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Upon inquiring into the transactions of the British Navy, during the two last wars, as well as the present, it is remarkable, that, when single ships have encountered one another, or when two, or even three, have been engaged on one side, British seamen, if not victorious on every occasion, have never failed to exhibit instances of skilful seamanship, intrepidity, and perseverance; yet, when ten, twenty, or thirty great ships have been assembled, and formed in line of battle, it is equally remarkable.

By the present war is understood the American war. This Tract being written in October 1781, immediately after the surrender of Lord Cornwallis's army, the consequence of Admiral Graves's unsuccessful encounter with the French fleet off the mouth of the Chesapeake. A few copies only were printed, and at that time distributed among friends.
NAVAL TACTICS.

...ible, that, in no one instance, has ever a proper exertion been made, any thing memorable achieved, or even a ship lost or won on either side.

Whoever studies the history of the times, will be convinced of the truth of both these assertions. But many, without properly attending to the first, acknowledge, and endeavour to account for, the last, by insinuating, that as our seamen, whatever they were in former times, are now, in no respect, preferable to those of our rivals, it would be absurd to expect from them a greater degree of exertion; and that the ships of our enemies, being better constructed, have had it always in their power to avoid an engagement, by outfailing us. As these opinions, unhappily, have already had too much influence, even among seamen, it will be partly the business of the following Treatise to show, that they are ill-founded; and that it is neither to any abatement of spirit in our men, nor even to any fault in the construction of our shipping, that the want of success in the late great sea-battles ought to be attributed.

From our insular situation, we are led to avail ourselves of a naval force, in some such manner, as that in which all animals are directed to make use of the weapons or talents with which nature has furnished them, whether for support or defence.

...Why

Neither the gallant manoeuvres off St. Christophers, nor the memorable 12th of April, took place till the spring following.
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Why the effect of this propensity to sea affairs was not more conspicuous in the earlier part of our history, may be accounted for likewise from our insular situation. Occupied with disputes, while divided into two kingdoms, our attention was withheld from the rest of Europe; and, separated as an island, we were much less the object of foreign interference: But, as soon as those internal disputes began to subside, which in a great measure they did, from the influence that the hope of succeeding Elizabeth had upon Mary Queen of Scots, and her son James, this naval disposition broke forth with irresistible force; and, cherished by successive improvements in commerce, every obstruction being removed by the Union of the two kingdoms, it has produced effects which have been the admiration of the world.

It is obvious that, from the greater extent of coast, number of bays, dangerous ferries, and from the various sea-carriage which our produce consequently requires, a greater portion of our people must be bred to a seafaring life than is necessary in other nations. From these causes, as well as from the tempestuous nature of our seas, rapidity of our tides, and inconstancy of our climate, it may be expected, that our seamen, besides being numerous, ought at the same time to acquire courage and dexterity sufficient to encounter the difficulties to which they must unavoidably and constantly be exposed; and that, from a combination of all these circumstances, a national character will arise, distinguished by a hardy and persevering intrepidity, which, without such causes, can never exist.
A prepossession in favour of one's countrymen is both natural and commendable; but, where they have undertaken and uniformly succeeded in great and glorious enterprises, it does not require the influence of national prejudices to conclude that they are distinguished by an extraordinary character. Whether this may have arisen entirely from the causes above enumerated, or in some degree also from the nature of our government, is not the object of our present inquiry: it is sufficient, for the purpose of this Essay, that such a character is actually found to exist in this island.

During the reign of Elizabeth, not to dwell upon the famous expeditions of Drake, Cavendish, Norris, and the Earl of Cumberland, for which we refer to our best historians *, where can a more illustrious example of naval skill be met with, than the conduct displayed in the destruction of the Spanish Armada? in which we may observe that the prudence of maintaining a defence, by suffering that immense armament to waste its force in a contention with the winds and waves, was no less conspicuous than the intrepidity with which the repeated attacks were made.—Sir Martin Frobisher's exploits and death before the harbour of Brest reflect additional glory on his countrymen.—Neither ought the spirited behaviour of James Lancaster before Fernambuco, in the Brazil, to be forgotten. Seeing the shore lined with great numbers of the enemy, he ordered his men to row their boats with such violence against the shore, as to split them.

* See Hume's History, Chap. 51, 52, and 53. 4th edit.
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them in pieces. By this bold action he both deprived his men of all hope of returning, unless by victory, and terrified the enemy, who fled after a short resistance.—We may also mention the second enterprise at Cadiz, when Essex threw his hat into the sea. —But the true character of the British sailor is so justly displayed in the obstinate resistance made by Sir Richard Grenville, in a single ship, against a numerous Spanish fleet, as described by Mr Hume, that an account of the action shall here be given in the very words of that great historian.

