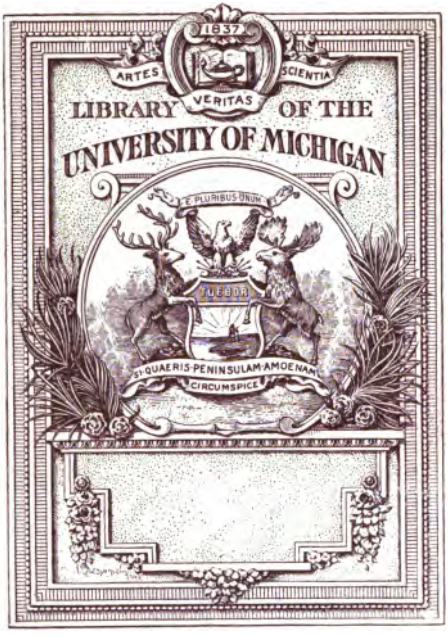
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CAIUS JULIUS CÆSAR'S

BRITISH EXPEDITIONS

FROM

Boulogne to the Bay of Apuldore,

AND THE

SUBSEQUENT FORMATION GEOLOGICALLY

OF

ROMNEY MARSH.

* * * Vidi factas ex æquore terras.
OVID, Met. xv. 262.

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PREFACE.

THE idea that Romney Marsh was not in existence in the time of Cæsar first struck me in the early part of the year 1864, as I was one day standing on the cliff which forms the eastern extremity of the Isle of Oxney. On returning to London shortly afterwards, I assumed that in his time the sea filled the whole of the Bay of Apuldore; and on testing this assumption with the Commentaries, I found it in every respect consistent with the narrative: nor have I, during subsequent visits in the south-east of Kent, been able to discover any facts inconsistent with this theory.

On examining the opposite coast of France in the summer of 1866, I found that Boulogne, as it must have been in ancient days, completely answered the description which Cæsar gives of the port from which he sailed.

The details of the narrative, which I have endeavoured to fill in as fully and completely as possible, are still

susceptible of improvement. They involve a knowledge of naval, military, and physical sciences, as well as of the topography of the country, far greater than I have any means of attaining. I can, therefore, only hope their imperfections will be pardoned and their errors corrected by those who are better acquainted with the localities and more conversant with the sciences in question.

With these observations I venture to submit the result of my investigations to the ordeal of public criticism, confident that if true my theory will withstand the severest tests to which it can be submitted, and that if untrue —the sooner its fallacy is exposed the better.

F. H. APPACH.

Kensington Garden Terrace,
May, 1868.

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CAIUS JULIUS CÆSAR'S

BRITISH EXPEDITIONS.

SECTION I.—*The Evidence and Argument.*

1. The identity of the localities referred to in the various accounts and notices relating to Cæsar's expeditions to this island, the former in the year B.C. 55, the latter in the year B.C. 54, is not a matter of speculation, nor a question to be determined by any argument as to the greater probability that one place is intended rather than another, but is one of fact depending for its solution exclusively and entirely on the evidence which can be adduced.

2. The only direct evidence is the brilliant but brief narrative given by Cæsar himself in the 4th and 5th books of his 'Commentaries on the Gallic War.' The indirect evidence is very meagre. A few letters of the orator Cicero, who was a contemporary and a friend of Cæsar; a story told by Valerius Maximus, in his 'Historical Anecdotes,' written about the time of the Emperor Tiberius, A.D. 14-37; a couple of lines in the 1st and a couple of lines in the 2nd books of the 'Pharsalia' of Lucan, who died about A.D. 65; a few passages in Plutarch's 'Life of Cæsar,' written about the beginning of the reign of the Emperor Trajan, A.D. 98; and a few passages in Dion Cassius' 'History of Rome,' commenced about A.D. 211, exhaust the catalogue of all the indirect evidence to which any weight can be attached.

3. The authority of this indirect evidence has been questioned. In some instances not without reason. A little consideration, however, will show that it ought not to be altogether passed over, however much it may be distrusted, for it is evident that when the writers follow

Cæsar's narrative their accounts will show the construction they have put on his words, and thus furnish a nearly contemporaneous interpretation of the language he has used. And where they give additional details of events described, or of localities referred to, or relate incidents not mentioned by him, but which may possibly have occurred, they may be right notwithstanding their proved inaccuracy in other instances. Moreover, they may have seen letters written by officers or soldiers who had taken part in Cæsar's expeditions; or may themselves have been conversant with the current oral accounts of his operations; nor is it probable that they would have committed themselves to any statements of the truth of which they themselves were not satisfied, so that it is more likely that their accounts are true where they are not absolutely irreconcileable with Cæsar's narrative, or in themselves incredible, than that they are false; or at any rate, that they have some basis of truth on which to rest, rather than that they are mere fictions originating in the imaginations of the writers themselves.

4. It is of course evident that when any locality is assigned as the scene of an incident mentioned by Cæsar it must answer in every particular the description given of it by him. It is equally evident that the locality assigned must also answer in every particular the exigencies of the story. If it fails to comply with either of these conditions in any one particular, it is certain that that locality is not the place intended by Cæsar. In the same manner, if the indirect evidence is trustworthy (as it is fair to assume in the absence of proof to the contrary) the locality assigned as the scene of an incident mentioned there must answer in every particular the conditions required by that evidence, or it cannot be the locality referred to.

5. Hence the present task is to assign localities to all the incidents mentioned, both in the direct and indirect evidence, which shall in every respect answer all the conditions required by that evidence; and if this can be done, it can hardly be doubted that the localities thus assigned must be the places intended, for the number of details in the evidence, as will hereafter appear, is so great that

it is impossible to conceive that more than one set of localities can in every respect answer all the conditions thus required.

6. It will therefore be necessary to examine the evidence, step by step, omitting no detail, however minute, which throws the least light on the topography of the places referred to, and assigning a locality to every incident, without exception, which is mentioned in the course of the narrative.

7. But before doing so, it must be premised that the accounts furnished by Cæsar, and the other writers above mentioned, are applicable only to the contemporaneous state of the localities and period to which they refer. That state, therefore, must be reconstructed, both politically and physically, before any attempt can be made to assign localities in the manner mentioned above.

SECTION II.—*Extent of the Roman Power in Gaul*, B.C. 55.

1. In the early part of the year B.C. 57, Cæsar had succeeded in extending the Roman power towards the north-west as far as the shores of the British Channel (*a*). He had made a Gallic friend of his, named Comius, one of the Atrebates, a tribe whose chief town was Nemetacum, now Arras (*b*), king of that people, because he was a man of great influence in that part of the country, and Cæsar thought he could rely on his fidelity (*c*). The country of the Atrebates thus formed the extreme limit of the Roman power towards the north-west. To the east of them the Roman frontier passed a little to the north of Namur, and thence along the Meuse to the Rhine somewhere about Bonn. To the north of this line the country still remained unreduced, and was inhabited by two conterminous tribes, the Morini on the west, and the Menapii on the east; the latter extended beyond the Rhine (*d*).

2. The country of the Morini was that part of Gaul which lay nearest to Britain (*c*). It was, therefore, unques-

(*a*) B. G. i. & ii.
(*b*) Smith's 'Dictionary of Greek and Roman Geography,' Art. Nemetacum.
(*c*) B. G. iv. 21.
(*d*) B. G. iv. 4.

tionably the country adjacent to Cape Grisnez. Cæsar does not say how far it extended to the south of that Cape. From his expression referring to its proximity to Britain, it would seem not to have extended very far to the south, at any rate not so far as to have excluded the Atrebates from the sea. The south-western extremity of the chalk downs near Neufchâtel, about eight miles south of Boulogne, would seem to have been the frontier between the two tribes. The harbour of Boulogne in the time of Cæsar was thus, in all probability, within the territory of the Morini, as it was in the time of Ptolemy about two centuries later. That geographer speaks of Gesoriacum, the ancient name of Boulogne, as being situate in the territory of the Morini (*a*).

3. By the close of the summer of the next year, B.C. 56, the whole of Gaul, with the exception of the Morini and the Menapii, had been brought under the Roman dominion. These two tribes still held out, and Cæsar thinking he could make short work with them, advanced into their country, though the summer was nearly over. The Morini and Menapii, however, instead of engaging in a battle, as the other Gauls had done, hid themselves and their property in the woods and marshes with which their country abounded, and when Cæsar had advanced a short distance into their country, attacked the Romans, who up to this time had not seen an enemy, while they were engaged in constructing their camp. In the end, the Morini and Menapii were driven off by the Romans, but for some days afterwards Cæsar was unable to advance, and was fain to employ his troops in cutting down the trees, and building walls with them on both sides to protect his flanks. After clearing a large space, the Romans began to harrass the enemy's cattle and baggage, whereupon the latter retired to still thicker woods. Bad weather now set in, and Cæsar could no longer remain in the field. He therefore withdrew his army to their winter quarters, having completely failed in his attempt to reduce the two northern tribes (*b*).

(*a*) Μορινῶν Γησοριακὸν ἐπίνειον.—Ptol. ii. 9, 3.
(*b*) B. G. iii. 28, 29.

4. In the early part of the following year, B.C. 55, Cæsar was engaged in repelling an incursion of some German tribes into the north-eastern parts of Gaul (*a*). He then crossed the Rhine, to impress the Germans with a dread of the Roman power, by a bridge (*b*) which he built either at Bonn (*c*) or Andernach (*d*). Having made what he considered a sufficient demonstration on the eastern bank of the Rhine, he returned to Gaul, destroying the bridge in his rear. By this time the summer was nearly over; nevertheless, Cæsar, according to his own account, determined to invade Britain, and that at once, although there was only a small portion of the summer left (*e*), and the distance he would have to march was upwards of two hundred miles.

5. The reasons Cæsar gives for this determ[illegible] were that in almost all the Gallic wars the British [illegible]een in the habit of furnishing aid to the Gauls; and that, although the year was too far advanced for an extended campaign, it would be of use merely to visit the island for the purpose of discovering what sort of inhabitants it contained, and of ascertaining the nature of the country, and what ports and harbours it possessed. These things were almost wholly unknown to the Gauls, for hardly any one ever went to Britain except traders, and they knew nothing of the country but the coast and those parts which were opposite Gaul (*f*).

SECTION III.—*Expedition to the Crimea.*

1. It will now be convenient to obtain some definite idea of what is involved in a hostile descent upon an enemy's coast, and to fix upon some standard with which the magnitude of the [illegible]eration contemplated by Cæsar may be compared. For this purpose the invasion of the Crimea by the Allies in 1854 may be referred to. The

(*a*) B. G. iv. 1—15. (*b*) B. G. iv. 16, 17.
(*c*) 'History of Julius Cæsar,' Emperor Napoleon III. vol. ii. p. 178, n.
(*d*) Cæs. Comm. G. Long. p. 194, n.
(*e*) 'Exiguâ parte æstatis reliquâ, Cæsar * * in Britanniam proficisci contendit.'—B. G. iv. 20.
(*f*) B. G. iv. 20.

part taken by the English in that operation will be found in a great measure to supply the necessary data (*a*).

2. On that occasion the English contingent consisted of 22,000 infantry, rather more than 1000 cavalry, 4000 artillery, and 60 guns, with the full complement of horses for field purposes, but without the usual baggage train and means of transport. The whole force was placed on broad transports, all of which were steam vessels, or were towed by steam vessels, so that the ships of war might be left unincumbered, and at liberty to protect the landing if required. The embarcation commenced at Varna on the 24th of August, and though it proceeded rapidly and successfully, it was not till the evening of the 6th of September, a period of fourteen days, that this operation was completed. On the following morning the English ships sailed, and on the 9th of September came to anchor at the appointed rendezvous, forty miles to the west of Cape Tarkand.

3. A survey of the enemy's coast was next made, and it was decided that the landing should take place near Old Fort, at a place where two salt water lakes, one on each side of a cliff, are separated from the sea by two narrow strips of shingle, each about a mile and a half in length.

4. While the survey was being made the rest of the combined fleets were assembling at the appointed rendezvous. By the evening of the 13th of September, all was in readiness; and during the night all the ships drew in as near as they could to the destined landing place. When morning dawned it was found that no opposition was intended. The English, therefore, proceeded at once to land on the most northerly of the two strips of shingle.

5. The plan of their disembarkation was imitated from the one adopted by Sir Ralph Abercromby when he made his descent upon the coast of Egypt. It was based upon the principle of so arranging the transports and boats as that the relative position of each company as it was being

(*a*) The account in the text is abridged from Kinglake's 'History of the Invasion of the Crimea,' vol. ii. chaps. vii.—xi.

rowed towards the shore should correspond with that which it would have to take when formed upon the beach.

6. At half-past eight in the morning, the troops of the light division were in the boats; the management of which was conducted exclusively by the sailors of the fleet, so that on reaching the land the soldiers might have nothing to do but step ashore. The weather being fine, the signal was given, and a line of boats upwards of a mile in length rowed swiftly to the shore. As soon as the soldiers had landed, the boats returned to the ships for more men, and so the landing went on all day. At sunset the English had got on shore all their infantry, and some part of their field artillery. Thus about 22,000 infantry and say 2000 artillery, in all some 24,000 men, were landed in about nine hours, on a mile and a half of coast. Hence, under favourable circumstances of weather, and with all the advantages of steam and the best mechanical appliances of modern times, the rate at which the disembarcation was effected was considerably under a thousand men an hour on half a mile of coast.

7. It required four days more to complete the disembarcation of the whole force; the landing of cavalry being an exceedingly difficult operation. Indeed, there is more difficulty in landing one horse than there is in landing several men.

