fleet in order of









retreat, on account of a change of wind, he may begin by re-establishing the order of battle, afterwards to change it into the order of retreat; the method is long, but sometimes necessary, to deceive the enemy with respect to the intention of retreating.

*Remark 2d.*—To perform the same evolution in a shorter manner; when the wind changes from C to D, the ship F, to leeward, runs large four points on the starboard tack, on the line FI; then, when this half of the fleet shall be on the line FI, it will come together to the line of bearing, and the rest place themselves in the wake of the ship that hauls up on the line FH, when the fleet will be on the obtuse angle FHL. Fig. 2

*Remark 3d.*—The evolution is begun by the ship F, to leeward; because, sometimes the fleet cannot place itself in the wake of the ship A, if she is to windward; besides, in the order of retreat, it ought not to get to windward. This method is extremely exact, simple, and general; it only demands the time necessary for the ship F to run the lines FI FL, or the length of the fleet.

## SECOND SECTION.

### CHANGING THE FIRST ORDER OF SAILING.

#### I.—*To Change the First Order of Sailing to the Line of Battle.*

LET the fleet AB be ranged in the first order of sailing, to place it in order of battle on the starboard tack, all the ships will come to the wind on the starboard tack, and the fleet will be on line of battle CD. Fig. 3

*Remark 1st.*—If it be wished to place the fleet in line of battle on the larboard tack, after they have come to the wind on the line FE, the headmost ship, F, will tack, the rest of the ships following in succession. Fig. 4

If the wind change, the order of battle will be re-established, as we have explained in the preceding part.

II.—*To Change the First Order of Sailing with the other Orders.*

The rules we have given to change the order of battle with the others, will serve for the first order of sailing, which only differs from the line of battle by the course the ships hold; it is true the rules we have given for the order of battle, suppose that the ships stand to the wind in the line of bearing on which they are ranged; but it will be easy to supply this circumstance, and it would fatigue my readers, if, for so trifling a thing, I were to repeat all that has been said in the last section.

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THIRD SECTION.

CHANGING THE SECOND ORDER OF SAILING.

I.—*To Change the Second Order of Sailing into the Order of Battle.*

Fig. 5. LET the fleet A F be ranged perpendicular to the wind; it will be placed in line of battle, if the headmost ship, A, comes to the wind on the starboard tack, and the rest of the fleet follow successively in her wake.

*Remark 1st.*—If it is wished that the ship A should be ahead of the fleet, and, nevertheless, that the fleet should be in the larboard line of battle, the headmost ship, A, must not at first come to the larboard line of bearing, for fear of falling on board the ships following, but must stand for some time on the starboard line of bearing, C, and then tack at the point I; the rest of the fleet will perform the same manœuvre in succession.

Fig. 6. *Remark 2d.*—If it is a change of wind which obliges the fleet to form

in order of battle, the headmost ship, A, to leeward, will come to the line of bearing, the rest of the fleet following successively in her wake. If the headmost ship, A, cannot at first stand upon the line of bearing that is convenient, she will stand sometime on, and then tack, as in the preceding evolution.

*Remark 3d.*—When the headmost ship, A, is so far to windward that the rest of the fleet cannot get in her wake, the order of the van and rear must be reversed, the rearmost ship, F, must be brought to the wind, in place of the headmost ship, A; if it is absolutely necessary that A should be the headmost ship, F must run large four points, and the rest of the fleet follow successively in her wake; but in this way, a great deal of ground will be lost. It will be much better for the rearmost ship, F, to lye-to, and the rest of the fleet bear away, to place themselves, with respect to her, in the line of bearing, as we have said on re-establishing the line of battle, when the wind comes a little ahead.

## II—*To Change the Second Order of Sailing to the Third.*

To pass the fleet A H to the third order of sailing, the wings A H Fig. 7. lye-to, the other ships bearing up and heave-to successively on the lines of bearing F A F H.

*Remark 1st.*—This evolution is very prompt, and will be equally exact, if the ships keep themselves on lines parallel to the line A H, till they lye-to on the lines F A F H.

*Remark 2d.*—If it is a change of wind that obliges the fleet A F to Fig. 8. pass to the third order of sailing, the headmost ship, A, to leeward, will come to the line of bearing, the rest of the fleet following in her wake; then, when half of the fleet is on the line A I, the part A I bears away four points, and the rest placing themselves successively in the wake of the Admiral, C, who will run on the line A H; thus, the fleet will soon be on the obtuse angle A H L, as was desired.

*Remark 3d.*—If the angle F A I is less than four points, the headmost ship, A, will stand in line of bearing on the opposite tack; but if it is wished that the part A B should be to the right of the Admiral, on the starboard line of bearing, the headmost ship, A, will run large on the starboard tack before coming to the line of bearing, which will allow her to stand on that line of bearing without falling on board of the ships following.

### III.—*To Change the Second Order of Sailing into the Fourth.*

It will begin by making the second order of sailing pass to the third, and from the third it will pass to the fourth, as we will shew.

### IV.—*To Change the Second Order of Sailing in Three Columns.*

**PLATE XXIX.** If it be wished to place the fleet A F in three columns, the headmost ship, A, will come to the starboard line of bearing, the rest of the fleet following successively in her wake; then, when half of the fleet shall have passed the point A, the headmost ship, A, at the point I, will tack, the rest of the fleet following, till the headmost ship, C, coming to the point H, find herself abreast of A, at the point L; then C will also tack, the rest of her squadron following; then when the headmost ship, E, reaches the point S, abreast of the two others on the points M N, she will tack; the rest of her squadron placing themselves in her wake, will finish the evolution, and the fleet will be in three columns N O M P S R.

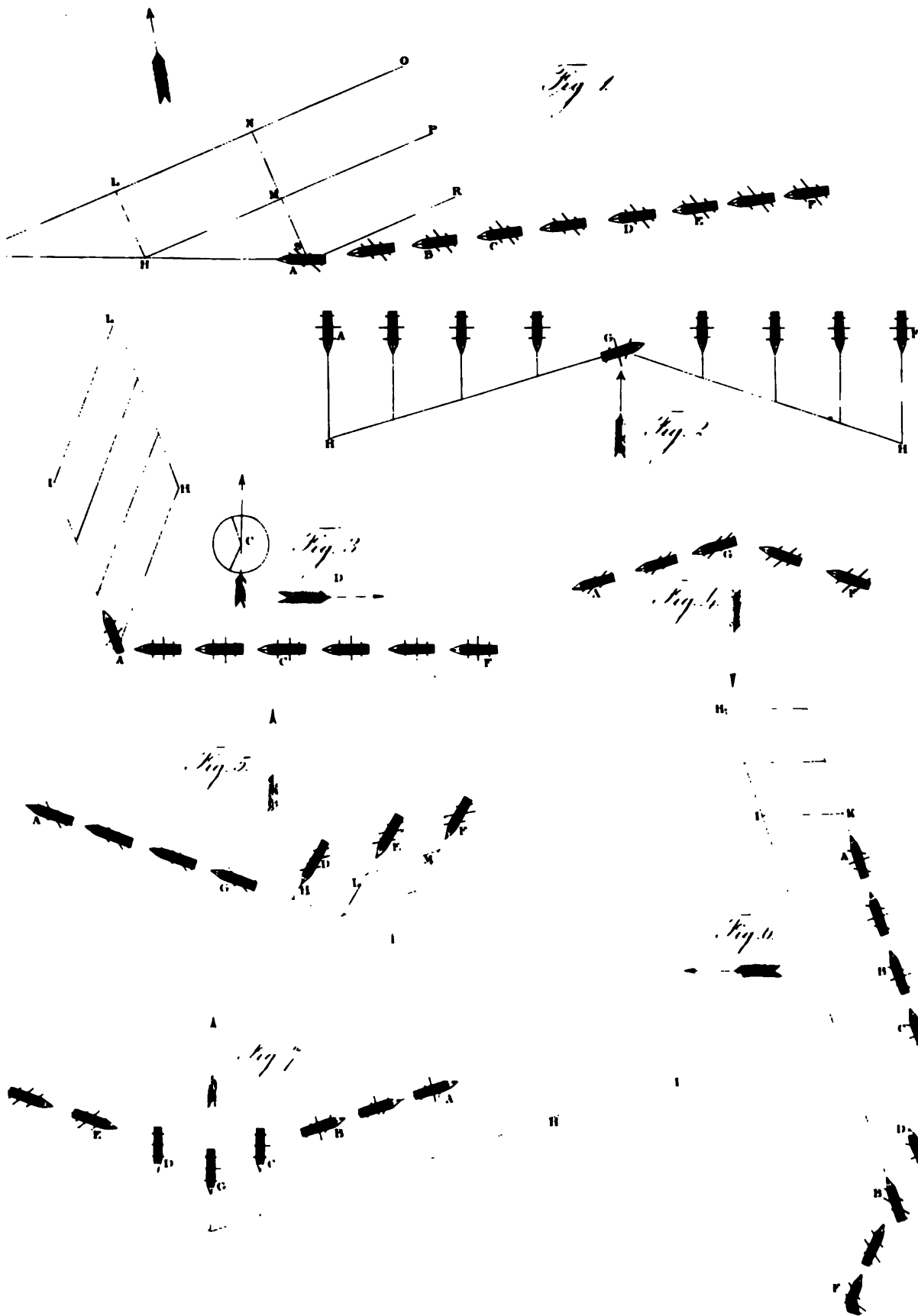
**Fig. 1.**

*Remark 1st.*—If it be wished that the columns be ranged on the starboard line of bearing, preserving the advantage of the wind to the squadron A B, the headmost ship, A, stands some time on the starboard line of bearing, and then tacks to the larboard line of bearing, running till the half of the fleet has tacked, after which she will tack a second time, to finish the evolution as the preceding.

*Remark 2d.*—If the fleet is placed in three columns on account of the











wind changing; 1st, When the headmost ship, A, is not so far to windward, that the rest of the fleet cannot follow in her wake, the evolution will be performed as if the wind had not changed. 2d, If the fleet cannot follow in the wake of the headmost ship, A, the order of the van and rear must be reversed, taking the rear F for the head A; or the evolution may be performed counterwise, that is to say, the rears will run large four points in the same order that the heads would stand to the line of bearing.

*V.—To change the Second Order of Sailing to the Order of Retreat.*

In order that the fleet A F should pass from the second order of sailing to the order of retreat, the Admiral, G, lyes-to, the rest of the fleet bearing up and lying-to, successively on the lines G H, which are the two lines of bearing. Fig. 2.

*Remark 1st.*—The evolution will be exact, by the ships keeping themselves on lines parallel to A F, till they are hove-to on the lines G H. It is true that the ships will be a little distant from one another on the lines G H, but things will not be the worse for this, and in all cases the fleet can easily concentrate after the evolution.

*Remark 2d.*—If it is the wind changing that obliges the fleet to form Fig. 3. in order of retreat, the ship A to leeward will run four points large on the starboard tack, and the rest of the fleet placing themselves successively in her wake, till the Admiral, C, is at the point A; then the part A C of the fleet which will be on A I, will come to the line of bearing, the rest standing on to place themselves in the wake of the Admiral, till the fleet is on the obtuse angle A H L, in order of retreat. The same thing will be done by the ship F, if she is the leeward ship of the fleet.

*Remark 3d.*—The part A C of the fleet may be placed to the right or to the left of the Admiral, in whatever way the wind changes, by making the ship A stand to the line of bearing on which it is wished to place the part A C, or in making the ship F stand on the opposite

tack, if the angle  $HAF$  is less than four points, the ship  $C$  will run some time on the line  $AI$ , with the ships that preceded before coming to the line of bearing; this evolution is the same as that already given for the order of battle.

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## SECTION FOURTH.

### I.—*To change the Third Order of Sailing to the Line of Battle.*

**Fig. 4.** LET  $AGF$  be the fleet which it is wished to range in the larboard line of battle, the part  $AG$  will come to the larboard line of bearing, the rest running large four points, placing themselves successively in its wake at the point  $G$ .

*Remark 1st.*—The same thing will be done for the part  $GF$ , if it is wished to place the fleet in the starboard line of battle; this evolution is very simple, but it supposes the order of the van and rear, to be a matter of indifference; for if the fleet comes to the starboard line of bearing,  $F$  will be the headmost ship of the fleet, of which it would have been the rear, if it had formed in the larboard line of battle.

*Remark 2d.*—If it is wished that the fleet be ranged in the starboard line of battle, and nevertheless that the ship  $A$  be the head of the fleet, the part  $AG$  will come to the larboard line of bearing, the rest of the fleet following in her wake, then the ship  $A$  having stood on some time to gain a little room, will tack, and the whole fleet will do the same thing.

**Fig. 5.** *Remark 3d.*—The evolution will be more prompt, if, when the part  $AG$  of the fleet has come to the line of bearing, the rest of the fleet bears up, hauling a little to the wind on the side of the Admiral,  $G$ , to place themselves successively in his wake; but several reasons induce me to prefer the preceding manner, for this is subject to much confusion and irregularity, there being nothing to determine the point by which the

ships G F ought to be placed on the line G I; besides, when the part G A of the fleet is come to the line of bearing, they have not the same advantages as if entirely in line, either for gaining the weathergage, avoiding the enemy, or bringing on an engagement; thus it will be better to employ a little more time by a method more uniform and exact. I think a method proposed by others will be still less approved of: they wish, that when the part A G of the fleet is come to the wind, that the ship D should imagine the point H at a point at a convenient distance, and that it makes sail for it, that the ships E F do the same thing to the imaginary points L M; but besides the impossibility of fixing these imaginary points by the length of the operation, it will be easily seen that this method exposes the fleet to a thousand accidents.

II.—*To perform the same Evolution in changing the Squadrons.*

1st.—*To place the Van in the Centre, and the Rear in the Van.*

If it is wished that the squadron A B should be in the centre, and the squadron B F in the van, the squadrons A B C D lye-to, the headmost ship, B, will stand on the line of bearing, her squadron following in her wake, till being on the line I H, they can bear up on the three lines I K, where it will again come to the line of bearing together, when the rest of the fleet will come in its wake Fig. 6

2d.—*To place the Van in the Centre, and the Centre in the Van.*

If it be wished to place the squadron A B in the centre, and the squadron C D in the van, A B will lye-to, and the squadron E F run large by the lines E G C to join it, while the squadron C D having bore up a cable's length, hauls to the line of bearing on the side of the squadrons A B, to occupy H I, where it will lye-to, till the rest of the fleet are in its wake. Fig. 7.

*Remark.*—The same thing may be done by several methods, some of

which appear shorter, but the thing is not of sufficient importance to detain us here.

*3d.—To place the Centre in the Van, and the Rear in the Centre.*

**PLATE XXX.** If it is wished to range the fleet in line of bearing on the tack on which the squadron A B is ranged, but that it is necessary that the squadron C D should form the van, and the squadron A B the rear-guard, the squadrons C D E F will lye-to, the weathermost ship, B, standing to the line of bearing, her squadron following in her wake, till they can keep away in the wake of the two others, for these will have filled, to range themselves on the line A G, after the ship A shall have passed the point B.

*Remark.*—It will be clearly seen, that the squadron A B ought to be the van-guard of the fleet, because it is ranged on the line of bearing on which the squadron A B is ranged ; thus the same rule will be applied to the squadron E F, if the fleet is ranged on the other tack.

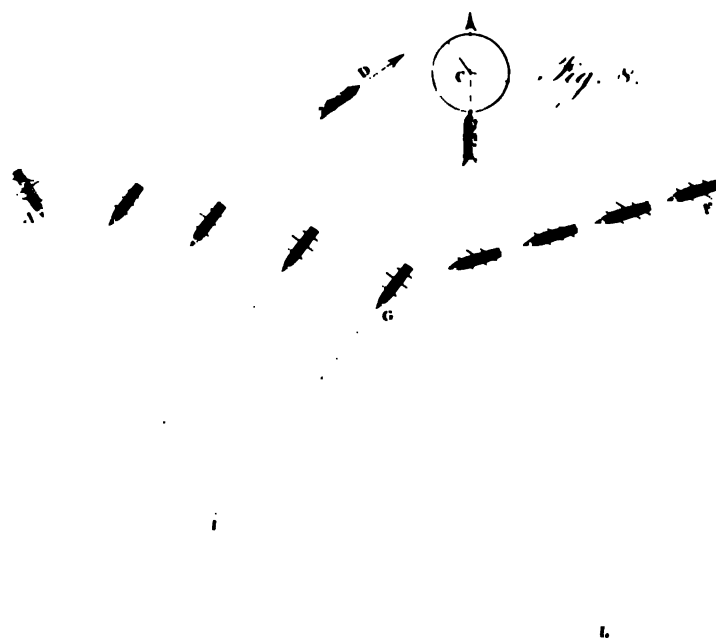
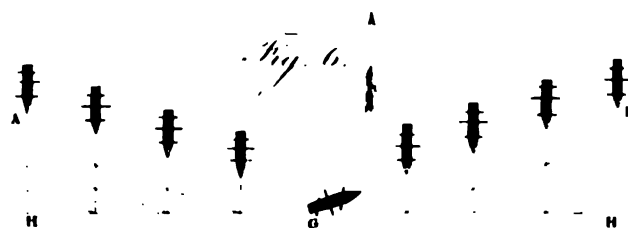
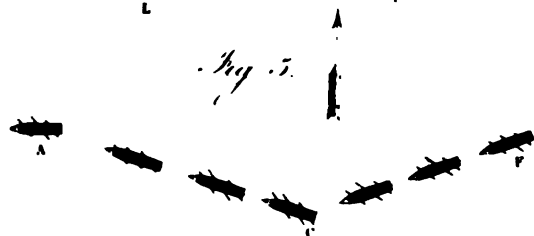
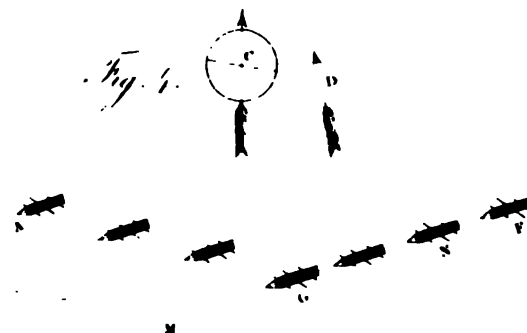
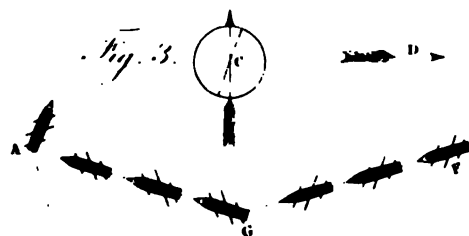
*4th.—To place the Centre in the Rear, and the Rear in the Centre.*

**FIG 2** If it be wished that the squadron C D should be the rear-guard, and the squadron E F the centre, the squadron C D will bear up a cable's length, to range itself on M L, where it will come to the wind four points on the side of the squadron A B, to occupy M I, and then lye-to ; in the meanwhile the squadron A B having hove-to, to allow time for the squadron E F to join it, will fill with it, to stand in the line of bearing on which it is ranged, till they can both keep away, and place themselves ahead of the squadron C D.

*Remark.*—It will be seen that the squadron E F should be the rear-guard, if the evolution was performed without altering the arrangement of the squadrons ; the same rule may be applied to the squadron E F, if the fleet is to be ranged on the same line of bearing on which it is placed.











### III.—*To perform the same Evolution on a change of Wind.*

If the fleet A G F be obliged to pass in the order of battle, because Fig. 3.  
the wind changes from C to D, the ship A, to leeward of the fleet, comes to the line of bearing on the line A L, on the tack which best suits, the rest of the fleet following successively in her wake.

*Remark 1st.*—If the angle G A L be not at least four points, the ship A will run large some time before coming to the line of bearing, in order not to fall on board the ships A G; this evolution is sufficiently long, because it takes all the time necessary for the ship A to run a line equal to the length of the fleet; nevertheless, we prefer it to others that may be given, because they are neither so simple, exact, nor uniform as this.

*Remark 2d.*—When the wind does not change much, the part A G Fig. 4.  
will re-establish itself in the line of bearing, and the rest of the fleet perform the same manœuvre as the ship G; then when the part A G is on M L, which is on the line of bearing for the wind D, the evolution will be finished as if the wind had not changed, in making the part A G, which is on M L, come to the wind, and placing successively in its wake the rest of the fleet which is on M N; that the thing may not be impossible, the ship G of the fleet must not be so far to windward that the part G F cannot get in her wake.

*Remark 3d.*—If the ship G be so much to windward, that the ships G F cannot place themselves in her wake, the ships G F must be re-established in the line of bearing, and then finish the evolution in the preceding manner; all this supposes that it is absolutely necessary, that the ship A be the head of the fleet.

### IV.—*To change the Third Order of Sailing to the Second.*

If it is wished to pass the fleet A C F from the third order of sailing Fig. 5.  
to the second, one of the wings A will run on the perpendicular of the wind, the rest of the fleet following successively in its wake.

*Remark 1st.*—The evolution may be commenced indifferently by the wing A or F, if particular circumstances do not determine the one or the other; if, for example, by beginning with the one or the other, a better course is made, or standing farther out of danger.

Fig. 6. *Remark 2d.*—As the preceding evolution is very long, it may be done in another manner, by laying the centre ship, G, to; the rest of the fleet bearing up to lye-to, successively on the perpendicular of the wind H G H, to avoid any confusion, the ships G A G F will keep themselves on lines parallel to the lines G A G F, till they are on lines H G H, the distances will be rather less on the lines H G H; but we have already remarked, that the thing is of no consequence, because the distances of the ships ought to be taken with regard to the direction of the wind, or the lines they describe when bearing up.

*Remark 3d.*—If it is necessary to perform the evolution because the wind changes, the thing will not be difficult, for it will be necessary that the wing of the fleet that is to leeward run on the perpendicular of the wind, and that the rest of the fleet follow in its wake, the leewardmost ship of the fleet may be hove-to, and the others bear up, to place themselves, with respect to her, on the perpendicular of the wind; but for that it is necessary that the wind should not change more.

#### V.—To change the Third Order of Sailing to the Fourth.

Fig. 7. When it is wished to place the fleet A G F in six columns, the commanders, H G I, bear up, followed a short distance astern by their respective ships; the ships to the right of each commander will place themselves successively in the wake of the ships to his right, the same of the ships to the left of each commander, who will place themselves to his left, and thus the ships A H will place themselves in the wake of the ship to the right of the commander H, and the ships H B place themselves in the wake of the ship to his left.

*Remark 1st.*—The commanders must pay particular attention to observe

between them the point of the wind which is required, because it regulates the whole order, the other ships have nothing to do but to follow in line, to perform the evolution with all the exactitude that may be wished, and in very little time, as the time is only necessary that is employed by the ship A to run the length of the sixth part of the fleet.

*Remark 2d.*—If it is a change of wind that obliges the fleet to range itself in six columns, in the first instance the third order of sailing must be re-established, and then the evolution performed as if the wind had not changed, for all other methods will be equally difficult and undetermined.

*Remark 3d.*—If the wind change but little, the evolution may be performed as though it had not changed at all; but then the ships that are too far to leeward must heave-to for a short time, till those that precede them have given them an opportunity of placing themselves in their wake; for example, if the ships B H cannot any longer stand on the line B H, to place themselves in the wake of the ship to the right of the commander, H, they will lye-to, till this ship bearing up, shall be a little more to leeward.

*Remark 4th.*—This last method appears but little exact in theory, but it is not the less good in practice. Nothing is so easy as to lye-to, and to fill again a moment afterwards, and consequently the ships which are too far to leeward will gain their stations with equal facility to those who have only to go in line in the wake of one another.

*Remark 5th.*—If it be wished to form the fleet A G F in the fourth order of sailing in three columns, each squadron will range in the wake of its commander; for example, the ships A B will range in the wake of the commander, H, the ships C D in that of G, and the ships E F in the wake of I, the two seconds on the right and left following immediately after their commanders, and the other ships in succession, with reference to the squadron they belong to, the fleet will be formed in three columns.

*Note.*—This evolution is performed in the same manner as that by which a fleet is formed from the third order of sailing into six columns, with this exception, that each squadron ranges in line astern of its commander; therefore, the object chiefly to be kept in view, is, that when the seconds on the right and left of the commanders have ranged in their wake, the other ships on both sides follow in succession, until the three columns are formed.

Fig. 8. If it is preferred to re-establish the third order of sailing, it will be necessary to have recourse to the evolution we have indicated in the third part, and which we will give a little more at length. Let then the fleet A F G be ranged in the third order of sailing, with the wind at C, and that the wind changes to D, the ship A lyes-to, the others bearing up to place themselves successively on the lines A I L, which are the two lines of bearing for the wind D.

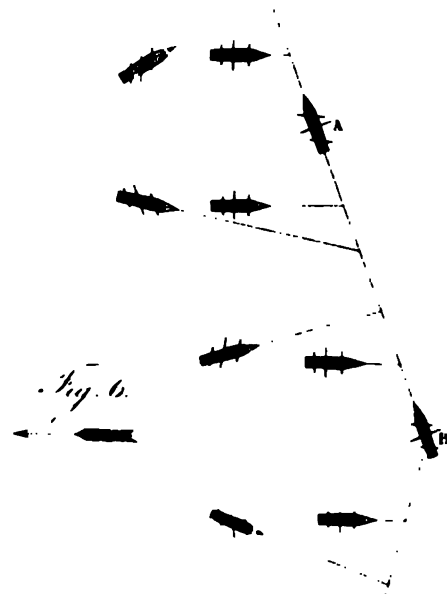
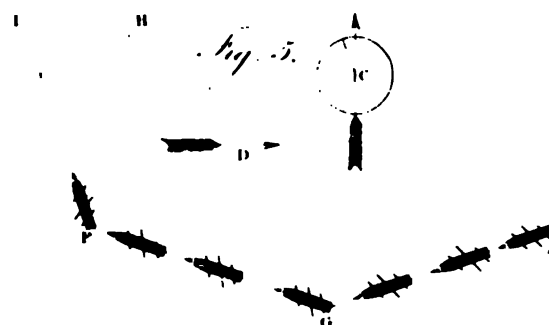
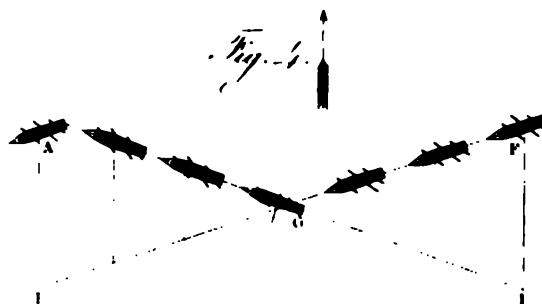
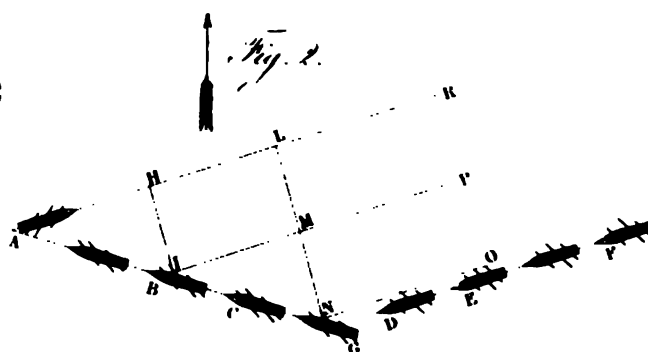
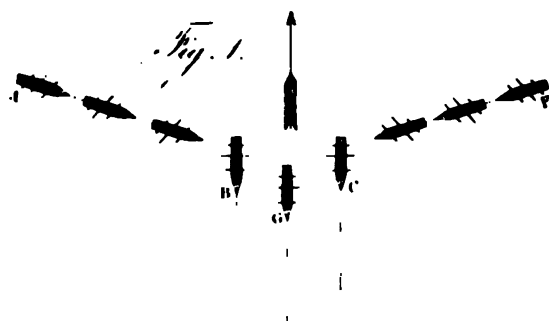
*Remark 6th.*—In order that the ships A G should be at their proper distances on the line A I, the angles A G I A I G must be equal, and they will be in effect equal if the wind change four points, and the line G I the direction of the wind. If the wind changes more than four points, they will keep a little to the side of the ship A, and if less than four points, a little to the opposite side of the ship A; as for the ships which are on G F, they will stand like the ship G, till she has hove-to, on the point I; then the ships G F tacking four points off the side opposite to the ship A, will reach the line I L, where they will find themselves at the requisite distances.