"Lord Howard being sent with a squadron of seven ships, to intercept the West India fleet, was attacked by a Spanish squadron of fifty-five sail. By the courageous obstinacy of Sir Richard Grenville the Vice-Admiral, who refused to make sail with the rest of the squadron, one ship was taken, being the first English man of war that had fallen into the hands of the Spaniards. This action of Sir Richard Grenville is so singular as to merit a more particular description. He was engaged alone with the whole Spanish fleet, of fifty-five sail, which had ten thousand men on board; and from the time the fight began, which was about three in the afternoon, to the break of day next morning, he repulsed the enemy fifteen times, though they had continually shifted their vessels and boarded with fresh men. In the beginning of the action, he himself received a wound, but he continued doing his duty above deck till eleven at night, when receiving a fresh wound, he was carried down to be dressed.

"During this operation, he received a shot in the head; and
the surgeon was killed by his side. The English began now
to want powder; all their arms were broke or become useless;
of their number, which was but a hundred and three at first,
forty were killed, and almost all the rest wounded; their masts
were beat overboard, their tackle cut in pieces, and nothing
but a hulk left, unable to move one way or other. In this si-
tuation, Sir Richard proposed to the ship's company to trust to
the mercy of God, not to that of the Spaniards, and to destroy
the ship, with themselves, rather than yield to the enemy. The
master-gunner, and many of the seamen, agreed to this desep-
rate resolution; but others opposed it, and obliged Greeneville
to surrender himself prisoner. He died a few days after; and
his last words were, "Here die I Richard Greeneville,
with a joyful and quiet mind, for that I have ended my life as
a true soldier ought to do, fighting for his country, his Queen,
religion, and honour. My soul willingly departing this body,
leaving behind the lastling fame of having behaved as every
valiant soldier is in duty bound to do." The Spaniards lost in
this sharp, though unequal action, four ships, and about a
thousand men; and Greeneville's vessel herself perished soon
after, with two hundred Spaniards on board."

It would be endless to enumerate every achievement, where
the capture, almost of every ship, must have furnished materials
for a particular panegyric. Mr. Hume, in treating of this sub-
ject, expresses himself in the following manner: "In every
action, the English, though they had long enjoyed domestic
peace, discovered a strong military disposition; and the Queen,
though herself a heroine, found more frequent occasion to
reproach

See Hume's Hist. ch. 43. first edit. 4to.
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"reproach her Generals for encouraging their temerity, than for
countenancing their fear or caution." However much Elizabeth might wish to temper the ardour of her subjects on some occasions, on others she does not seem to be wanting in her endeavours to rouse their spirit sufficiently; for, in a harangue before Parliament, when speaking of the Spanish Armada, she said, "But I am informed, that when he, Philip, attempted this last invasion, some upon the sea-coast forsook their town, fled up higher into the country, and left all naked and exposed to his entrance; but I swear unto you, by God, if I knew those persons, or may know of any that shall do so hereafter, I will make them feel what it is to be so fearful in so urgent a cause."*

Notwithstanding the great attention which Elizabeth gave to the Navy, yet, at her decease, it consisted of forty small ships only, of which number four did not exceed forty guns, and but two of these amounted to a thousand tons; twenty-three others were below five hundred tons; of the rest, some were of fifty, and some even did not exceed twenty tons; and the whole number of guns belonging to this fleet was 774. If such brilliant and glorious actions were performed by so inconsiderable a force, what might we not expect from our navy in its present state? For the honour of the English at that time, it must be remarked, that, while the Royal Navy consisted of these forty ships only, so great was the national spirit, and so much was it united, that an infinite number of other ships of war was soon fitted out, as well by private gentlemen, at their own expense, as

* Hume's Hist. ubi supra.
by the different sea-ports. Thus, the ill concerted, but formidable attempt of the Spanish Armada, by farther exciting the resentment, and affording the greater occasion of gratifying the military genius of the nation, now about this period first seriously exerted in naval enterprise, may be said to have laid the foundation for that renown, which, ever since, has been maintained with so great spirit.

One would have thought, however, that the Naval force should not have increased much during the reign of Elizabeth's successor James, when it is considered, that the practice of the English merchants then was to carry on their trade in foreign bottoms; yet, from the 1582, when the number of seamen, upon a computation, amounted to 11,295, until the year 1610, at the beginning of the domestic troubles, that number was found to be tripled.

After an interval of twelve years, the Dutch war was the next occasion of a farther display of our Naval character. But, it must be observed, that, while the English seamen had been so often engaged, and generally successful, in the lesser battles, or rather enterprises, yet, till now, they had never been tried in the greater, where a number of ships were assembled together. However, their wonted intrepidity, far from forsaking them on this new and unexperienced occasion, seemed to be augmented, or rather exalted to a state of enthusiastic fury, which was

See Note A.
was supported with an unremitting perseverance during the course of three dreadful wars; in the first of which we had nine pitched battles; in the second five; and in the third not less than five also; making in all nineteen general engagements; in one of which the fight was renewed for three additional days successively; in another for two days; and in a third for one day; which may fairly be stated for other six engagements; making, when taken together, twenty-five days of general actions. And, what would now be considered as ridiculous and impracticable, many of the officers appointed to the command of these fleets had never been in sea-service till they were past the age of forty, and some even of fifty years. Of the last number was Blake, who, although renowned for the many obstinate battles he had been engaged in, particularly that in the Downs, where he had no more than fifteen ships, did not refuse the combat when attacked by forty-two ships of the enemy, led on by the great Van Trump. Yet for nothing was he more conspicuous than for his patriotic virtue. When in opposition to the party then in power, "It is still our duty," said he to the seamen, "to fight for our country, into whatever hands the government may fall."