SECTION IV.—*Cæsar's March to the Coast.*

1. The account which Cæsar gives of his proceedings immediately after he had come to the determination to invade Britain is very confused. It appears from the 'Commentaries' that in order to find out something about the country, and to ascertain what ports there were capable of containing a number of heavy ships, he sent for the traders. They, however, were either unwilling or unable to give him the information he required (*a*). He therefore sent one of his generals, named Volusenus, in a long ship, that is a war vessel built to row as well as sail, to make a survey, with orders to return as soon as

(*a*) B. G. iv. 20.

possible (*a*). Cæsar also says that he himself, with his army, marched towards the Morini, because the shortest passage to Britain was from their country (*b*). The word he uses implies that he nearly approached his destination, but does not necessarily imply that he actually arrived there. Cæsar further says that he ordered the ships from the neighbouring countries, and a fleet which he had built in the preceding summer, to converge together in the same direction (*c*); and in a subsequent passage adds that Volusenus made his survey and returned on the fifth day (*d*).

2. From this it is clear that when Volusenus set sail Cæsar and the army were within such a distance of Britain that Volusenus could go there, make his survey, and return, all in the space of five days. In other words, Cæsar, with his army, had by this time marched from the Rhine, and had reached some part of the coast, either in or near the territory of the Morini.

3. It now remains to inquire whether this part of the coast lay to the north or south of Cape Grisnez.

4. Cæsar's position on the Rhine had been this. The summer was drawing to a close, he had a long march before him, and he was pressed for time. His shortest route to the sea was evidently through the country of the Menapii and Morini to the north of Cape Grisnez, but it was equally evident that he could not march through their country, seeing that he had been repulsed by them only the summer before. His next shortest route was to the coast south of the Morini by Namur. To the south of this town lay the forest of Ardennes, at least as extensive and difficult for an army in Cæsar's time as it is at present, and probably more so. In marching by Namur he would avoid this difficulty, and pass through country which had been Roman territory for more than two years. At Arras he would be in the country of his friend Comius, and

(*a*) B. G. iv. 21.

(*b*) "Ipse cum omnibus copiis in Morinos proficiscitur, quod inde erat brevissimus in Britanniam transjectus."—B. G. iv. 21.

(*c*) "Huc naves undique ex finitinis regionibus, et quam superiore ætate * * fecerat, classem jubet convenire."—B. G. iv. 21.

(*d*) "Quinto die * * revertitur."—B. G. iv. 21.

within easy distance of the Seine, the Somme, the Authie, and the Canche, all Roman rivers, and all offering great facilities for his intended expedition. These considerations point to the conclusion that Cæsar marched to that part of the coast which lay just south of the territory of the Morini.

5. Another reason for concluding that Cæsar did not march towards any part of the coast north of Cape Grisnez is that it is hardly possible to conceive that he ordered his ships to pass the mouths of the last mentioned rivers, which were within an easy distance of Britain, and to incur the extra risk of coasting along an enemy's country and rounding Cape Grisnez (*a*), in order to rendezvous on a coast with which he does not seem to have been acquainted, and which was separated from his base of operations by at least ten miles of hostile country.

6. On marching from the Rhine, therefore, Cæsar's destination was the sea coast, immediately to the south of the Morini; and the place where he ordered his ships to assemble was the country about the mouths of the Somme, the Authie and the Canche.

7. The sequence of these events must have been as follows: On commencing his march from the Rhine, Cæsar sent messengers to summon the traders to meet him on his arrival on the coast, and to order his ships to rendezvous in the mouths of the Somme, the Authie and the Canche, so that while the traders and the ships were proceeding to that part of the coast the army was marching towards the same destination. When Cæsar and the traders had arrived, the conference was held. Cæsar then finding he could not obtain the information he required, sent Volusenus to Britain to make the survey which had thus become a matter of necessity. From these considerations, it follows that Volusenus started from the mouth of the Canche, the Authie or the Somme.

SECTION V.—*Line of the French Coast*, B.C. 55.

1. The next point to be determined is the configuration of the French coast in the time of Cæsar.

(*a*) Airy, Archæol. xxxiv. 236.

2. At the present day, from the termination of the Tréport Cliffs, a little to the south of the estuary of the Somme, the French coast consists of blown sand in hills, some of which are of considerable height. This formation extends northward as far as Ecaux, nearly four miles south of Boulogne. At this point the wealden formation appears, having a cliff on its seaward edge, and forming the promontory of Cape Alprech. It rises about 200 feet above the level of the sea, and forms the south side of the harbour of Boulogne. On the north of the harbour the cliff continues for about two miles, sinking gradually, down to the mouth of the little river of Wimereux, where the blown sand reappears. The blown sand then extends beyond Ambleteuse, at the mouth of the Slacq, as far as Andreselles, a fishing village about seven miles from Boulogne (*a*). There the wealden formation again appears with a cliff on its seaward edge to form the promontory of Cape Grisnez, the summit of which is about 150 feet above the level of the sea (*b*).

3. All along this part of the coast the blown sand increases, while the sea continually encroaches on the cliffs. This has been the case for many centuries, and the result is that the mouth of the harbour of Boulogne has now become so obstructed by an accumulation of blown sand that it can only be entered at the top of the tide. There is also great difficulty in maintaining the entrance to it, although its width does not exceed one hundred yards. This was not the case in the time of Cæsar. It will be shown hereafter (*c*) that the harbour of Boulogne was then accessible at all periods of the tide. The accumulation of blown sand by which it is now obstructed, therefore, was not then in existence. The mouth of the harbour then extended, with deep water, from cliff to cliff, a distance of

(*a*) See 'Observations on the Port of Gaul, from which Cæsar sailed on his Expedition against Britain,' by the late Nathaniel Gould. Unpublished; quoted in Lewin's 'Invasion of Britain by Cæsar,' xcix.

(*b*) "Cape Grisnez lighthouse is 46 feet high from its base, and the light is 194 feet above high water."—Walker's 'Sailing Directions for the English Channel,' p. 189.

(*c*) Section xxiii. par. 9.

somewhat more than half a mile. The blown sand to the south of Boulogne, too, in all probability, was not then in existence. At all events, it was not nearly so extensive as at the present day.

4. How much the sea has gained on the cliffs since Cæsar's time is of course a matter wholly conjectural. It is clear, however, that the salient points, such as Cape Alprech, must then have projected further seaward than they do at the present day. By computing on the result of an experiment made at Treport, an approximation to the truth may perhaps be obtained. It appears from that experiment that the waves consumed 17 feet of solid building stone in thirty years, or more than half a foot yearly. At that rate the encroachment would in two thousand years exceed 1100 feet. But, considering that the waves act almost perpendicularly against the cliffs of Boulogne, while they act but very obliquely on those of Tréport—that the cliffs of Tréport are of a nature much more compact than those of Boulogne—when it is recollected that no vestige now remains of the projecting cliff which supported the Pharos of Boulogne so late as the end of the seventeenth century—a quarter of a mile may well be allowed for the waste of the cliffs there since the time of Cæsar (*a*).

5. In B.C. 55, therefore, the cliffs along this part of the French coast extended further seaward than they do now, and there was no blown sand, or much less than at present. The salient portions of the coast, therefore, such as Cape Alprech, were then comparatively more prominent than they now are. With these exceptions, the French coast presented much the same appearance in the time of Cæsar as it does at the present day.

SECTION VI.—*Line of the English Coast*, B.C. 55.

1. The changes which have taken place in the English coast since B.C. 55, are much more considerable than those which have have taken place in the French coast since the

(*a*) Gould's 'Observations,' referred to above; quoted in Lewin's 'Invasion of Britain by Cæsar,' p. xcix.

same period. The cliffs here, like those on the other side of the Channel, have suffered to some extent from the encroachments of the sea; but the high ground about Fairlight and Folkestone no doubt presented much the same appearance in Cæsar's time as it does now. As regards the country between them, however, many changes are known to have taken place since that time.

2. In an old oil painting of the town of Rye, supposed to be of the fifteenth century, the sea is represented as coming up to the foot of the cliff on which the town is built (*a*). It is now more than two miles distant.

3. Leland in his Itinerary, which was presented to king Henry VIII. in the thirty-seventh year of his reign, A.D. 1545, speaking of Hythe, says: "The havyn is a pretty rode, and lieth meatly strayt for passage out of Boleyn. Yt crooketh yn so by the shore along, and is so bakked from the mayn sea with casting of shinggil that smaul shippes may cum up a larg myle toward Folkestan as yn a sure gut" (*b*). This haven is now dry land.

4. In A.D. 1287, old Winchelsea was absolutely washed away by the sea, on St. Agatha's Eve (*c*).

5. These are some only of the changes which can be proved to have taken place in this part of the country since the Norman Conquest.

6. A glance at any tolerably large map will show that as great changes have taken place in still earlier times. It will there be seen that with the solitary exception of Apuldore Dowles there is no local name throughout the extensive system of marshes between Fairlight and Folkestone which shows any traces of a Celtic derivation, and that it is not until the high ground surrounding the marshes is reached that Celtic names begin to appear. There will be found Apuldore, from the Celtic *pwl*, a pool, and *dour* water; Stour from *dour*, water, combined with the intensitive prefix *ys*, the, the water. Rother from *roy*, red, and *dour*, water, so called from its colour acquired from the ironstone country through which it flowed. The

(*a*) Horsfield's 'History of Sussex,' i. 487.
(*b*) Lel. Itin. vii. 141.
(*c*) Horsfield's 'History of Sussex,' i. 480.

name Rother, too, is only applicable strictly as far as Robertsbridge, which is probably a corruption of Rotherbridge (*a*). Below that town the river is always called the Channel by the country people. Apuldore Dowles is the name of that part of the marsh which adjoins the eastern side of the high ground at Apuldore. The name is probably of Celtic derivation, and appears to be allied to the Welsh *dol*, a bend. If so, it would mean a bend or curve, and so a recess or bay; and Apuldore Dowles would mean the bay of Apuldore.

7. The only local names in the same district showing symptoms of a Roman derivation are Lydd, probably like the Lido at Venice, a corruption of *littus*, the shore; Lydd Rypes, from *ripa*, a bank; the Rhee Wall, from *rivi vallum*, the river wall, the propriety of which appellation will appear in the sequel (*b*); and Romney, which implies some connexion with the Saxon in the suffix *ey* or *ea*, which means an island or place by the water. Romney, therefore, was the Saxon for the island of the Romans (*c*).

8. The Saxon termination *ey* occurs at intervals throughout the south-western portion of the district in question, indicating the presence of water there in Saxon times. In the south-west also will be found Dungeness, the Dane's nose or point. The names in the interior of the marshes are exclusively Saxon, as Burmarsh, Ivychurch, Brookland, Fairfield (*d*).

9. These facts are significant. They suggest the conclusion that the marshes were not in existence in the time of the Celts, but that the sea then ran inland as far as Robertsbridge, and formed the bay of Apuldore; that the Romans were settled at Lydd and Romney, and were the builders of the Rhee Wall; and that it was not until the Saxon period that the interior of the marshes was inhabited. If this conclusion can be established, it is clear that the marshes were not in existence in the time of Cæsar.

(*a*) Lewin's 'Invasion of Britain by Cæsar,' p. xxxi.
(*b*) See sec. xiii. par. 5 et seq.; and sec. xvii. par. 7.
(*c*) Holloway's 'History of Romney Marsh,' 44.
(*d*) Taylor's 'Word's and Places,' 370.

SECTION VII.—*Marshes between Fairlight and Folkestone formerly Sea.*

1. The whole of the system of marshes in question lies in a basin of Wealden clay and Hastings sand, of which this part of the country is composed. It extends some twenty miles in length from Fairlight to Shorncliff, and has an extreme breadth of about twelve miles from Kennardington to Dungeness, presenting to a cursory observer the appearance of a vast level plain, as if the sea on some calm day had been suddenly transformed into dry land. To render the resemblance still more complete, its boundaries at many points consist of high ground terminating abruptly in regular cliffs, such as are now ordinarily seen only on sea coasts. Fine examples of these cliffs occur at Rye and Playden, and especially at Stone, where the cliff which forms the eastern extremity of the Isle of Oxney is some 200 feet high, and presents a very striking appearance when viewed from the south. In fine, it is evident that the sea at some former period occupied the whole of the basin which is now filled by the marsh, and reached to the foot of the high ground by which it is surrounded. This conclusion is corroborated by the fact that sea-shells and other marine remains are found to pervade the whole mass of the marsh (*a*).

2. There was thus in ancient times a bay of the sea between Fairlight and Folkestone which extended inland as far as Apuldore, and which occupied the exact position of the present marshes. From the western side of this bay, three large arms or branches ran up into the weald through the Brede, Tillingham and Rother valleys, the two former between Winchelsea and Rye, the latter on both sides of the Isle of Oxney; and through these valleys the whole of the drainage of large portions of the north and east of Sussex, and the south of Kent from Fairlight, to Rotherfield and thence to Cranbrook and Woodchurch, found its way to the Bay of Apuldore.

(*a*) See Lewin's 'Invasion of Britain by Cæsar,' lii; Elliott's Paper on the 'Formation of the Marsh,' there quoted, ciii.; and 'Memoir to the Geological Survey,' No. 4, p. 18.