*Remark 7th.*—This evolution is sufficiently exact, and ought always to be used to re-establish the third order, when the time will not permit having recourse to that we have before given, or when the wind only changes four points.

PLATE XXXI. Fig. 1. If the fleet A G F is to be formed in two columns, the part A B will keep away large four points on the larboard tack, to fall into the wake of the ship B, the second on the Admiral's starboard quarter, and the part C F four points large on the starboard tack, to fall into the wake of











the ship C, the second on the Admiral's larboard quarter; meanwhile the Admiral, G, and his two seconds, B and C, bearing up, the fleet will soon be ranged in two columns.

VI.—*To change the Third Order of Sailing in three Columns.*

Let A G F be the fleet to be placed in three columns. The headmost ship, A, of the squadron A B tacks, and stands to the starboard line of bearing, the rest tacking in succession; then when the headmost ship, C, of the squadron C D, is at the point I, abreast of the ship A at the point H, C tacks, her squadron following in succession; then when the headmost ship, E, of the squadron E F, is at the point N, abreast of the two others, at the points M L, E tacks also, her squadron following in her wake; the fleet is then ranged in three columns, on L R M P N O. Fig. 2.

*Remark 1st.*—In this evolution three things are supposed; 1st, That the squadron A B is to be the weather-column. 2d, That the columns are ranged on the starboard line of bearing. 3d, That the ships A C E are the heads of the columns. In other respects this evolution does not differ from that we have given for the line of battle; thus the same reflections will apply to it.

*Remark 2d.*—If it be a change of wind which renders it necessary to place the fleet in three columns, and the wind permits the fleet to gain the wake of the ship A, the evolution will be as if the wind had not changed. If the distances are not found to be regular, they can be corrected afterwards. When it is wished that the evolution should be exactly performed, the ship A stands on the larboard line of bearing, till half of the fleet are in her wake; then it tacks, and the evolution is finished as if the wind had not changed. If the fleet cannot gain the wake of the ship A, the order must be re-established, or the fleet passed into the order of battle, which will afterwards be placed in three columns, as we have already shown.

*Remark 3d.*—When the columns are to be ranged in the line of bear- Fig. 3.

ing on which the squadron is that ought to be to windward, the squadron A B will stand on the starboard line of bearing, the rest of the fleet following in its wake, and when the squadron C D has passed the point G, the squadron A B, which will be on H M, must tack together; then, when the headmost ship, C, comes to the point I, abreast of the leading ship A at the point L, her squadron will tack as A B. The squadron E F continuing its course until the head E reaches the point M, when the fleet will be in the columns O P N R M S.

*Remark 4th.*—It will be easy to apply to this second method the precautions we have given for the preceding, when the wind changes, in order that the evolution be performed with the necessary exactness.

*Another Manner.*—When the squadron E F is to be to the windward, what we have said for the squadron A B applies to it. If at the same time the order of the van and rear is to be preserved, there will be no more difficulty, but the fleet cannot be so much to windward; here then, what is to be done, the two squadrons A B C D having occupied the line H G, as we have said in Remark 3d, the squadron A B will keep away together eight points on the larboard tack, the rest of the fleet standing on for the line G H, till the squadron A B is abreast of the squadron C D; then the squadron C D will stand as the squadron A B, till they shall be both abreast of the squadron E F, which will have stood on, to place itself on the line G H.

*Remark.*—These three methods furnish all the cases that can be met with in practice, whether the wind changes or not, and I do not think it necessary to enter into farther details on an order which is not much in use.

## VII.—*To change the Third Order of Sailing into the Order of Retreat.*

Fig. 4. Let A G F be the fleet to be ranged in the order of retreat, the centre ship G lyes-to, and the rest of the fleet bears up to place itself on the two lines of bearing G I, to the right and left of the ship G.

*Remark 1st.*—The evolution will be very regular, if the ships G A G F take care to keep themselves on parallel lines to G A G F, till they are placed; it will also be very prompt, only requiring the necessary time for the ship A to run the line A I.

*Remark 2d.*—The evolution may be performed in a manner more exact and uniform, and as short, if one of the wings A runs large four points on the same tack which the part A G is on, and the rest of the fleet place themselves successively in its wake, till the ship G is at the point A.

*Remark 3d.*—If there is a change of wind which obliges the Admiral Fig. 5. to place the fleet in the order of retreat, he can begin as in the preceding evolution, by re-establishing the order, and then perform the evolution as if the wind had not changed; but if it is wished to do the thing in a manner exact and uniform, the rearmost ship, F, to leeward, runs large four points on the starboard tack, the rest of the fleet following in her wake, till the ship G is at the point F; then the part G A of the fleet, which will be on F I, will come to the line of bearing, and the rest having placed themselves in the wake of the ship G, will finish, placing the fleet on an obtuse angle F H L.

*Remark 4th.*—The preceding evolution is very simple, but as it is rather long, if the wind does not change much the evolution must be performed as though it had not changed; it will then be easy to place on the line of bearing the half of the fleet which is not on it.

## SECTION FIFTH

## TO CHANGE THE FOURTH ORDER OF SAILING.

I.—*To change the Fourth Order of Sailing to the Third.*

Fig. 6. Let the fleet B A C be in six columns ; it will be passed into the third order of sailing, if the commanders, B A C, heave-to, and the other ships bear up, to place themselves on the lines A B B C.

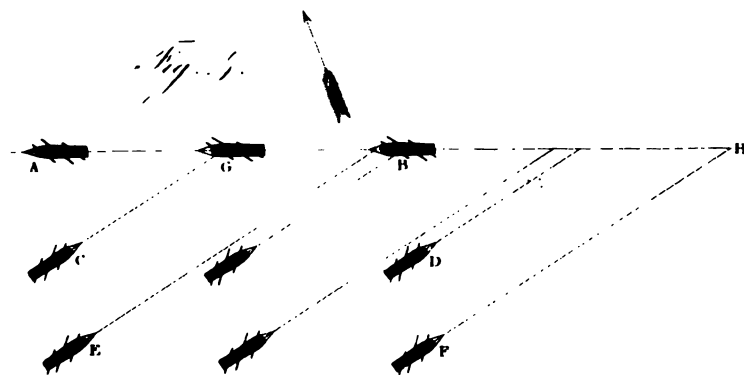
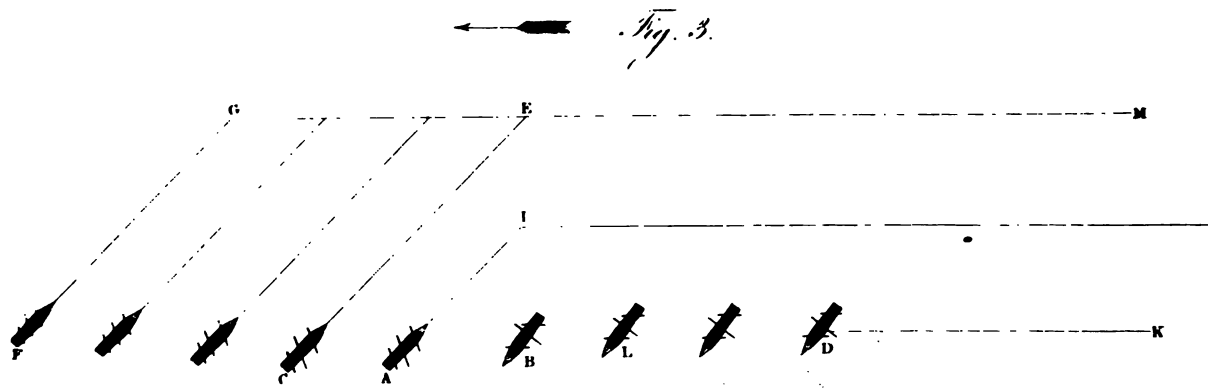
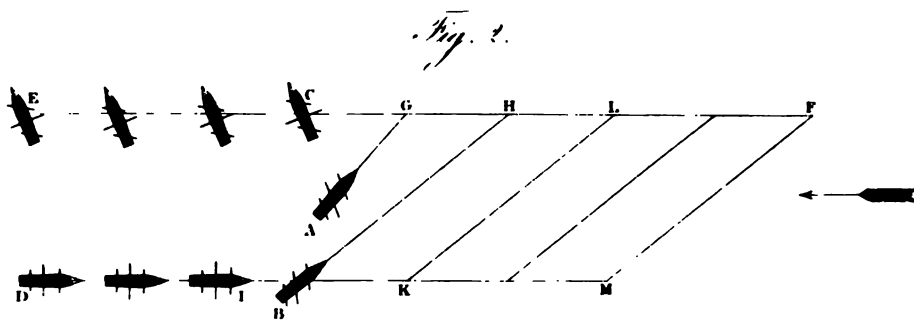
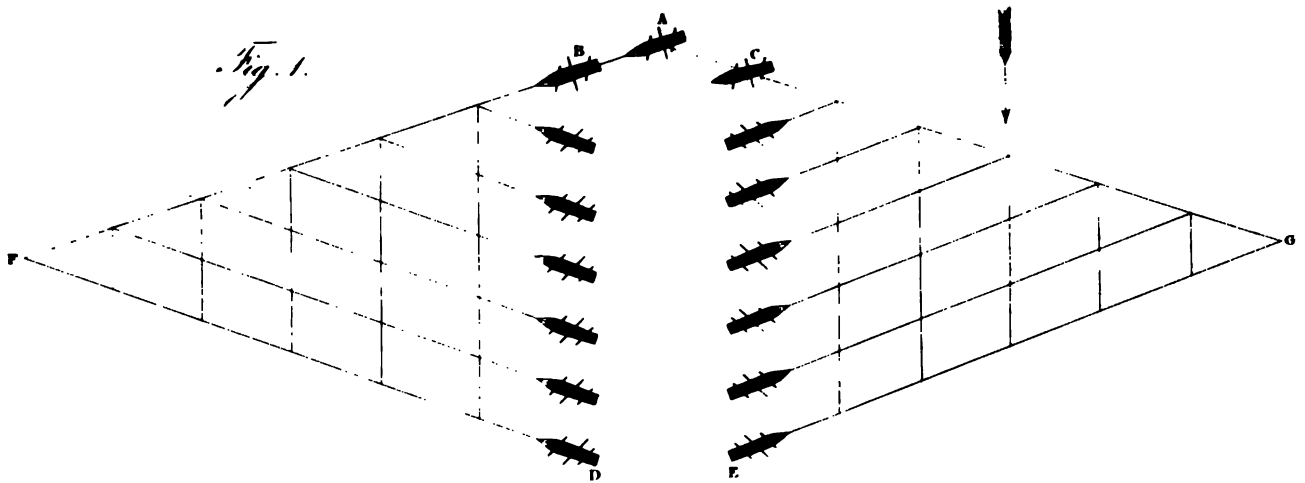
*Remark 1st.*—In order to range more regularly on the lines A B B C, there are two precautions to be observed ; 1st, The seconds of the three commanders bear up, the other ships standing to the wind two points on the side opposite to the commanders ; that is to say, the ships which are to the left of these commanders, take two points to the right, and those to the right take two points to the left ; each ship will keep those of her column, and those of the other columns at the same point, till all are placed.

*Remark 2d.*—If this evolution be performed on account of a change of wind, they will begin by re-establishing the order, and then act as if the wind had not changed. When the wind does not change more than six points, they will act as if it had not changed, after the three commanders are placed, to correspond with the change of wind.

Fig. 7. The fleet B D A C E F, which is ranged in three columns, may be formed into the third order of sailing by the preceding method, with this exception, that every second ship will incline a couple of points to *port*, to range on the line of bearing on the *starboard side* of the Admiral, while the other ships incline to starboard to range in succession, and heave-to on the left of the commanders to which they are attached.

*Remark 3d.*—A fleet cannot so quickly be formed into the third order of sailing, when it is ranged in six columns, because the rearmost ships,











D C E, require longer time to gain the line of bearing from the Admiral; therefore three columns is preferable when the fleet is not very numerous.

*Note.*—The rule given for forming from six columns into the third order of sailing on a change of wind, is also adopted when the fleet is ranged in three columns; it is therefore unnecessary to say any thing more on the subject.

The fleet which is ranged in two columns, C E B D, may be formed into the third order of sailing on the lines G A F in the following manner. The Admiral, A, and his two seconds, B and C, will heave-to, while the part C E of the fleet hauls to the wind five points on the starboard tack, and the other part B D hauls up five points on the larboard tack, each ranging in succession, and heaving-to on the two lines of bearing from the Admiral, the first part of the fleet on A G, the other on A F.

PLATE XXXII.  
Fig. 1.

*Remark 1st.*—This method is unique and accurate, as the angles C G E and C E G are equal, and the lines C G and C E are equal; and although the evolution is long, there is no other method by which it can be performed. Special care must be taken that the ships keep on the same bearing from each other, until they heave-to in succession on the lines G A F.

*Remark 2d.*—The fleet may also be formed from the two columns into the second order of sailing, without forming it into the third order; in that case, the ships have only to haul their wind four points from the Admiral, before heaving-to, on the perpendicular of the wind, where they will range at the requisite distance from each other; assuming, that the columns are drawn up near the wind, and the commanders in the centre, and ahead of their squadrons.

If the fleet which is drawn up in two columns is to be formed in one line or column, either for the purpose of passing a narrow strait or fairway, or under any other circumstances, the part C E of the fleet will heave-to, while the Admiral A hauling to the wind five points on the larboard tack, will run on until he reaches the point G, where he will also

Fig. 2.

heave-to on the line E F; meantime, the ship B hauls to the wind four points on the same tack, and stands on until it makes the point H, where it in turn will heave-to, the rest of the ships I D following in the wake of each other along the line D M; and when the ship I is at the point K, it will haul to the wind four points on the larboard tack to gain its station, the other ships performing the same movement, until all of them are on the line E F.

*Remark.*—The ship I will know when it is at the point K, by finding the ship A abreast of it at G, it will then haul to the wind to gain the point L; as the other ships astern follow, they will be guided by the ships abreast and to windward of them on the line E F. It is here supposed, that the distance B C between the columns, is equal to the distance C and H, namely, twice the distance at which the ships ought to be from each other.

The ships B D are said to haul to the wind on the larboard tack, or to the starboard line of bearing, because it is assumed that the fleet is standing before the wind, or large on the larboard tack; but if the fleet is ranged on the starboard tack, the ships B D, as well as the Admiral, A, will keep away, instead of hauling to the wind, the number of points required.

*Fig. 2.* To form from single into double column, in order to give it less extension to the fleet, that part which is to leeward of the Admiral, B D, will heave-to, while the weather-division C F hauls to the wind four points on the larboard tack, and continues on until it makes the points G E, where it will keep away together, and range in each others wake, along the line G M; meanwhile, the Admiral, A, will run four points on the larboard tack, until he comes to the requisite distance, at the point I, when he will bear down between the columns; then, as soon as the ship B observes that the ship C has made the point E, it will fill, wearing short round, to run on the lines B D D K, passing close to leeward of the ships L D; the ship L and the rest will do the same movement in succession, until they are on the line D K.

*Remark.*—The ship C will know when it is at the point E, when the line EB is perpendicular to the line FD, which the ship B must also take care to observe, as it is then time for it to fill.

It has been said that the ships A F will haul to the wind four points on the larboard tack, and stand on until they acquire the necessary distance from the column on which they range, because it has been assumed, that the fleet either stands before the wind, or large on the larboard tack; but if the fleet is ranged on the starboard tack, and going large, these ships will keep away, instead of hauling to the wind, the number of points in question.

*Remark.*—It has been observed, that it is necessary for a fleet to form from the fourth order of sailing to the third, to be enabled to form into any one of the other orders; which, however, must be understood to apply to any of the cases just illustrated, when the fleet shall be formed into two columns, either on the perpendicular of the wind, or in one line; or, when it may be formed from one line into any of the other orders, as it is easy to comprehend how a fleet, drawn up in one line, may be arranged into all the other orders, and, *vice versa*, as has already been treated of in this work.

## II.—*To Change the Fourth Order of Sailing with the other Orders.*

They will begin by passing the fleet into the third order of sailing, after which, they will change this third to that which may be necessary. I grant that the manœuvre will be of great length, but all the other methods which present themselves are impracticable.

## SIXTH SECTION.

## CHANGING THE FIFTH ORDER OF SAILING.

I.—*To Change the Fifth Order of Sailing into the Line of Battle, on the same tack.*

Fig. 4. LET a fleet be ranged in three columns, A B C D E F, and that it is to be placed in the starboard line of battle, the squadron A B will stand to the starboard line of bearing, and the two others having tacked together to the larboard line of bearing, will come, one after the other, in its wake, when they will tack to the starboard line of bearing.

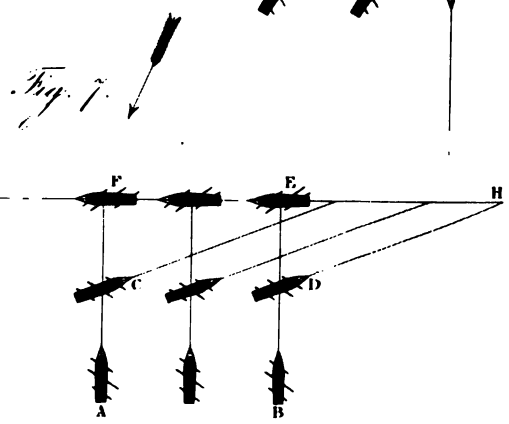
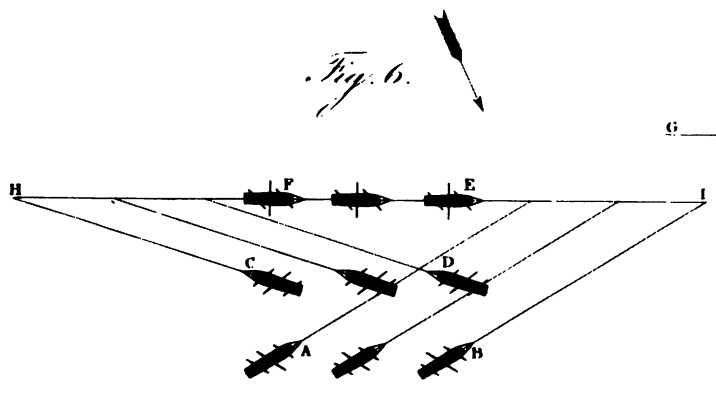
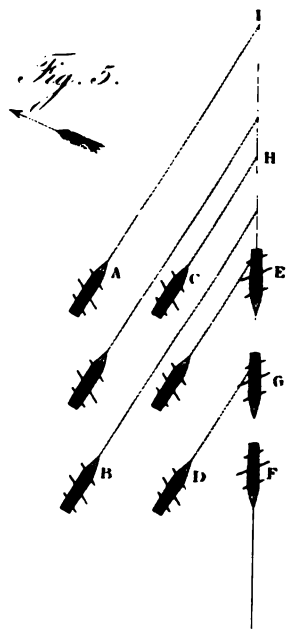
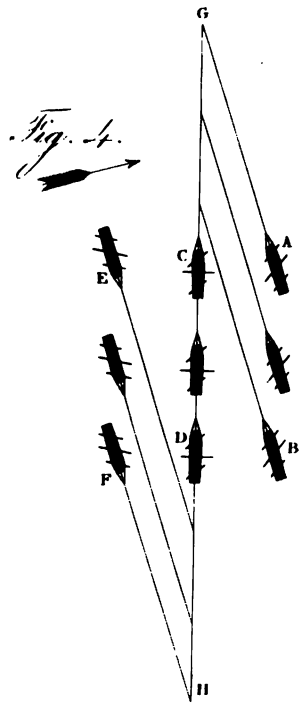
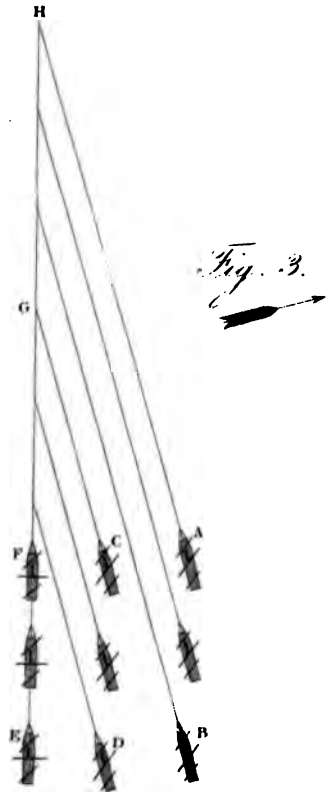
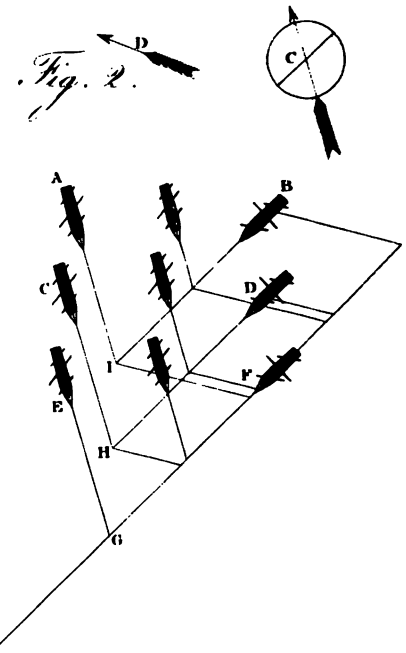
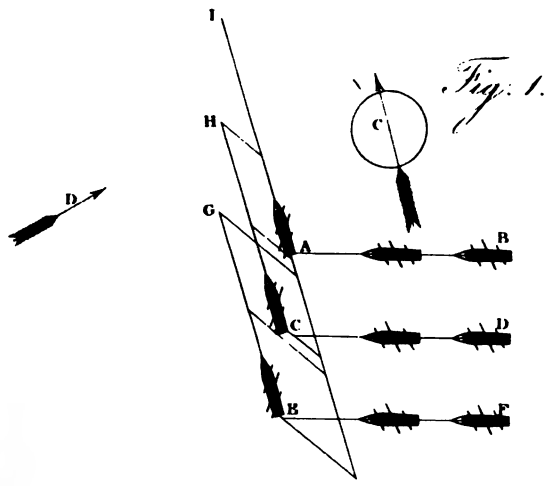
*Remark 1st.*—The squadron C D will not cut off the squadron A B, because the lines C G G B are equally conformable to the rules of three columns; thus, when the ship C reaches the point G, the ship B will have already passed it; besides, the squadron C D may keep away a little, if there is any fear of cutting off the rear B; the same thing of the squadron E F, with respect to the squadron C D.

If the evolution is to be performed quickly, the three squadrons must carry sail, if not, it may be done under easy sail.

*Remark 2d.*—This manner of placing the three columns in line of battle, is the most simple, exact, uniform, and shortest, of all that have been proposed; nevertheless, circumstances may oblige the Admiral to have recourse to others, which we will give, after having said a few words on this evolution, when performed on account of a change of wind.

*Remark 3d.*—When the wind has changed in such a manner, that each squadron can place itself in the wake of the headmost ship, the headmost ship of each column comes to the line of bearing, the rest placing themselves in its wake, the fleet will be in line of battle, or it will place itself so without difficulty, by the preceding evolution, as if the wind had not changed.











For example, suppose the fleet to be in three columns, A B C D E F, with the wind at C, and that it changes to D, the headmost ship, A, stands on a line of bearing, the length of the line A I, its squadron following in its wake; the headmost ship, C, runs the length of the line C H, and the headmost ship, E, the length of the line E G, followed by their respective squadrons; then, the squadrons C D E F, on the lines C H E G, having tacked together, will place themselves in the wake of the squadron A B, which continues to stand on the line A I.

PLATE XXXIII.  
Fig. 1.

*Remark 4th.*—If the wind changes eight points, the lines A I C H E G, will make the same line, and then the squadrons C D E F stand under easy sail, to avoid cutting off the squadron A B; but if the wind changes more than eight points, the headmost ships, C and E, must not stand to the line of bearing, but keep away as much as may be necessary, to place themselves in the wake of the squadron A B.

*Remark 5th.*—When the wind comes ahead twelve points, or more, they will only have to trim sails, and follow the preceding rule; but if it does not change more than six points, the columns will re-establish themselves in the line of bearing; those to leeward will stand to the line of bearing of the tack on which they were ranged before the wind changed, the two others all keeping away together, as much as may be necessary to get into its wake.

For example, the fleet was in the three columns A B C D E F, the wind changing from C to D, the squadron A B ranges itself on the line of bearing I B, and the two others on the lines H D G F, then the squadron A B, which is on I B, stands to the line of bearing, the two others bearing up, place themselves, one after the other, in its wake.

Fig. 2.

*Remark 6th.*—When the wind changes more than six and less than twelve points, they will trim sails, and manœuvre as the wind veers, and haul as if the wind had changed the points requiring to make twelve, then, when the wind changes eight points, they will trim sails, and act as if it had changed four points.

## II.—*Another Manner of Performing the same Evolution.*

Fig. 3. There are circumstances which oblige the Admiral to change the three columns in line of battle, in another manner; the squadron E F lies to, and the two others, keeping away two points on the starboard tack, place themselves one on G F, and the other on G H.

*Remark.*—This manner is extremely simple, and may be practised when preserving the wind is no object; nevertheless, not to reverse the orders of the van and rear, and that the squadrons preserve their ranks with respect to the wind, the squadrons A B C D must keep away two points on the larboard tack, to place themselves before the squadron E F.

BEVESIER, OR  
BEACHY-HEAD.