In all of these enterprises, whether with the Spaniards or the Dutch, whether in making the attack on castles, ships in harbours, or encountering ship with ship in close action, and formed in line of battle, we shall find the British seamen, whether equal or inferior in number, victorious or worsted, invariably fired with such enthusiastic courage, that these battles, though not always decisive,
decisive, were constantly marked with strong effect; ten, twenty, thirty, or more ships, being taken or destroyed, two thousand men killed, and as many taken prisoners.

Therefore, without derogating from the gallant behaviour of the Dutch, which was equally displayed in those wars, we are bound, from these proofs and examples, to believe, that British seamen are, by nature or habit, endued with a peculiar extraordinary character. And, though the spirits of the people might have been, for a little time, depressed by the unfortunate battles of Beachy-head and Bantry-bay, which were fought some time after; yet the natural impressions, so justly in favour of our seamen, soon recovered our confidence; which was so much increased by the battle off La Hogue, that, many years afterwards, the victories off Malaga and Messina were things to be expected of course.

The long intervals between these actions, and that of the war 1743, nowise abated the sanguine impressions respecting our seamen. Much effect was expected from the powerful fleet sent into the Mediterranean under the command of Matthews and Leslock, who encountered the combined fleets of France and Spain on the 11th of February 1744. But, intending afterwards to give a more particular description of this affair, we shall only add, that Matthews, who commanded, accompanied with the Marlborough and Norfolk, his two seconds a-head and a-tern, together with the Berwick in another place, broke out from the line of battle, got within a proper distance, and fought with great bravery; but, being ill supported by the rest of the fleet, little more was
was done, than to show what cannon-shot at a reasonable distance, might effect. The two Admirals mutually accused each other; and Matthews, in consequence of a trial, was broke. But the late King, without attending to the nice distinctions which had determined the Court-martial, and being satisfied that the Admiral had behaved like a brave man, refused to confirm the sentence.

Happily some other more favourable opportunities offered, during the course of this war, in which, having a greater superiority, we were more successful. These were, the capture of the May fleet by Admiral Hawke; the voyage round the world by Lord Anson; his bold attack of the Acapulco ship, so much his superior in force; his capture of six French ships of the line and Indiamen in October.

These, with the unremitting exertions in the many lesser sea-combats, removing the evil impressions made by the miscarriage in the Mediterranean, we still flattered ourselves that the glory of the British flag was yet untarnished.

But, be that as it may, we could not, without some emotion, recal to mind those tremendous and glorious battles with the Dutch, in which the spirited and united exertions of our seamen had been so justly celebrated, that, when the last war broke out, our minds were so prepossessed with enthusiastic partiality, that there were but few of our countrymen who did not firmly believe and trust, that, if one British sailor was not a match for two of the enemy, he was at least a very superior being.
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How great, then, was the disappointment of the nation, when it was known, that Admiral BYNO, commanding a British fleet of superior force, in a general engagement with the French, without losing a ship, almost without the loss of a man, half of his fleet not having fired a shot, had acknowledged himself worsted, by flying to Gibraltar, abandoning Almería, and leaving the garrison at the mercy of the enemy, who were then masters of the sea!

Meanwhile, it is with astonishment that we must remark, the innumerable lesser conflicts during the course of this war, where examples of persevering courage and daring in rapidity were invariably exhibited in private as well as public service, and generally of such effect, that one or other of the combatants, of necessity, was obliged to strike. A complete catalogue of which, however acceptable, would be too great for the bounds of this work.

It must be owned, indeed, that several fortunate and important occasions occurred during the course of this war, where numbers of ships were assembled, particularly that of HAWKE with Conflans; but then the enemy, though nearly equal, after discovering great want of determination, fairly ran away, without coming to an engagement. But, as we had a great superiority on all these occasions, excepting the one now mentioned, the decision that took place, by means of that superiority, will never destroy the force of the general observation.

Again, while we remark the wonderful exertions, and constant success, attending the lesser conflicts; while we remark how
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how much, and how often, our ships have been put to severe trial, by being exposed, in all weathers, during the storms of winter, the enemy not daring to set out their heads*; when, after recollection, we remark, that, to the numerous, bold, and successful enterprises, coups de main, performed during the last 250 years, and that our enemies have only the single disgrace which befell us at Chatham, to counterbalance so great an account, should we not at the same time remark, that this boasted intrepidity, this persevering courage of British seamen, has never once been brought to trial, where it would have been of the greatest importance; that is, in the greater engagements; of which, because this superiority has never had an opportunity of being displayed, the result has always been the same, namely, that, in such actions, our fleets, in the two last wars and the present, have been invariably baffled, ray worsted, without having ever lost a ship, or almost a man.