3. The whole of the marsh land with which this bay and its branches is now filled lies considerably below high water mark at medium spring tides (*a*). It is therefore liable to inundations from the sea, and at the same time great difficulty is experienced in draining it. The sea is excluded partly by natural barriers, and where these are wanting, by artificial walls, generally formed of earth. At Dymchurch, the sea has been encroaching for many centuries, and has already destroyed several earthen walls and groins, rendering necessary the construction of one of stone more than three miles in length. This proves that in former times the marsh there extended further seaward than it does at present. A further proof of this is found in the fact, that about half-a-mile to the south-west of Dymchurch, remains of ancient pottery may be picked up in great abundance on the seaward side of the wall.

SECTION VIII.—*Romney Marsh and Jurisdiction.*

1. The general name of Romney Marsh is frequently applied indiscriminately to the whole system of marshes between Fairlight and Folkestone. This, however, is inaccurate. Strictly speaking, the name of Romney Marsh is confined to that portion of the system which extends from the salient point of the high ground between West Hythe and Hythe to the Rhee Wall. This ancient earthwork lies nearly in a straight line between Romney and Apuldore, and now carries the road between those two places. It forms the south-western boundary of Romney Marsh. The remaining portions of this system of marshes are distinguished by separate names, and were reclaimed long after the inning of Romney Marsh (*b*), which was the first marsh that was ever inned in England. It is subject to a peculiar jurisdiction, and has a code of laws for the maintenance of its walls and the regulation of its drainage, which has served as a model on which the laws for the maintenance and regulation of all the other marshes in England have been framed.

(*a*) See post, sec. ix. par. 4. (*b*) See post, sec. ix. par. 3.

2. These laws are administered by a corporation, entitled "The Lords, Bailiff and Jurats of Romney Marsh." They have authority to raise the money required for defraying the expenses of the walls and of the drainage, by making assessments on the lands in the marsh. These assessments are called scots. That which is levied for the maintenance of the walls is distinguished as "the wall scot."

3. The marsh jurisdiction extends, and always has extended, towards the north-east to the salient point of the high ground between West Hythe and Hythe. At this spot the remains of an ancient wall of earth may still be traced, which has always been, and still is, the north-eastern boundary of the marsh. The land to the eastward of this wall is called Duck Marsh. This has never been considered as part of Romney Marsh, and never pays and never has paid any scots whatever to the authorities of the marsh. It pays, however, a nominal sum annually for the right of draining into Romney Marsh (*a*).

4. Between Old and New Romney, there is a considerable extent of land lying above high water mark, which has always been exempt from the "wall scot," paying for the drainage only. It consists of Hastings sand of various shades of colour from yellow to grey, interspersed with layers of ironstone. It can be traced over a very considerable space extending from the water's edge at New Romney westward about a mile and a half, and northward towards St Mary's about a mile, somewhat in the form of a crescent, with its concavity towards the north. This land, therefore, is the remains of an elevated portion of the Hastings sand in which the marsh was deposited, and without doubt, in ancient times, formed an island in the bay of Apuldore about midway between Fairlight and Folkestone (*b*).

(*a*) I am indebted for this information to Mr. Elliott, of Dymchurch, the engineer of the marsh, to whom I am under deep obligations for the readiness with which he has always given me the benefit of his intimate knowledge of the subject.

(*b*) Elliott's Paper on the 'Formation of Romney Marsh,' quoted Lewin's 'Invasion of Britain by Cæsar,' p. cvi.

SECTION IX.—*Romney Marsh a Hill.*

1. Recent investigations in taking a series of levels over the marshes have established the fact, that the highest point of Romney Marsh lies immediately to the north of New Romney, where its surface is four feet below high-water mark at medium spring tides. From this point the land falls in all directions. Proceeding towards the north-east, its surface is five feet below high-water mark about half-a-mile south-west of Globsden Gut. At Dymchurch it is six feet, and about a mile south-west of Dymchurch Redoubt, it is seven feet below that level. Thence towards the north-west it sinks to eight feet about half-a-mile north-east of Burmarsh; and to eight feet six inches opposite the wood to the west of Eldergate Farm, on the high ground of Kent. To the east of this line the surface of the marsh rises. It is seven feet eight inches below high-water mark opposite the ruined church at West Hythe, and gradually rises from that point towards the mouth of the Slabrook to form Duck Marsh, which has throughout an inclination towards West Hythe.

2. Again proceeding in a westerly direction from the wood on the west of Eldergate Farm, the surface of the marsh is nine feet six inches below high-water mark opposite Aldington Knoll. About half way between Bilsington and Ruckinge it is ten feet six inches. At Ham Green it is eleven feet six inches, and about half-a-mile north of the Apuldore Railway Station, which is the lowest portion of Romney Marsh, it is thirteen feet six inches. From West Hythe, therefore, to Apuldore, there is a gradual fall of five feet ten inches in the surface of the marsh (*a*).

3. Here the road between Apuldore and Romney is reached. It is nearly level and occupies the site of the Rhee Wall, forming the southern boundary of Romney Marsh. On the north side of the road, at Apuldore, the marsh is about six feet below the level of the road. It rises gradually towards the east, until its surface attains the level of the road at Brenzett Corner. On the south the marsh is on the same level as the road throughout the whole distance

(*a*) Elliott's Maps in Lewin's 'Invasion of Britain by Cæsar.'

from Apuldore to Romney. Thus, between Brenzett Corner and Apuldore, there is a sudden difference in the level of the marshes on the north and south of the road, amounting at the latter place to six feet. Hence, all that portion of the marsh to the south of the road which is higher than Romney Marsh, was formed after the Rhee Wall had been completed, and therefore, of course, after Romney Marsh itself had been formed (*a*).

4. From the semicircle traced above from the north-eastern extremity of Dymchurch Wall along the high ground of Kent to Apuldore, the surface of Romney Marsh rises gradually on all sides towards New Romney as a centre, with the exception of some slight depressions or hollows, as for instance, to the south of Ivy Church, where the surface of the marsh is about six inches below the general level. As a whole, however, Romney Marsh instead of being level, forms with the high ground between Old and New Romney, a hill, in shape somewhat like the convex shell of an oyster. The highest level of the marsh land is about four feet below high-water mark at Romney, and the lowest about thirteen feet six inches below high-water mark at Apuldore. Hence, as the rise of the tides at Folkestone at springs is twenty feet (*b*), the whole of Romney Marsh lies between high and low-water mark.

SECTION X.—*The Shingle.*

1. One of the most conspicuous features of the marshes is the immense accumulation of shingle on their eastern edge, especially at Dungeness and to the south of Hythe. The whole of it has evidently been washed up by the sea, and appears to be a superficial deposit. At low water all along the coast from Fairlight to Hythe the marsh may be seen to pass underneath the shingle, and may be traced between it and the water's edge; moreover, the depth of the shingle is only about ten feet below high-water mark. It is never found below that level (*c*). It is therefore

(*a*) See above, sec. viii. par. 1.
(*b*) Admiralty Chart, South Coast, sheet vii.
(*c*) I am indebted to Mr. Elliott for this fact.

clear, firstly, that the whole of the shingle between Fairlight and Hythe lies upon the marsh; and secondly, that no part of the shingle was deposited until the marsh below had risen to within about ten feet of high-water mark.

2. The shingle all lies in fulls or ridges, which have a gentle inclination from the sea towards their inland extremities. In some places, as between Hythe and Dymchurch, the ridges are as much as two feet higher than the troughs between them. In other places, as at Midrips near Dungeness, they are but little elevated above the troughs, and there the surface of the shingle is comparatively level (*a*). In general the top of the ridge may be taken as about a foot above the bottom of the trough.

3. The ridges generally appear to consist of the smaller shingle, while the larger stones are seen to lie in the troughs (*b*). This arrangement, however, is not invariable. There is frequently no difference in size in the shingle forming the top of the ridge and that at the bottom of the trough; but the alternation of the large and small shingle is in most instances so constant that the fulls may be traced by it without difficulty for long distances.

4. The highest portions of the shingle are a few feet above high-water mark, while the surface of the adjacent marsh, being everywhere less than ten feet below that level, is everywhere higher than the bottom of the shingle. Hence all the fulls are more or less buried by marsh. So far as they are above the level of the marsh they are composed of pure shingle, and where they are below the level of the marsh they are made up of strata, some of which consist of pure shingle, some of pure marsh, and some consist of shingle and marsh mixed together. From this it follows, firstly, that each full began to be formed as soon as the marsh below it had attained the height of about ten feet below high-water mark; secondly, that so far as the fulls are composed of shingle and marsh the formation of the fulls and the formation of the marsh was contemporaneous; and thirdly, that where the full is buried by the marsh the latter was formed after the formation of the full.

(*a*) See 'Memoir Geol. Survey,' No. 4, p. 18.
(*b*) Ibid.

5. Again, the whole of the fulls have an inclination from their seaward ends towards their inland extremities. They are all contiguous one to another, and were evidently formed successively, one after another. Thus the outer side of each full in turn formed a sea beach until its successor had been thrown up, just as the most easterly full from Dungeness point to Great Stone End forms the sea beach at the present day.

6. The direction which the fulls take varies at different places (*a*). They are sometimes straight as at Lydd and Dungeness, and in other places, as between Hythe and the Dymchurch Redoubt, and to the east of Abnor Pit Coast Guard Station, they curve in various directions. Each full, however, belonging to the same group preserves a general parallelism with its neighbour on each side, so that the change of curvature between the fulls is in most cases very gradual. In some places the fulls appear to have been cut off and other fulls rest against their seaward ends. The present shingle beach between Hythe and the Dymchurch Redoubt is an example of this formation.

7. These differences of curvature are well exemplified in the group of fulls between Hythe and the Dymchurch Redoubt. At the latter place the fulls curve towards the north-west, and are nearly parallel to each other as far north as about half-way between Martello Towers Nos. 18 and 17 (*b*). From this point the shingle extends to within about 100 yards of the salient point of the high ground between West Hythe and Hythe. It forms the eastern limit of Romney Marsh, and was evidently at some time connected with the high ground by means of the ancient wall there already referred to as the boundary of the peculiar jurisdiction of the marsh (*c*).

8. About half-way between the Martello Towers Nos. 18 and 17, there is a marked change of curvature. The

(*a*) See 'Geological Survey,' sheet 4, where the directions in which the fulls run are accurately indicated.

(*b*) The numbers of the towers are not given either in the Geological Survey or in the Ordnance Map. They are numbered consecutively from north to south; and Fort Twiss lies between Nos. 10 and 11.

(*c*) See above sec. viii, par. 3

fulls suddenly trend considerably more towards the north, and continue to do so until they run nearly straight in a northerly direction from a point about half-way between the Martello Towers Nos. 17 and 16. They there begin to curve towards the east, with an increasing tendency in that direction until the full at the Martello Tower No. 14 trends about north-east. This is the last full towards the east of the group of shingle fulls just described. Between it and the shingle further eastward was formerly the entrance to the harbour of Hythe. The channel is still distinctly visible; it was closed about the middle of the last century (*a*) by the modern shingle full which now forms the present sea beach, and which cuts off the seaward extremities of the ancient fulls against the ends of which it is piled up.

9. All these ancient fulls are contiguous to one another, and without doubt were washed up from the south-west. Those to the south of the point about half-way between the Martello Towers Nos. 18 and 17, evidently owe their curvature towards the north-west to the indraught of the water to the Bay of Apuldore whilst they were in process of formation. The marked change of curvature at that point is as evidently due to the cessation of the indraught. This was obviously caused by the erection of the ancient wall at West Hythe. Hence the fulls to the north of the point, about half-way between the Martello Towers Nos. 18 and 17, were not formed until after the wall at West Hythe was built; and as this is part of the north-eastern boundary of Romney marsh, it follows that the fulls in question were formed after the formation of Romney marsh.

10. Between Hythe and the Dymchurch Redoubt the fulls lie almost entirely above ground. From that point towards Romney they are more and more buried in the marsh the further they are to the west, one after another every succeeding full westward being less distinct until they are completely buried, and can be seen or found only by digging. Hence, as the fulls were formed successively

(*a*) Hasted's 'History of Kent,' vol. iii, p. 413.

one after another as the underlying marsh attained the height of about ten feet below high-water mark it follows that Romney marsh on emerging from the water had assumed the form of a hill, which sloped towards the north.

11. The group of fulls to the south of the point about half-way between the Martello Towers Nos. 18 and 17, terminates towards the south-west in the full on which Warren House is built. The last-mentioned full reaches nearly to New Romney. It was formerly connected with the high ground of the ancient island there by a short wall which now carries the road to Dymchurch (*a*). The present fulls between it and the sea forming the Warren are of very recent formation. It is now much hidden by blown sand, but it was evidently formed from the North East like the modern fulls which terminate at Little Stone End. There was, therefore, some point between the ancient fulls which reach nearly to New Romney and the ancient fulls to the south of Hythe, from which all the fulls composing the group in question were washed up in opposite directions as from a common origin. From the directions in which these fulls lie this common origin seems to have been about half-a-mile south-east of Globsden Gut (*b*).

SECTION XI.—*The Laws of Sediment.*

1. Having thus proved that the marshes are of marine origin, and that they underlie the shingle, it follows that they are an independent formation caused by the deposit of silt from the sea. The next point is to ascertain the causes which conduced to give Romney Marsh the hill-shaped form it has been shown to possess, and for this purpose some investigation of the laws by which the deposition of silt is governed becomes requisite.

2. Taking first the simple case of water confined in a vessel and holding silt in suspension by means of agitation. It is evident that the quantity of silt so held in suspension depends upon the degree of agitation in which the water is kept. As soon as the agitation is diminished

(*a*) Elliott's Paper on the 'Formation of the Marsh,' quoted in Lewin's 'Invasion of Britain,' p. 111.