*Example.*—It was thus that the King's fleet manœuvred at the battle of Bevesier, in 1690, under the command of Count de Tourville, Vice-Admiral, and at present Mareschal of France. He had pursued the allied fleet for more than fifteen days, anchoring with the tides, after them, till the wind should become favourable for him; but on the 10th July, at the break of day, seeing that the enemy to windward were disposed to come to close action, he displayed the signal for battle. His fleet was 70 sail of the line, divided into three squadrons, the Count de Estrees, Vice-Admiral of France, commanded the white and blue squadron, to leeward; the Count de Chataurenard, Lieutenant-General, commanded the blue squadron, to windward; the Count de Tourville was in the centre, with the white squadron. This disposition obliged the Count de Tourville to give the van-guard to Count Chataurenard, and the rear-guard to Count de Estrees; the blue and white squadrons hove-to, the two others having kept away, ranged themselves on the same line with such celerity, order, and regularity, that they began to augur a victory from that circumstance; in this order we waited three hours for the enemy, who came down very slowly on us. The greater part of the English fell on our rear-guard, when the Count d'Estrees received them with such bravery, that after having several of their ships disabled, they were obliged to haul to the wind to extricate themselves from his fire, which they were unable longer to withstand; the English Vice-Admiral of the red, placed himself, with

his division, abreast of the *Soleil Royal*, bearing De Tourville's flag, but the Englishman having been dismasted, with one of his seconds, and in a sinking state, was towed away by all the boats of his division from the fire of his enemy; he could not resist him one hour. The Count de Tourville having no opponent abreast of him to contend with, made sail to fall on the rear of the Dutch, who maintained an obstinate engagement with our van-guard. The head of the squadron had fallen on the *Dauphin Royal*, the flag-ship of the Count Chataurenard, who received him with his accustomed bravery, firing on, and disabling, all within reach of his guns. The Marquis de Villette, Lieutenant-General, added greatly to their disorder, *for, having made sail with his division, to gain the weathergage, he tacked on them, and obliged them to bear up*; as the wind began to fail, they could sustain themselves no longer, and fell on our centre, which finished their defeat, covering the sea with their wrecks. The Marquis de Nesmon, at present Lieutenant-General, took a ship, after having laid her on board; the Count de Tourville disabled three, and he would have cut off eleven, by causing himself be towed by fifteen boats, if the tide had not opposed his glorious design. The two fleets anchored, and the allies, profiting the following days by a dense fog, cast sixteen of their disabled ships on the English coast, burning them in sight of our fleet, who pursued them as far as the Downs, without having lost a boat in so glorious an action, for I do not think so complete a victory was ever gained. [*See Schomberg's Naval Chronology, Vol. I. p. 81, and Charnock's Biographie, (Herbert, Earl of Torrington,) with a very scarce plan of this celebrated battle off Beachy-Head, in Vol. I. p. 267.*]

### III.—*Another Manner of Performing the same Evolution.*

The squadron C D may be hove-to, and A B keeping away two points on the starboard tack, to place itself on C G, at the same time that the squadron E F keeps away two points on the larboard tack to reach D H. Fig. 4.

*Remark.*—This manner is as simple as the two preceding ones, but it places the fleet more to windward than the first, and is shorter than the second; nevertheless, I do not prefer it to the others, because it obliges the squadron to leeward to tack twice.

IV.—*Another Manner.*

Fig. 5. The squadron E F may also run large four points on the starboard tack, and the two others running large four points on the larboard tack, place themselves before the squadron E F, one on H G, where it will tack to run large four points on the starboard tack, the other on E I, where it will finish the evolution.

*Remark 1st.*—There is no fear of the squadrons crossing, because those to windward can keep away more or less, but what appears to me to render this evolution less desirable than the other in practice, is, that it makes the squadrons tack twice ; otherwise it is very simple, and equally prompt.

*Remark 2d.*—The four preceding evolutions preserve the same arrangement of the squadrons, placing the weather-squadron in the van-guard, and the leewardmost squadron in the rear, but it is sometimes necessary to change the arrangement of the squadrons, by placing the weather-column in the centre or the rear, &c. Thus, although what we have given on this subject in the Second Part, may be considered sufficient, it will be as well to show how the arrangements of the squadrons may be changed, in changing the orders without rendering the evolution longer or more embarrassing.

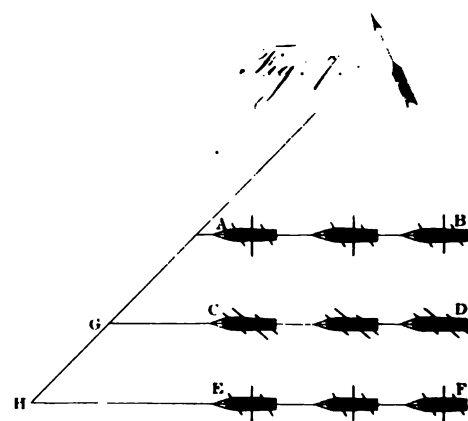
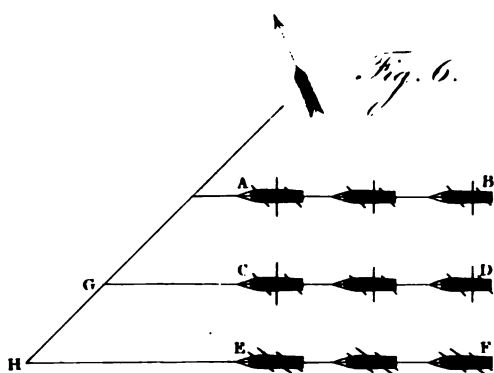
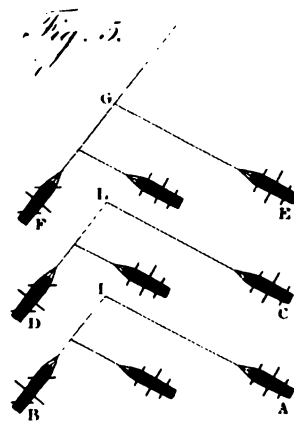
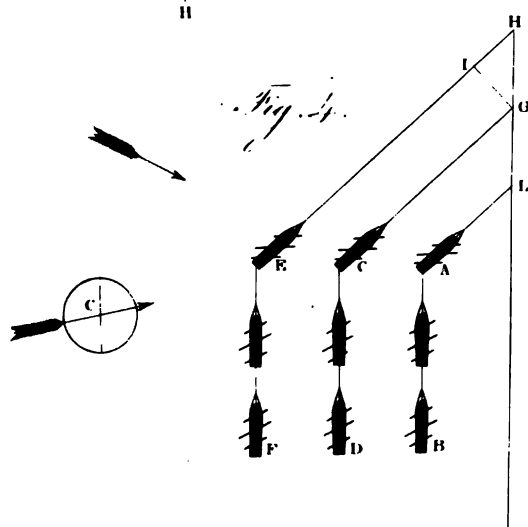
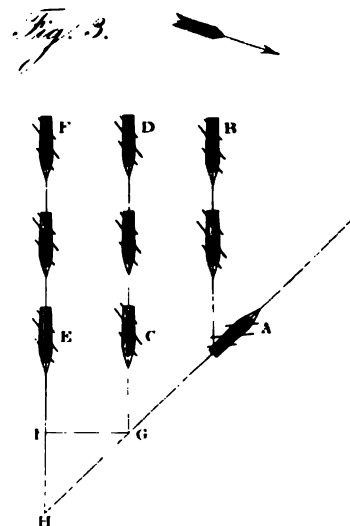
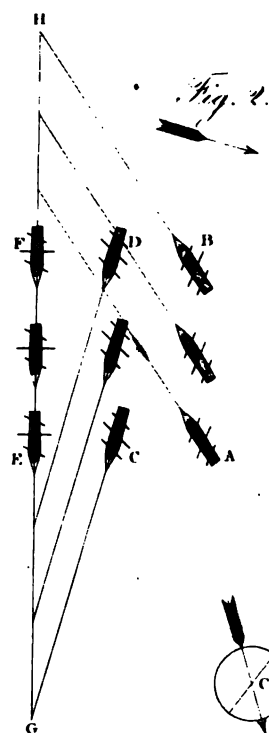
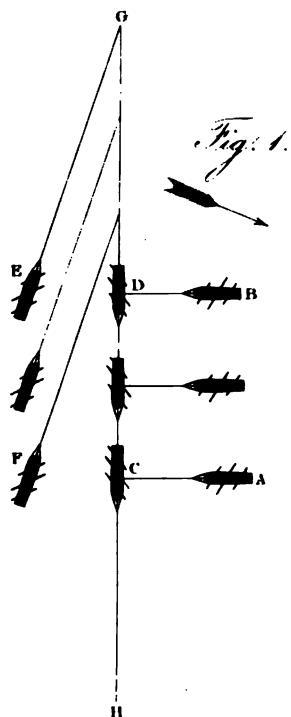
V.—*The same Evolution in changing the arrangement of the Squadron.*

1st.—*To place the Centre Squadron in the Rear, and the Squadron to Leeward in the Centre.*

Fig. 6. When it is wished that the squadron E F should be the centre, and the squadron C D the rear-guard, E F lyes-to, and A B running large two points on the starboard tack, reaches E I, while the squadron C D runs large six points on the larboard tack, to place itself on F H.

*Remark.*—This evolution may be performed in a manner that will











place the fleet more to windward, for which purpose all the squadron A B lyes-to, and the squadron C D carrying sail, runs large four points, till it is in the same line as the squadron E F, which stands on the larboard line of bearing, then the squadron C D runs as the squadron E F, and both range themselves, one and the other, astern of the squadron A B.

*2d.—To place the Centre Squadron in the Rear-Guard, and the Weather-Squadron in the Centre.*

When the squadron A B is to be placed in the centre, and C D in the rear, the squadron E F carries sail on the starboard line of bearing, to occupy G F, when it will lye-to; in the meantime, the squadron C D keeps away six points on the starboard tack, to range itself on E H, and the squadron A B keeps away eight points on the larboard tack, to get to E F. Fig. 7.

*Remark.*—The squadron A B must go under easy sail, in order that it should not cut off C D, or E F. It is not necessary to search for an evolution which will place the fleet more to windward, because, in this, the squadron E F, which is to be the van-guard, stands to the wind under all sail.

*3d.—To place the Weather-Column in the Centre, and the Centre to Windward.*

To place the squadron A B in the centre, and C D at the head, the squadron C D stands to the larboard line of bearing, to occupy C H, and the squadron A B runs large eight points on the larboard tack, to get in its wake; in the meantime, the squadron E F runs large two points on the starboard tack, to range itself astern of the squadron A B. PLATE XXXIV.  
Fig. 1.

*Remark.*—The squadron C D must carry sail to avoid being cut off by the squadron A B, which shows that the evolution places the fleet as much to windward as is possible; the squadron E F stands under easy sail, keeping away as much as may be necessary, that it may not press too

much on the squadron A B, which, after having placed itself on the line C G, will come to the line of bearing, and follow the squadron C D.

*4th.—To place the Weather-Column in the Rear, and the Centre to Windward.*

Fig. 2 In order that the column A B may be the rear-guard, and the column C D the van, the squadron E F lyes-to, and C D runs large two points on the larboard tack, to occupy the space E G, while the squadron A B runs large six points on the starboard tack, to gain the space F H.

*Remark.*—Since the evolution does not make the squadron C D stand to the line of bearing, one may be found which will place the fleet more to windward ; for that purpose, the squadron C D stands to the larboard line of bearing, the squadron E F tacks to the starboard line of bearing, to place itself in its wake ; meanwhile, the squadron A B lyes-to, till it can bear up in the wake of both. I have preferred the preceding method to this, because this makes the squadron E F tack twice ; with this exception, it is very perfect.

VI.—*To place the Columns in Line of Battle on the other Tack.*

Fig. 3 To range the fleet A B C D E F in order of battle on the starboard tack, the head A will tack, with its squadron in succession, and the two others tack, the same in its wake ; that is, the squadron C D at the point G, and the squadron E F at the point H.

*Remark 1st.*—It will be seen how the headmost ship, C, arrives precisely at the point A, when the rearmost ship, B, shall have passed it, if it be observed that the angle C G A being four points, the lines C G A are equal to the line A B, and, consequently, the ship C will have run the lines C G A, and have tacked at the point G, in the time that the ship B will have employed to run the line B A, and tacked at the point A ; the same thing of the ship E, with respect to the ship D, which will not, however, in practice, prevent the ship C from managing not to press the

ship B too much, and also, not to leave too great an interval between the squadrons.

*Remark 2d.*—When the order is changed on account of the wind changing, the manœuvre may be practised in two ways: 1<sup>st</sup>, If the wind comes aft, the three heads of the squadrons stand to the line of bearing, and when one part of their own squadrons are in their wakes, they will perform the evolution, as if the wind had not changed; that is to say, the heads of the squadrons will tack to the points L G H. Fig. 4.

They must stand on some time before tacking, in order that the headmost ship, A, may be able to tack, without being in danger of falling on board the ships of her squadron.

*Remark 3d.*—In order that the evolution may be more exact, and that the headmost ships, C D, do not leave too great a space between the squadrons, these ships must carry sail, while the headmost, A, stands under easy sail; for, as the angle B A L is obtuse, the lines C G L will be longer than the lines B A L. 2<sup>dly</sup>, If the wind comes ahead, they will re-establish each column in particular, and then perform the evolution as if the wind had not changed; that is to say, that the headmost ship, A, being at the point I; will tack, with its squadron in succession, and the other ships C and E, being at the points L and G, will do the same thing as the squadron A B. Fig. 5

*Remark 4th.*—It may happen that the leading ship, C, being at the point L, may be to windward of the point I, but then, the squadrons C D E F may lye-to, while the headmost ship, A, may stand on, they will perform the same manœuvre to give time to the squadron A B to tack in succession; but to avoid its excessive length, it would be better to re-establish the columns on the other tack, and then perform the evolution, as we have given in the First Part of this.

VII.—*To perform the same Evolution in changing the arrangement of Squadrons.*

1st.—*To place the Centre Column in the Rear, and the Rear in the Centre, in Line of Battle.*

Fig. 6. When it is wished that the column C D shall be the rear-guard, and E F the centre, the squadrons A B C D will lye-to, the headmost ship, E, tacking at the point H, with its squadron in succession; then, when the rear F shall be in the line A C E, the headmost ship, A, will also tack, with its squadron; at length, when the headmost ship, E, is at the point A, the squadron C D will fill, and tack to the point G, which will finish the evolution.

*Remark.*—In order that the ship A may have the necessary room for tacking, she must stand on ahead sometime; thus, the headmost ship, E, will tack a little to windward of the point H; the evolution will be rather long, but it is so simple and regular, that the time it takes to perform ought not to be thought of; besides, the squadron E F, (which is to be to windward of the squadron C D,) always stands to the wind under a press of sail, the evolution cannot be shorter, unless the fleet is placed more to leeward.

2d.—*To place the Centre in the Van and the Van in the Centre.*

Fig. 7. In order that the squadron C D be the van of the fleet, and A B the centre, the squadrons A B E F lye-to, the squadron C D tacking successively at the point G; then, when the rearmost ship, D, has passed the point C, the squadron E F will fill, and tack at the point H; at length, when the rear D shall be at the point A, the squadron A B will also fill to tack; thus, the fleet will be ranged as desired.

*Remark.*—The same precautions must be taken as given in the preceding evolution; that is to say, the ship C ought to tack to windward of











the point G, that the ship A may have sufficient room for tacking; the same thing is to be supposed in all the evolutions where tacking is necessary.

*3d.—To place the Van in the Centre and the Centre in the Rear.*

If it be wished that the squadron E F be the van-guard, and A B the centre, the squadrons A B C D lye-to, and the squadron E F tacks in succession at the point H; then, when the rearmost ship, F, has passed the point A, the two other squadrons will fill, and tack in her wake.

PLATE XXXV.

Fig. 1.

*Remark.*—Although this evolution is very long, a shorter one cannot be found to range the fleet as desired, without placing it more to leeward; for the squadron E F, which is to be the weather-column, stands to the wind under all sail; for the rest, the ship E will easily know that she is at the point H, when, in steering by the ship A, she finds herself in the line of bearing of the opposite tack to that on which the columns were ranged; this rule is to be observed in the preceding, as well as in the following evolutions.

*4th.—To place the Weather-Column in the Rear, and the Centre in the Van.*

When it is necessary that the squadron A B should be in the rear of the fleet, and the squadron E F in the centre, the squadron A B lyes-to, the two others standing on, to tack in succession at the points G H; then, when the rearmost ship, F, has passed the point A, the squadron A B will fill, and tack in succession, to get into the wake of the other two squadrons.

Fig. 2.

*Remark.*—The evolution cannot be performed by a shorter method, without placing the fleet more to leeward, because the squadron C D, which is to be the van, stands to the wind under all sail.

*5th.—To place the Weather-Column in the Rear, and the Rear-Column in the Van.*

Fig. 3. To have the squadron A B in the rear, and E F in the van, the squadrons A B C D lye-to, the squadron E F standing on, and tacking in succession at the point H; then, when the headmost ship, E, is at the point A, the squadron C D will fill, and tack in succession at the point G; and when the rearmost ship, D, has passed the point A, the squadron A B will fill, and tack in the wake of the other two.

*Remark.*—This last evolution has the same advantages as the others, being so simple, regular, and short, that another method could not be found, that would place the fleet in the arrangement desired, without losing the advantage of the wind.

*VIII.—To place the three Columns perpendicular to the Wind.*

Fig. 4. Let A B C D E F be the fleet it is desired to place on the perpendicular of the wind, the headmost ship, A, runs large two points on the line A H, the rest of her squadron following in her wake; at the same time, the squadrons C D E F stand on the starboard line of bearing, for the line A G, where they will tack, and stand on, to place themselves, one after the other, in the wake of the squadron A B.

*Remark 1st.*—It will be clearly seen that this evolution is composed of that which changes the three columns into the line of battle, and of that which places the line of battle on the perpendicular of the wind; thus, the same remarks will apply to it that we have given for the one and the other.

*Remark 2d.*—To render this evolution as prompt as possible, the rearmost ship, F, must run large two points on the line F L, her squadron following in her wake, while the squadrons A B C D bear away four points, to gain the line F I, where they will trim sails, to get into the wake of the squadron E F. The squadrons C D A B must manage so, that the

squadrons E F C D do not cut upon one another; this second method places the fleet to leeward, but it will not be chosen when it is an object to keep the advantage of the wind.

*Remark 3d.*—If the fleet pass to the perpendicular of the wind, because the wind changes in coming aft, the rearmost ship, F, will run large two points, the rest of the fleet following, as if the wind had not changed; it is only to be observed, that the squadrons A B C D keep away as much as is necessary, to avoid cutting off the squadron F F.

*Remark 4th.*—If the wind comes ahead, the headmost ships, A C E, lye-to, the rest of the squadron bearing away, to place themselves, with respect to them, on the perpendicular of the wind; at length, the squadron which is to leeward, will run on the perpendicular of the wind, the two others keeping away, and getting into its wake.

#### IX.—*To Change the Three Columns into the Third Order of Sailing.*

Let A B C D E F be the fleet that is desired to be placed on the ob-  
tuse angle, or third order of sailing. The rearmost ship, F, stands to the line of bearing on the line F L, her squadron following successively in her wake; in the meantime, the two other squadrons keeping away four points, come and place themselves in the wake of the squadron E F, till the centre of the fleet is at the point F, then the evolution is finished, and the fleet will be placed as was desired.

Fig. 5.

*Remark 1st.*—Since the rearmost ship, F, which is to be to windward, stands under all sail to the wind, the evolution cannot be more promptly performed, without placing the fleet to leeward; neither, in practice, ought another method to be chosen, because it is regular and uniform; it is only to be observed, that the squadrons must so manage, as not to cut upon one another.

*Remark 2d.*—If it be a change of wind that compels a fleet to pass to

the third order of sailing, the rules must be followed which we have given for changing the three columns into line of battle when the wind changes, and then the evolution will be performed as if it had not changed.

*X.—To change the three Columns into six, in the Fourth Order of Sailing.*

It begins by placing the three columns on the obtuse angle of the third order of sailing, then the fleet is passed from the third to the fourth order of sailing. The evolution is rather long, but the other methods would be too complicated, and but little practicable.

*XI.—To place the three Columns in Order of Retreat.*

Fig. 6. Let A B C D E F be the fleet it is wished to place in the order of retreat, the headmost ship, A, bears away four points, the rest of her squadron following successively in her wake, meanwhile the squadrons C D E F stand to the starboard line of bearing to gain the line B G, where they will tack, one after another, to place themselves in the wake of the squadron A B; then, when the centre of the fleet is at the point A, the evolution will be performed.

*Remark 1st.*—Since the fleet is not placed in the order of retreat to keep the wind, it seems that the evolution may be performed by a short method, if the squadrons C D E F are not made to stand on a wind; nevertheless, it is certain that the evolution cannot be made shorter, because the centre of the squadron C D stands to the wind under all sail to get to windward of the rest of the fleet, and the headmost, A, runs large under all sail to place itself to leeward of the whole fleet.

*Remark 2d.*—If it is a change of wind that obliges the Admiral to place the fleet in the order of retreat, first of all the three columns will be changed to the line of battle, and from that the fleet will pass to the order of retreat. It will not be surprising that we do not give an other

method, if it is reflected that this evolution is only one composed of two evolutions, of which one changes the three columns in order of battle, and the other the order of battle in the order of retreat.

*Remark 3d.*—The precautions we have given for the order of retreat will apply to this order; in particular, the arrangements of the squadrons may be changed, which is a very important point, because it often happens in the order of retreat, that the Admiral is obliged, from necessity, to change the order of the squadrons.

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## SECTION SEVENTH.

### CHANGING THE ORDER OF RETREAT.

#### I.—*To change the Order of Retreat to the Line of Battle.*

LET A G F be a fleet in order of retreat, to place it in line of battle, the headmost ship, A, comes to the wind, the rest of the fleet running large four points on the same tack, get into her wake on the line A. H. Fig. 7.

*Remark 1st.*—This evolution is so regular, simple and short, that it renders this order of retreat preferable to all others, for a retreating fleet may be often obliged to fight, and will be very much embarrassed if it cannot form in a line of battle, in a manner as easy as this; in effect, suppose the enemy I L M press the fleet so much, that it is compelled to engage; then the fleet will all come at the same time six points to the wind on the starboard tack, and the headmost ship, A, to the line of bearing H A I. This manœuvre cannot cause any confusion in the fleet, on the contrary, it commences by presenting the broadside to the enemy, and the ships coming to the wind in the wake of the ship A, will place between two fires the enemy's ship M.

*Remark 2d.*—We will suppose that the enemy is on one side only; in effect it is difficult to attack both sides, without danger of being separated;

but in case the enemy attack on both sides, the evolution may be performed in the same manner, and the ships G F will present their broadsides to the enemy, as well as when before the wind.

*Remark 3d.*—If the enemy closes the fleet on all sides, the ships G F may run large four points on the starboard tack, and the ships G A stand on the line of bearing to get in their wakes, in this manner they will be better able to present their broadsides to the enemy, but they must then wear short round to be in line of battle, which is rather difficult when engaged.

*Remark 4th.*—If the order of retreat is changed to the line of battle, on account of the wind shifting, the wing A or F, which may be to leeward, can always come to the wind, and the rest of the fleet place themselves in its wake, by lines parallel to the line A G, if it is the ship A which comes to the wind, or on the line G F, if it is the ship F.

## II.—To place the Order of Retreat on the perpendicular of the Wind.

PLATE XXXVI. Let A G E be the fleet to be placed perpendicular to the wind, the wings A E lye-to, the other ships bearing up, lye-to successively on the line A E.

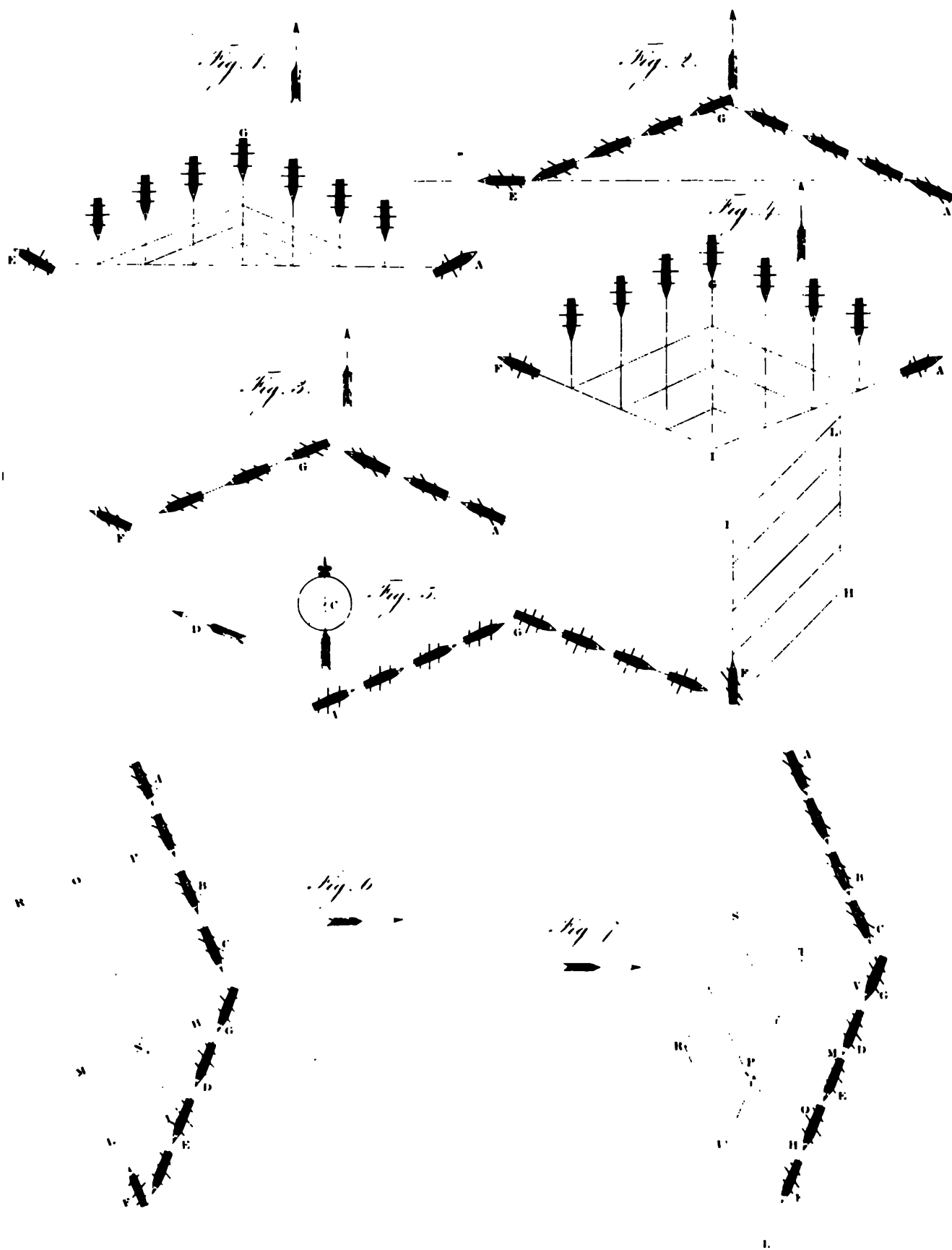
Fig. 2. *Remark 1st.*—To render the evolution more exact, the ships keep themselves on lines parallel to the lines G A G E, till they shall be on the line A E, the wings A or E may run on the perpendicular of the wind, and the rest of the fleet will only have to follow in line in its wake to perform the evolution in a manner equally simple and regular; but this plan ought not to be adopted without good reason, on account of its length, for it will take all the time necessary for the ship A to run a line equal in length to the whole fleet.