While we remark these circumstances, is it not evident, and will it not be admitted, that one of three things must be the fact, either that our enemy, the French, having acquired a superior knowledge, have adopted some new system of managing great fleets, not known, or not sufficiently attended to by us? or that, on the other hand, we have persevered in following some old.

* Alluding to the squadets of British ships kept in the Bay of Biscay during the course of last war, to watch over the motions of the enemy, in winter as well as in summer.
old method, or instructions, which, from later improvement, ought to have been rejected? Or, lastly, that these miscarriages, so often, and fatally repeated, must have proceeded from a want of spirit in our seamen?

But as, from the many instances given, both of public and private exertion, the mind must revolt at this last supposition, it follows, that these repeated miscarriages must have proceeded from one or other of the two first, or from both?

During the course of the wars with the Dutch, before mentioned, much improvement was made; particularly in the invention of signals. But the naval instructions then framed, although founded upon experience and observation, and though they might be admirably fitted for fighting in narrow seas, where these battles were fought; yet, from later experience, it will be found, that they have been but ill qualified for bringing on an action with a fleet of French ships; unwilling to stand a shock, having sea-room to range in at pleasure, and desirous to play off manoeuvres of defence; long studied with the greatest attention.

But if it were possible that there could have remained a doubt of the truth or force of these observations before the breaking out of the present war, will not this doubt be resolved, if they shall be confirmed by every case that has followed since; whether we consider the intrepidity and exertion so conspicuous in the former conflicts, or the defect of conduct and address, so palpable
pable in most of the greater engagements, although, at the same time, our Admirals, whether by good fortune, by skilful seamanship, or by permission of the enemy, have never failed, on every occasion, to acquire their wish, viz. the circumstance of being to windward; excepting, indeed, on those occasions, where the French have chosen to keep such an advantage, without availing themselves of it; a circumstance which is plainly a confirmation that their system or mode is different from ours, and that they are uniformly determined never to be brought to make the attack, if it can be avoided.

From all which these three conclusions will naturally follow: 1st, That, in bringing a single ship to close action, and in conduct during that action, the British seamen have never been excelled: 2dly, That the instructions, (by which is meant the method hitherto practised of arranging great fleets, so as to give battle, or to force our enemy, the French, to give battle upon equal terms), after so many and repeated trials, having been found unsuccessful, must be wrong: And, 3dly, that, on the other hand, the French having repeatedly and uniformly followed a mode which has constantly the effect intended, they therefore must have adopted some new system, which we have not discovered, or have not yet profited by the discovery.

But, it may be asked, Have the French ever effected any thing decisive against us? Have they ever, in any of these encounters, taken any of our ships? Have they ever, presuming upon
upon their superior skill, dared to make the attack?—No. But, confident in their superior knowledge in Naval Tactics, and relying on our want of penetration, they have constantly offered us battle to leeward, trusting that our headlong courage would hurry us on to make the customary attack, though at a disadvantage almost beyond the power of calculation; the consequences of which have always been, and always will be, the same, as long as prejudices prevent us from discerning either the improvements made by the enemy, or our own blunders.

To be completely victorious cannot always be in our power; but, to be constantly baffled, and repeatedly denied the satisfaction of retaliation, almost on every occasion, is not only shameful, but, in truth, has been the cause of all our late misfortunes.

Before concluding this part of the subject, it may be proper further to observe, That, though our apprehensions of suffering in character and importance, as a Naval Power, might have been very great at the breaking out of the war with the Colonies, from an idea that the recent increase of that importance had arisen alone from the growth of these Colonies; yet, from experience, from the great exertions made, and from the continuance of the war itself, it has been clearly proved, that that increase must have arisen from other resources, which will every day more and more be found to exist in the Mother-Country herself. At the same time, from that superior exertion, so constantly and gloriously exhibited by our seamen in the lesser conflicts,
flicts, as well during the course of the present as of the two last wars, we may rest satisfied that the character of the British tar is not in the least debased, but still as predominant as formerly.

Hence, if the American Colonies shall accomplish their wished-for separation, Britain, by her force being more collected, and with these resources, will yet be more powerful than ever.
NAVAL TACTICS.

Of the ATTACK from the WINDWARD.

DEMONSTRATIONS

SECTION I.

METHOD OF ATTACK IN THE CASE OF SINGLE SHIPS.

1. SUPPOSE a single ship to windward at B (Plate I. fig. 1.), discovering an enemy's ship to leeward at F. Is it the practice for B, in making the attack, to bear directly down, end-wise, on F? No. Because, if B did so, the case would stand thus: Suppose the two ships of eighty guns each, the receiving ship

As it is by the influence of the wind alone that all the movements of shipping are performed, for this reason, as well as for rendering the following demonstrations more simple, we have made the course of the wind to proceed from the top of the page in the plans presented in this Work.