(*b*) See 'Geological Survey,' sheet 4.

the work of deposition commences. The heaviest particles fall to the bottom first, then those which are somewhat lighter, and so on till the lightest of all are deposited. These subside the last of all. Each group of particles as it reaches the bottom rests upon its predecessor, and the whole of the silt when deposited lies in a series of horizontal strata.

3. If the silt is composed of particles of the same or of nearly the same specific gravity the larger particles subside before the smaller, and the deposit is composed of particles gradually diminishing in size from the bottom to the top. Moreover, the quantity deposited in a given period of time shortly after the cessation of the agitation is much greater than that deposited in an equal period some time after the agitation has ceased. For instance, much more is deposited in the first minute during which the water is at rest than in the second, more in the second than the third, and so on; until in the last minute the deposition becomes almost inappreciable. Hence the strata in which silt of the same or nearly the same specific gravity is deposited gradually diminish in thickness from the bottom to the top.

4. This action may easily be exemplified by placing some fragments of tea leaves that have been used in a basin of water, and then stirring the mixture across a diameter of the basin so as to avoid any motion of rotation. On ceasing to stir, the tea leaves will immediately begin to subside, and the larger particles will be seen to reach the bottom long before the smaller, which will be deposited upon them.

5. If the water on the cessation of the agitation instead of being confined in a vessel be supposed to move onwards in a body with a uniform velocity, the silt will continue to subside just as it did in the confined vessel, but instead of the lighter particles of silt falling on the heavier they will be carried further on in the direction in which the water moves; and as the deposit in equal periods is greater at the commencement of the state of rest than subsequently, the result will be that the surface of the deposit, instead of being horizontal, will have an inclination in the direction in which the water moved. This action may also be exem-

plified in a basin of water with some tea leaves by giving the mixture a motion of rotation. As soon as the agitation ceases the tea leaves begin to subside, the larger first, while the smaller are carried round and round as they continue to subside, until they are ultimately deposited in the form of a spiral round the axis of rotation.

6. The same result may be observed in the operations of nature. In the case of fluviatile formations, as in deltas formed at the mouths of rivers by the deposit of detritus carried down by them from the country to the sea, the inclination of the delta is invariably found to lie in the direction in which the river flows, or towards the sea. And this fact is proved by the numerous mouths which such rivers as the Nile, Ganges, and Missisippi have, showing that they have no difficulty in finding a passage for their waters to the sea.

7. On the other hand, in the case of marine formations, as in marshes formed by the deposit of silt from the sea, it will be found that the inclination of the surface lies towards the land, and accordingly that the inland water has great difficulty in forcing its way to the sea. This is well exhibited in the case of the marshes between the Isle of Thanet and the rest of Kent, which is comparatively a modern formation, having been deposited within the historical period. Bede says that in A.D. 597 the water then called the Wantsum was about three furlongs across, and only fordable in two places (*a*). The present marsh, as is well known, is a marine formation, and accordingly its inclination lies towards the land. This fact is proved by the tortuous course of the river Stour, which finds so great a difficulty in forcing a passage to the sea, that it leaves its direct course thither and runs due south to Sandwich, a distance of three miles, from which place it again doubles back for an equal distance, and ultimately reaches the sea in the prolongation of its former course. Another example of a marsh in the process of formation by deposit from the sea, and therefore having an inclination

(*a*) 'Tanatos insula, * * quam a continenti terrâ secernit fluvius Vantsumu, qui est latitudinis circiter trium stadiorum, et duobus tantum in locis est transmeabilis.'—Bede lib. 1, c. 25.

towards the land, occurs in the case of Breyden Water, a sailing course some three miles long, close to Yarmouth in Norfolk, the eastern portion of which is marked in the ordnance map as " dry at low water."

SECTION XII.—*Deposition of the Sediment.*

1. The operation of these laws of sediment, modified by the peculiar formation of the high grounds forming the Bay of Apuldore, and the position of the ancient island between Old and New Romney, will be found amply sufficient to account for the hill-like shape of Romney Marsh. They will also account for the ridge and trough formation which the shingle fulls exhibit.

2. A reference to the Admiralty Chart (*a*) will show that the stream in the channel off this part of the coast runs east, or up channel, from about two hours before high water to about four hours after that period, with a velocity at spring tides of about $2\frac{3}{4}$ knots an hour, and with a velocity at neap tides of about $1\frac{3}{4}$ knots an hour. At the end of this period there is slack water for perhaps a quarter of an hour, by which time the stream has turned west and runs down channel with the same velocity. There is then again about a quarter of an hour's slack water, and the stream again turns up channel to repeat the operation day after day and year after year. There is thus a perpetual alternation of streams of a considerable velocity, the consequence of which is to create great commotion in the water, and to wash up the soil and clay at the bottom of the channel, the shallowest part of which lies between Romney Marsh and Boulogne. The result is seen in the muddy state of the sea at this part of the coast, especially about New Romney.

3. The same causes produced the same effects in ancient times. Before the formation of the marshes, the Bay of Apuldore formed an expanse of water to a great extent out of the reach of the stream in the channel, the main course of which lay in nearly a straight line between

(*a*) South Coast, sheet No. vii.

Fairlight and Folkestone, passing, as nearly as may be, close to the eastern side of the ancient island between Old and New Romney, and over the common origin of the group of shingle fulls between the last mentioned place and Hythe, some half-a-mile south-east of Globsden Gut (*a*). To the east of this stream-line the sea was always in a state of considerable commotion, and held a corresponding quantity of silt in suspension. To the west of it lay the comparative quiet of the Bay of Apuldore.

4. Omitting for the present all considerations of the disturbances caused by the ancient island between Old and New Romney, the flow of the water from the branches of the bay and the eddy in it, the consequences of this state of things would be, that at low water there would be a certain quantity of water in the bay, the exact depth of which it is not material to ascertain. As the tide rose, a certain portion of the muddy water from the sea would flow into the bay, and as soon as it reached the western side of the stream-line, it would get into a comparatively quieter situation, and the silt it held in suspension would begin to subside. As the tide kept rising, a second portion of muddy water would find its way to the western side of the stream-line, and would immediately lose part of its silt in the same manner as the first portion, which first portion as it progressed towards the west, would continually keep depositing the silt it held in suspension. As the quantity of silt deposited in equal periods is less at the later periods of the deposition than at the earlier, the greatest quantity of silt would be deposited immediately to the west of the stream-line, and its amount would gradually diminish as the water travelled westward. The same action being continued through each successive wave of the rising tide from low to high water, would result in the silt being deposited in a plane whose inclination lay from the sea towards the land.

5. As the tide ebbed the water would flow out of the bay carrying with it all the silt which it had not had time to deposit, and also a portion of the silt which had been

(*a*) See above, sec. x. par. 11.

deposited; but as the mouth of the bay was some twenty miles across, while its extreme width did not exceed six miles, the ebbing tide could have produced but very little scour, and the amount of silt removed by it must have been inconsiderable. It would tend, however, to reduce the inclination of the silt which had been deposited, by decreasing its greatest height nearest the stream-line.

SECTION XIII.—*Causes of Romney Marsh being a Hill.*

1. The effect of the various complications to which the simple state of circumstances considered in the last section was subject, must now be ascertained. About half-way across the mouth of the bay lay the ancient island between Old and New Romney, somewhat in the form of a crescent, with its concavity towards the north-west. It may have been an upraised angle of the wealden formation, having steep sides towards the south-east, and an inclination towards the north-west, just as the angle of the high ground about Dover has perpendicular cliffs facing the sea, and falls away gradually in the opposite direction. This may have had some effect in producing the hill-shaped form of the marshes. But whatever might have been the depth of the bay around the island, or the form of its bottom, the sea would flow round both ends of the island as the tide rose, and would leave a space before and behind it in which the water would be in a state of comparative quiescence. At both these places the silt would be deposited with greater rapidity than elsewhere. Moreover, the accumulation would be greater at the back of the island than in front of it, and more particularly so between the horns of the crescent, which would be the centre of greatest stillness. The same action may be observed in the case of sand driven by the wind, which accumulates both in front of and behind a tuft of grass, or any other obstacle. In this case too, the accumulation in the lee of the obstacle is much greater than that on its windward side.

2. Another effect of the island would be to present an impediment to the flow of the water from the sea, the whole of which would have to pass through the intervals

between the island and the mainland. The velocity of the currents in the intervals would thus be increased to some extent, though perhaps not to any great degree, and the scour would be correspondingly augmented. This would also tend to cause the surface of the silt to assume the form of a hill rising towards the island.

3. With the ebbing tide the action above described would be reversed with a similar, or nearly similar result. As the water flowed out of the bay, the same amount of scour would be established in the intervals between the island and the mainland as in the case of the rising tide; part of the silt deposited at the back of the island would be washed away, while but little would be deposited on its seaward side, because the water would have already deposited its silt in the bay before turning to flow out of it. Thus, the general effect of the ancient island between Old and New Romney, both with a rising and an ebbing tide, would be to cause the silt to be deposited in the form of a hill, having that island for its apex.

4. The next subject for consideration, is the effect of the eddy in the Bay of Apuldore. When the stream outside ran up channel a certain portion of the water impinged against the mainland at Hythe and was deflected westwards towards Apuldore; and when the stream outside ran down channel, a portion of the water impinged against the mainland at Fairlight, and was deflected in a north-westerly direction also towards Apuldore. There were thus two currents, which, except at the turn of the stream in the channel, were constantly flowing alternately in opposite directions along the inland margin of the bay, revolving, as it were, round the island between Old and New Romney. The effect of this would be, that the water at the back of that island would be comparatively much quieter than the water along the inland shores of the bay. More silt, therefore, would be deposited in the former than in the latter situation. In other words, the tendency of the eddy would also be to create a hill of sediment at the back of the island between Old and New Romney, having that island as its apex. The former experiment of making some fragments of tea-leaves rotate

in a basin of water, is a good illustration of the action of the eddy (*a*).

5. With regard to the effect of the flow of the water from the branches of the Bay of Apuldore on the deposition of the silt; it is obvious, in the first place, that any effect thus produced must have been produced during the ebbing tide only, because the effect of the rising tide must have been simply to prevent the flow of the water from these branches. But with the ebbing tide the case would be very different. The water flowing out of the Bay of Apuldore, and which has been shewn to have been insufficient by itself (*b*) to create any great modification of the surface of the deposit, would be reinforced by the water, which, with the rising tide, had flowed up the branches of the bay, all of which, it will be observed, lie towards the west: and the water which had been pent up in the Rother valley, flowing out on both sides of the Island of Oxney, together with that which had been pent up in the Tillingham and Brede valleys, combining with the ebbing water in the bay, must have produced a considerable stream, and consequently a considerable scour as the tide fell, the direction and effect of which it now becomes necessary to ascertain.

6. The main direction of the stream of the water from the north of the Island of Oxney, after it had impinged against the high ground which forms the termination of the promontory of Apuldore, must have been nearly south. The main direction of the stream from the south of the Island of Oxney, in like manner must have been slightly to the south of east. The tendency, therefore, of the latter stream must have been to drive the former stream towards the east, and the direction of the new stream compounded of both the former streams, would be somewhere about south-east. This composite stream it its turn, would be again deflected on meeting the stream of the water from the Tillingham and Brede valleys, flowing between Winchelsea and Rye, the direction of which must have been north-east. The resulting stream would therefore have a

(*a*) See above, sec. xi. par. 5. (*b*) See above, sec. xii. par. 5.

direction somewhat to the north of east, until it met the island between Old and New Romney, by which its course would be again diverted towards the east. It there reached the open sea at what is now called Romney Hoy.

7. Thus, with an ebbing tide there must have been a considerable stream flowing from Apuldore in a south and south-easterly direction, until it arrived off Rye, where it turned in a north-easterly direction, and joined the main body of the water in the channel at Romney Hoy. The scour in the course of this stream would be much greater than in the other portions of the bay, and this would cause a diminution of the altitude of the sediment over which it flowed. The tendency, therefore, of the stream from Apuldore would be to remove the silt which had been deposited by the rising tide in its course, and thus to create and keep open a channel to the sea immediately to the south of the ancient island between Old and New Romney.

SECTION XIV.—*Formation of the Marshes.*

1. The actual process of the formation of the marshes then was this. The sediment was carried into the bay by the rising tide, and began to subside immediately on crossing the stream-line, forming a larger or smaller deposit according to the quantity of silt in suspension. An accumulation was formed in the comparatively quiet water at the back of the island between Old and New Romney, and this accumulation was increased by the eddy, which prevented the silt from being so thickly deposited along the shores of the bay as in its centre. As the tide ebbed, the water flowing from the branches of the bay kept the water in its southern position in a state of greater commotion than that in the northern portion. It also carried a considerable quantity of silt with it to the sea in the main course of the circular stream from Apuldore to Romney. Thus, the combined effect of these various causes, was to make the silt assume the form of two hills, the one to the north, and the other to the south of the island between Old and New Romney, with a considerable depression between them in the course of the stream from Apuldore.

2. Hence the first portions of the marshes to appear above low-water mark, were the highest portions of these hills which emerged from the water in the shape of sand or mud-banks, lying across the mouth of the bay, in a direction parallel to the direction of the stream-line, between Fairlight and Folkestone, like the sand and mud-banks which may be seen at low water all along the coast between Dungeness and Dymchurch at the present day.

3. As the deposition of the silt continued, these sand and mud-banks increased, both in height and length. That to the north of Romney gradually extended until it reached the high ground of Kent, and completely closed the northern portion of the bay at low water. That to the south of Romney increased in like manner, but has never been able, completely, to close the southern portion of the bay. There has always been at least one outlet between Romney and Fairlight, by which the water in the Bay of Apuldore and its inland branches, has found its way to the sea at low water.