*Remark 2d.*—When it is the wind that obliges a fleet to change its order, one or the other of the two preceding methods may always be had recourse to; 1st, The ship to leeward may heave-to, then the others bear











up to place themselves with respect to her on the perpendicular of the wind. *2dly*, The ship to leeward may run on the perpendicular of the wind, and the rest of the fleet follow in its wake, the second method is adopted when the wind changes about eight points, the first when it changes a good deal more or less than it.

### III.—*To change the Order of Retreat to the Third Order of Sailing.*

To place the fleet A G F in the third order of sailing, one of the wings **F** will come to the line of bearing F H of the opposite tack to that which the ships G F are ranged on, and the rest of the fleet follow in its wake, till the ship G is at the point F, for then the fleet will be in the third order of sailing. Fig. 3.

*Remark 1st.*—The wings A F may lye-to, and the rest of the fleet bear up, to range themselves with respect to them on the lines of bearing A I F I, opposite to the lines of bearing A G F G. I grant that this method is good, and ought to be practised when time presses, but the other appears to me preferable, because it is but little longer, and much more uniform and exact. Fig. 4.

*Remark 2d.*—If it is a change of wind that obliges a fleet to pass to the third order of sailing, the wing F to leeward will stand to the line of bearing on the line F I, and the rest of the fleet place themselves successively in its wake, then when the ship G is at the point F, the ships F I will bear away four points, and the rest of the fleet having placed themselves in the wake of the ship G, the fleet will be on the obtuse angle F H L. Fig. 5.

*Remark 3d.*—It may happen, that when the ship G is at the point F, the fleet will be in the order that was wished, because the angle G F I will be twelve points, and it will greatly abridge the evolution, which is rather long. If the angle G F I is not precisely twelve points, but if it does not want much of it, the evolution may be finished by the ships too much to windward keeping away a little.

IV.—*To change the Order of Retreat to the Fourth Order of Sailing.*

It is begun by changing the order of retreat to the third order of sailing, and then passing the fleet to the fourth order; for although the evolution is very long, it is nevertheless more practicable than all the others which present themselves.

V.—*To change the Order of Retreat in Three Columns.*

Fig. 6. When it is necessary to place the fleet A G F in three columns, the rear F runs large four points on the opposite tack to the line of bearing on which the ships A G are ranged, and the rest of the fleet follow in its wake; then when the rear D is at the point I, abreast of the rear F at the point L, the rear D stands as the rear F, the remainder of the fleet following in its wake; at length when the rear B coming to the point H, also finds itself abreast of the two others at N M, she stands on the same, and after her squadron is in her wake, the fleet is ranged in the three columns, M R N O H P.

*Remark 1st.*—Although this evolution seems long, it cannot be shorter, unless the fleet is placed farther to leeward, for the ship A, which is to be to windward of the fleet, stands to the wind under all sail, till the evolution is performed.

*Remark 2d.*—If the fleet is placed in three columns, because the wind is changed, and the ship F farther to leeward, the evolution may be performed as if it had not changed, but if the wind turns to the side of the ship F, the evolution will begin by the squadron A B, in a manner we will explain in the following.

VI.—*To perform the same Evolution in another manner.*

Fig. 7. If it is wished that the column should be parallel to the line G F, the rear F will run on the line G F, till the rear B has passed the point G; then the squadron E F, which will be on O L, will run large four points

on the other tack, the rest of the fleet standing as before; then when the rear D is at the point H, abreast of the rear F at the point I, the squadron DC, which will be on HM, will stand as the squadron EF; the squadron AB continuing its course, till having brought the other two abreast, it will finish placing the fleet on the columns RS PT OV.

*Remark 1st.*—The same evolution may be performed by a method which will place the fleet further to windward, for that the headmost ship, A, must stand to the line of bearing of the tack opposite to that on which the ships AG are ranged, and the rest of the fleet placing themselves successively in its wake, till the squadrons ABCD shall be in it; then the squadron AB will tack together, and when the squadron CD finds AB abreast of it, it will do the same till they are both abreast of the squadron EF.

*Remark 2d.*—This last evolution is so long, that it ought not to be practised without special reasons, as when the advantage of the wind is extremely important, it may also be observed, when a change of wind has rendered other methods more difficult, and less conformable to existing circumstances; for the rest we have supposed, in this and the preceding, that it is desired that AB should be the weather-squadron, and ACD the heads of columns.

*Conclusion.*—We have said nothing in particular of the orders of a fleet that forces or defends a passage, because the two orders refer to those we have explained, for the order of a fleet that guards a passage refers to the order of battle, or the order of three columns, and the order of a fleet which forces a passage to the order of retreat; the rules we have given in this Fourth Part will apply to other orders that may be wished to be established, and can only differ from the preceding by circumstances which may be easily adjusted to our methods.

END OF PART FOURTH.



## PART FIFTH.

### OF THE MOVEMENTS OF A FLEET, WITHOUT TOUCHING ON THE ORDERS.

THIS is without doubt the most difficult part of naval evolutions in which I have treated; it is in this that the art of war at sea properly consists. I feel that I have not the necessary lights, to give rules on a subject of so much importance, and do not propose to give precepts for Admirals of fleets, but content myself with proposing to them examples, because in matters so vast as these, scarcely any thing can be decided in theory; it is the genius of a hero, possessing professional talent and experience that is necessary to constitute a great Admiral. I wish only to place here, in a few words, some general reflections, on which I count much more than on my own ideas; some things will be found on which I have determined nothing, having solely proposed the reasons for and against the different plans that may be adopted, for in effect there are some things so doubtful, that they can only be decided on by circumstances, arising out of particular cases; for instance, such as the part that an Admiral ought to take when he is obliged to engage with a fleet greatly inferior to the enemy; the consequences may be so perilous, that no rule can be found by which they can determine their conduct. It is not the same with sea engagements as with land battles; an army, when it is inferior, intrenches itself, occupying advantageous posts, supplied by woods and rivers, which make up what is wanted in force; but at sea, there is no other advantage but that of the wind, which, from its incon-

stancy, ought not to be depended upon. A fleet ought to be judged of, as an army that is surprised in an open country, where the time and the spot will not permit of intrenching. I think it would be very difficult for a fleet to adopt a good plan, if it was greatly inferior to the enemy.

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## CHAPTER I.

### ANCHORING.

WHEN a fleet of men-of-war anchors, there are five circumstances which require attention.

1st. That the anchorage be good holding ground, and not liable to injure the cables.

2d. That the fleet shall be well sheltered from the influence of dangerous winds.

3d. That the wind which brings an enemy will enable the fleet to get under weigh, and dispute its advantage with them.

4th. That the fleet may be enabled instantly to form in line of battle when it has weighed.

5th. That the ships in the act of weighing shall not be liable to fall on board of each other, for this reason, a fleet ought to anchor in open order on the perpendicular of the wind in one or more lines three cables length apart, as A B and C D, and at a distance of not less than 120 fathoms between the ships.

PLATE XXXVII.

It is not necessary to allude to the precautions to be observed in getting a fleet under weigh; such, for instance, as "that the ships farthest to leeward ought to be under sail first when there is reason to fear that those to windward may fall on board of them," because I would not presume to lay down rules in this respect, as it would require to know all the circumstances in which fleets and squadrons are often situated, therefore tacticians of greater experience, and possessing this knowledge, will always render the practice sufficiently easy.











*Remark 1st.*—The fleet may anchor in three columns on one of the lines of bearing, in expectation of a hostile force, taking care that the van E and the rear F are to correspond with each other in the direction of the wind, in this order they can with great facility get under weigh, and promptly form the order of battle; and, if necessary, to dispute the wind with them, provided they are in a condition to weigh on sight of the enemy, whose approach is never to be waited for at anchor, if the object is not to protect a port or roadstead. PLATE XXXVII.

*Remark 2d.*—It is not necessary, either to enter into the detail of the day and night guards, the rounds, and several other precautions, which do not belong to the design which I have proposed to myself.

*Example.*—It was without doubt by similar precautions that the Duke of York, at present King of England, saved the fleet he commanded in 1672. It was composed of seventy English ships, and thirty-one French; the Duke had, for a long time, kept at sea to draw the Dutch to a decisive engagement, but seeing that they persisted in keeping within their banks, where they could not be forced, he resolved to go into Solbay, for necessary refreshments. Admiral de Ruter, who commanded the Dutch fleet, found this a very proper conjunction to attack the English, who, he thought, were in disorder in the roadstead; he left his coast on the 6th of June with the whole of his fleet, (which were not less strong than the allies,) making sail with a N. E. wind for Solbay, expecting to surprise his enemies; but the Duke of York, as an experienced Admiral, had anchored in three columns in open order, his van-guard commanded by the Earl of Sandwich, and his rear-guard by the Count d'Estrees, Vice-Admiral of France; and placed himself with the remainder of the fleet in such a manner, that having had advice of the coming of De Ruter, he was soon in a condition to receive him. The Count d'Estrees having placed himself in order of battle with inconceivable diligence, keeping the wind, and having lengthened on the squadron off Zealand, commanded by the Vice-Admiral Bancker, he commenced the battle on the 7th of June at eight o'clock in the morning, engaging the enemy with such vigour, that several Dutch ships were

disabled; *he had even taken measures for tacking, and breaking through the* squadron of Bancker, if the calm which followed had not frustrated his glorious object. Meanwhile the Duke of York was at issue with Admiral de Ruter, while the Earl of Sandwich was engaged with the rear-guard against the Sieur Van-Ghent, but the firing having soon brought on a calm, and the ships becoming ungovernable, the two fleets were mingled in such a manner, that it brought on the most sanguinary engagement ever recorded. Lord Sandwich perished with his ship, which was burnt by a Dutch fire-ship; a moment after, his death was revenged by that of the Admiral of the Amsterdam squadron, Van-Ghent, and the loss of two Dutch ships of the line, one taken and the other sunk; the Duke of York twice shifted his flag, his two first ships having been destroyed, the battle lasted with inconceivable obstinacy till night, which favoured the retreat of the Dutch, who were pursued the following day to their banks, where, being under shelter, they avoided an entire defeat, without in any thing diminishing the glory of the victory.—[*See Lediard's Naval History, Vol. II. p. 597.*]

*Remark 2d.*—The preceding example will show how important it is, to be able to get under weigh in time to receive the enemy, the following will show how dangerous it is to await the enemy at anchor.

I will not rest here, on the precautions to be observed by a fleet getting under weigh; for example, if the leewardmost ships should weigh first, or if the others are in danger of falling on board of them; these things must be determined by circumstances which, in practice, will easily decide the plan to be adopted.

*Example.*—The Mareschal Duke de Vivonne, the French Vice-Roy of Sicily, having learned that the enemy, after the battle of Augusta, had returned to Palermo, resolved to go and attack them. He embarked in the Sceptre, commanded by the Chevalier De Tourville, and who hoisted for this service the flag of an Admiral; he arrived in sight of Palermo the 2d of June 1676, with 27 ships of the line and 25 gallies; having reconnoitered the enemy, he ascertained that the allies had anchored, 27 ships of war and 29 gallies, in a line fronting the fort of Castle del Mare under

its guns, and which was also defended to the right by a great tower,—the artillery on the ramparts of the town, and on the left the batteries of the Mole. The Marquis de Prulli was detached with nine ships of war and five fire-ships, and the Chevalier Bretüil and de Bethomas with seven gallies, to attack the enemy on the left; this service was executed with such bravery and success, that the enemy's van-guard having been cut off, drifted under the bastions of the town, where our fire-ships reduced three of them to cinders; in the meanwhile the other ships of the French fleet having anchored on the buoy of the enemy, notwithstanding their fire and that of their forts, engaged them with such fury, and having burnt the Admiral, and the Spanish Vice-Admiral, they were compelled to cut and run for the Mole, but were so closely pursued by the fire-ships, that the Dutch Admiral, and eight other ships, were thrown ashore under the walls of the town, and soon on fire, presenting the most horrible spectacle ever witnessed,—the decks of these ships on fire being visible, were covered with crowds of unfortunate beings, some jumping into the boats, others throwing themselves over board, and others running about undetermined what to do; the fire having gained the magazines, they soon blew up with a tremendous explosion, the King of Spain and five other gallies were burnt by the fire of these ships, and a number of edifices in the town were burnt and destroyed, this great action only cost the French some fire ships.

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## CHAPTER II.

### GAINING THE WEATHERGAGE.

A numerous fleet can seldom gain the weathergage, whatever effort it may make; it is nevertheless often obliged to keep the wind, and to beat to windward, to avoid falling to leeward, on which it is necessary to make the following reflections.

I.—When a fleet is obliged to work to windward in making its differ-



ent tacks, the ships should tack together, making rather long boards, because, by tacking in succession, it will lose ground, each being obliged to keep away a little, to keep clear of the ship ahead; besides, in short boards, they will be obliged to tack oftener, and loose in tacking what is gained on the board.

PLATE XXXVIII.

Fig. 1.

II.—There are cases where a fleet will make the boards too short if it tack together; then it ought to tack in succession; for, if the fleet A B, working up between the land A H and L N, tacks together instead of in succession, the ship B can only stand on the point C, and consequently the board will only be the length of B C; the same of the ship A, in tacking at the point D, cannot extend her board beyond the point E, and the whole fleet having tacked for the second time, can only run the length of D E; in short, the fleet must tack five times to double the cape N, which it would do on one board, if it had tacked in succession at the point A.

*Remark.*—It is not possible to work to windward in succession, when the fleet is not in the order of battle, the first order of sailing, or in three columns; still some difficulty will be found in working up in succession in the order of three columns, as will appear from what follows.

Fig. 2.

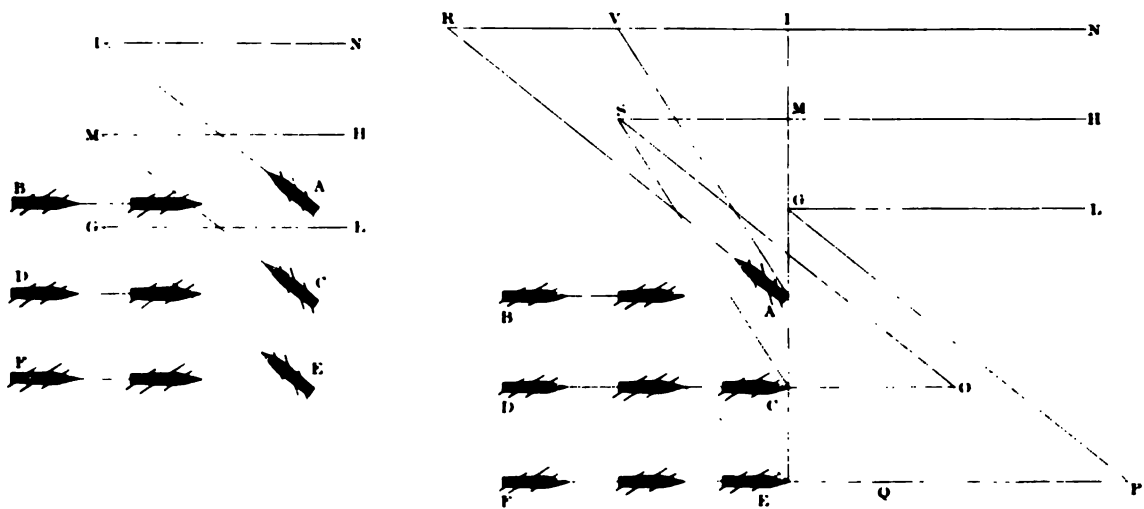
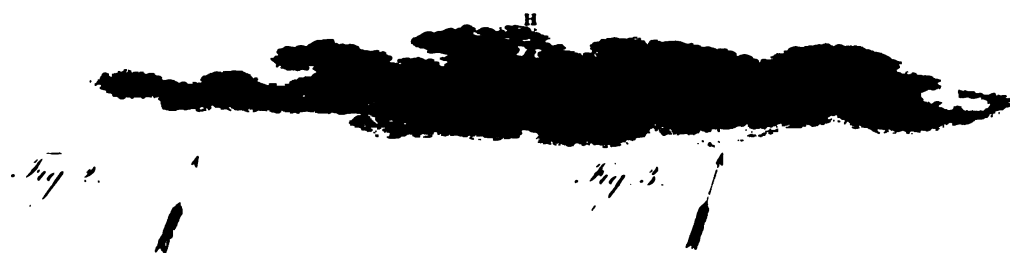
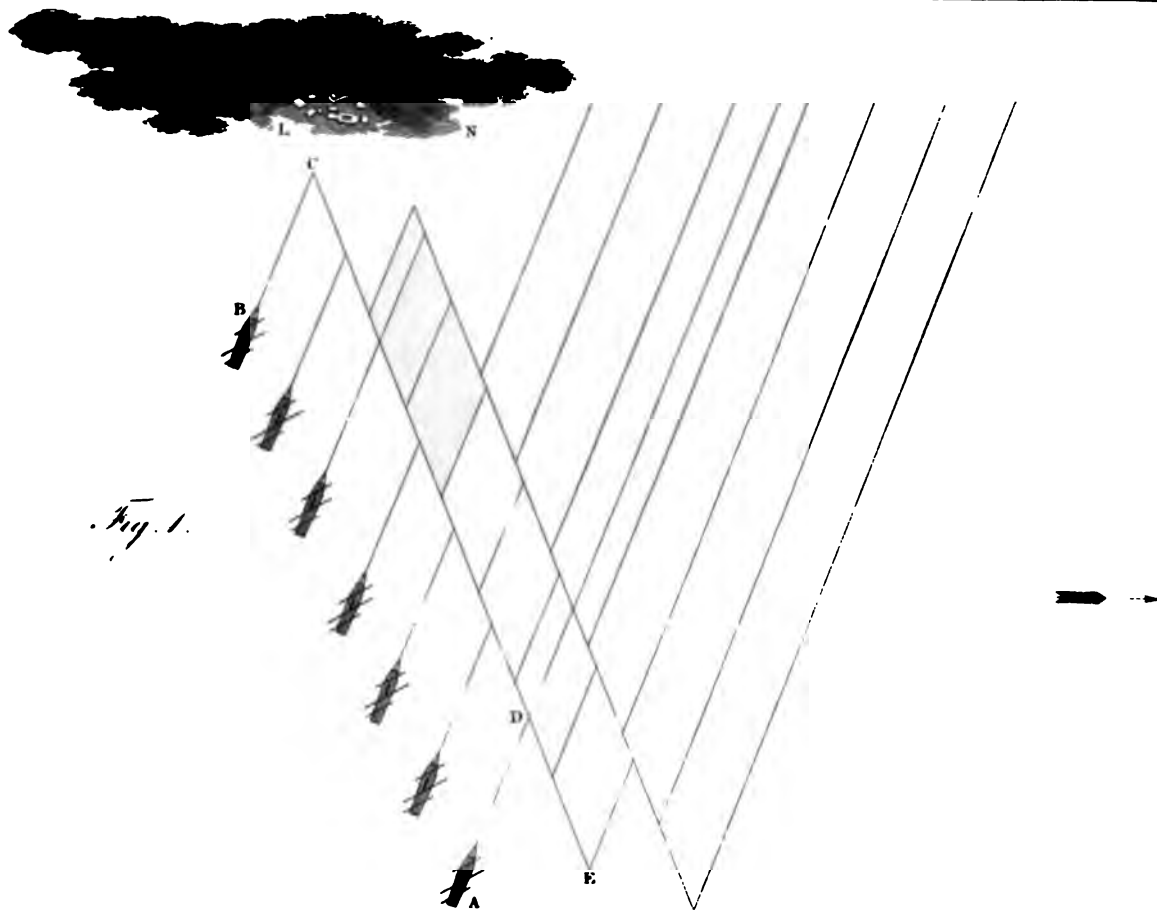
III.—The fleet in three columns can tack in succession by making the three heads of columns tack together, for if the ships A C E tack at the same time, and each column tack in the wake of its leader, the columns will be on the lines A I M C G E in the second board, their order will appear to be confused, but after having tacked a second time, they will be on the lines G L M H I N, ranged in their natural order.

*Remark 1st.*—This method has two considerable defects. It is difficult for columns in chequers on the lines I A M C E G to preserve their order, because they will no longer have fixed points, by which they can know their station, as we have explained in the first part. *2dly*, There is danger that the heads of the columns to leeward will be cut off the rear of the columns to windward, for it often happens that the rear of











columns are too far astern, and if the evolution takes place at night, there will be a risk of running on board, and other inconveniences.

*Remark 2d.*—To prevent the columns to leeward cutting on the column to windward, it has been thought that this column ought to tack some time before that next to leeward, in this manner :—The ship A of the column to windward tacks, and all her column in her wake at the same point A in succession, while the two others continue on the same tack, till a certain number of the ships have tacked in the column A B; then the headmost ship, C, will also tack, followed by her column in succession, the same after a certain number of ships have tacked in the column C D, the headmost ship of the column E F tacks, followed by her column in succession.

*Remark 3d.*—It is evident, that if all the circumstances of this evolution is exactly attended to, the columns will not be more confused than in the preceding evolution, for since the weather-columns always tack before those to leeward, and the difference of time is always the same, if the headmost ship, C, tack the first time at the point O, she will tack the second time at the point S; in this manner the line O S will be equal to the line A R, and the same when the headmost ship, E, tacks at the point P G, in such a manner that the line P G shall be equal to the lines O S A R; besides, the lines C O V R, being equal, and the angles A R V S O C equal, the lines A V C S are equal, and consequently C M A I, as also E G A I; but all the angles are also equal, hence the lines I N M H L G will be joined to the lines A B C D E F by equal and parallel lines, hence the three lines I N M H L G will be equal and parallel to the lines A B C D E F; thence the three columns I N M H L G will be ranged as the columns A B C D E F.

Fig. 3.

*Remark 4th.*—It is not less evident, that the heads of columns to leeward will cut off the rear of those to windward, unless the column to windward tack so long before the other, that more than half of its column has tacked before they do; for if the headmost ship, E, tacking at the point E, cuts the rear D at the point T, the headmost ship, E, tacking at

the point P, will cut the rear D at the point C ; but if the headmost ship, E, does not tack till more than half of the column C D have tacked at the point O ; then the head E passes to windward of the point where the column C D tacked, and consequently will not be in danger of cutting off its rear. This is of great consequence, because there are cases where an Admiral is obliged to tack his columns in succession during the night, or in a fog ; by following these rules he risks nothing, and it is easy to make known to the head of the column to leeward the time when the centre or weather-column has tacked.

*Remark 5th.*—As the preceding evolutions do not avoid the principle defect we have remarked, namely, that it is difficult for the columns to preserve their order on the second board, the Chevalier Beaigeus, who has always distinguished himself in the Marine by his bravery and application, has proposed a very ingenious manner of ranging the three columns: That they may be able to tack in succession, without the order being disturbed, he wishes that the columns should be parallel to one of the two lines of bearing, and that the ships of one column correspond to the ships of the other, by the line of the direction of the wind ; for example, the wind being north, the columns A B C D E F are ranged on the lines parallel to E. N. E., which is the larboard line of bearing, and the heads A E C are ranged on the line north and south, and all the other ships the same. He draws several conclusions advantageous to this method.

PLATE XXXIX.

Fig. 1.

*1st*, Each ship has always two fixed points by which she may know when she is in her station, namely, when she is, with respect to her seconds, ahead or astern in the line of bearing on which the columns are ranged, and when she is on the line of the wind with respect to the ships which correspond to her in the other column.

*2dly*, The distance of the columns will be exactly determined, for the column C D will be at the necessary distance A B, where the head C can tack on the centre L of the column A B.

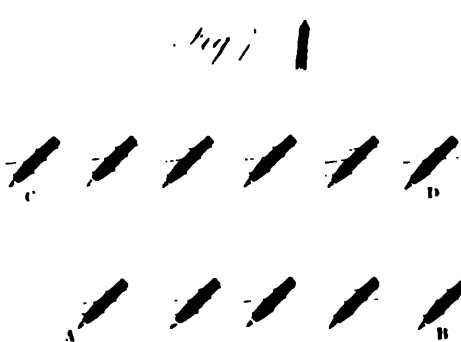
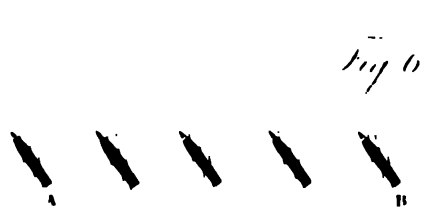
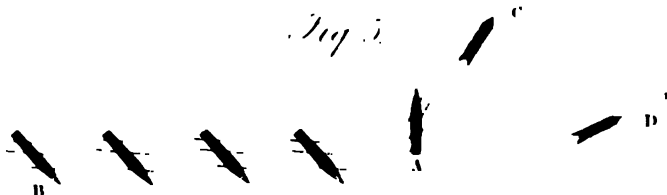
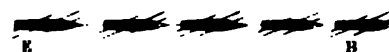
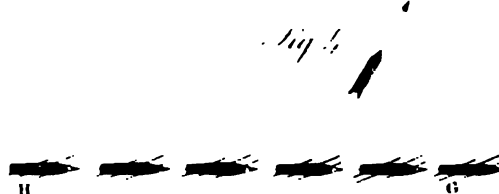
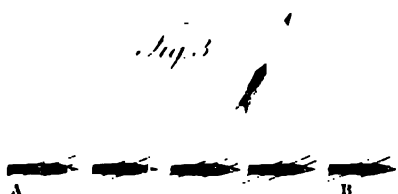
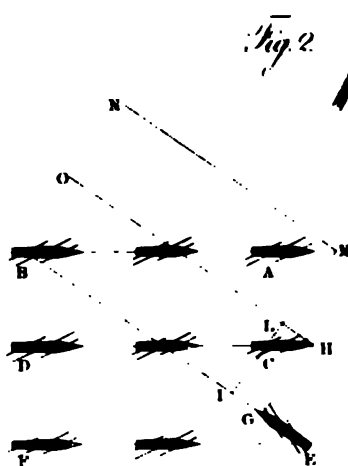
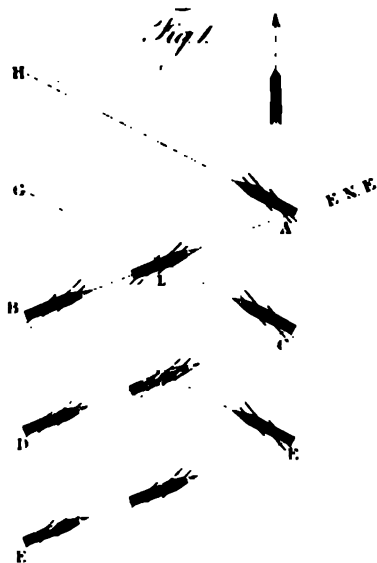
*3dly*, When it is necessary to tack in succession, the order will not be disturbed, because the heads A C E tacking together, will be, with respect to one another, in the line of the direction of the wind.