N. B
ship I, by lying-to (as in fig. 2.), would present a broadside of forty heavy guns bearing upon B, during a course of two miles, in which every shot might take effect, while B, in this position, (Plate I. fig. 2.), has it only in her power to bring the two light guns of her fore-castle, or bow-chase, to bear on F, a disadvantage greatly exceeding twenty to one. But the receiving ship F, by lying broadside to, will have all her masts and rigging more open, and, consequently, will allow shot to pass with less effect; her men, also, will be less exposed to the impression of shot, as 't must take the breadth of the ship only; whereas, the ship B, coming endwise down, must be greatly affected by every shot that may take place in the extensive area of her hull and rigging; the masts and yards, from being seen in a line, and the whole space, from the situation, being quadruply darkened with rigging, a shot taking place in that area, therefore, must carry away something of considerable consequence; and a shot taking place in the hull must take the men from one end of the ship to the other: Which situation, or position of B to F, is understood to mean, that the ship B is taken by the ship F; and the consequence would be, that B would be disabled in her rigging, &c. long before she could arrive.

N. B. In what follows, we have confined ourselves more particularly to the attack from the Windward; reserving what relates to the attack from the Lee-end for an after part of the Work.

The ships are distinguished by a red colour, and letters of reference, beginning with the alphabet and ending at F; and the ships of the enemy are distinguished by a black colour, with letters beginning at F.
DER monumentations.

rive at a proper position for annoying F; and, when she has attained this position, F, by being entire in her rigging, will have it in her power to fight, or make off at pleasure.

2. The method then is, B having the wind, will run down astern, as per dotted line, and getting into the course, or near the wake of F, or a position that will bring her parallel to the course of F, at a proper distance, she will then run up close along side of F, upon equal terms (as in fig. 3.); or, otherwise, on shooting a-head, she will wear, and run down on the weather bow of F (as in fig. 4.), till she shall force F to bear away to leeward, keeping close by F on equal terms; but, during the course, in both cases, carefully watching that F shall not have it in her power to bring her broadside to bear upon B, without retaliation.

SECTION II.

COMPARISON OF THE EFFECT OF SHOT DIRECTED AGAINST THE RIGGING OF A SHIP, WITH ITS EFFECTS WHEN DIRECTED AGAINST THE HULL.

3. It having been often said, that the French have made it a rule to throw the whole effect of their shot more particularly into the rigging of their enemy, and that the British, on the other hand, have been as attentive to point the force of their fire against the hull
hull of the ship, it may be proper here to state the two cases, and compare the effect.

4. Let us suppose a ship of eighty guns wishing to avoid the effects of a close engagement, but, at the same time, lying-to, as at F (Plate I. fig. 5.), intending to receive, with every advantage, an enemy, B, of equal force, coming down with an intention to fight her; and let us suppose that F, by aiming her fire at the rigging of B, shall have carried away any of the principal stays, eight or ten windward throwds, or a fore-top mast, or any other rigging, though of much less consequence, but, at the same time, without having wounded a single man of the ship B; and suppose a second ship, consort to F, receiving such another ship as B, and by firing at her hull only, shall, without other damage, have killed thirty or forty of her men:

5. In this critical juncture, when F and her consort are desirous of avoiding a close engagement, which of the two ships of B will be most disabled from following after, and closing with the enemy? Is it not evident, that it must be the ship which has lost part of her rigging; for, as she will not be able to make sufficient sail, till after having been repaired, this necessary stoppage must be of greater consequence at this time than if she had lost a hundred, or even two hundred of her complement of men; the remainder being always sufficient to navigate the ship.

6. Again, let the comparative bulk of the two objects be considered: The hull of a ship, taken by itself, on the one side, and the
the whole area of the masts, rigging, and hull, taken on the other; and, as the killing and destroying of men may be the principal view in firing at the hull, suppose, for example, a ship of seventy-four guns, which has two decks, the breadth, or rather the height, of the line exposed, which will comprehend both these decks crowded with men, cannot exceed twelve feet, which sum, multiplied by 120, the length of the ship, will give 1440 feet, the whole area of the vulnerable mark: But the area, comprehending the rigging and hull, of such a ship, will give a surface of twenty times these dimensions.

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SECTION III.

OF BRINGING GREAT FLEETS TO ACTION.

And, 1st, A preliminary case, shewing, that any one ship, in her station in the line of battle, must be at a considerable distance to admit of being exposed to the fire of three or more ships, bearing upon her at one and the same time, extended, as they must be, in the line of the enemy.