4. As soon as the opening between the ancient island at Romney and the mainland of Kent was completely closed at low water by the growth of the marsh, the rising tide could only overflow the seaward edge of the marsh after the water had risen above the level of the lowest portion of the edge, and at the ebb the water could not flow directly seaward after the tide had sunk below that level. In fact, the water in the northern portion of the bay of Apuldore was caught in a trap; it could not get to the sea over the elevated edge of the marsh, and was therefore obliged to change its course altogether, and flow backwards over the lowest portions of the marsh, until it fell into the stream from Apuldore, with which it found its way to the sea. A stream was thus created along the northern shores of the bay from West Hythe to Apuldore, the scour of which increased the original inclination of the marsh in that direction.

SECTION XV.—*Illustration near Worthing.*

1. The process above described is beautifully illustrated on the sea shore, about a mile and a-half to the east of

Worthing, where the drainage of the marsh between that town and Lancing is conducted to the sea by a sluice. All along this part of the coast at low water there are extensive sands, which, at the point in question, are some 300 or 400 yards in breadth. Throughout their whole extent these sands, though apparently level, are not really so, but lie in ridges of considerable breadth, though of small elevation, which have a general parallelism with the line of coast. This fact is proved by the pools and strips of water which are left behind the sand ridges as the tide recedes. One of these sand ridges of considerable extent, both in length and breadth, lies in front of the above-mentioned sluice.

2. The level of the marsh here, as in the case of the marshes between Fairlight and Folkestone, lies between high and low water, and the sluice by which the drainage from it is conducted to the sea is formed by a covered trough, having a valve at its mouth, opening outwards, so as to prevent the sea flowing into the marsh when the tide has risen above the level of it, and which opening, as the tide falls, permits the water from the marsh to flow into the sea when the tide has fallen below the level of it. Thus the drainage from the marsh, by creating a disturbance of the water and a current to the sea as the tide falls, operates in the same manner, on a small scale, as the waters pent back in the Rother Tillingham and Brede valleys have been shown to operate in the case of Romney Marsh.

3. The mouth of the trough is placed about the line where the inclination of the shore meets the general level of the sands, and about a foot above it, as nearly as may be half-way between high and low-water mark, so that the drainage from the Marsh begins to flow into the sea some two hours after high water, at which time the upper surface of the trough becomes visible above the water. At this time of the tide, the action of the drainage from the Marsh flowing into the sea, may be seen to great advantage by standing on the top of the trough. As the tide falls, the water from the trough flows out, and keeps the sea in a state of commotion for some distance all around it; the commo-

tion being the greatest close to the mouth of the trough, and thence gradually diminishing in all directions, till it is lost in the general body of the sea-water. The effect of this becomes visible as the tide continues to fall. The water from the trough can be seen to carry sand in suspension in a direct line towards the sea, while, on both sides of the stream thus created, the highest parts of the sand-ridge which lie beyond the circle of commotion begin to appear.

4. As the tide continues to ebb, the sand-ridge becomes more and more distinct, until it just appears as dry land above the surface of the sea; and now the water is caught in a trap in exactly the same manner as it has been shown to have been caught in the case of Romney Marsh, and the result at this period of the tide is, that at the mouth of the trough there is a pool, the water in which is in a gradually decreasing state of commotion round the mouth of the trough, and from which the water, carrying with it sand in suspension, forces its way to the sea by cutting through the sand-ridge in front.

5. As the tide still falls, the level of the pool falls with it, causing a drainage and consequent scour towards the mouth of the trough. At last, when the water from the pool has cut quite through the sand-ridge to the hard bottom on which it rests, the escarpments appear as two miniature cliffs about a foot high, between which the water from the trough flows to the sea. Two hills of sand of small elevation are thus formed, one on each side of this channel, the general inclination of whose inland surfaces lies towards the shore; that on the west having also an inclination towards the east and the mouth of the trough; that on the east, in like manner, having an inclination towards the west and the mouth of the trough, just as the general surface of the whole system of marshes between Fairlight and Folkestone has an inclination from the sea towards the west, while its northern and southern portions have also an inclination towards the ancient course of the stream from Apuldore. In fine, the general resemblance of the sand here at low-water to the system

of marshes between Fairlight and Folkestone is most complete and striking.

SECTION XVI.—*Deposition of the Shingle.*

1. As soon as any portion of the marshes had risen to within about ten feet of high-water mark, it afforded a suitable bed for the reception of the shingle, which, accordingly, began to be deposited upon it. This, of course, was the case equally both to the north and south of Romney, though, probably, not contemporaneously. The first deposition of the shingle probably took place on the sand or mud-bank which underlies the shingle on which Lydd now stands. To the north of Romney the shingle first began to be deposited on the highest portions of the sand or mud-bank, about half a mile to the south-east of Globsden Gut. At this point it formed the common origin of the group of shingle fulls between Romney and Hythe, thence it gradually extended, both towards the north and south, until it attained its present limits, nearly reaching the high land of Kent in the former, and the ancient inland at Romney in the latter direction, as described above (*a*).

2. The manner in which the shingle was thus thrown up was no doubt the same as that in which a shingle-beach is formed at the present day. It may therefore be ascertained by observation.

3. Now, when a wave breaks upon the shore, the water from it curls over and falls perpendicularly, or nearly perpendicularly, upon the lowest part of the beach. It then flows up the slope for some distance, in the direction in which the wave struck. As soon as it has lost its velocity, it turns and flows directly down the slope, until it is stopped by the main body of water in the sea. Each of these three portions, into which the action of the breaker naturally divides itself, performs a separate and distinct office in the work of forming the beach. The falling water breaks up the bottom. Then the water flowing up the slope, carries the detritus with it. As the

(*a*) See above, section x, par. 11.

latter is all of the same, or nearly the same specific gravity, the large pebbles, in accordance with the laws of sediment, subside more quickly than the smaller, though some of the latter are deposited with them. A portion of this smaller shingle falls through the interstices of the larger pebbles, and forms a comparatively solid bottom, on which the larger pebbles rest, just as in a basin of sugar, the dust and smaller particles are always found at the bottom, while the larger pieces are seen at the top. The remainder of the smaller shingle is carried nearly to the extreme limit to which the water flows. It may generally be seen in the foam of the breaker. When the water turns to flow back to the sea, it leaves this small shingle behind, like a fringe all along the upper limit to which it has reached. It then forms an undertow, flowing directly down the slope of the beach, with increasing velocity as it approaches the sea. This generally produces no great effect upon the comparatively smooth surface of the small shingle, between the interstices of the larger stones, but carries with it all the loose shingle of a small size back to the sea, and rolls the larger pebbles on the surface down the slope of the beach, until its current is destroyed by the next breaker. This repeats the process. Hence, for some little distance above the line where the breakers fall, the shingle is kept in a constant state of oscillation up and down the slope of the beach, the effect being, that the larger pebbles are brought to the top, while the smaller fall to the bottom through the interstices between them. The action may easily be imitated by shaking sugar of various sizes on a tray or piece of paper.

4. As the tide rises, the fringe of small shingle, followed by the belt of oscillating shingle, is carried up the slope of the beach. At the top of the tide the level of the sea is nearly stationary for a considerable period before and after high water: so that the breakers all fall on nearly the same part of the beach, and the water from every wave flows up the slope, to nearly the same distance above the line where the breakers fall. An accumulation then takes place, both of the small shingle of the fringes and the larger shingle between the limits of oscillation,

which checks the advance of the water from the sea. The top of the accumulation is considerably above high-water mark, and has generally an inclination towards the land.

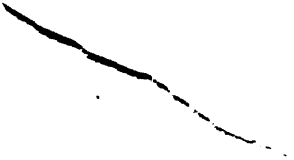
5. As the tide ebbs, the oscillating shingle, followed by the fringe of small shingle, is carried down the slope of the beach, the fringes of small shingle being successively deposited upon the larger shingle, which has been brought to the surface by the oscillation caused by the preceding waves. Part of the small shingle so deposited, falls through the interstices of the larger shingle, the remainder is left upon it, so that, ultimately, the larger shingle is more or less covered by the successive fringes of small shingle. The undertow from each wave of the ebbing tide operates in the same manner as the undertow from each wave of the rising tide. It washes the small shingle out of the large, and rolls the latter down the slope of the beach.

6. These various operations, when carried on regularly throughout a tide, from low water to low water, generally result in the formation, on the slope of the beach, of a ridge or full, the top of which slopes towards the land, and is composed of small shingle, while the rest of it consists of large and small shingle, more or less intermixed. It curves sharply towards the sea at the top, where its seaward face approaches the vertical, but rapidly becomes more horizontal in its lower portions, until it reaches the water's edge, almost as an inclined plane of small elevation.

7. This is the ordinary form assumed by a shingle-beach in calm weather.

8. The waves, however, owe their existence to the wind. When it is a dead calm, there are no waves. As the wind increases the waves increase in magnitude, and follow one another with greater rapidity. Hence, the wind is the moving power by which the beach is formed. The water is only the tool with which it works.

9. As the waves vary with the wind, the action described above is subject to great irregularities. When the wind becomes fresh, the waves do not follow each other with



regularity, nor are they all the same size. They also run to various distances up the slope of the beach. The highest wave, too, seldom happens at high water, but generally occurs a considerable time either before or after it. The different portions of the action of the water also interfere with each other. Sometimes the water from the breaker, as it curls over, falls into the undertow from the preceding wave. It then loses its force before it reaches the bottom, and there is little or no detritus to be carried by the water as it runs up the slope. At other times the water, as it runs up the slope, is met by the undertow from the preceding wave. In this case its velocity is destroyed, and the detritus is not moved. It follows that if the water, as it runs up the slope, deposits more detritus than is washed back by its undertow, the beach is increased. If the amount so deposited is equal to the amount so washed back, the beach is neither increased nor diminished. If the amount so washed back exceeds the amount so deposited, the beach is diminished to the extent of the excess. Hence the full ultimately formed by one tide between low water and low water, represents the excess of the aggregate amount of detritus deposited by the water as it runs up the slope of the beach, over the aggregate amount of the detritus washed back by the undertow. If these amounts are equal there is no full, and the beach is neither increased nor diminished. If the amount of the detritus washed back exceed the amount deposited, there is not only no full, but the beach is diminshed to the extent of the excess.

10. When the wind is fresh the operation of forming the beach goes on much in the same manner as when the weather is calm, while the tide is rising. An accumulation of shingle too sloping towards the land, with small pebbles at the top, and large and small pebbles mixed together lower down, is generally formed at high water. But as the tide ebbs, the fringes of small shingle, deposited by the smaller waves, are from time to time washed away by the water from the larger waves, as it flows up the beach. When one of the latter occurs, the water from it running up the slope, carries with it some of the fringes

of small shingle already deposited. It then leaves its own fringe at the upper limit to which it reaches, and its undertow washes the remainder of its burden back to the sea, leaving the larger pebbles below bare. Where these are not again covered by fringes of small shingle from the succeeding waves, they appear at low water as belts or patches of large shingle.

11. If a higher wave than usual occurs just after the tide has begun to ebb, its effect is very visible in the belt of large shingle which so often appears just below the top of the full, and which occupies its upper portion where the curvature, and therefore the velocity, of the undertow is the greatest. The effect of the high waves is not so well marked in the lower portion of the full, where its surface more nearly approaches the horizontal. There the force of the undertow is insufficient to wash all the smaller shingle back to the sea. Part of it is left behind in patches. Some of the larger shingle, too, remains in any accidental hollows into which it may have been rolled, and some of it is left as isolated pebbles, stranded here and there upon the surface of the beach.

12. This form of beach is generally produced in ordinary weather, when the force of the wind is moderate. In calms the waves are only sufficiently strong to move the smaller shingle; in gales their action is so violent, that the large and small shingle are mixed together, indiscriminately. It is, therefore, one of the most common forms exhibited by a shingle-beach. Indeed, so frequently does it occur, that the normal condition of a shingle-beach may be described as a layer of small shingle, with an inclination towards the land at the top, then a belt of large shingle of no great width, all along the seaward face of the full, where the curvature is greatest, and then a wide belt of large and small shingle, more or less intermixed, reaching to the water's edge.

13. It frequently happens that a series of fulls of this description is formed upon a beach during the period from spring to neap tides, like terraces, at the high water levels of the various tides by which they were formed. Then, as the water again rises from neaps to springs, these terraces

are successively destroyed, and washed up the slope of the beach, until they are ultimately formed into one full, at the high-water level of the highest spring tide. If the inland extremity of this full does not cover the highest portions of the belt of large shingle, just below the top of the original beach, the tops of the old and new beaches, taken together, will exhibit the ridge and trough appearace of the ancient shingle fulls, described above, and, like them, will consist of small shingle on the tops of the ridges, and of large shingle in the trough between them.

14. When the waves break obliquely on the shore, they produce another effect in addition to those already described. The water from the breaker washes the detritus obliquely up the slope of the beach, in the direction in which the wave was travelling. Then the undertow, flowing directly down the slope of the beach, washes with it a portion of the detritus in the same direction. Hence, when the waves break obliquely on the shore, a lateral motion of the shingle is produced, in a direction compounded of the direction in which the detritus was carried up the slope by the water from the breaker, and the direction in which it was washed down the slope by the undertow (*a*). Some estimate of the velocity of this motion may be formed from the fact that, a collier was beached at the Martello Tower No. 12, about high water at 5.14 a.m., on the 20th of September, 1866, and pieces of coal were picked up at Fort Twiss, a quarter of a mile distant, just after high water at 9.19 a.m., on the 24th of the same month, the weather having been fine, with little wind during the interval.