*4thly*, The head C will not cut the rear B, if she is in her station,











because the lines C L B L are equal, and the headmost ship, C, loses no time in tacking.

*Remark 6th.*—I have no doubt that this method will be approved of by many men of experience in tactics, nevertheless it is not exempt from several defects. *1st*, It places the heads of columns in an awkward situation; *2dly*, It gives too much extension to the fleet. On account of this we will give a method already much in use, and which appears to be more befitting.

*Remark 7th.*—In order that nothing should be changed in the order of three columns, that we have explained in the first part, and to manage so that the order shall not be disturbed, when tacking in succession, the headmost ship, E, of the column to leeward, first tacks, her column tacking successively in her wake, at the point E, the two other columns continuing on the other tack, till the headmost ship, C, is at the point H, abreast of the headmost ship, E, at the point G; then, the headmost ship, C, tacks, and the remainder of her column tacks at the point H; at length, when the headmost ship, A, being at the point M, sees the two others at points L and I, she tacks, the rest of her column having tacked successively at the point M; the fleet will be in the columns I B L O M N, in the same order as before.

Fig. 2

*Remark 8th.*—It must be observed that this evolution is much more easy to execute in practice than it is to comprehend in theory, for it is simply reduced to making the headmost ship, C, tack, when she is abreast of the headmost ship, E, who was the first to tack, and in making the headmost ship, A, tack, when she is abreast of the two others.

*Remark 9th.*—I grant that the danger of the rears being cut upon, still remains, but the other evolutions do not avoid this defect; besides, we have several means of avoiding or correcting it. *1st*, If the rears take care to close as much as possible; *2dly*, If the rears carry more sail than the heads; *3dly*, If the rears which have been cut on take measures to pass through the intervals of the columns which have cut them,

which is not impossible, even at night, because they do not tack without shewing lights, we may then conclude, that this evolution is unique, and ought to be employed in practice by a fleet beating to windward, and tacking in succession, unless particular reasons shall oblige the Admiral to have recourse to some of the preceding.

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## CHAPTER IV.

### TO DISPUTE THE WIND WITH THE ENEMY.

Fig. 3, 4.

The fleet to leeward ought always to stand on the tack which prevents it extending on the enemy's line, in order to oblige him to bear away a great deal to engage, which may occasion him the loss of the weather-gage; it is for this reason that the fleet C D stands on a different tack from that of the enemy A B, and the fleet E B stands on the same tack as the enemy G H.

*Remark 1st.*—It is not possible for a fleet to leeward to gain the weather-gage, while the enemy keeps to windward, and the wind continues in the same direction; thus, all that a fleet to leeward can do, is to place itself in a condition to wait for a change, and to profit by all faults and mistakes of the enemy, and the preceding manœuvre serves wonderfully well for that purpose; for while the fleet to leeward does not extend on the enemy, it is impossible for him to attack, without risking the loss of the weather-gage.

*Remark 2d.*—In order that an Admiral may profit by all changes of wind, he must foresee them, which is easy enough for those who have had practice, and who know how winds blow on particular coasts; it is true that an Admiral may be sometimes deceived in his conjectures, however experienced he may be.

*Example.*—The Sieure de Quesne, Lieutenant-General, profited wonderfully well by this knowledge, the day before the Battle of Stromboli,

in the year 1676. He commanded the French fleet, composed of twenty sail of the line, of which the Marquis de Prulli commanded the van-guard, and Sieur Ga Baret the rear-guard. On the 7th of February they encountered the enemy, consisting of nineteen ships of the line, and nine gallies, under the command of the Admiral de Ruter. The enemy had the weather-gage, but as the day was well advanced, De Ruter resolved to delay the battle till the following day, hoping easily to preserve his advantage; nevertheless, the Sieur de Quesne knew so well to manage his tacks, and profit with such address from all turns of the wind, capes, and currents, that on the following morning, at day-break, his van-guard tacked to windward of the enemy. The French having gained the wind of the Dutch, bore away in good order on their line, attacking and engaging with such fury, that De Ruter, in a letter written to the States, owned never to have witnessed so sanguinary an engagement. The Marquis de Pruilli bore down on the van-guard of the enemy, the Sieur de Quesne attacked the centre, where De Ruter had great difficulty to avoid two fire-ships. Many of their ships were disabled, but night coming on, separated the two fleets, and the wind shifting the following morning in favour of the Dutch, they took advantage of it to retreat.—[See *Charnock's History of Marine Architecture*, Vol. II. p. 310.]

*Remark 3d.*—The disposition of capes and currents in the Mediterranean, and the tides in the ocean, serve still more for gaining the weather-gage; it is sometimes only necessary to range along a shore, or to stand off, to gain two leagues to windward on a single tack. The knowledge of these things is very essential to an Admiral, and it may be said, that it is much less necessary for a General to have the knowledge of the country he makes war in, than an Admiral to know the prevailing winds and tides of the coast he is on.

*Remark 4th.*—If the wind comes ahead, and the fleet which was to leeward finds itself ahead, it will only have to tack in succession; but if the wind comes aft, and that the fleet C D, which was to leeward, finds itself astern, the headmost ship, C, stands on the starboard line of bearing, the rest of the fleet, on the larboard line of bearing, placing them-

Fig. 5.

selves successively in her wake, without much fear of keeping the same distances.

*Remark 5th.*—The fleet which is to windward ought always to keep the enemy abreast of it as much as possible, as it will always be able to preserve its advantage, unless the wind changes a great deal; it ought also to keep near it for the same reason, unless it is inexpedient to engage him, for then it will be necessary to keep out of sight, as we shall soon show. If the wind changes a little in favour of the enemy, it will be necessary to make all the ships stand to the wind, without being at the trouble of changing the order, that the advantage may be taken of the inconstancy of the wind, if, as it sometimes happens, it bears back to the same point; it is for this reason that the fleet A B stands to the wind, till ascertained that it is likely to remain steady at that point.

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## CHAPTER V.

### TO AVOID AN ENGAGEMENT.

Fig. 6. THE fleet A B, to windward, cannot be forced to engage, because it can always keep on the tack which separates it from the enemy, standing on the starboard line of bearing, while the enemy C D stands on the larboard.

Fig. 7. *Remark.*—If the wind was not inconstant, it would be easy for the fleet A B to keep in sight of the fleet C D, without the danger of being compelled to engage; but its inconstancy renders it necessary to keep out of sight of the enemy, when it is not wished to engage. This maxim is founded on the impossibility of avoiding a battle, when long in sight of an enemy of greater force, who is determined to engage, as we shall show in the following

*Example.*—It was on this maxim that the Count de Tourville, Vice-Admiral, regulated the campaign in the year 1691. The allies having



nearly twenty ships-of-war more than him, seemed to render it necessary that he should remain in port, but the king desired that he should keep at sea, that there might be no manœuvre unworthy the glory of his victorious arms; nevertheless, they were unwilling to engage, at so great a disadvantage; where the great number of the enemy would risk the loss of a victory, it required all the talent of a great Admiral to succeed in such critical circumstances. The Count de Tourville, by cruising during fifteen days at the entrance of the channel, detaining all vessels going and coming out, having learned that the Smyrna fleet had joined the allies on the coast of Ireland, he avoided approaching Sorlingues, not to excite the suspicion of the enemy. At length he fell in with the Jamaica fleet, and after having taken the two men-of-war that convoyed them, with several merchant ships, he compelled the others to retire up the channel, where they escaped under cover of a fog. The allies anchoring at Sorlingues, were much mortified on hearing this news, they weighed and went in search of the French, not doubting, from their great superiority in numbers, to defeat, or compel them to return to their ports, but the Count de Tourville kept them at large, disputed the wind, and deceiving them in a thousand different ways, passed fifty days at sea, taking every opportunity of attacking the enemy to advantage, and at length entered Brest, finishing this happy campaign, which among connoisseurs occasioned equal admiration, for the superior genius and tact of this great Admiral.—[*See Lediard's Naval History, Vol. II. page 650. Schomberg's Naval Chronology, Vol. I. page 83.*]

SORLINGUES OF  
SCILLY ISLANDS.

*Remark 2d.*—If the fleet wishing to avoid an engagement is to leeward, it will keep away like the enemy, but not before the wind, without placing itself in the order of retreat, if in sight of the enemy; thus the fleet A B, desirous of avoiding an engagement, seeing the enemy bear down, will likewise bear away, to keep him at the same distance.

*Remark 3d.*—There are circumstances where a fleet may go before the wind, without placing itself in the order of retreat, as when it is only wished to defer the battle, or willing to engage, on the enemy persisting in the pursuit; beyond these extraordinary cases, the order of retreat will better place a fleet in condition to retire without risk.

## CHAPTER VI.

## TO FORCE THE ENEMY TO ENGAGE.

*Axiom 1st.*—The following proposition may be taken for a general maxim :—When two fleets of equal force remain a long time in sight, they can regularly force an engagement ; 1st, If the fleet wishing to engage, is to leeward, it will keep on the tack which extends it on the enemy, to keep him in sight till a change of wind.

*Remark 1st.*—With a very little experience at sea, it will be easily comprehended, that it is almost impossible for a fleet in sight of an enemy to withdraw out of view, unless by entering into a port ; for fleets are at sea during the season when the nights are very short, and the days long, thus the false routes being of short duration, cannot greatly distance the fleets ; besides, a fleet cannot carry a press of sail at night, for fear of separating : What then will the fleet C D being to windward do, in sight of the fleet A B ? If it keeps the wind, the fleet A B will likewise keep it, if it runs large, it will lose its advantage, without having gained anything.

PLATE XL.

Fig. 1.

*Remark 2d.*—We have said that the fleet A B should always keep on the tack which extends it on the enemy ; because we suppose that it is determined to engage, at whatever price, for if the fleet A B only wishes to engage on a wind, it cannot always bring the enemy to battle.

*Example.*—It was thus that the Count de Tourville acted in the channel against the allies, in the year 1690. The two fleets met off the Isle of Wight, but the allies had the weathergage, and, notwithstanding all the efforts of the Count de Tourville, they persisted in refusing to fight. The Count de Tourville being determined to engage, at whatever risk, contented himself with keeping them in sight, anchoring on the tides, and standing on the tacks that extended him on the enemy, till the wind should have changed in his favour, and give him the means of bringing the allies to battle ; these, on their side, did all they could to draw out of







Fig. 1.



Fig. 2.

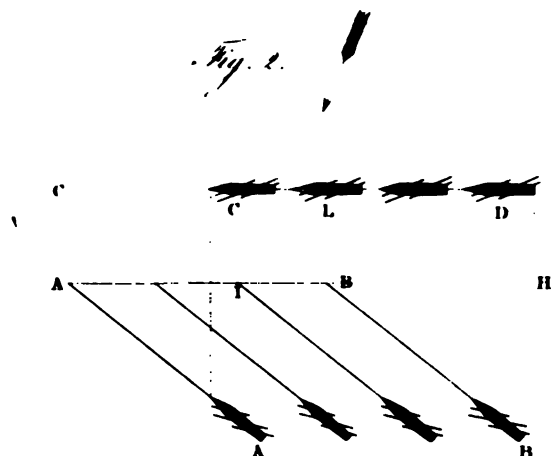


Fig. 3.

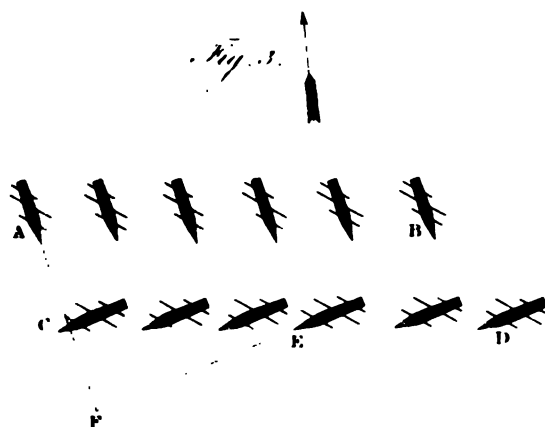


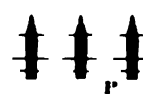
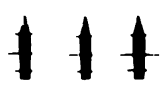
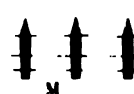
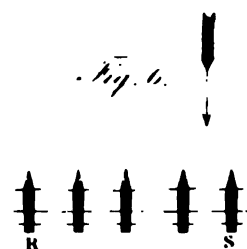
Fig. 4.



Fig. 5.



Fig. 6.





sight of the French, hoping to succeed from their superior knowledge of the channel, and its tides, but all their efforts were useless, for after having been pursued for fifteen days, they were compelled to engage, and were not more fortunate in that, than they were in their retreat.—[See *Lediard's Naval History, Vol. II., page 635*; also, *Schomberg's Chronology, Vol. I., page 81.*]

II.—If the fleet desirous of engaging is to windward, it will force the enemy to battle in several ways, according to different circumstances and cases, which we must attentively examine, because the thing is of great importance.

*Case 1st.*—If the fleet A B to windward, finds that the enemy C D keeps the wind, it will keep away a little to lengthen on him; in short, each ship of the fleet A B, will chase the ship of the fleet C D she is to engage; that is to say, it will bear away upon the enemy as much as possible, keeping him at the same point of the compass; in this manner, the fleet A B, will soon find itself within reach of the fleet C D, in good order, as the figure will shew. But that it may be more exactly and regularly executed, attention must be paid to the following remarks.

Fig. 2

*Remark 1st.*—We have said that the fleet A B ought to lengthen on the enemy, in keeping away as much as may be necessary to keep abreast of him, and do not wish that the fleet A B, should approach the fleet C D too near, before extending on it, because if the fleet A B bears down on C D, before it is abreast of it, it may lose the advantage of the wind should it come a-head, for the headmost ship, C, finding itself greatly in advance of the headmost ship, A, will be able to pass to windward of her in tacking. The thing will be easily comprehended, if it is supposed in the figure, that the fleet A B, having approached C D, finds itself on I H instead of A B, which will certainly happen, if the fleet A B gives chase to the enemy, before it is abreast of him. 2dly, If the fleet A B approaches the fleet C D, before extending on it, it will be on I H while the fleet C D will be ahead on C L, and consequently one part of the fleet A B, on I B, will find itself within reach before the rest.

will give the fleet C D the opportunity of avoiding a decisive engagement.

*Remark 2d.*—When we have said that each ship of the fleet A B ought to chase the corresponding ship of the line C D, it is not to be understood that she is to quit her station, for the line must never be broken, without the Admiral's express order; we have only supposed that the flag officers of the fleet A B, chasing their corresponding flags in the fleet C D, regulate the course of the other ships.

*Case 2d.*—If the fleet C D, that is to be forced to engage, keeps away four points, the fleet A B will soon reach it; to prove this, suppose that the two fleets are two leagues distant, and that they have four leagues extension of the fleet, C D runs large four points, by lines parallel to the line E F, the headmost ship, A, keeping away little more, will cut off the ship E, at the point F, consequently, the fleet A B will cut off more than half of the fleet C D, in two or three hours, even supposing that the fleet A B, which keeps away more, does not sail faster.

Fig. 3.

*Remark.*—The fleet A B keeping away more, and sailing faster than the fleet C D, will cut off a greater number of ships, and in less time; thus, it may be concluded, that if the two fleets are two leagues distant, in less than two hours, more than half of the fleet C D will be within reach of the fleet A B.

*Case 3d.*—If the fleet C D runs large on the other tack, it will be the sooner brought to engage, for the rearmost ship, B, will cut off the ship G, at the point F, in less than an hour, and consequently, the fleet A B will cut off more than two-thirds of the fleet C D.

Fig. 4.

*Case 4th.*—It remains then for the fleet C D to run before the wind, on which the following reflections may be made.

A thousand accidents may still compel the fleet C D to engage; the best sailers of the fleet A B may come up, and engage the runaways, and bring on a battle; the wind has its inequalities, which may favour the

victors; currents, capes, and many other circumstances, render retreats but little sure.

*Remark.*—The flying fleet, C D, may avoid the approaches of the enemy, in two ways, 1<sup>st</sup>, If it adopts the same course as the pursuing fleet. 2<sup>dly</sup>, If it stands a little to the wind, sometimes to starboard, sometimes to port, for in this manner, on the second boards, it will naturalize the advantages gained by the enemy, on the first; it is for this, that in the axiom given at the beginning of the chapter, we have added the words “long time,” and “regularly,” because the fleets cannot remain a long time in sight, without one of these accidents destroying the plans of the run-aways, and compelling them to engage.

Fig. 5.

*Axiom 2d.*—It is otherwise impossible for a fleet greatly inferior, to remain long in presence of an enemy, without being forced to engage. 1<sup>st</sup>, The more numerous fleet can send a detachment of its best sailers, which, standing on the same course as the enemy, will infallibly reach it, and bring on an engagement. 2<sup>dly</sup>, The fleet M P, which is considerably more numerous than the fleet R S, can divide itself in three squadrons, leaving a considerable distance between them, and then, whatever plan the fleet R S may adopt, it will be soon cut off in the manner we have explained.

Fig. 6.

*Remark.*—The best thing that the fleet R S can do under these circumstances, is to place itself in the order of retreat, but it must not expect from this to avoid an engagement, if the enemy persist in the pursuit, and they cannot reach a place of shelter.

*Corollary.*—It will be seen, from all we have said of this, how much they will be deceived, if, under pretext that a fleet can avoid an engagement, they wish that a fleet should be kept in sight of an enemy of a considerably greater force, for when it shall be true that a fleet can avoid an engagement when it is equal, it will not be true that it can avoid it when it is greatly inferior.

## CHAPTER VII.

## TO DOUBLE ON THE ENEMY.

THE fleet the most numerous, will try to extend on the enemy, in such a manner, that it will leave it near astern, which will turn on the enemy, double, and place it between two fires.

*Remark 1st.*—If the more numerous fleet is to windward, it can the more easily turn its rear on that of the enemy, and place him between two fires; but, if the more numerous fleet is to leeward, it ought not the less to leave the rear astern, because the wind may change during the battle, besides, the fleet which is to leeward, may insensibly keep away, to afford an opportunity to its rear to double on the enemy, by closing to the wind.

PLATE XLI.

Fig. 1.

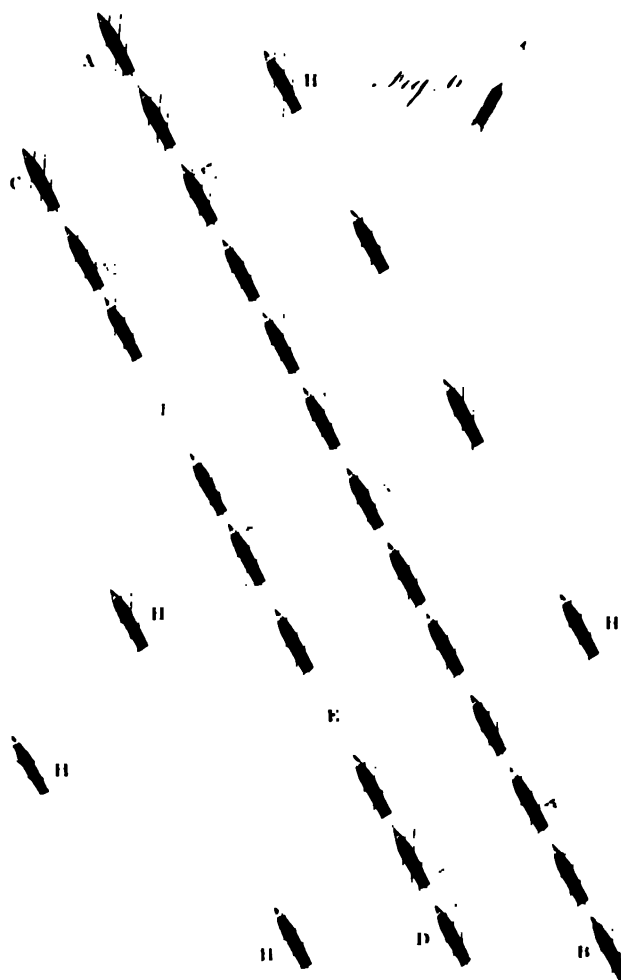
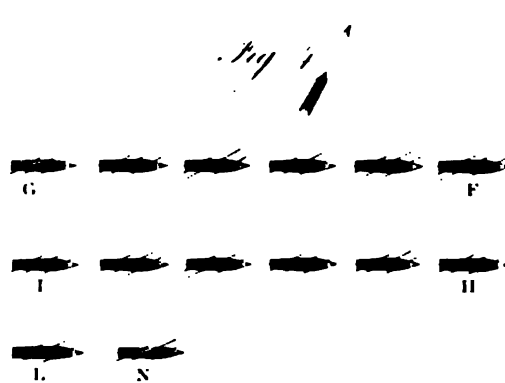
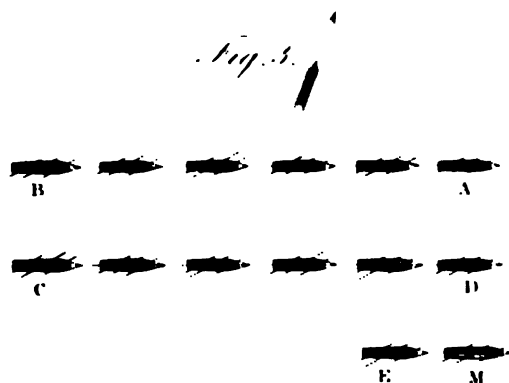
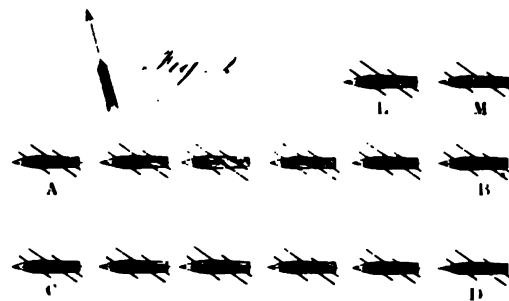
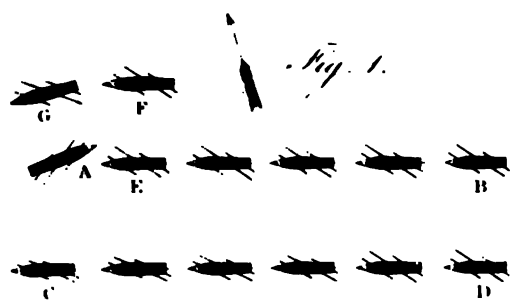
*Remark 2d.*—I know that several people of great experience, are persuaded that the enemy's van should be doubled on, because if the van is once disordered, it will fall on the rest of the fleet, and infallibly place it in confusion; for if the headmost ship, A, of the fleet A B, is dismasted, she will fall on the ships that follow, and those following them, and then soon, all the ships, being no longer able to advance, will be mingled, doubling and falling on board one another; the thing appears probable, if it is not reflected, that the ships in the fleet A B, are ranged in line, at distances which will allow the ship A, to pass on the opposite tack, to windward of the ship E, which, to facilitate the thing, may keep away a little, without creating the least confusion, the headmost ship, A, will still more easily extricate itself, if the fleet A B is to leeward; from which I conclude, that it is not a great advantage for the fleet C D, to have doubled the van of the fleet A B, because the disabled ships of the fleet A B can retire, without the ships G F being able to pursue them, or encountering the fire of the enemy's fleet, and placing themselves in imminent danger of perishing; on the contrary, if the ships L M of the fleet C D have doubled the rear B, and the ship B is disabled, it cannot

Fig. 3.











help becoming the prey of the ships L M, or else falling to leeward on the enemy's rear, D.

*Remark 3d.*—If the ships E M of the fleet C D had doubled the van A, they would be in great danger of being lost, for, if the ship E is disabled, how is she to regain her own fleet. Will it not be easy for the enemy to destroy her in many ways? On the contrary, if the ships L N, of the fleet F G, have doubled the rear I of the enemy, and that the ship L is disabled, she will remain astern, without the rear I being able to attack her, it being sufficiently occupied by the ships G N.

Fig. 3.

Fig. 4.

*Example.*—Nothing can better confirm this remark, than what took place in the battle of La Hogue, in the year 1692. The French fleet was composed of forty-four ships-of-war, under the command of the Count de Tourville; the allies had more than ninety ships of the line, under the command of Admiral Russell. The French having the wind, came down in good order on the enemy, but being so inferior in number, it was impossible to lengthen so well on the enemy, that they did not leave astern several ships, which made a rear sufficiently long. The wind which was at S. W., veered to N. W., which afforded an opportunity to the rear of the allies, to turn on that of the French, in such a manner, that the Count de Tourville soon saw himself, with his division, in the middle of the enemy. Posterity will not believe what passed on this occasion; eight or nine French ships, engaged on both sides, during seven hours, this crowd, by whom they were surrounded. The English Admiral shifted his flag twice; several of his ships were disabled, it is even said that two perished, without the French having lost a mast or a boat; a calm coming on, and the tide carrying to the N. E., the remainder of the French fleet would have fallen into the middle of the enemy, if the Count de Tourville, who had preferred encountering the peril himself, had not given the order to anchor. Anchoring himself in the middle of the English, of which six ships, anchored within half gun-shot, opened on him a shower of balls. Their, fire-ships were much more to be feared, of which they had a great many anchored above us, and by favour of the tide, they brought fire under our bowsprit, where appearing all on fire, they would have intimi-

dated the most intrepid; but the Count de Tourville, notwithstanding the sight of so many perils, and the horrors of so frightful a day, made use of so many manœuvres that rendered the fire-ships harmless; avoiding some by shear of the helm, towing others away by boats, cutting and bringing up with another anchor, to get clear of one that appeared inevitable, he avoided them, one after the other, and afterwards, sustaining the fire of the enemy, and engaging them with such vigour that they themselves were obliged to cut, and drifting with the tide, left the field of battle to the French, who had engaged so well, with such little prospect of success. Gratitude obliges me not to forget the Chevalier de Coitlogon, who, with incomparable bravery, came to share in the peril and glory of this action; he was Vice-Admiral of the blue, and his position had placed him out of gun-shot of the enemy, but seeing the Admiral of France in the midst of the English, where they thought him lost, he obtained permission to quit his station, and having penetrated through the enemy which surrounded the Admiral, he anchored near him, to save, as he said to his officers, or to perish with him.—[See *Lediard's Naval History*, Vol. II., page 651. *Schomberg's Chronology*, Vol. I., page 84.]

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## CHAPTER VIII.

### TO PREVENT BEING DOUBLED.

To prevent being doubled, it is absolutely necessary to prevent the enemy having a rear astern of us, and for that several plans may be followed, when one is greatly inferior in numbers.

I.—If to windward, they may have several of the enemy's ships ahead, making our van A fall on their leeward division G, in this manner that their first division F G will be almost useless, and if it wishes to carry sail to wear on us, it will lose a great deal of time, and be in danger of separation by the calm usually attending these actions; a great space, E,

Fig. 5.

may be left in the centre of the fleet, provided the necessary precautions are taken, to prevent our van-guard from being cut off. By these means, however inferior in number, the enemy may be prevented from having a rear astern of us.