7. As it has also been often said, that some particular ship has been exposed, in battle, to the cannonade of three, four, or even five ships, all extended in the enemy's line, and all bearing up-
on her at one and the same time, figure 1. of Plate II, is intended to prove, that this ship must have been at a very great distance before she could have been exposed to the fire of even three ships, supposing them to be extended in line of battle a-head, and at one cable's length alunder. Suppose a line of battle, in which four or five ships are extended, as I, H, F, H, I, the spaces between each ship to be two hundred and forty yards, or one cable's length, and the length of each ship to be forty yards, so that the whole space between head and head, of any two ships, is two hundred and eighty yards; and let the perpendicular line FK, proceeding right out from the beam of the middle ship F, be divided into a scale of six cables length, making in all a distance of 1440 yards: Quære, At what distance may any opposite ship of an enemy be exposed to the fire of three ships bearing upon her at one and the same time? and let H, F, H, be the three ships lying-to, and extended in line of battle a-head; and let the opponent ship be stationed in any of the lines drawn through the points E, C, G, and parallel to the line I, I.

8. From inspection, it will be evident, that the opponent ship, stationed at the point E, 720 yards distant, cannot, for any length of time, be exposed to the fire of more than the centre ship F. For the ship H a-head, in lying-to in line of battle, will not be able to bring her head so much nearer the wind as to admit of her broadside to bear on E. But, supposing this to be practicable, will she not disorder her own line by being thrown out of her station, and also leave her head exposed to a raking fire from her opposites in the enemy's line?

9. Neither
9. Neither will it be more proper for H, the ship a-stern, to bring her broadside on E; for, in doing this, she will run to leeward, and expose her stern to be raked by her opponents.

10. But if the opponent ship cannot well be exposed to the fire of the two ships, H, H, at the point E, she must be still less exposed at the point C, 480 yards distant; and it will be almost impossible for the ships H, H, to touch her at the point G, 240 yards, or one cable's length distant.

11. But one cable's length asunder is too small an allowance for accidents that may happen to ships extended in line of battle a-head. Therefore, let us suppose I, F, I, to be the three ships extended at two cables length asunder, or 480 yards between each of the three ships:

12. Then it will be evident, if the opponent's ship could not be much exposed, at the point E, to the fire of the three ships, when at one cable's length asunder, that, proportionally, she would not be more exposed at the point K, from the fire of the three ships now, when at two cables length asunder, which is double the distance, or 1440 yards:

13. But as ships cannot well be kept in line of battle at a less allowance than one and a half cable's length asunder, it follows, that a ship must be at least 1880 yards distant, before she can be exposed or annoyed by a cannonade from three ships extended in
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an line of battle, and bearing upon her at the same time, which let be supposed at L.

14 Hence, it may be concluded, that, when it has been said, that any ship has been exposed to the fire of five, four, or even three ships of the enemy's line, that such ship has been at a very great distance. For, from what has been said, it will not be admitted, that either of the ships I, I, or H, H, a-head and a-stern of the principal, F, will have time to bring their broadsides to bear directly upon the ship in question, their attention, as is supposed, being too much engrossed by their opposite ships in the enemy's line, at the points B, B, B, B, who assuredly would take the advantage then offered, and rake them fore and aft.

SECTION IV,

OF THE PRINCIPLES NECESSARY TO BE KNOWN FOR ENABLING US TO JUDGE OF THE DIFFERENT MODES OF BRINGING GREAT FLEETS TO ACTION.

15 Let us suppose a fleet of ten, twenty, thirty, or more ships, of eighty guns each, extended in line of battle to leeward, and lying-to at I (Plate III. fig. 1), with the intention of avoiding an attack, and suppose another fleet at B, of equal number and force.
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The force of ships also extended in line of battle three or four miles to windward, and desirous of making an attack and coming to close action, on equal terms, with the land B.

16. From the nature of the attack on a single ship (Plate I) it must be evident, that, if the fleet B shall attempt to run down headlong ship for ship upon the squadron F (as represented in Plate III fig 2), each individual ship of B having been exposed, during a course of two miles to a cannonade at a disadvantage of above twenty to one, must be disabled long before it can reach such a point of distance from F as properly may be termed close action, or even, to reach a situation proper for annoying her antagonist in the line F.

17. Again, let it be supposed that B, though much disabled in his rigging, while in his course a, a, from the windward has made his ships bring to, at a distance from whence he can hurt F (Plate III fig 3). Is it to be expected that F which desire has always been to avoid a close engagement and has already disabled the ships of B, will patently lie still or wait until B shall have time sufficient to disable him in his turn? Is it not evident that F, while unhurt, before he may feel the effect of a cannonade from B, and while enveloped in his own smoke as well as that of the enemy will withdraw himself by bearing away to leeward to attain a new situation, where he may be out of reach of cannon-shot, outflanking B who would be obliged to repair his rigging before he can be in order to follow and make a second attack?

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18. Again
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18. Again, suppose that B, in place of going headlong, and endwise down, shall attempt to run down in an angular course, or lashing, as it has been called, (as in Plate III. fig. 4.) Is it not evident that this will be a means of protracting the course of B, and, consequently, the duration of the unequal cannonade from F, with the certainty of having his headmost ships exposed to more than their share of the damage?