SECTION XVII.—*Completion and Inning of Romney Marsh.*

1. The common origin of the group of shingle fulls between Romney and Hythe, as has been already shown (*b*), was somewhere about half a mile to the south-east of Globsden Gut. At this point, then, the shingle in the northern portion of the bay of Apuldore first began to be

(*a*) See Palmer on 'Shingle Beaches'—'Philosophical Transactions,' 1834, p. 567.

(*b*) See above, sec. x. par. 11.

thrown up, as the sand or mud-bank there attained the height of about ten feet below high-water mark. So long as the shingle remained below high water-mark, the action of the sea when the water overflowed it prevented the regular formation of fulls, but as soon as it had accumulated to a sufficient height a full was formed in the regular way, with its top somewhat higher than the extreme limit to which the water rose. The shingle then appeared at high water as a low narrow island of no great length, lying parallel to the stream line between Fairlight and Folkestone.

2. The waves from the sea could only break upon this shingle island in three different ways :

1st. They might break directly on its seaward face, and obliquely on both its ends.

2nd. They might break directly on one of its ends, and obliquely on its seaward face.

3rd. They might break obliquely on one of its ends, and also obliquely on its seaward face.

When, therefore, circumstances of wind and weather were favourable for the deposition of shingle; in the first case, three fulls were formed, one on the seaward face of the island, and one on each of its ends; and at the same time these two end fulls were constantly carried further and further onwards into the bay by the lateral motion of the shingle of which they were composed under the oblique action of the waves upon them. In the second case, two fulls were formed, one upon the weather end of the island, and the other upon its seaward face, the latter like the two end fulls in the first case being constantly extended in the direction of its lee extremity by the lateral motion of the shingle. In the third case, two fulls were also formed, one on the weather end of the island, and the other on its seaward face, and both these fulls were in like manner constantly extended in the direction of their lee extremities by the lateral motion of their shingle. The tendency of the seaward face of the island to grow longitudinally was also increased by the action of the stream in the channel, while the end fulls were bent towards the back of the island by the flow of the water round its two ends in that direction.

3. When circumstances were unfavourable for the deposition of shingle, the weather fulls were either left as they were, or were more or less diminished according to circumstances. At the same time the shingle lost by them was either carried to their lee extremities, and there accumulated, or was washed back to the sea. In the latter case, it was again thrown up as soon as circumstances became favourable for that operation. Moreover, the destructive action of the sea could seldom take place on more than one face of the island at the same time, for when its action was destructive on one face it would generally be the reverse on the others. Again, the seaward face of the island being more exposed than the others would be the greatest sufferer from the destructive action of the sea, so that it would sometimes advance and sometimes recede. This, however, would not impede the longitudinal growth of the island.

4. The accumulations of shingle at both ends of the island acted as a protection to the fulls already formed there, until they were themselves formed into new fulls, to be in their turn protected, and then shut off from the action of the sea by future fulls formed in a similar manner as the adjacent surface of the marsh attained the height of about ten feet below high-water mark. Thus each full in succession became a sea beach with its characteristic arrangement of shingle, in accordance with the conditions of wind and weather, under which it had been formed. Hence the majority of the fulls being formed in moderate weather, which is much more frequent than gales or calms, exhibited the appearance of beaches formed under those circumstances, and the group of fulls ultimately formed appeared as a succession of ridges of small shingle with large stones in most instances in the hollows between them (*a*).

5. Moreover, winds from points between the south and west are much more prevalent on this part of the coast than winds from the other points of the compass, and therefore the accumulation of the shingle took place much more rapidly to the north of the common origin of the fulls than to the south of it.

(*a*) See above, sec. x. par. 3.

6. Again, the deposit of sediment from the sea went on contemporaneously with the growth of the shingle. The fulls, therefore, were more or less buried by it, according to their ages, the earlier fulls being more deeply buried than those more recently thrown up. The deposit, too, in accordance with the laws of sediment, took place with greater rapidity in the comparatively quiet water between the shingle and the ancient island of Romney than at other places in the bay where the motion of the water was greater. Hence, as the marsh grew, the westerly fulls became more deeply buried than those lying towards the east, and the original inclination of the surface of the marsh between the shingle and the island at Romney was increased.

7. In this manner the marsh and the group of shingle fulls between Romney and the high ground of Kent grew together until the surface of the marsh attained its present level, and the shingle reached its present limits of about one hundred yards from the salient point between Hythe and West Hythe in one direction, and about the same distance from the ancient island at Romney in the other. It was now evident that the whole of Romney marsh could be reclaimed at once by joining the extremities of the shingle with the high ground of Kent and the island at Romney by two short walls, and by running another wall from the western extremity of that island to the high ground at Apuldore. This was accordingly done, and Romney marsh was reclaimed. There can be no doubt as to the mode in which the operation was effected, for there is not a single sea wall of any description in the interior of the marsh (*a*).

SECTION XVIII.—*Lympne the Roman Portus Lemanis.*

1. In order to show that Romney Marsh was not in existence at the time of Cæsar, or at any rate that the Bay of Apuldore had not then been completely closed by the growth of the marsh and shingle in the manner

(*a*) Elliott's Paper on the 'Formation of the Marsh,' quoted Lewin's 'Invasions of Britain by Julius Cæsar,' cvi.

described above, it will be sufficient to prove that Lympne was the ancient Portus Lemanis, or in other words that Lympne was a port in use by the Romans when they were settled in this country in the early centuries of the Christian era, because that place could not then have been a port unless there had been free access to it from the Channel, and because it is clear from the manner in which the marsh and shingle were deposited, that there was always open sea between Lympne and the Channel until the interval between the ancient island at Romney and the high ground of Kent had been closed by the gradual growth of the marsh and shingle.

2. Of the fact that Lympne was the Portus Lemanis, there are various proofs, all independent of each other, and all tending to the same conclusion.

3. First, there is the similarity of the name Lympne to the Latin Lemanis. Then there is the ancient tradition that Lympne was once a port, referred to by Leland in his 'Itinerary' (*a*), where he says, "Lymne Hill, or Lyme was sumtyme a famose haven, and good for shyppes that myght cum to the foote of the hille. The place is yet called Shypwey and Old Haven" (*b*).

4. Then there is the Roman road, called Stone Street, running directly south from Canterbury to Lympne, where it terminates abruptly. No trace whatever of its continuation southward into the marsh can be discovered. For what reason could this road have been made if Lympne was not then a port?

5. Again, from the ancient Itinerary, or Road Book of the Roman empire, called 'Antonine's Itinerary,' which gives the routes and distances between all the principal Roman military stations throughout that empire, it appears in the part relating to Britain that Portus Lemanis was one stage distant from Canterbury. Now the only Roman roads at Canterbury were those which ran to London, Reculver, Richborough, and Dover, (the locality of which places has never been doubted), and the Stone Street. It follows, therefore, that the Portus Lemanis must have

(*a*) About A.D. 1545. See above, sec. vi. par. 8.
(*b*) Lel. Itin. vii. 141.

been situated somewhere on this street; and as a port could not be situated inland, it must have been at its termination below Lympne.

6. Moreover, the distance of the Portus Lemanis from Canterbury is stated in the same Itinerary to be sixteen Roman miles. Now the length of a Roman mile is not accurately known (*a*). It may, however, be taken to be about 1630 yards as a pretty accurate measure (*b*), so that sixteen Roman miles would be 26,080 yards. The distance of the margin of the marsh below Lympne measured along the Stone Street to the point where all the Roman roads at Canterbury would converge, if produced, is fifteen statute miles. One statute mile is 1760 yards. Fifteen statute miles, therefore, are 25,840 yards. This is just 240 yards short of the distance given in the Itinerary, which never mentions fractions of a mile.

7. Another proof that Lympne was the ancient Portus Lemanis is the fact that just below Lympne, and close to the margin of the marsh, are the remains of a Roman fortification, called Stutfall Castle. It was built of stone and bricks, and covered a space of several acres. Its walls were some ten feet thick, and it had towers at intervals, as well as three gates, one on each of its inland sides. On the south, the wall adjoining the marsh is wanting, nor is there any trace of there ever having been a ditch or other defensive work on this side, just in the same way as walls of Roman construction, or any other Roman defensive works, are wanting in the analogous instances of Richborough and Pevensey, which are well known to have been ports in the historic period. The reason for this is obvious, and applies equally in all three cases. The sea came up to the foot of each of these three fortifications, and therefore no artificial defence on that side was necessary.

8. In Peutinger's Table, which is a rough kind of map of the Roman empire, giving the routes and distances between all the chief military stations, Lemanis appears in connexion with Canterbury and Dover, and to the south

(*a*) Smith's 'Dictionary of Antiquities,' Art. Pes.
(*b*) Professor Airy, 'Athenæum,' 10th Sept. 1859, 336.

of those places. It is also marked with a castle, like Richborough and Dover (*a*). A striking proof that Lympne, with Stutfall Castle, was the ancient Portus Lemanis, and therefore that the Bay of Apuldore was open sea in the time of the Romans, or at all events, that in their time there was a sufficient depth of water for ancient ships all along the high ground of Kent, from Hythe westward.

9. The 'Notitia' is another ancient record illustrating the topography of Roman Britain. It gives a list of the principal military stations, with the troops which held them. The portion relating to Lympne is as follows:

"Under the Government of the Count of the Saxon Shore.

Othona.	Garianono.
Dubris.	Regulbio.
Lemanis.	Anderida.
Brancoduno.	Portus Adurni."

Of these, Othona is not now in existence. It is generally supposed to have been at Ithanchester, near Maldon, in Essex, on the extremity of the high ground between the marshes on the south side of the mouth of the River Blackwater; Dubris, undoubtedly Dover; Lemanis, as is here contended, Lympne; Brancoduno is now Brancaster in Norfolk; Garianono, Yarmouth, in the same county; Regulbio and Rutupis, certainly Reculver and Richborough; Anderida and Portus Adurni, places further to the west, probably Pevensey and Shoreham (*b*). Thus, the manner in which these places are enumerated along the coast, are first from north to south, Othona, Dubris, Lemanis, as if they were the chief stations; and then again from north to south, as if the remainder were secondary stations.

10. Lympne, therefore, was a port; and Romney Marsh, consequently, not in existence when the Romans were first settled in this country.

(*a*) See Map. (*b*) See Horsley, Brit. Rom. 487.

SECTION XIX.—*Hythe the British Port.*

1. Such is the history of the formation of Romney Marsh deduced from numerous independent facts and authorities. It remains to test the conclusions thus obtained by the narratives of Cæsar and those subsequent writers on whose testimony any reliance can be placed (*a*), by assigning localities to all the incidents mentioned in those narratives, and by showing in detail some definite way in which it was possible that every operation mentioned by them might have been carried out consistently with the narratives, on the hypothesis that the present site of the marshes between Fairlight and Folkestone was open sea in the time of Cæsar. Before doing so, however, it will be convenient to show that Hythe was the British port, or at any rate one of the British ports, at that period, as it undoubtedly was at the time of the Saxons. In their language, the name signifies a port or landing place. It frequently occurs elsewhere, sometimes by itself, as at Hythe on the western side of Southampton Water; but more often in composition, as in the case of Greenhythe, Rotherhythe, Queenhythe, Bulverhythe, and other instances.

2. In Cæsar's time, the mouth of the Bay of Apuldore was certainly not entirely closed. The northern portion, at all events, and possibly the whole, of the interval between the island of Romney and the high ground of Kent was then open sea. The only ports, therefore, on this part of the coast were the natural openings in the high ground forming the South Foreland. Now the seaward edge of this from the flat coast at Deal to Eastware Bay is a sheer wall of cliff, in which the only openings are at Kingsdown, St. Margaret's, and Dover. At Eastware Bay, the high ground slopes steeply to the sea, but there is no cliff, which however again occurs between Eastware Bay and Sandgate. In this there is only one opening at Folkestone. Then follows a succession of valleys and hills, without cliffs, extending to the west of Hythe, and thence to the termination of the high ground at Aldington Knoll there is a continuous cliff almost buried by *débris*

(*a*) See above, sec. i. par. 2.

and fallen soil. The only possible landing places, therefore, in Cæsar's time on this part of the coast were at Kingsdown, St. Margaret's, Dover, Eastware Bay, and the ground from Sandgate to the west of Hythe.

3. Of these, Kingsdown and St. Margaret's were too small to be of any great practical utility.

4. At Dover there was a very fine harbour. The land in front of the cliffs, on which the Lord Warden Hotel and the Esplanade now stand, was not then in existence. As late as A.D. 1581, there were men alive who could remember that there were no banks or shelves of shingle to be seen, but all clean sea between Archcliff Tower and the Castle cliff (*a*). In Cæsar's time the harbour probably ran inland as far as Charlton, a distance of nearly a mile, and the valley of the Dour gave easy access to the interior of the country. The mouth of the harbour, however, did not exceed a quarter of a mile in width, and being exposed to the full force of the sea and stream in the Channel, was probably dangerous to enter in bad weather, on account of the cliffs on both sides.

5. At Eastware Bay, the landing place is about half a mile in length. It is sheltered from the south-west, but lies open to the north-east. The bottom is rocky.

6. At Folkestone, the flat land on which the gas works and Pavilion Hotel are built is quite a modern formation. The custom-house and station stand on shingle which has been washed up since the railway was made (*b*). In Cæsar's time the sea no doubt came up to the foot of the cliffs, so that the only harbour there could have been at that time was the small piece of level ground at the bottom of the High-street. This was quite as much exposed as the harbour at Dover, and being smaller, with cliffs on both sides, was more dangerous to enter in bad weather.