*Example.*—All have approved of the manner in which Admiral Herbert ranged his fleet when bearing down on the French in the battle of Bevesier in the year 1690. He had several ships less than us, and was resolved to direct his greatest efforts against our rear-guard; for this he ordered the first division of the Dutch to fall on our second division, then opening his fleet on the centre, left a great vacancy abreast of our centre, after which having closed his ships, he opposed them to our rear-guard, keeping with his division a little at large, to prevent the French from profiting by the vacant space left in his fleet to double on the Dutch. This order rendered in effect our first division nearly useless, because it became necessary for it to make a very long board, to tack on the van of the enemy, and the wind failing, it had great trouble in arriving in time to partake in the glory of the action; on the other part, the English, who were in very close order, had at first some advantage over our rear, but the ships that followed, animated by the example of the Count d'Estrees, Vice-Admiral of France, who commanded the rear-guard, sustained with so much bravery the great number of English who fell on them, who, no longer able to stand the fire of the French, hauled to the wind, and were towed off by their boats.—[See *Lediard's Naval History*, Vol. II., p. 634; *Schomberg's Chronology*, Vol. I., p. 80.]

BEVESIER OF  
BRACHY-HEAD.

II.—If a less numerous fleet is to leeward, a greater space may be left in the centre, and less ahead; but it will be necessary to have a small detachment of ships and fire-ships, H H, to prevent the enemy from profiting by the vacancies of the fleet to divide it.

III.—Others prefer for a general rule, that the commanding officers of a fleet less numerous attach themselves to the flag-officers of an enemy's fleet, A B, for by these means several ships of the enemy remain useless in the intervals, E, and the enemy will not double on you.

Fig. 6.

*Remark.*—This method has its inconveniences, because the head and the rear of each division are exposed to the fire of two ships, and the danger is not avoided in which the last division is, of being doubled by the enemy's rear; to remedy these two inconveniences, the largest ships may be placed at the head and rear of each division, and they may so manage, that the last division shall leave no rear astern of it.

IV.—Others prefer that the three squadrons of the fleet less numerous, attack each a squadron of the superior fleet, observing that each squadron lengthens on the enemy in such a manner as to leave no rear astern, but rather some ships ahead.

V.—There are those who wish, that a less numerous fleet should leave a distance between its ships, so as to make a line equal to that of the enemy; but this last plan is, without doubt, the worst, because it allows the enemy to employ all his force against the least numerous fleet. I grant, notwithstanding, that this part may be preferable to others in certain circumstances, as when the enemy's ships are considerably less than the ships of the less numerous fleet.

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## CHAPTER IX.

### TO RECEIVE THE ENEMY WHEN BEARING DOWN.

THE fleet to leeward seeing the enemy coming down on it, places itself in line of battle, bearing away a little to gain time, and facilitate the arrangements, and observing to leave some interval between the divisions, at length each commander will try to preserve himself abreast of the enemy's ships that the Admiral has destined for him, making or shortening sail, or even wearing short round if it is absolutely necessary, to preserve his station with respect to the enemy.





Fig. 1.

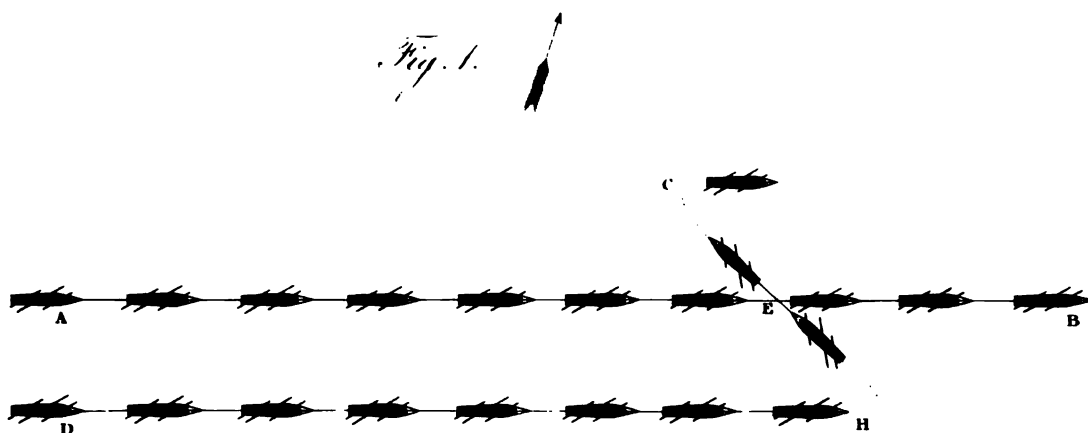


Fig. 2.

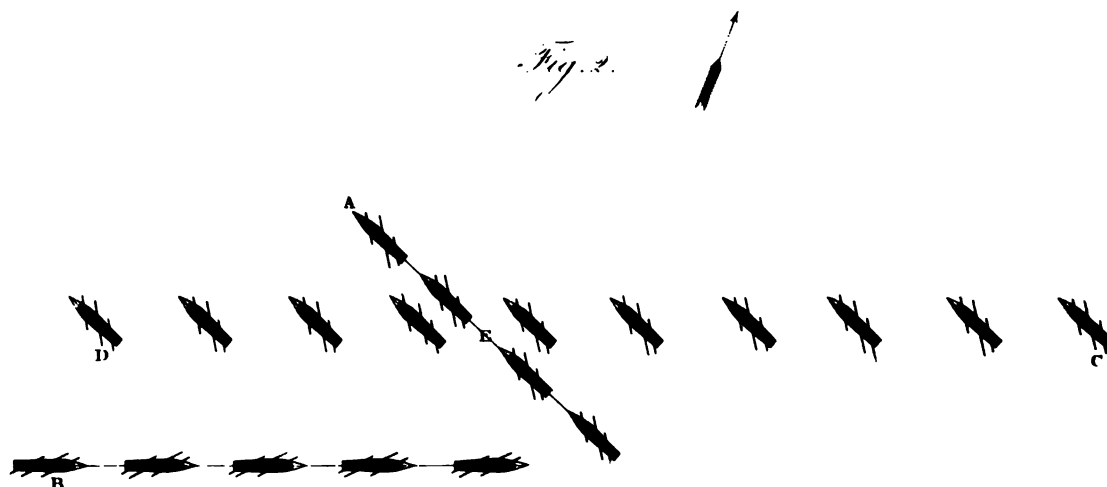
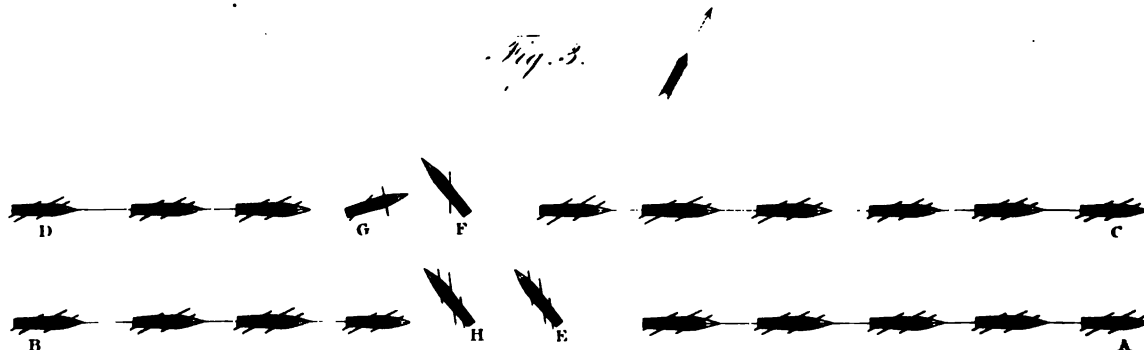


Fig. 3.







## CHAPTER X.

## TO BREAK THROUGH THE ENEMY'S FLEET.

It will be found in relations of battles in the channel between the English and the Dutch, that their fleets often broke through each other; that is to say, that the fleet C H D being to leeward, having stood on a little ahead, tacked in succession, and cut the fleet A B at the point E, and having tacked a second time at the point C, gained the wind of the enemy, but he likewise tacking in his turn, and cutting the fleet, which had gained the wind of him; in this manner the two fleets broke through each other several times, which gave them opportunities of cutting, taking, and destroying mutually several ships.

PLATE XLII.

Fig. 1.

*Remark 1st.*—This manœuvre is equally delicate and bold. It must be a master-hand to succeed as happily as did the Count d'Estrees, Vice-Admiral in the battle of the Texel, 1673, for he broke through the squadron off Zealand, gaining the wind of it, dispersing and putting the enemy in such disorder, that he decided the victory, which was still in the balance.—[See *Lediard's Naval History*, Vol. I., p. 600.]

*Remark 2d.*—It seems to me, that it is easy for the fleet C D to prevent the fleet A B from cutting through it. 1st, When the fleet A B tacks in succession, the fleet C D can tack together at the same time, which will prevent the van A from reaching and cutting through it. 2dly, If the fleet C D does not wish at first to tack together for fear of seeming to fly, it may let the head, A, of the fleet A B pass to the point E; then tacking together, it will place the enemy's ship E between two fires, and having soon defeated them, it will cut off without difficulty the van A, and the other ships of the enemy who have already broken through.

Fig 2

*Remark 3d.*—I do not see that an enemy is greatly to be feared in wishing to break through, and even do not think that this manœuvre ought ever to be attempted, without one of the three following condi-

Fig. 3

tions:—*1st*, If compelled to avoid a greater evil. *2dly*, If the enemy's fleet, leaving a great space in the centre of his squadrons, renders a part of our fleet useless. *3dly*, If several ships F G of the fleet C D are disabled, the ships E H may tack at the same time, and then the remainder, H B, of the fleet A B in succession, to try and cut off the rear G D.

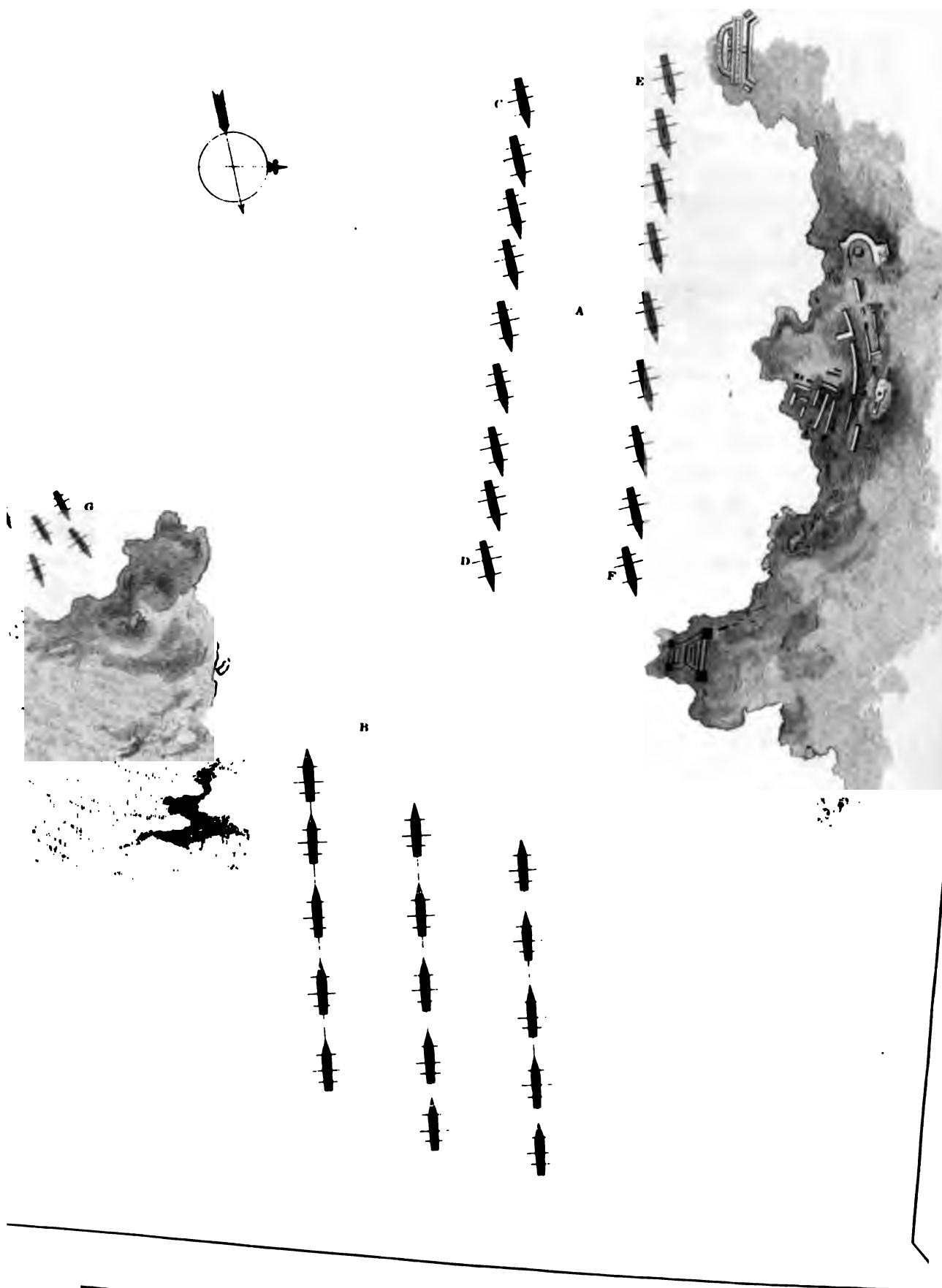
*Remark 4th.*—It is sometimes necessary to break through the enemy's fleet to extricate our ships that the enemy has cut off; in this case something must be risked, but several precautions must be observed: *1st*, To close as much as possible. *2dly*, To carry all sail without being at the trouble of engaging, while breaking through the enemy. *3dly*, The ships which have broken through ought to tack as soon as they possibly can, to prevent the enemy from continuing on the same tack as the fleet that has broken through.

*Example.*—These sorts of traverses were never better managed than by Admiral de Ruter, when he engaged the English on the 11th of June, and the three days following, in the year 1666. The two fleets were each of them nearly one hundred ships of the line, under the command of the Duke of Albemarle; but Prince Rupert, with twenty large ships, was detached from the English fleet to meet a French squadron, who were coming to join the Dutch, and had left the command of the rest of the fleet to General Monk. The Dutch fleet had anchored in line on the E. S. E. of the north point of England, De Ruter commanded the centre, Van Tromp the van-guard to the southward, and Evantzen the rear-guard to the north, the wind was S. S. W. General Monk, who was to windward, resolved to attack them, although inferior by twenty ships, thinking to surprise them at anchor, perhaps also the victory of the preceding year had made him despise the enemy, or the desire of having all the honour of the battle blinded him, and made him precipitate a battle during the absence of Prince Rupert; whatever it may have been, he came under all sail on the Dutch, who waited for him at anchor till within gun-shot, then having cut their cables, they began the battle at noon with great vigour, and the wind being so fresh, the English could not make











use of their lower deck batteries, which was a great disadvantage; on this account, after three hours engagement, they tacked together at the same time to the N. W., and keeping away several points, retreated, leaving four of their disabled ships in the power of the enemy; the Dutch pursued them, but making head again, they continued the battle till ten at night. The following day the English returned to the charge, and the battle was more obstinate than the preceding day. The fleets broke through each other several times, and it was on this occasion that De Ruter rendered his talent and bravery conspicuous, for, seeing that the greater part of his van-guard was cut off, and in great risk of becoming the prey of the enemy, who surrounded it, he broke through the English fleet again, and fell on them with such fury, as to deliver his own, and put the enemy to flight, but the following day Prince Rupert, who had regained his fleet, recommenced the battle, where De Ruter at length gained the wind of the enemy, and because being no longer so fresh, he profited so well by it, that he would have entirely defeated the English, if a fog had not withdrawn them from the hands of the victors, after the loss of their Admiral of the White, and fifteen large ships, the Dutch losing but four.—[See *Lediard's Naval History*, Vol. I., p. 581.]

## CHAPTER XI.

### TO PLACE A FLEET IN A PORT WHEN ATTACKED BY AN ENEMY.

LET A be the roadstead, of which B is the entry, the squadrons C D on the one side, and E F on the other, are anchored so close to the shore, that a ship cannot pass between them, the fire-ships as G, will anchor under the land at the entrance, and the first ships C E will be covered with good stockage; in this manner the enemy B cannot enter without being to leeward of the fire-ships, and the ships of the fleet, which will consequently have all sorts of advantage over them.

PLATE XLIII.

*Remark.*—Although it would be a bold enterprise to attack a fleet in

a close port, still a fleet ought not to neglect the preceding precautions, because the thing is not impossible to an enemy equally experienced and brave.

*Example.*—Never was an action more daring, better concerted, and more complete, than that of the Count d'Estrees, Vice-Admiral, on the Dutch fleet, that had shut itself up in the port of Tobago in the year 1667. The port of Tobago is a large basin that can only be entered by sounding through a narrow channel; it was there that the Admiral Binks had placed his squadron, consisting of ten Dutch ships of war, and several other vessels, which he had placed under the guns of a considerable fort, as a spot entirely sheltered from attack; but there are those who find nothing impossible. The Count d'Estrees, who commanded six ships of the line and four frigates, was ordered to attack Tobago, to destroy the fort and establishments that the Dutch had there, and then to search for the Dutch squadron. When he learned that the Dutch ships were under the batteries of Tobago, he judged that it would be as well to perform the two expeditions at the same time; thus, after having taken on board troops and ammunition, with a commandant, to whom he gave the necessary orders for attacking the first, he entered with his squadron into the port to attack the ships at the same time. It was on the 27th of February that he executed so glorious a design, the Sieur Gabaret wished to be the first to enter, but the fort and the ships opened such a heavy fire on him, that he was killed by several balls, which cut him to pieces, and entirely disabled his ship; the Sieurs Montontier and De Blenac did not hesitate to enter, and attack the enemy with such fury that two of their ships were soon on fire, which extending to two vessels filled with female slaves, their dreadful cries greatly augmented the horror caused by the artillery; the Count d'Estrees following close to the Sieur Blenac, threw himself like a lion on the Dutch Admiral, who soon took fire, which gaining the powder magazines, blew him up in the air; the wrecks falling on the ship of the Count d'Estrees, set her on fire also, and obliged this intrepid Admiral to throw himself into a skiff, and at length to save himself by swimming to the shore. It was there that the presence of this hero, almost alone, without arms, and covered with his blood, disarmed the

Dutch soldiers which were intrenched. In the mean time all the French ships had followed their Admiral into the port, animated by his example, carrying fire and terror with them; the whole harbour was filled with thick clouds of smoke, through which was seen from all parts ships in flames, and numbers of people swimming to the shore, all the enemy's ships, to the number of fourteen, were burnt or sunk, and the Count d'Estrees having learnt that they had missed the fort, from not having followed precisely his orders, re-embarked with his people, and returned covered with glory to France, where he was received with the applause due to so great an action.

END OF FIFTH PART.



## APPENDIX TO PART FIFTH.

IN attentively perusing this Fifth Part of Paul Hoste's Treatise, which gives the movements of a fleet without touching the orders, it will be seen that the author has introduced his theoretical principles in all the preceding parts of his Naval Evolutions, for giving effect to the operations of hostile fleets in presence of each other, and concludes by illustrating, at page 388, with a plate, No. 125, the manœuvre of breaking through the enemy's fleet.

This evolution in naval tactics has now become very celebrated, from its having been triumphantly successful in Lord Rodney's action, on the memorable 12th of April 1782, creating much animated discussion in respect to whom the honour and credit of its invention is due. Without entering specially into the controversy, it cannot but be evident, that Paul Hoste having been the first to recommend it, as the most effectual means of victory, he is the oldest authority for its practice.

The following notes, communicated to me by Sir William Hamilton, will give weight to this opinion.

" The Eighty-Third Number of the Quarterly Review, (January 1830,) contains an article, attributed, I understand, to Mr Barrow, the learned Secretary of the Admiralty, on the naval operation of breaking the enemy's line of battle, vindicating Lord Rodney's originality in his application of that evolution, in the celebrated action off Dominica in 1782. It is there taken for granted that this manœuvre had neither been theoretically enounced before the appearance of Mr Clerk's Essay on Naval Tactics, privately printed in 1782, nor practically employed previous to that action, in the latter part of the same year. The occasion of the article is a claim

preferred by Sir Howard Douglas, in favour of his father, Sir Charles; who, it is asserted, devised the manœuvre, during the action,—proposed it to Lord Rodney,—and carried it through in spite of his Lordship's reluctance to the experiment. Rodney's originality, the Reviewer defends against Mr Clerk, by discrediting the evidence of his knowledge of the 'Essay on Naval Tactics,' previous to the victory; and against Sir Charles Douglas, by shewing the incompetency of the testimony adduced by Sir Howard, in support of his father's right to the invention. With what success this double vindication is accomplished, it is here needless to enquire. The following quotations appear to supersede all other argument; they solve the question, by annihilating the subject in dispute.

'They prove, in the *first* place, that Lord Rodney, Sir Charles Douglas, or any other contemporary officer, well acquainted with his profession, never *could*, as neither his Lordship nor Sir Charles, ever *did*, advance any claim to novelty in the employment of so old and ordinary an evolution as that of breaking the enemy's line. They prove, in the *second* place, that while Lord Rodney virtually disclaimed all pretension to originality for himself, that he was fully justified (see the Article, page 57,) in not acknowledging Mr Clerk as the inventor of the evolution, far less as his own instructor in its application. But, in the *third* place, while they exhibit the general unacquaintance in this country with the history of all naval warfare, they leave untouched Mr Clerk's personal originality, and even recognise him as the first to enounce the principle of this movement, in an abstract form, and to recommend its unqualified application as the most effectual mean of victory. But for the appearance of Mr Clerk's work, indeed, it is probable that the breaking of the enemy's line would not have acquired a greater scientific prominence from the practice of Rodney, than it had previously obtained from that of De Ruyter.

'These quotations are from a work in German, entitled, *History of the Art of War, from the first application of gunpowder to military use, until the conclusion of the eighteenth century, by John Godfrey Hoyer*; Göttingen, 1797—1800, 4 vols. 8vo. This work, though unknown in this country, is well worthy of translation, being by far the most comprehensive and accurate history of the Art Military, in all its branches, that has yet appeared. The Author, a Saxon by birth, and celebrated by several other



eminent productions, was long in the Russian army, but has been, for the last ten years, a Major-General in the service of Prussia. It is curious that the most competent authority on the history of English naval operations, should be a foreign soldier, the native of a non-maritime country; and the greatest nautical tactician of Europe, a priest.

‘ Under the “ *Fifth period, extending from 1648 to 1738.*”

‘ [After describing the change from the crescent to the parallel line of battle, about the middle of the 17th century, and the manœuvres consequent on that change, he proceeds:]—“ When two fleets came in sight, their principal aim was to double upon, or to outflank each other, in such a way, that one or more divisions of the stronger passed round the weaker, and thus took it between two fires.” § 322.—[After some examples of this practice, in the Battle of La Hogue, &c., he continues:]—“ To avoid this doubling, Admiral Herbert, (Lord Torrington,) in the action near Beachy-Head, so ordered the Dutch and English fleet, that there remained in the centre, a large interval, at the same time causing the ships of the rear-guard to follow close upon each other, so that they possessed a superior fire, and could not be broken through by the French. (Paul Hoste, *Art des Armées Navales*, p. 387.) A similar order was observed by the advanced guard of the French fleet, in the action above-mentioned, off La Hogue, so that it was here absolutely impossible for the Dutch to pass through their line, and take them between two fires. § 323.—The breaking the enemy’s line was, in like manner, one of the most ordinary naval evolutions,—an evolution which has frequently been employed, likewise in the most recent times, and always to advantage. With this intent, a certain number of ships, on a given signal, suddenly left the line, and, in full sail passed through that of the enemy, in order to lay along his vessels on the opposite side, taking him thus on a quarter where he is not in general prepared, and his guns often not even in the port-holes, so that he receives two or three broadsides before he is in a condition to return the compliment. Almost every action in the wars between the Dutch and English, and between the English and French, affords an example of breaking the hostile line. The Dutch Admiral, Van Ruyter, appears to be the inventor of this manœuvre; he employed it, in particu-

lar, to the best effect, in the year 1666, off Dunkirk, where he repeatedly broke through the English fleet, commanded by Monk, and thus succeeded in saving his advanced guard, which had been cut off." § 324.