19. But it is also evident, (from fig. 5.) that, should any ship B in this angular line come to be crippled, her way being stopped, may, of consequence, occasion a confusion amongst the ships that are next astern, some running to leeward, while others are endeavouring to get to windward of the disabled ship; and, while this point is settling, the time may be lost, and, of consequence, the necessary support to the ships a-head, now so far separated, may be too long retarded, as in the case of Mr Byng. But as it may be said, that a stoppage of one ship a-head will not necessarily produce a stoppage in every ship astern, because they may go to leeward of the disabled ship: We answer, That it is precisely what happened to Mr Byng, to be afterwards illustrated by the case of the Intrepida, when we come to give a description of that gentleman's engagement. Besides, by the supposition, the ships a-head, in the van A, (Plate IV. fig. 1.) may be now engaged, and, of consequence, not having much headway, may be said to be stationary; therefore, every ship astern, if she shall attempt to bear down, as at B, D, from being confined to a determined course, must be brought into the position of being raked, when coming down before the wind.
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(as in fig. 2. Plate III.), and, consequently, of being completely disabled long before she can get close enough along-side of the enemy.

20. Again, the headmost ships, or van of B, having attained their station at A; that is, a-breast of the van of F, (as in Plate IV. fig. 1.), and having begun the cannonade, may we not suppose that F, whose conduct, or design, has always been to save his ships, has instructed, that, so soon as any of his ships, particularly the van, shall begin to feel the effect of a cannonade, they shall immediately withdraw from danger?

21. And we are also to suppose, that, so soon as they have thrown in their fire upon the van of B, each ship, one after another, as instructed by F, shall bear away in succession, as at H, to form a new line at I I, two or three miles to leeward. Now, is it not evident, from this cautious conduct, that F, seeing the embarrassment of B, and that his ships are disabled, and his van unsupported, will, by making a crowd of sail, endeavour to range past B, ship by ship, in succession, till his whole squadron has poured in their fire upon the van of B; and that he, F, will then bear away to join his headmost ships, and form a new line of battle to leeward, at I I, to be in readiness to receive a second attack, if B shall be so imprudent as to attempt it?

22. Is it not also evident, that, if any one or more ships of the squadron of F shall be crippled, they will have it in their power to
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to quit their station being covered with smoke, at any time and
to fall to leeward, as at C, where they will be in safety? As a
d farther part of the system of manœuvre supposed to be adopted,
it may be conceived that ships in this manner shall be made to
withdraw from battle having intermediate ships as a cover to
keep up a good countenance in the line, and amuse the enemy.
But by the supposition and demonstration, the ships of the squa-
dron B must be crippled and much separated, long before they
can get to their station, whether the attack shall have been made
in the perpendicular direction, (as in Plate III fig. 3) or in the
lashing manner, (as in fig. 4 and 5); therefore, in both cases,
B's van must inevitably be exposed to the effect of the last de-
scribed movement, which was that F, perceiving the ships of B
in disorder unsupported and disabled from following him, will
make sail and discharge the fire of his whole line upon the van
of B ship by ship as they pass in succession, and will form a
new line to leeward, to be prepared, if another attack shall be
made upon them.

A FARTHER ILLUSTRATION

23 Again let B (Plate IV fig. 2) represent a fleet putting
before the wind each ship with an intent, when brought to at a
determined distance at A, to take up their particular antagonists in
the line of the enemy F to leeward; and, for argument's sake,
let F be supposed at rest, without any motion, a head whatever
24. From what has been said, (No. 22.), it may be admitted, that alternate ships of F's line, under cover of the smoke, being made to withdraw from battle, as at G G; the intermediate ships left behind them in the line will be sufficient to amuse even the whole of B's fleet, while the ships G shall be forming a new line H H, as a support, from the leeward: That, in such case, B, after being disabled, as he must be, and not having foreseen the manœuvre, will neither be able to prevent these intermediate ships from bearing away to join their friends, nor, were he able, would it be advisable to follow them; for the same manœuvre, with equal success and effect, can again and again be repeated.

25. In order to show the relative movements of both fleets, with respect to each other, Plate V. is divided, by a scale, into squares of a mile each, in which let F (fig. 1.) represent a fleet to leeward, with motion a-head, as required for good fleecage, each ship having sufficient to keep her under command of the rudder, and let it consist of twelve ships occupying a space of two miles, as extended in line of battle, at one cable's length abunder *; and F's motion through the water, if at the rate of four

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* The length of a ship of 74 guns is about 5.1 yards.

Interval between two ships at one cable's length abunder 2.15

The sixth part of a mile 29.4

Six ships, formed in a line of battle a-head, will extend about a mile in length, or 1760 yards. And four large ships, when at 1 1/2 cable's length abunder, may form another scale sufficiently correct for a mile.
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Two miles per hour, may be expressed by the space comprehended by the perpendicular lines marked by F and G on the scale below. These four lines comprehended by F and G will also express the time in which any fleet, B, may perform his course, when coming down to the attack from the windward.