7. From Sandgate to the west of Hythe, the ground was admirably adapted to the wants of navigators of ancient times. The hills there sloping gently to the sea afforded them every facility for drawing up their vessels

(*a*) Archæol. xi. 241.
(*b*) Memoir, Geological Survey, No. 4, pp. 24, 25.

on the shore, and the valleys between the hills gave easy access to the interior of the country. Nor was there any danger in approaching this part of the coast in any weather, by reason of the ample space, exceeding three and a half miles, on any part of which it was practicable to beach a ship. This landing place, too, though open to the south and east, was sheltered on the north and west. It was also sheltered from the force of the sea and stream in the Channel, and must therefore have been the principal British port on this part of the coast in the time of Cæsar.

SECTION XX.—*Survey for the First Expedition.*

1. Returning to the landing on the Crimea as the standard by which to measure Cæsar's intended operations, it appears that the proper disposition of ground to select for a landing place is a flat open coast from which there is easy access to the interior of the country; and that the correct plan of attack is to arrange the troops in boats in a line and then to make a simultaneous dash for the shore. It also appears that a smooth sea is almost indispensable, and consequently that a retired bay, *ceteris paribus*, is a preferable locality to an open coast. It further appears that there is infinitely more difficulty in landing one horse than in landing several men; on that occasion, too, though all the nautical portions of the operation were conducted exclusively by the sailors, the soldiers having nothing to do but step from the boats to the shore, and though there was no opposition on the part of the enemy either by sea or land, yet with all the advantages of steam and the best modern mechanical appliances, some nine hours were required to land about 22,000 infantry and a small number of artillery on a mile and a half of coast.

2. A competent knowledge of the nature of the operation contemplated by Cæsar, its difficulties and requirements, must of course be imputed to Volusenus, when sent to make a survey of the coast of Britain. Even if he were ignorant, as he probably was of the exact force Cæsar intended to employ, he must have been aware as a general in the Roman service that the contemplated invasion would certainly require a large number of infantry, and that a

considerable body of cavalry would be at least a desirable if not an indispensable addition. His precise object, therefore, was to discover within a short distance of the French coast a flat open shore, the longer the better, with easy access to the interior of the country, and which, if possible, should be sheltered from the full force of the waves in the channel.

3. With this object then in view Volusenus sailed from the mouth of the Canche, the Authie, or the Somme (*a*) to survey the opposite coast of Britain. His immediate destination was in all probability the coast between Hythe and Sandgate, in order that he might be able to judge whether the ordinary ports there afforded the necessary facilities. On arriving within a few miles of the coast Volusenus must have seen an almost continuous wall of cliffs before him extending towards the right as far as the South Foreland, a distance of fifteen miles or more, while to the left the high ground terminated abruptly at Aldington Knoll, some half dozen miles away, beyond which the distant country was distinctly visible.

4. On reaching his destination, he must also have seen that though the ground between Hythe and Sandgate afforded a good landing place, yet that the hills so commanded the shore and the valleys between them that it would be dangerous to attempt a landing in the face of an enemy. He would therefore naturally turn westward and try the country which he had already seen in the distance beyond Aldington Knoll. Here he found the very ground of which he was in search. From Hurst westward a low level coast extended in a gentle curve as far as Apuldore, a distance of at least eight miles, forming the head of a bay, protected from the force of the waves in the Channel by the cliff at Fairlight on the south and the cliff at Folkestone on the north.

5. The greater portion of his object was now attained. It remained to ascertain whether a landing could be effected in the other direction in case the wind should be such as to prevent the fleet reaching the northern shore of the Bay of Apuldore. He accordingly, in all probability,

(*a*) See above sec. iv, par. 7.

proceeded round the South Foreland and there found another level tract of land at Deal equally eligible, though the access to it was somewhat difficult and dangerous from its proximity to the Goodwin Sands. This examination of the coast seems to have been attended with some little difficulty, which was probably owing to the threatening appearance of the British; for it stated in the Commentaries that Volusenus did not dare to leave his ship and trust himself among them. It also appears from the same authority that he returned on the fifth day, so that allowing one day to go and another to return, Volusenus had three clear days at least for his survey, which would be ample time for an examination of the coast from Apuldore to Sandwich from a ship. His report seems to have been satisfactory; at least Cæsar makes no complaint of its insufficiency (*a*).

SECTION XXI.—*Partial Submission of the British and Morini.*

1. While Cæsar was waiting for his ships to assemble at the mouths of the Canche, the Authie, and the Somme, news of his intended invasion reached the British through their friends the traders. Thereupon several tribes sent ambassadors offering to submit to the Roman power; to them Cæsar made liberal promises, and sent back with them his friend Comius the King of the Atrebates (*b*) to advocate his cause, with directions to visit as many tribes as he could, and persuade them to submit to the Romans; and further, to inform them that he himself would shortly pay them a visit in person (*c*).

(*a*) "Volusenus, perspectis regionibus quantum ei facultatis dari potuit, qui navi egredi, ac se barbaris committere non auderet, quinto die ad Cæsarem revertitur, quæque ibi perspexisset renunciat." B. G. iv. 21.

(*b*) See above sec. ii. par. 1.

(*c*) "Interim, consilio ejus cognito et per mercatores perlato ad Britannos, a compluribus ejus insulæ civitatibus ad eum legati veniunt, qui polliceantur obsides dare, atque imperio Populi Romani obtemperare. Quibus auditis liberaliter pollicitus, hortatus que, ut in eâ sententiâ permanerent, eos domum remittit, et cum his unâ Comium * * mittit. Huic imperat, quas possit, adeat civitates, horteturque, ut Populi Romani fidem sequantur; seque celeriter eo venturum nunciet." B. G. iv. 21.

2. It is impossible to doubt that at this time Cæsar was not ignorant of the existence of the harbour of Boulogne. Nor is it by any means unlikely that he made a reconnaissance to inspect it. This is only what would naturally be expected of any general under the circumstances in which Cæsar was placed. But whether he did so or not, of the capabilities of that harbour for his intended expedition there can be no question, for though it has been continually silting up since Cæsar's time, yet Napoleon selected that port for his intended invasion of England in 1803. He there collected no less than 1300 vessels, all of which were accommodated in the harbour and river, and yet were so conveniently arranged that on a rehearsal of the embarcation by way of experiment the whole of the troops destined for the intended invasion were put on board in the course of an hour and a half (*a*). In Cæsar's time the harbour was of course much larger than it is at the present day. It would seem then to have been nearly three miles in length, and to have extended up to the foot of the hills in the south-east. It will also be shown hereafter to have then been accessible at all periods of the tide (*b*). Its mouth, therefore, was not then obstructed by the accumulation of sand which now makes it a tidal harbour, but extended from cliff to cliff, a distance of rather more than half a mile.

3. While Cæsar was still waiting for the arrival of his ships a piece of unlooked for good fortune happened to him. This was nothing less than the appearance of ambassadors from a great part of the Morini to apologise for their previous conduct in opposing the Roman forces, on the ground that they were foreigners and unaccustomed to the Roman usages in war, and to promise that they would act as Cæsar should direct. The tribes who thus offered their submission were probably those living in the western portion of the country, who seeing the vast preparations which Cæsar was making were impressed with the exhibition of the Roman power and thought they should obtain

(*a*) 'Annual Register,' 1803, Hist. p. 259.
(*b*) See post, sec. xxiii. par. 9.

better terms by submission than they could hope to gain by opposing his project.

4. Cæsar himself says that the appearance of the ambassadors happened very opportunely, as he did not like to leave an enemy in his rear (*a*), thus implying that he had then seized, or at all events had then determined to seize the western part of the country of the Morini; his evident intention being to make Boulogne his port of departure. He also says that after taking a great number of hostages, he admitted those tribes of the Morini who had sent ambassadors as friends in dependence on the Roman power (*b*). He no doubt, too, as was usual, thereupon took possession of their country, and thus without fighting not only made himself master of the harbour of Boulogne, which was some ten miles nearer Britain than the mouth of the Canche, the most northern of the Gallic ports up to this time in the possession of the Romans, but also obtained the command of the coast as far, probably, as Cape Grisnez or beyond, and so gained several additional miles of coast from which he might collect vessels for his intended expedition.

5. The conclusion to which these considerations point is, that Cæsar moved his army northward to Cape Alprech, and directed his ships to take up their positions along the southern shore of the harbour of Boulogne. By these means he occupied a position of great strength. He had no enemy to fear by sea, and towards the north-west his left flank was protected by an almost perpendicular cliff upwards of 100 feet in height, which was of course almost unassailable. Towards the north-east the plateau of Cape Alprech slopes gradually to the harbour of Boulogne, the line of junction with which formed an admirable landing place nearly three miles in length; and on this side the harbour could easily be made to afford ample protection to Cæsar's right flank and front by removing all the boats to

(*a*) "Hoc sibi satis opportune Cæsar accidere arbitratus quod neque post tergum hostem relinquere volebat neque * *." B. G. iv. 22.

(*b*) "Magnum his numerum obsidum imperat; quibus adductis eos in fidem recepit."—B. G. iv. 22.

the Roman side of the water. Still more to the north-east beyond the little river Liane lay an undulating country well adapted to the movements of cavalry, which would add materially to the protection of the right flank and front, but would be useless in any other part of the position. In the rear the line of retreat lay open to the interior of Gaul through the country of the Atrebates, who had already proved themselves staunch friends to the Romans. The cavalry, therefore, were placed at the head of the harbour, where they were protected by the Liane, and the infantry were stationed close to the ships along the north-eastern slope of Cape Alprech.

SECTION XXII.—*Preparations for the First Voyage.*

1. In this position Cæsar made his preparations for the intended voyage. The account he gives of the number and distribution of his ships is as follows. He says that he had collected about eighty trading vessels, which he thought would be sufficient to carry two legions; that he allotted the few triremes he possessed to his staff and field officers; and that in addition to these ships, there were eighteen more trading vessels eight miles off, which were prevented by the wind from reaching the same port; these he allotted to the cavalry (*a*). It is clear, therefore, that the eighty trading vessels and the triremes were at this time lying together in some harbour, that is, as has been already shewn, in the harbour of Boulogne; and that the distance of eight miles here mentioned was the distance the cavalry would have to march to their ships before embarking. In a subsequent passage, he speaks of the place where the cavalry transports lay wind-bound, as the northern port (*b*). It was therefore Ambleteuse, the distance of which from

(*a*) "Navibus circiter LXXX onerariis coactis contractisque, quod satis esse ad duas legiones transportandas existimabat, quidquid præterea navium longarum habebat, quæstori, legatis, præfectisque, distribuit. Huc accedebant XVIII onerariæ naves, quæ ex eo loco millibus passuum VIII vento tenebantur, quo minus in eundem portum pervenire possent. Has equitibus distribuit." B. G. iv. 22.

(*b*) "Naves XVIII, de quibus supra demonstratum est, quæ equites sustulerant, ex superiore portu leni vento solverunt." B. G. iv. 28.

the place above assigned to the cavalry at the head of the harbour of Boulogne as it was in Cæsar's time, is just 7½ miles, or 13,200 yards. This agrees as nearly as may be with the distance given by Cæsar; for eight Roman miles, on the calculation used above that 1630 yards are equal to one Roman mile, contain 13,040 yards.

2. The ships were of two kinds, triremes and trading vessels. The former were also called long ships, because they were longer than the ordinary vessels. Being ships of war they were built to row as well as to sail, and had numerous oars on each side. They were also fitted with beaks, and were used as rams to run down the enemy. There can therefore be no doubt that they could be rowed with considerable velocity, especially when charging. On such occasions their speed may perhaps be estimated at not less than eight miles an hour. The trading vessels on the other hand trusted almost entirely to their sails, though they had oars by which they could be rowed for short distances in emergencies. Some idea of their size may be formed from the fact, that two of them carried 300 men on the return voyage from Britain (*a*). They generally had a single mast, with a yard and square sail, which was hoisted or lowered as occasion required. For this purpose a wooden hoop was made to slide up and down the mast. To this the yard was attached, and from the extremities of the yard, ropes passed over the top of the mast through pullies, by which means the yard with its sail was hoisted or lowered as might be requisite. This provided for the alteration of the position of the sail vertically. Its position could also be altered horizontally by two other ropes attached to the extremities of the yard. By these the yard was triced so as to meet the wind at any angle which might be required. The two lower corners of the sail were attached by ropes to the hull of the vessel. Thus, the sail could be set in any position that was requisite according to the wind (*b*). Ancient ships, therefore, could

(*a*) See post, sec. xxix. par. 1.
(*b*) Smith's 'Dictionary of Antiquities,' Art. Antenna; Virg. Æn. iii. 549; v. 829—832.

tack and work to windward in the same way as modern ships do, and may perhaps be compared to modern luggers with greater propriety than any other class of vessels of the present day.

3. Now, in general, fore and aft-rigged vessels will sail within about four points of the wind, luggers within about five points, and square-rigged vessels within about six points, and it must be a very bad sailer indeed that cannot sail within seven points of the wind. This is, of course, speaking generally. Some luggers can sail as near the wind as four points, or less, and some square-rigged vessels as near the wind as five points, or less. Hence it will be safe to conclude that an ordinary sailing vessel of Cæsar's time would be able to sail within about six points of the wind, and that the worst sailer of all the trading vessels in his fleet would be able to sail within seven points of the wind without difficulty. The triremes being longer than the trading vessels, and built expressly for speed, would of course sail better.