‘ Under the “*Sixth Period extending from 1740 to 1790.*”

“ Paul Hoste had, in the last period, (see Per. V. § § 320—324,) given an accurate, and even a tolerably practical description of the different movements and manœuvres to be effected by large or small squadrons; still there remained many considerable blanks, which were only filled up during the present. The first step to this was the translation into English, of Hoste’s work on Naval Evolutions, by O’Brien, which appeared in the year 1762. (*Naval Evolutions, or a System of Sea Discipline*, 4to.)—He was followed by the Vicomte des Morogues, who nearly exhausted the whole subject of naval tactics, and left to his successors little more to do. (*Tactique Navale, ou Traité des Evolutions, et des Signaux*, 4to., 1764.)—The work of Bourde de Villehaut: (*Le Manœuvrier, ou Essai sur la theorie et la practice des mouvemens de navire et des evolutions navales*, 8vo.,) was not without merit; and the same can be said of the Instructions of Tourville, relative to the movement of fleets, which appeared about the same time. The Naval Tactic of the Vicomte de Morogues, was, in 1767, translated into English; and, in the same year also appeared, the Dutch Naval Tactic of the celebrated Count Byland. It seemed as if men were now satisfied with what had been accomplished; for Kinsbergen’s Instruction on Naval Service, is of no relevancy, and his Elements of Nautical Tactics are, in reality, only an excerpt from the larger work of Byland. All concurred in the fundamental principles,—that one side only should be presented to the enemy,—and that the ships under sail should follow close upon each other, in order that the line of battle might not be broken through by the enemy. (Morogues, *Tactique Navale*, page 5.)” § 331. \* \* \* \* \*

“ From the moment that the art had been reduced to practice of moving large squadrons of ships like troops on land, the most distinguished seamen had also viewed, as a mean of victory, the operation of breaking through the enemy’s line, and of engaging the part thus separated with a superior force.” (See Period V. § 324.)—Keppel shewed this intention

in the action above-noticed, off Ushant ; his purpose, however, was frustrated by the manœuvres of the French fleet,—D'Orvillers turning his advanced into his rear-guard. (Soules' *History of the North American Revolution*, Part II., § 21. Grenier *Tactique Navale*, p. 4.)—When Admiral Rodney and Count Guichen meditated an engagement off Martinique, the evolutions of both fleets were directed to break each other's line, though neither accomplished this intention. (Soules, Part II., § 23.) The English, in the sequel, seem to have established it as a rule,—always to bear down on the rear of the French fleet, without first forming the line of battle. John Clerk had, in the first edition of his *Naval Tactics*,\* turned this preceding experience to account, and recommended a similar manœuvre, as the best and surest mean of victory. And, in fact, Rodney was indebted for the total defeat of the French, under De Grasse, in 1782 solely to the circumstance, that he succeeded in breaking through the centre of the French line. Their advanced guard wholly lost the wind and, notwithstanding every exertion, was unable again to recover its position." § 333. \* \* \* \* \*

"In order to remedy these inconveniences, and effectually to counteract the usual manœuvre of the English, (for in an action at sea, it is extremely difficult to prevent the enemy from breaking through, when favoured by circumstances,) it occurred to Vicomte de Grenier, in 1787, to propose a new order of battle." [After describing this, he proceeds:]—"Grenier endeavoured, at the same time, to demonstrate the unsoundness of the canon which had been acted on, even from the earliest times,—that we must always strive to have the wind of the enemy." [In a note on this place, he says:]—"It is clear, from this work, that the English had already, in the war of 1756, and afterwards also, at the commencement of the American war, followed the same principles of naval tactics, which were a result of the study and experience of their commanders. John Clerk was therefore not the discoverer of these principles, as Posselt maintains, but simply educed them from the events of the two mentioned wars, and first exhibited them in connection."—§ 334. \* \* \* \* \*

"John Clerk's *Essay on Naval Tactics* was first printed for publication,

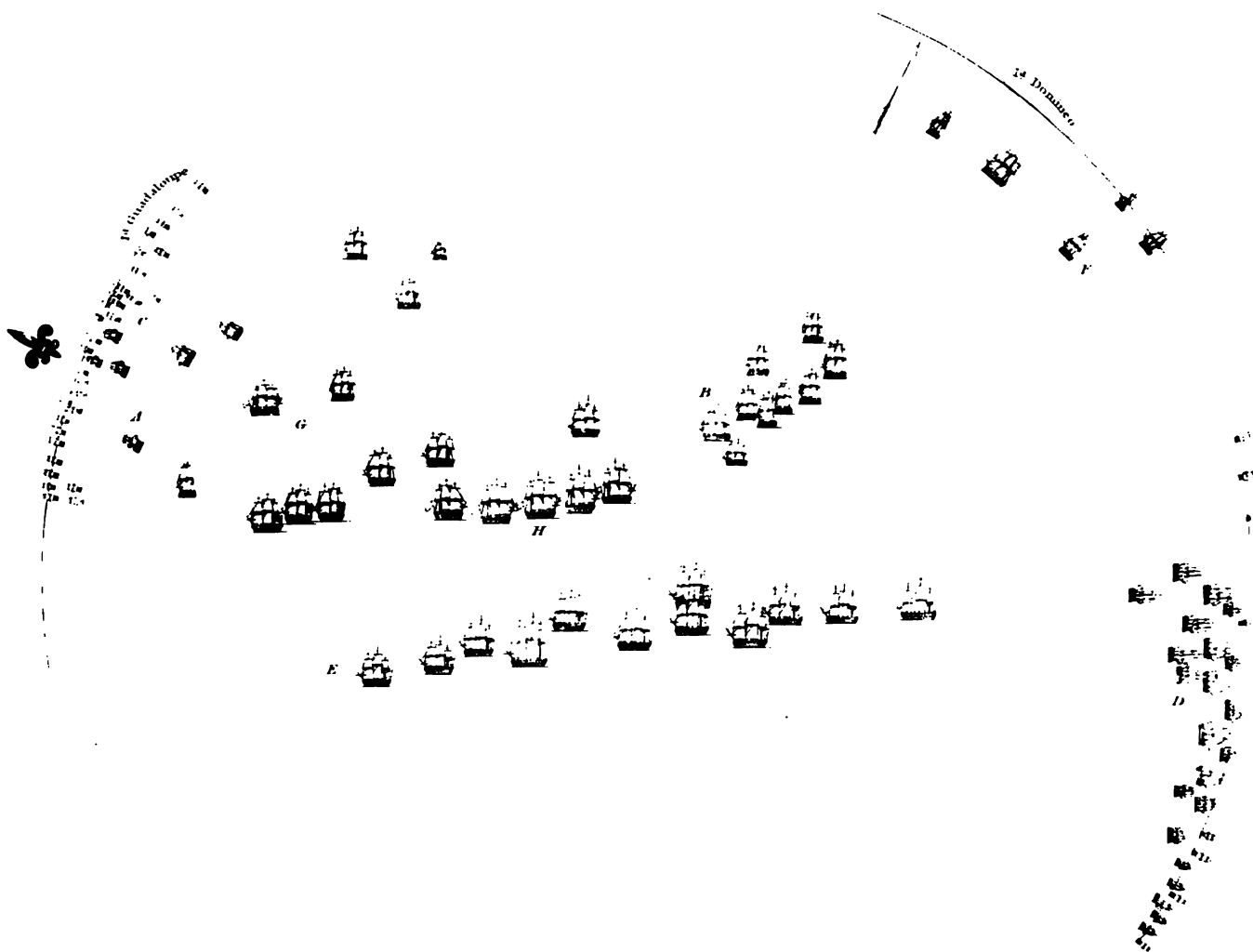
\* "*An Essay on Naval Tactics*, &c., 1782, 4to. Only a few copies were printed. Posselt's *Allgem. Zeit.*, November 25, 1798."

in 1790, and two years previous, Grenier's work had been translated into English, and very favourably received." § 335.

In connection with these remarks on the battle of the 12th of April, and the manœuvre in question, some additional evidence has been offered, of the most authentic description, respecting the situation of the British and French fleets, after the line had been broken by the *Formidable*; it consists of a series of drawings, from plates XLIV. to XLIX., shewing the relative positions of the fleets on the 9th and 12th, taken by the late Admiral Sir John Knight, K. C. B., in command of the *Barfleur*, and flag-captain to Sir Samuel Hood, whose division, from being the van on the 9th, became the rear on the 12th, where, in both stations, in the line of battle, he had the best opportunity of describing with facility and correctness, these documents, now for the first time made public, by the permission of his son, Captain Knight, R. N. It is much to be regretted that no notes or remarks are in existence, to explain the plans of this active and zealous officer, as they no doubt would have afforded much valuable information, respecting the proceedings of the adverse fleets, during the two days engagement; but as the order of battle, and the situation of the ships appears to be correct, the plates will be easily comprehended by those who were present, and may throw some further light on the question at issue. At the same time, the following extract from Captain Knight's letter to the Translator, will give some of the Admiral's observations with reference to the incidents occurring on the 9th and 12th, in which he bore so conspicuous a share, with his gallant and distinguished chief, Sir Samuel Hood.

" I have never been able to lay my hand on my father's letter, wherein he gave me some account of the 12th of April, 1782, but this I recollect quite well, that he said, ' he accompanied Sir Samuel, (afterwards Lord Hood,) on board Lord Rodney's ship, the day before the battle of the 9th of April, (my father being Captain of the *Barfleur*, Sir Samuel's flag-ship,) and on that occasion, not one word was said, or order given, for any attempt to break through the enemy's line, in the expected engagement, nor was any order afterwards given, previous to the 12th of April. That on the 9th, the van squadron, commanded by Sir Samuel Hood, which was most engaged, made no attempt to break the line, nor did the van











or centre, (the line having been inverted,) on the 12th, make any such attempt, and my father attributed the Formidable, and those that followed her, getting through, from the circumstance of a change of wind, which brought those ships with the rest of the rear of the British fleet up, while it broke off the ships in the French line, and consequently, left openings.' He further said, 'that from the density of the smoke, they could see nothing, and that the first intimation they had (the *Barfleur*,) of passing through the enemy's line, was, from receiving fire from both sides. He gave another reason for supposing it was altogether accidental, which was, that no attempt was made, or order given by signal, to double on the enemy, and that the advantage gained by passing through the line, was never made use of. When my father took possession of the *Ville de Paris*, and received Count de Grasse's sword, and afterwards conveyed him to his Admiral, no remark was made upon any circumstance having taken place, different from the usual practice.' These are the heads of what I recollect."

In submitting the following valuable plans to the profession, very great difficulties have occurred, from not obtaining the original notes and illustrations as they were executed immediately after the actions, and have a clear and distinct connection with the battles fought on the respective days. Therefore, no other way can be found, to give an approximate explanation of these plans, than such extracts from official and other papers as could be brought to bear on them, which it is trusted will be found correct, as near as the materials would allow, or at least throw some additional light on the movements of the contending fleets, the subject of so much difference of opinion.

[*British Fleet*, White; *French Fleet and Convoy*, Dark.]

9th of April 1782. A B, The French fleet, working up to windward between the islands of Dominico and Gaudaloupe, with the wind from the northward of east, except five ships, more to the eastward, at F, who appear separated by a calm.

PLATE XLIV.

C, The convoy of French transports, and store-ships, making off towards Gaudaloupe, and the Saints.

D, British fleet. The rear, centre, and part of the van, appears to be under the influence of a calm, to the southward, as stated in the official despatches, between five and six o'clock in the morning; the headmost ships of the van were also becalmed, at some distance from the rest of the fleet, with their heads to the northward.

E, The van of the British fleet, under Sir Samuel Hood, supposed to be the following ships in the order of battle, Royal Oak, Alfred, Montague, Yarmouth, Valiant, Barfleur, Monarch, Warrior, Bellequix, Centaur, Magnificent, and Prince William, having at last got the breeze, fetched up with the centre of the enemy, at nine o'clock, when a distant cannonade commenced from the seven headmost ships of the British van, on as many of the enemy's ships as could be brought to bear; the British centre and rear, still becalmed. It will be seen that the French fleet is not in any order of battle, as some of the ships to the northward at G, are working up to windward, except the five sail on the larboard tack, at H, who fired upon the van of the British fleet, in passing.

PLATE XLV. A, The Bedford, leading the centre of the British fleet, who, having got the breeze, joined the van about noon, and took a share in the action.

B, The Duke, (the Formidable's second astern,) was the last ship engaged on this occasion; the other five ships of the centre, and the rear, not being able to get up.

G C, The whole of the van and centre of the French fleet, having got the breeze, but not disposed to close. The rear, D, in a similar situation to that of the British, becalmed.

E, Convoy, extending their distance from the hostile fleets towards the French islands.

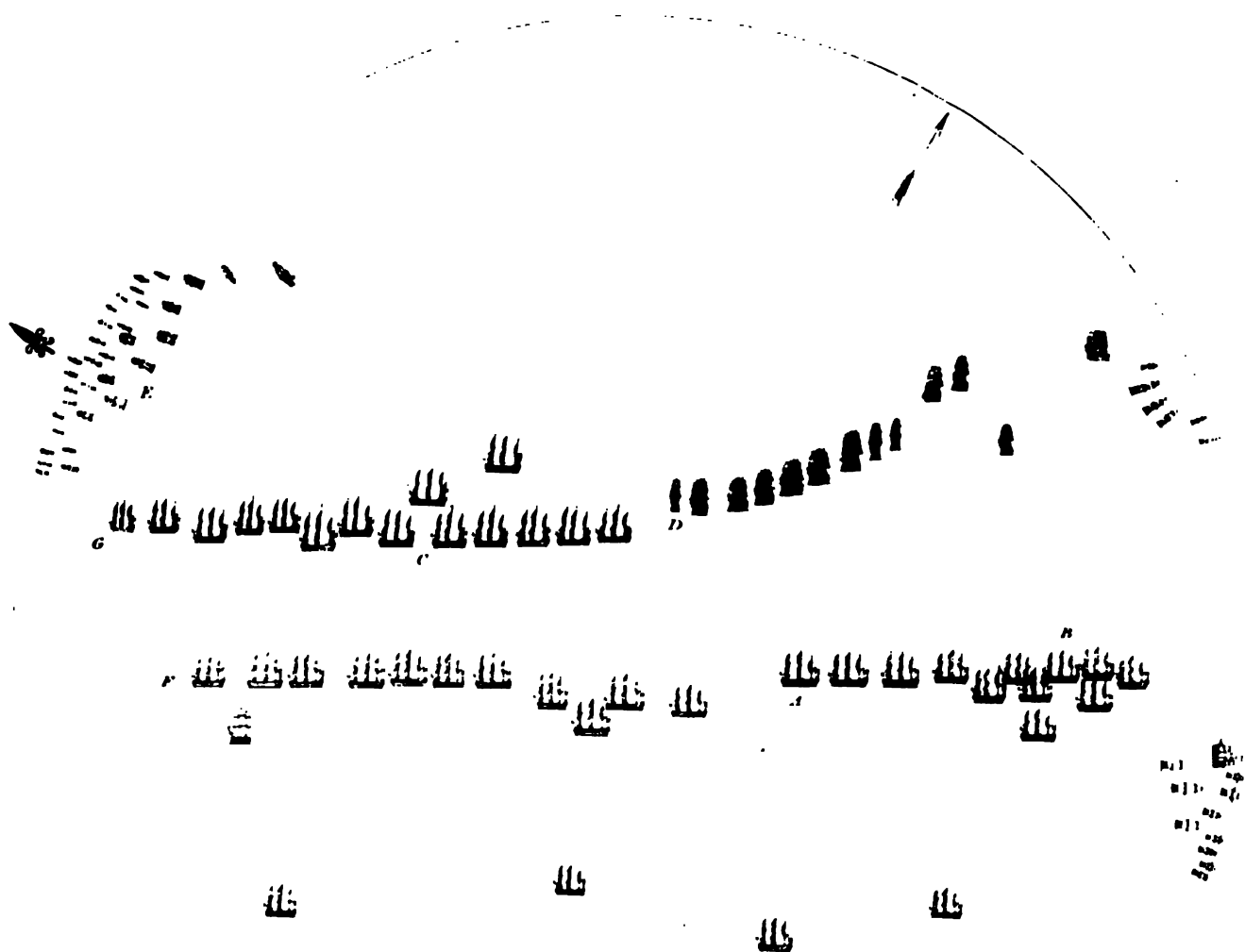
F, Van of the British fleet.

PLATE XLVI. 12th of April, 1782. This plan shews the situation of the British and French fleets at 10 A. M.

A, The Formidable, Lord Rodney's ship, closely followed by her second astern, Namur, B, has passed through the enemy's line, to leeward of the fifth ship from the Ville de Paris, Count de Grasse's ship, C. The British ships following the Namur, are St Alban's, Canada, Repulse, and Ajax, Repulse passing a dismasted ship of the enemy, to





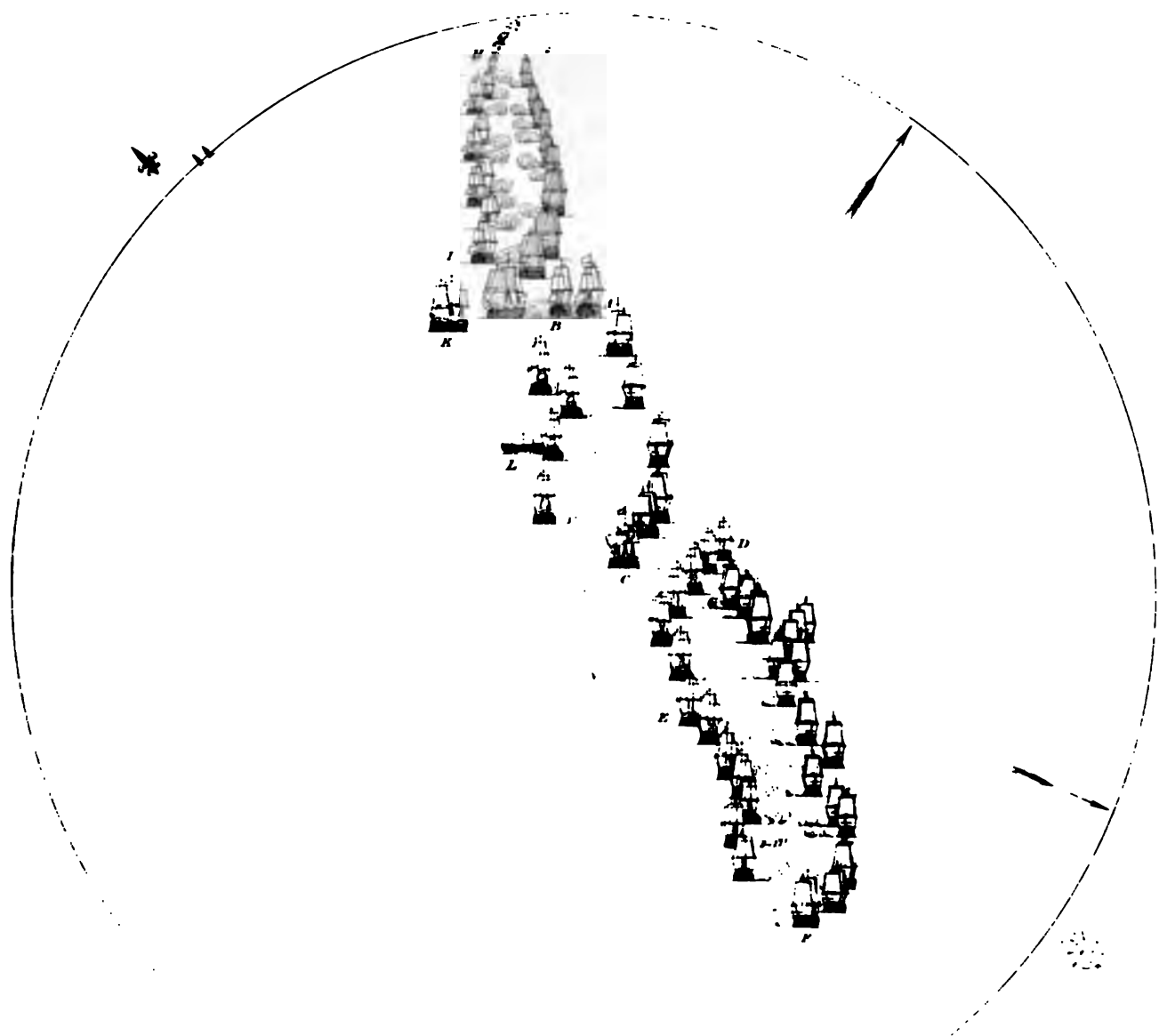






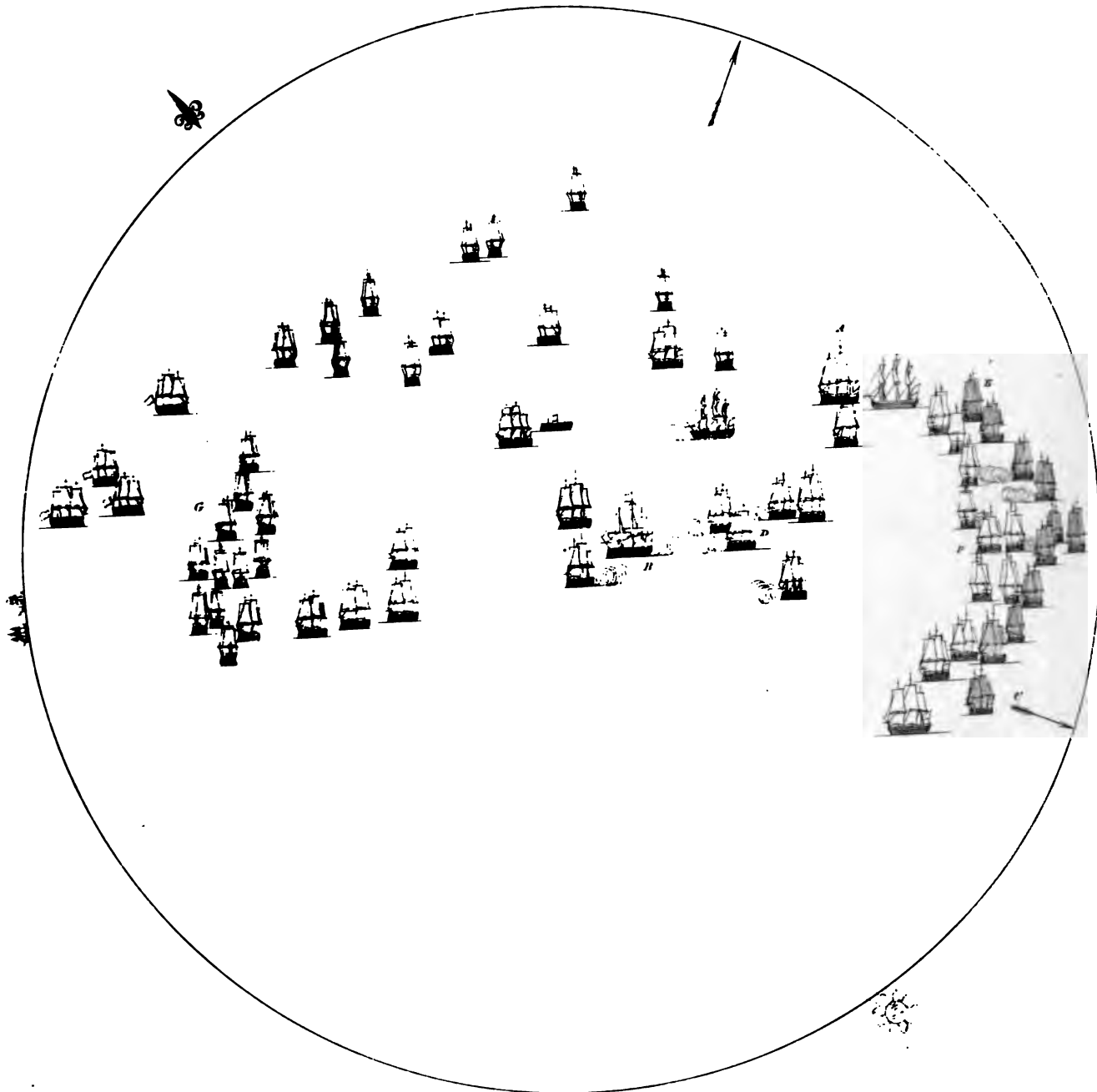








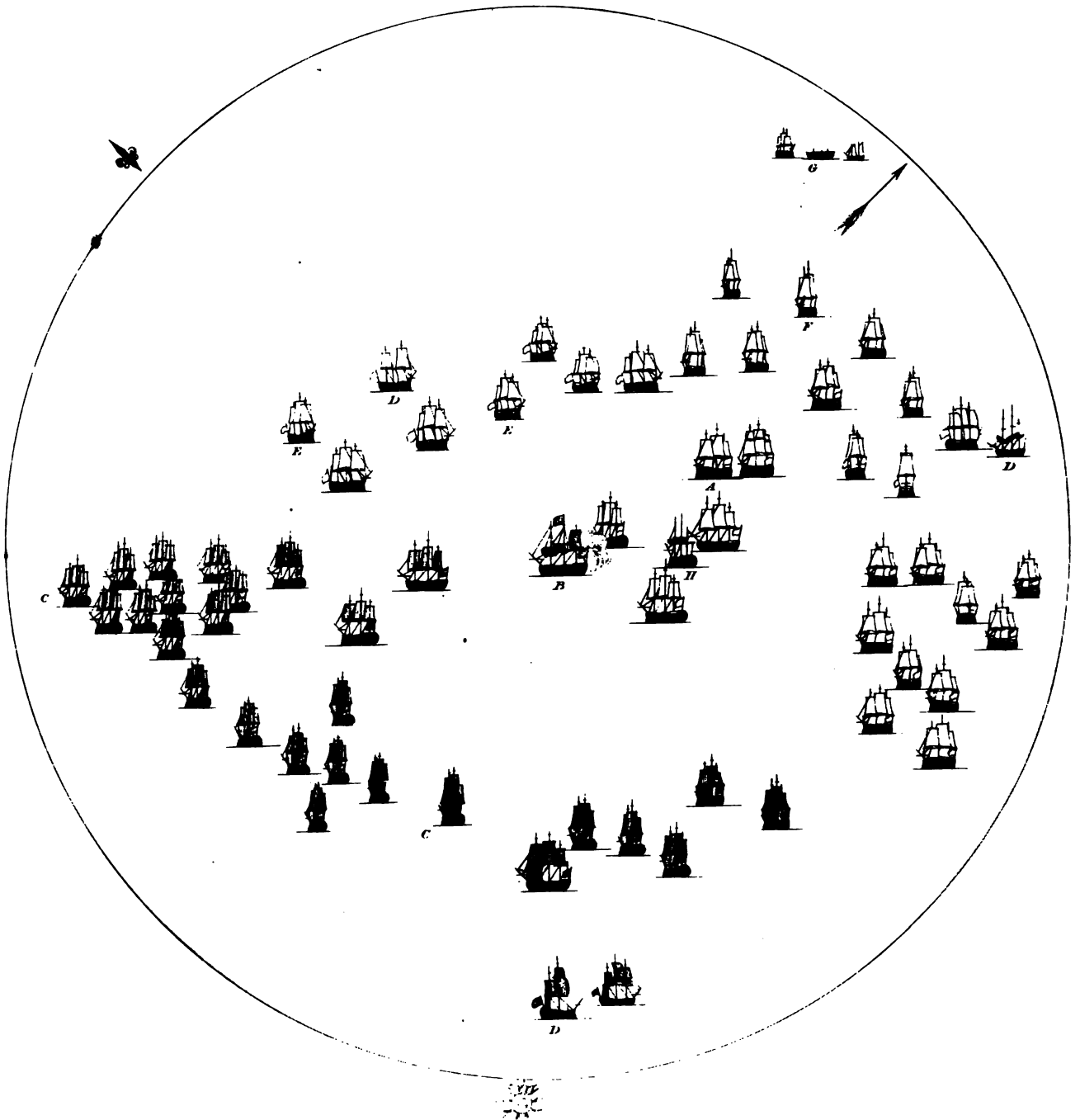


















windward, at L. On the larboard quarter of the *Ville de Paris*, C, is the *Bedford*, D, *Commodore Affleck*, "the rear ship of the British centre," keeping his wind, having passed through the French line, between the *Ville de Paris* and her second a-head, G, while all the rear division under *Sir Samuel Hood*, in the *Barfleur*, E, are following up "in *Bedford's* wake," in close action with the van and centre of the enemy, F G, as they round off before the wind, in passing the rear of the British line.

H, The van division, under *Sir Francis Drake*, in the *Princessa*, the rear ships, and part of the centre, appear to be closely engaged with the centre and rear divisions of the French fleet. I, The *Duke*, *Formidable's* second ahead.

FCK, The French fleet going off or before the wind, in three detachments, the rear, consisting of eleven ships; centre, *Count de Grasse* leading, five ships; the van and part of the centre, sixteen ships.

Situation of the hostile fleets, at 2 o'clock P. M.

PLATE XLVII.

A, The *Formidable*.

B, The *Ville de Paris*.

C E, French fleet before the wind, in action with the British rear, F, who have wore round, and engaged on the larboard side.

D, British ships closing with *Ville de Paris* and her detachment.

G, Centre and rear of the French fleet, collecting and going off to the westward.

Situation of the British and French fleets, at 4 o'clock P. M.

PLATE XLVIII.

A, *Formidable*.

B, *Ville de Paris*.

CC, French ships running to the northward.

D, Captured ships.

EE E, British ships closing round the *Formidable*.