26. Let B be the opponent fleet, consisting also of twelve ships, and four miles to windward; and let the point A be 440 yards, or one quarter of a mile right to windward of the point G.

27. Then B, by putting before the wind, if he shall arrive at the point A, in the same time that F, the fleet to leeward, has arrived at the point G, his motion will have been at the rate of 41 miles per hour, as must be evident from the scale of miles placed at the top of the figure; and his course, as described by the lines B A and G D, will be slanting, or diagonal, forming an angle of 48 degrees with B C, his line a-head, and nearly 4 points to the wind.

28. Again, if F, (Plate V. fig. 2.), by carrying more sail, shall move at the rate of six miles per hour, that is, from F to G; then B, having his course made thereby the more slanting, will have just so much the greater difficulty of keeping his ships in line a-breast while coming down to the attack. For the leading ship meeting with no obstruction in her course, will push on, whereas every accident of obstruction accumulating, as it happens to each ship progressively, the rear, being affected in the greatest degree, will, for that reason, be left the farther a-flere. But, from the very form of
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of this slanting course, every ship astern will be apt to get into
the wake of the ship a-head. Therefore, the whole fleet of B,
van and rear, will not arrive in the same time at the line A D, so
as to be in a perfect line a-brest, and parallel with the fleet to
leeward, but will have assumed the lasking form, as represented at
the points M, N, and O, in the different parts of the course.

29. And again (in Plate V. fig. 5.), if the fleet to leeward shall
keep his wind, so as to lie up one point, as per line of course F C,
making an angle of 11½ degrees with his former line of course
K F K: Then the rears of the two fleets will thereby be removed
at a much greater distance, and the van A, of consequence, must
be sooner up with the enemy's van, and evidently so much the far-
ther from support, while F, by bringing up his ships in succession,
will have it in his power to disable the van A, (No. 27.) and will
afterwards bear away as at H, unhurt, and at pleasure; while B,
at this time, by the supposition, being crippled, or having his rear,
D, obstructed, and at a distance, will be unable to prevent him.
And, in all the three cases, it is evident that the fleet B, so soon
as he shall approach within reach of gun-shot, must be exposed
to the fire of F's whole line, for he will be a-brest of B continu-
nually in every part of his course.

30. But the difficulty of bringing the rear of the windward
fleet to action will still be more increased, if the sternmost ships
of the fleet to leeward, in place of keeping their wind, shall bear
away occasionally, as at M L, (fig. 9.)
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31. All which being admitted, the difficulty of bringing opponent fleets to close engagement may be accounted for, without being obliged to have recourse to that supposed inferiority, in point of failing, imputed to our ships, compared to those of the French, our enemy.

32. Hence it appears, that a fleet, B, to windward, by extending his line of battle, with a design to stop and attack a whole line of enemy’s ships to leeward, must do it at a great disadvantage, and without hope of success: For the receiving fleet, F, to leeward, unquestionably will have the four following advantages over him, which will be more particularly proved when we come to examine the real practice.

33. First, The superiority of a fire, above twenty to one, over the fleet B, while coming down to attack.

34. Secondly, That, when the ships of B are brought to at their station, if it blows hard, the shot from F, by the lying along of the ships, will be thrown up into the air, and will have an effect at a much greater distance; whereas, on the other hand, the shot from B, from the lying along of the ships also, will be thrown into the water, and the effect lost.

35. Thirdly, That F will have the power of directing, and applying at pleasure, the fire of his whole line against the van of B, who is now unable to prevent it, his ships being disabled, separated, and, therefore, unsupported.

36. Fourthly,
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36. *Fourthly,* That I will also have a greater facility of withdrawing from battle, the whole, or any one of the disabled ships of his line.

37. If, then, after a proper examination of the late sea engagements, or encounters, it shall be found, that our enemy, the French, have never once shown a willingness to risk the making of the attack, but invariably have made choice of, and earnestly courted a leeward position: If, invariably, when extended in line of battle, in that position they have disabled the British fleets in coming down to the attack: If, invariably, upon seeing the British fleet disabled, they have made sail, and demolished the van in passing: If, invariably, upon feeling the effect of the British fire, they have withdrawn, at pleasure, either a part, or the whole of their fleet, and have formed a new line of battle to leeward: If the French, repeatedly, have done this upon every occasion: And, on the other hand, if it shall be found that the British, from an irresistible desire of making the attack, as constantly and uniformly have courted the windward position: If, uniformly and repeatedly, they have had their ships so disabled and separated, by making the attack, that they have not once been able to bring them to close with, to follow up, or even to detain one ship of the enemy for a moment; Shall we not have reason to believe, that the French have adopted, and put in execution, some system, which the British either have not discovered, or have not yet profited by the discovery?