G, Frigate and schooner, with dismasted prize.

H, *Cæsar*, *Centaur's* prize.

**PLATE XLIX.**

Situation of the fleets at sun-set.

A, Formidable.

B, Barfleur.

C, Ville de Paris having struck, boats going on board of her, from the British ships.

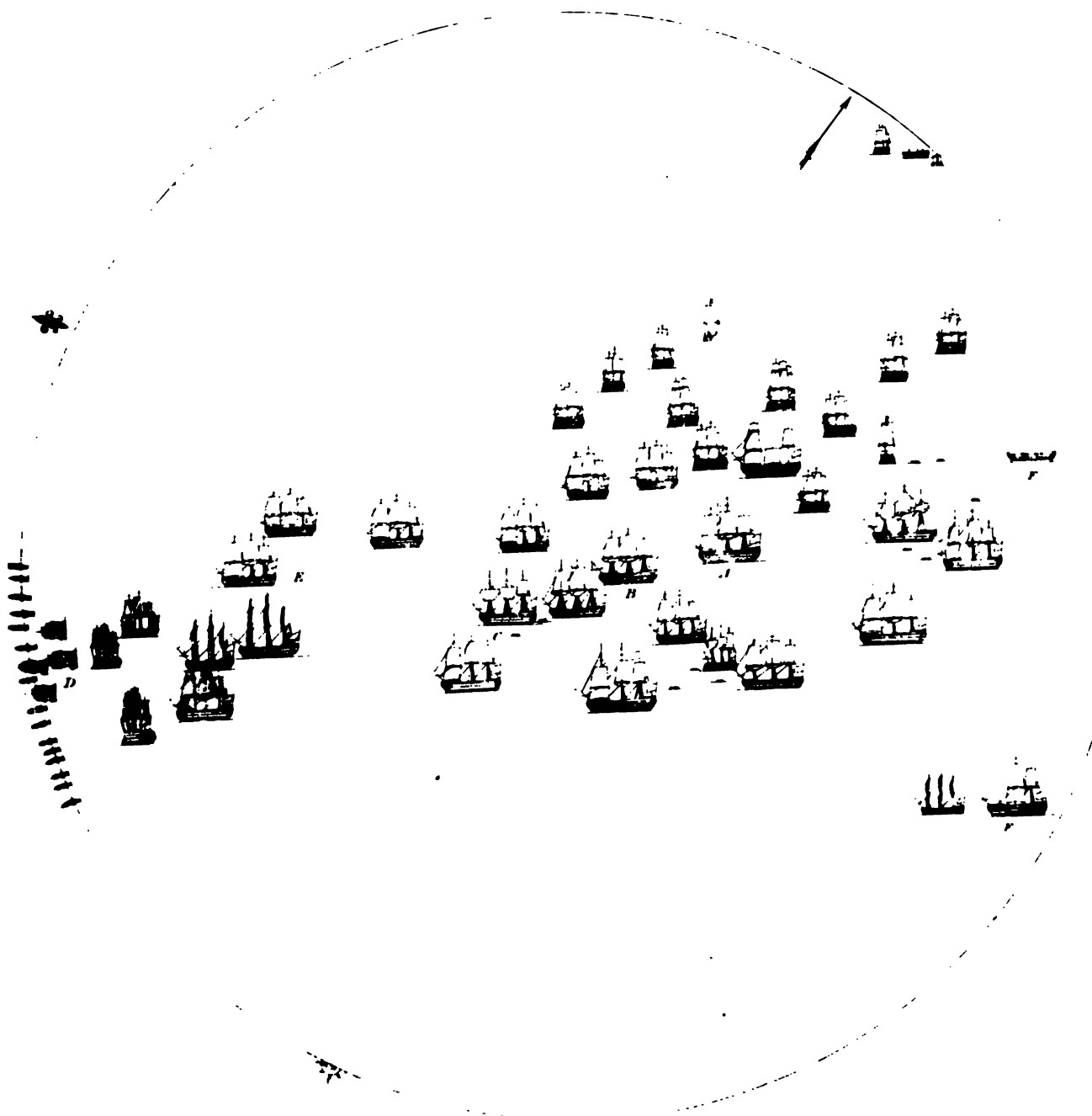
D, French fleet escaping to the northward.

E, British ships in pursuit, but recalled before night.

F, Captured ships.











## PART SIXTH.

### REMARKS FOR FACILITATING THE PRACTICE.

IN the preceding five parts of this Treatise, I believe I have given all that was necessary to the completion of my design, for I have shown how to form the different orders of which fleets are capable, to change the arrangement of squadrons and divisions, to re-establish the orders when deranged by a change of wind, to pass a fleet from one order to another; in short, I have explained in general the movements that a fleet can make, whether in presence of an enemy or not, before or after the battle; it now only remains to give some remarks for facilitating the practice of them. I shall begin by the manner in which a fleet is divided, the station given to each ship, and shall then give an easy method, by which each ship may exactly keep in her station; and in conclusion, shall say a word on storms. I have not thought fit to mark the precautions necessary to be observed in equipping a fleet; Providence has given us ministers and intendants, who seem to have performed impossibilities on this matter; by the extent of their genius and application, they have placed things on such a footing, that a hundred ships are now more easily equipped than thirty could be formerly; as for the functions, rank, prerogatives of the officers of the marine, nothing can be added to what has been determined in the ordinances.

## CHAPTER I

## TO DIVIDE A FLEET

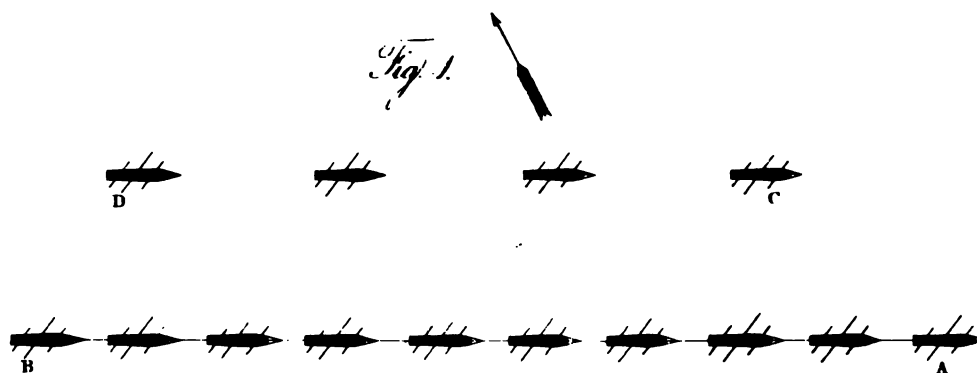
When a fleet consists of any number of the line, it is divided into three squadrons, of which each has three divisions, and the three flag-officers an Admiral, Vice-Admiral, and Rear-Admiral, each squadron has its colour, and each division its mast; for example, the colour white is proper to the first squadron in France, white and blue to the second, and blue to the third; that is to say, that the Admiral of the white squadron carries a white flag at the main; the Admiral of the blue and white squadron, a white and blue flag at the main; the Vice-Admiral of the white squadron carries a white flag at the fore; the Rear-Admiral of the white squadron carries a white flag at the mizen; the ships carry pendants of the colours of their squadrons at the mast-head of their division; thus a ship of the last division of the blue squadron carries a blue pendant at the mizen.

*Remark 1st.*—It may be easily managed that each ship of a fleet shall be known by a pendant and vane, as the Chevalier de Beauguiu has shewn us, for if a white vane is carried at the main for the first, ship of each division, red vane for the second, a blue one for the third, a red and white for the fourth, white and blue for the fifth, and that the same is done for the fore and mizen, it will be sufficient to mark fifteen ships in each division; the vanes must be larger than usual; in this manner, when a ship is seen to carry a white pendant at the mizen, and a red one at the main, it will be known that she is the sixth ship of the third division of the white squadron.

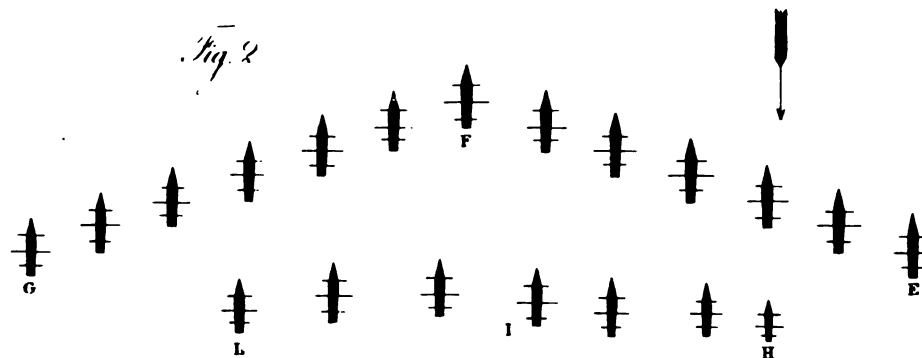
*Remark 2d.*—The flag-officers and commanders of divisions always keep in the centre of the division they command, the three Admirals excepted, who, in the order of sailing, keep at the head of their squadrons.



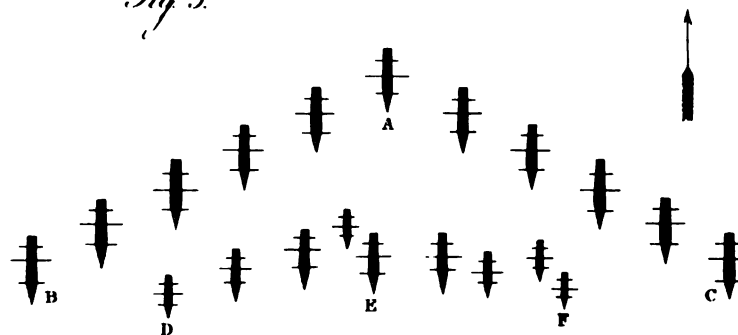
*Fig. 1.*



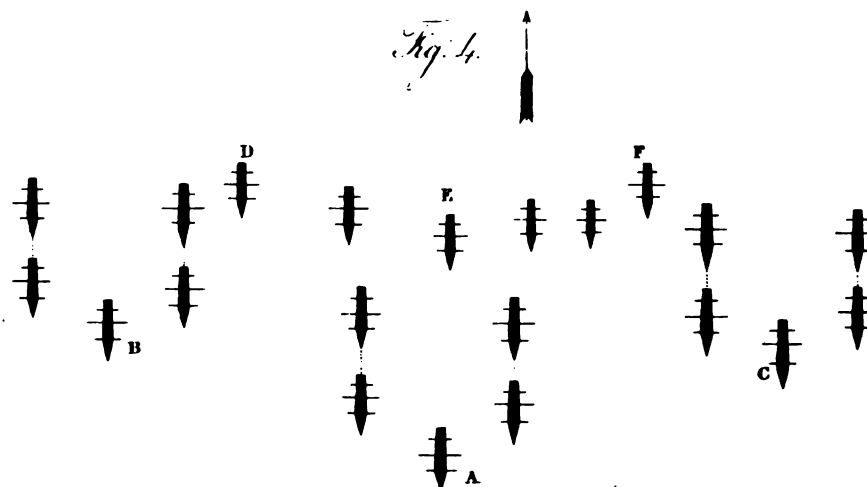
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*







## CHAPTER II.

## STATION OF FIRE-SHIPS, &amp;c. IN A FLEET.

I.—IN all the orders of sailing, the fire-ships, &c. are placed to windward for several reasons:—

1. These sort of ships are in less danger of being taken when they can bear up for the centre of the fleet.
2. That they may be more within reach of the commanders when it shall be necessary.
3. That they may not keep the rest of the fleet waiting, they being better constructed for sailing before the wind than by it. The fire and store-ships of the fleet A B are placed on the line C D, and those of the fleet E F G in the angle H I L.

PLATE I.  
Fig. 1—2

*Remark 1st.*—Although these sorts of ships do not sail so well on a wind as the ships of war, it will not be difficult for them to keep to windward of the fleet, because they are not so confined in their stations as the men-of-war, who lose a great deal of time by the manœuvres which they are incessantly obliged to perform; besides fleets do not long carry sail, and the fire-ships, whose station is not so exactly regulated, can take advantage of the time when the fleet is hove-to, or under easy sail.

*Remark 2d.*—These sorts of ships must not be too far distant from the fleet, for the three reasons by which they are placed to windward, and in general it ought not to be more than half a league; but it ought to be observed, that when the fleet is not in line, or in three columns, the fire and store-ships ought not to be farther from the men-of-war than these are from one another.

II.—We have already said, that in the order of retreat, that fire and store-ships are to leeward; thus in the fleet A B C they are on the angle DEF.

Fig. 3.

*Remark 1st.*—The same reason which place these ships in the order of sailing, places them to leeward in this.

1. They are less in danger of being taken, because the fleet incloses them as it were in a half-moon, putting them under shelter from the enemy.

2. The fleet always going before the wind in this order, these ships have only to heave-to, and join their commanders when it may be necessary.

3. If the fleet is compelled to form the line of battle to engage the pursuing enemy, these ships will be in their proper station, as we shall presently see.

*Remark 2d.*—In the order of retreat the fire and store-ships keep at a greater distance from the fleet than the other orders.

1. That they may not retard the advance of the fleet.

2. That if the fleet forms in order of battle, they may be at the requisite distance.

III.—In the order of battle, when not in presence of the enemy, the fire and store-ships should be to windward, as in the orders of sailing, but the distance should not exceed half a league. When the fleet ABC is sailing before the wind in three columns, in expectation of an enemy, the fire and store-ships, D E F, will be placed astern of the centre column, A, and at a moderate distance from the rear ships of the starboard and larboard columns, that when the line of battle is formed, they may be at the requisite distance from the fleet.

Fig. 4.

IV.—When the two fleets are in sight of each other, the fire and store-ships are placed half a league on the side opposite the enemy; thus the fleet which is to windward, has its fire and store-ships half a league to windward, and those of the leewardmost fleet half a league to leeward of it.

*Remark.*—The fire-ships of the fleet to leeward ought to keep a little in advance of the ships to which they are appointed, that they may have less difficulty in joining when necessary.





Fig. 1.

PLATE

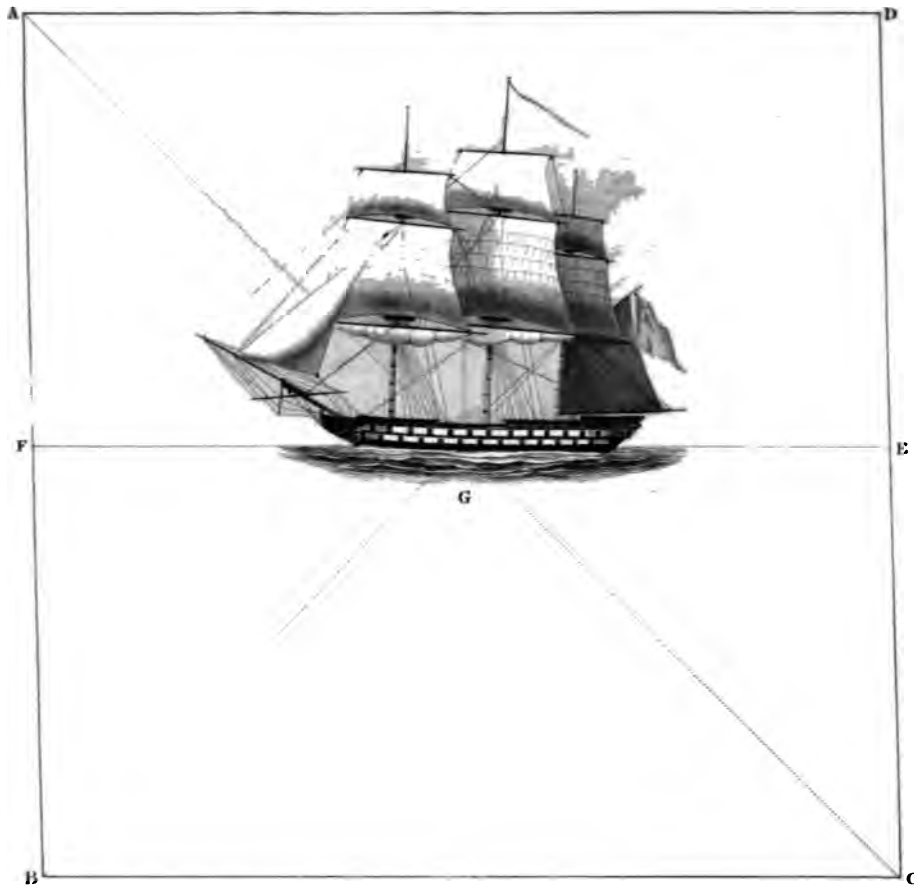


Fig. 2.

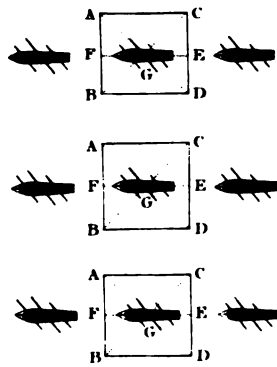


Fig. 3.

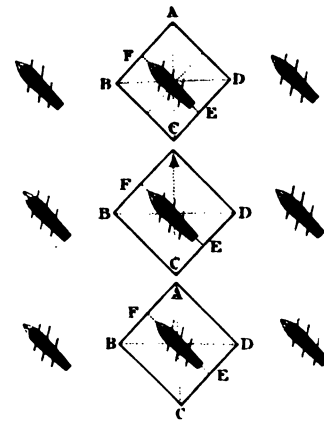
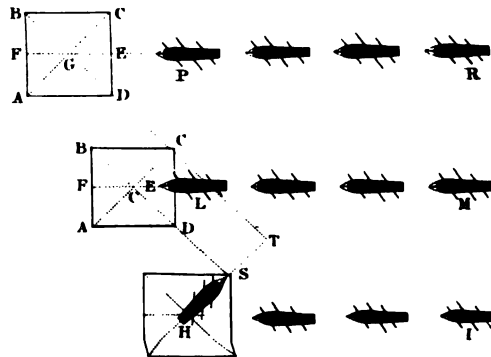


Fig. 4.



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## CHAPTER III.

## THE AVAL SQUARE.

I.—To facilitate the movement of a fleet, a great square, A B C D, is drawn on the deck of a ship, between the main and mizen-masts, of which the line F E answers to the keel of the ship, in such a manner, that the point F is the head, and the point E the stern; the line F E always represents the course of the ship, and the lines A D B C mark those abreast of it. When the ship is on a wind, the diagonals C A B D, shew the direction in which the ship will be, after going about from the starboard or larboard tacks, and for this reason, we call C A the starboard diagonal, for when the ship is trimmed on the starboard tack, she tacks on A C; and B D is the larboard diagonal; when the ship is trimmed on the larboard tack, she tacks on D B. The effect of all this is founded on the two lines of bearing making an angle of  $135^{\circ}$  or twelve points, equal to the two courses, when close hauled to the wind, supposing it to be north, so that, if the ship stands to the wind, by the line G E, she must stand on the other tack, G A.

PLATE LI.  
Fig. 1.

II.—This square is of great use for enabling ships to keep their stations in a fleet; for example, if a fleet is in three columns, and stands on the line of bearing on which the columns are ranged, all the ships of the same column will correspond to one another by the line F E of the square, and the ships of a column correspond to those of other columns, by the line C D.

Fig. 2

*Remark.*—In this manner, it will be easy for the officer, in walking the deck, at a single glance, to ascertain if he is in his station; for having closed the wind, he will see the points F E, if the ships of his column correspond to him by the line F E, and the point C D, if the ships which ought to be a-breast of him in the other columns, correspond by the line C D.

**Fig. 3.**     **III.**—If the fleet is in three columns, and the ships stand on the line of bearing which is not parallel to the columns, then the two diagonals of the square, mark the station of each ship; for if the ship stands on the larboard line of bearing, the ships of the same column will correspond by the larboard diagonal, and the ships of one column correspond to the ships of the other columns, by the starboard diagonal.

*Remark.*—The officer will know if he is in his station, for having closed the wind, he will see the points B D, if the ships of his column correspond by the line B D; and the points A C, if the ships which ought to be abreast of him on the other tack, in the other columns, correspond by the line A C.

**Fig. 4.**     **IV.**—If the fleet is in three columns, H I L M P R, and it is wished to tack in succession, without disturbing the order of the columns, the head H having tacked, the head L will continue on its tack, till it finds the head H in its diagonal B D; namely, when the head L shall tack, the head H is at the point S, then the head L will also tack, and the head P continue on her tack, till she finds the two others in her diagonal B D, namely, when they are at the points V T.

*Remark 1st.*—The diagonal which determines the points where the heads tack, is opposite to that on which they tack; thus, when they are to tack on the larboard diagonal, it is the starboard diagonal that determines the points where the heads ought to tack; this is very easy, for if the officer of the ship L places himself at the point B, he will know when he should tack, if, in looking along the line B D, he sees the head H at the point S; but he must observe with care, when looking, that the ship L is exactly to the wind.

*Remark 2d.*—Several other examples may be given of the utility of the naval square, but these will be sufficient.





Fig. 1. The clipper ship "The Great Britain" (1842)

Fig. 2. The clipper ship "The Great Britain" (1842)







## CHAPTER IV.

## THE STORM.

I.—A fleet ought never to keep at sea during a storm, but seek shelter on the appearance of bad weather coming on. There are several reasons for this maxim. *1st*, A fleet taken in a gale at sea, is liable to be separated ; the thick fogs which accompany bad weather, render it impossible to see or understand signals ; a thousand accidents may divide the fleet during the gale, and a divided, is without doubt a lost fleet, if it encounters an enemy. *2dly*, It is not possible for a fleet to encounter a gale, without having some of the ships disabled, in the most moderate gales ; top-sails, and other sails, are split and lost, and the fleet is in a worse condition after a storm than after a battle. *3dly*, To be added, the accidents of falling on board of each other, which are so inevitable and dangerous in bad weather. PLATE LII.

II.—It is better to keep at sea during a storm, than to anchor in a bad roadstead, as nothing can describe the confusion of a fleet in such a situation, with the ships drifting upon one another.

III.—When a fleet is absolutely obliged to keep at sea during bad weather, it ought to be ranged in three columns, leaving a great interval between each ship, without augmenting the distance of the column ; in this manner, there will be less risk of separating, and falling on board of one another.

IV.—If a fleet has plenty of sea-room, the ships will lie-to under their storm sails, the better to be able to resist the shock of the waves, likewise to keep them steady, with less danger of being dismasted.

*Corollary.*—It will be seen how important it is for a fleet to have a place of shelter to take refuge in, when surprised by bad weather; the thing is of such great importance, that it is a marvel that a fleet does not perish altogether, when this precaution is not taken.

*Example.*—History does not furnish any thing more distressing than the loss of the fleet of Philip II., King of Spain. This prince having resolved to conquer the kingdom of England, constructed 140 galleons of an extraordinary size, arming them with a great number of machines, and 2500 pieces of large cannon, with nearly 30,000 sailors and soldiers, and the greater part of the Spanish noblesse. The ships of war were accompanied by a prodigious number of store-ships, carrying stores, and six months' provisions. All Europe watched with anxiety, to see on what place it was destined to act; but it is of little matter to send a great fleet to sea, if officers of talent are not appointed to conduct it; the experience of officers is more necessary than the size of the ships, or the number of guns. Philip failed in this essential, and gave the command of his fleet to the Duke de Medina Sidonia, who had no experience whatever; he took but little trouble to provide good sailors and clever pilots; forgetting that he might as well have sent his galleasses without sails or oars, for these are useless, if it is not known how to employ them; thus, they began with such blunders in leaving Lisbon, that the fleet had nearly perished before doubling Cape Finestere; they entered the channel with a S.W. wind, and were before Plymouth on the 30th of July, where they might have defeated the English, who were in disorder, and were little disposed to receive an enemy they did not expect. Recaldi, Lieutenant-General of the Spanish fleet, urged the Duke to attack them, but it requires a clever man to follow good counsel. The Spaniards stood out, followed by the English, who molested them greatly, and even carried off a galleon that had been disabled by running on board some ship. He anchored the 6th of August before Calais; it was represented to him, that he must begin by making himself master of some port, to return to, in the event of bad weather, and that the coast of Calais was not a road-

stead where a great fleet like his should anchor, where it would be exposed to many accidents ; but nothing could make him comprehend the peril by which he was menaced. The night of the 7th of August, the English, who had anchored sufficiently near to observe him, sent down eight fire-ships. Those who remembered the infernal machines of the bridge of Antwerp, were in such consternation, that after having cut their cables, crying everywhere fire of Antwerp, they made sail with a confusion that passes all imagination ; at the same time, the wind which was high, with a great sea, now blew a gale ; the obscurity of the night, and the disorder of the Spaniards, greatly augmented the horror ; no one thought of giving orders, or of executing them ; the ordinary rules of pilotage were no longer observed ; every one did at hazard, what caprice or fear suggested, some going at the mercy of the wind, that threw them on the coast, where they were wrecked, others stood out, and separated in several little squadrons, falling on board, and sinking one another. The wind having ceased a little at break of day, the English perceived the horrible condition of the Spanish fleet ; they saw, everywhere, ships dismasted, and so dispersed, that it was easy for them to attack ; they took, sunk, and burnt a great number, who were unable to defend themselves. There was only Recaldi, Pimentel, Toledo, and Moncade, who having rejoined their Admiral, formed a small squadron, and sustained, with inconceivable vigour, all the efforts of the enemy ; but the bad weather having recommenced, they were soon separated. Moncade was thrown, with his galleasse, on the coast of Calais, where, being attacked by a great number of English frigates, he defended himself like a lion, till having received a musket ball in the forehead, he fell dead on the bodies of those who had already been killed around him. Toledo was more fortunate, for seeing himself forced in his galleon, which was quite exposed, he jumped into a boat, with some of the bravest of his crew, and, cutting his way through the enemy's boats, who pursued him, succeeded in reaching the shore, while his galleon sunk under the feet of the Dutch, who boarded her. Pimentel alone, during six hours, engaged the Dutch squadron, and surrendered at last, with a great number of Spanish nobles. The Duke seeing, when it was too late, how necessary it is to a fleet to have

a place of shelter, collected the remains of his fleet, and resolved to return to Spain, by the North of Scotland ; but he again learnt, that the sea is everywhere fatal to those unacquainted with it. The greater part of the ships that accompanied him, perished on the coasts of England and Scotland. He arrived in Spain, almost alone, bringing with him the worst news, and the least expected, that was ever received.

FINIS.

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## ERRATA.

- Page 8, Fig. 16, *for* Ship MN, *read* Ships MN, and *for* line MN, *read* lines MN.  
— 11, *for* 1751, *read* 1571.  
— 15, Fig. 3, *for* four points G *read* C.  
— 20, *for* the lines B C are larger than the lines B F, *read* the line B C is longer than the lines B F.  
— 136, *for* standing on the point C, *read* standing on to the point C.  
— 142, Plate xxxix. Fig. 7. explains Remark 2d, page 143.  
— 148, Plate xli, *for* Fig. 3, *read* Fig. 2.  
— 150, Fig. 5, *for* wear on us, *read* tack on us.

2















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