4. The troops which Cæsar intended to employ, namely, two legions of infantry, and the few cavalry which could be conveyed in eighteen trading vessels of the time, seems a very inadequate force with which to attempt the invasion of Britain. It must be remembered, however, that Cæsar had no doubt collected all the ships he possibly could, and that it was now late in the summer, so that unless he sailed at once, he would be obliged to postpone his expedition altogether until the winter was over. Moreover, several of the British tribes had sent ambassadors offering to submit. His friend Comius, too, was still in Britain advocating his cause, as Cæsar thought, in ignorance that he had been seized and imprisoned by the British (*a*). It was therefore probable that the British would allow the Romans to take possession of their country quietly, just as their friends the Morini had so recently done. At any rate it was

(*a*) "Comius Atrebas venit, quem supra demonstraveram a Cæsare in Britanniam præmissum. Hunc illi e navi egressum quum ad eos oratoris modo imperatoris mandata perferret, comprehenderant atque in vincula conjecerant." B. G. iv. 27.

highly improbable that they would all unite in opposing his landing with force of arms.

5. These probably were the considerations, or some of the considerations, which induced Cæsar to make his attempt with so small a force. They also afford a key to his reasons for separating his staff and field officers from the troops, and placing them on board the triremes. He evidently expected that no opposition would be offered; indeed, in a subsequent passage, he complains of the conduct of the British in opposing him after they had sent ambassadors to him to seek for peace (*a*). But though he believed that the British generally were favourably disposed towards him, it would not do to rely entirely on their friendly intentions. He must make his preparations with a double aspect, and be prepared for peace or war as events might happen. He would shew no open distrust of the British, but would sail as a friend directly to Hythe, as that was the only landing place in ordinary use large enough to accommodate his ships without confusion. If he led the fleet with his staff and field officers in the triremes, which were built to row as well as sail, and were faster and more independent of the wind than the trading vessels, he would be able to reach Britain long before the troops; then if he should meet with no opposition, he could land at once attended by a brilliant suite, and if the British refused to receive him as a friend, he could await the arrival of his troops, and force a landing at Bonnington, or Deal, according to circumstances; at either of which places Volusenus had reported it to be practicable. In the latter case, too, his staff and field officers would be at hand to receive their orders for that operation.

6. For the same reasons, Cæsar also decided on sailing at night, in order that he might reach Hythe in the morning, and so have the day before him for his subsequent proceedings, whichever way events might happen (*b*).

7. The reasons why Cæsar allotted the eighteen trading

(*a*) "Cæsar questus, quod, quum ultro in continentem legatis missis pacem a se petissent, bellum sine causa intulissent." B. G. iv. 27.

(*b*) Lewin's 'Invasion of Britain by Julius Cæsar,' p. 80.

vessels eight miles off at Ambleteuse to the cavalry, are more obvious. They, of course, could travel much faster than the infantry. Besides, this disposition did not break up either of the two legions he intended to employ.

8. Cæsar's plan for forcing a landing, should that operation become necessary, may be gathered from his account of the battle he actually did fight to attain that object (*a*). It was, of course, kept a profound secret, and seems to have been very much like that adopted for the landing in Egypt and in the Crimea; namely, to draw up the trading vessels with the troops on board in two lines of forty vessels each, one behind the other, so that the second line might act as a support to the first; and to station the triremes, which would be unincumbered by troops, and which could be easily moved by rowing in the space between the two lines, at equal intervals, and close to the first line, so that they might be able to give their assistance as circumstances might require. Hence, as every vessel on approaching the shore must have occupied a space sufficiently large for it to move without interfering with its neighbours on its right and left, and as this could hardly have been less than fifty yards, it follows that Cæsar's line of ships to force a landing would cover at least 2000 yards, or nearly a mile and a quarter.

9. By this arrangement, the troops when landed, would be in their ordinary formation of a double line three deep, in which each legion stood with its right wing in front and its left wing in rear (*b*); so that taking each legion to consist of 4500 men, which seems to be a fair, though not a high service average, considering that the full muster roll was 6000, and allowing three feet for each man in the ranks, each legion would cover 750 yards. Cæsar's order of battle, therefore, on a moderate computation, would extend over 1500 yards, or nearly a mile.

10. The legions told off for the expedition were the seventh (*c*) and the tenth (*d*); and it will be shown hereafter

(*a*) See post, sec. xxvi. par. 4.
(*b*) Smith's 'Dictionary of Antiquities,' Art. Army (Roman).
(*c*) See post, sec. xxvii par. 8.
(*d*) See post, sec. xxvi. par. 4.

that the tenth was on the left (*a*). The seventh, therefore, was on the right. Such were Cæsar's preparations for his intended expedition. Now to show in detail the manner in which it was possible that the arrangements for the voyage might have been carried out at Boulogne. There were rather more than eighty vessels altogether, say ninety, including the triremes; the whole of which would be moored in one line along the south side of the harbour, with their heads towards the water, in readiness to sail. That this was quite possible is clear, for even if fifty yards be allowed for each vessel, as in the case of the landing, the whole fleet would cover 4500 yards, or rather more than $2\frac{1}{2}$ miles, while the harbour itself, as has already been shown, was nearly three miles in length. The triremes to carry the staff and field officers, and which were to lead, would be stationed next the mouth of the harbour. The eighty trading vessels would be divided between the two legions, forty to each legion, which would give twenty for each wing; and each of these divisions would be placed together, so that the wing it carried might embark in the formation in which it would take its place in line. The division to carry the left wing of the tenth legion would lie next the triremes, then would come the division to carry its right wing; after that the division to carry the left wing of the seventh legion, and lastly the division to carry its right wing. The triremes would be ordered to sail in two lines, Cæsar's vessel leading; the trading vessels carrying the right wings of the legions would be ordered to follow the north line of triremes, in succession one after the other, at such a distance between the vessels as would preclude any chance of accident; this would be about 150 yards; and the trading vessels carrying the left wings of the legions would be ordered to follow the south line of triremes at the same distance. In this formation Cæsar's fleet would extend over 6750 yards, or nearly four miles, say $3\frac{1}{3}$, as the triremes being able to avoid accidents by rowing, would probably sail in somewhat closer order.

11. Cæsar's arrangements at Boulogne were completed

(*a*) See post, sec. xxvi. par. 9.

by sending detachments to watch the Menapii and those tribes of the Morini who had not sent ambassadors. The rest of the army were to form a guard on the port (*a*).

SECTION XXIII.—*The First Voyage from Boulogne to Hythe.*

1. Cæsar gives the following account of his first voyage. He says he took advantage of some favourable weather, and set sail a little before the third watch of the night; that he sent the cavalry to the further port, with orders to embark and follow him; that there was some delay about this; that he reached Britain with the first ships about the fourth hour of the day; and that he then anchored and waited at anchor for the rest of the ships till the ninth hour, at which time he had got both wind and stream in his favour (*b*). It further appears, from subsequent passages, that the cavalry set sail, but being unable to keep their course, were driven back to Ambleteuse (*c*). Dion Cassius says Cæsar made the usual passage with the infantry (*d*).

2. The exact date of the day on which Cæsar sailed may be ascertained from the following considerations. The expedition was in the consulship of Cneius Pompeius and Marcus Crassus (*e*), and therefore in the year B.C. 55. The season of the year, it will be remembered, was when but little of the summer remained (*f*). It will appear hereafter

(*a*) B. G. iv. 22.

(*b*) "Nactus idoneam ad navigandum tempestatem tertiâ fere vigiliâ solvit, equitesque in ulteriorem portum progredi, et naves conscendere, ac se sequi jussit: a quibus quum id paullo tardius esset administratum, ipse horâ circiter diei IV, cum primis navibus Britanniam attigit, * * dum reliquæ naves eo convenirent ad horam IX in anchoris expectavit. Interim, legatis tribunisque militum convocatis, * * His dimissis, et ventum et æstum uno tempore nactus secundum * *." B. G. iv. 23.

(*c*) See above, sec. xxii. par. 1. "Equites cursum tenere, atque insulam capere, non potuerant." B. G. iv 26. "Post diem IV quam est in Britanniam ventum, naves XVIII, de quibus supra demonstratum est, quæ equites sustulerant, ex superiore portu leni vento solverunt." B. G. iv. 28.

(*d*) "Καὶ τὸν μὲν διάπλουν, καθ' ὃ μάλιστα ἐχρῆν, μετὰ τῶν πεζῶν ἐποιήσατο." Dion. Cass., xxxix. 51.

(*e*) B. G. iv. 1. (*f*) See above, sec. ii. par. 4.

that it was harvest-time while Cæsar was in Britain (*a*), and that harvest was drawing to a conclusion before he left, a little before the equinox (*b*). The expedition, therefore, took place about the end of August or beginning of September. Again, Cæsar says that there was a full moon on the night of the fourth day of his arrival in Britain (*c*), which means, according to the usual mode of reckoning time among the Romans, the fourth day, counting both the day of the arrival and the day before the full moon. Now, the moon was full about 3 a.m. on the 31st of August, B.C. 55 (*d*), that is, on the night between the 30th and 31st. Hence the day of the arrival was the 27th; and as Cæsar set sail the night before, he, of course, started on the 26th of August, B.C. 55.

3. The next point to ascertain is the exact meaning of the terms, the third watch of the night and the fourth and ninth hours of the day. At this period of their history, the only division of time known to the Romans was the natural division of light and darkness, or day and night. They reckoned the day from sunrise to sunset, and the night from sunset to sunrise, at all seasons of the year, dividing the day into twelve equal periods, called hours, and the night into four equal periods, called watches. Hence their hours and watches varied in length according to the time of the year. Now, any almanack which gives the time of the sun's rising and setting will show that in the south of England the sun rises about 5.6 a.m., and sets about 6.54 p.m., on the 27th of August. It follows, therefore, that at this time of the year the Roman day at Boulogne and Hythe, or the time during which the sun was visible from those places, was 13 hours and 48 minutes, and that the length of the night was 10 hours and 12 minutes. Hence each Roman hour was equal in length to 1 modern hour and 9 minutes, and each Roman watch was equal in length to 2 modern hours and 33

(*a*) See post, sec. xxvii. par. 6.
(*b*) See post, sec. xxvii. par. 10.
(*c*) "Post diem IV quam est in Britanniam ventum, * * Eâdem nocte accidit, ut esset luna plena." B. G. iv. 28, 29.
(*d*) 'Book of Almanacks,' De Morgan, Introduction, p. xv.

minutes; and therefore the third watch of the night on the 26th of August, on which day Cæsar set sail, began at midnight; the fourth hour of the next day, about which time he reached Britain, began at 8.33 a.m.; and the ninth hour of the same day, when all the ships had arrived, and the wind and stream were in his favour, began at 2.18 p.m. Cæsar, therefore, set sail from Boulogne about 11.50 p.m. on the 26th of August, B.C. 55. The correspondence of the Roman watches and hours with the modern hours and minutes, from sunset on the 26th of August to midnight on the following day, are exhibited in the first two columns of the table, Appendix A.

4. Having thus ascertained the exact day and hour at which Cæsar sailed, the state of the tide in the Channel during the voyage becomes the next subject for consideration. The exact time of high water at any particular place, on any particular day, is a matter of abstruse calculation, which is, moreover, liable to error from causes such as the force of the wind, which it is impossible to take into consideration. It is therefore practically impossible to ascertain with accuracy the exact time of high water in the Channel on the 26th of August, B.C. 55. Under ordinary circumstances, however (and any violent storm or other disturbance is precluded by the narrative), an approximation may be obtained which cannot vary from the truth by more than a few minutes; for it so happens that there was a full moon on the 31st of August, 1860, at 8.57 a.m. (*a*). The tides, therefore, during that and the following year, were very nearly the same as the tides in the years B.C. 55 and B.C. 54, the chief difference being that which is due to the difference in the age of the moon, namely, 5 hours and 57 minutes, if it be assumed that the moon was full exactly at 3 a.m. on the 31st of August, B.C. 55.

5. Now, inasmuch as the moon revolves round the earth in about 29½ days, and the earth rotates on its axis in the same direction once in 24 hours, it follows that the mean interval of time between two consecutive high waters is a fraction over 12 hours 24 minutes. In other words, the

(*a*) 'British Almanack,' 1860.

time of high water is a trifle over two minutes later for every hour of the moon's age; and therefore, as the full moon, on the above assumption, was 5 hours and 57 minutes, say 6 hours, earlier on the 31st of August, B.C. 55, than the 31st of August, 1860, the times of high water in the years B.C. 55 and B.C. 54 were, as nearly as may be, 12 minutes earlier than the times of high water in the years 1860 and 1861.

6. The above assumption that, it was full moon at 3 a.m. on the 31st of August, B.C. 55, may, however, not be quite accurate. There may be an error in the calculation of two hours in the age of the moon (*a*). If so, the full moon on the 31st of August, B.C. 55, may have been at 1 a.m. at the earliest, or at 5 a.m. at the latest. In the former case the time of high water, by the foregoing reasoning, would have been a trifle over 4 minutes earlier, and in the latter case a trifle over 4 minutes later, than the times calculated from the full moon at 3 a.m.

7. On the whole, therefore, it will be sufficient for the present purpose to calculate that the times of high water in the years B.C. 55 and B.C. 54 were 12 minutes earlier than the corresponding times of high water in 1860 and 1861.

8. Again, the difference between the times of high water at different places is so nearly constant, that if the time of high water at any one place be known, the time of high water at any other place can be deduced from it, with sufficient accuracy for all practical purposes, by adding or subtracting the proper difference of time. For instance, if the time of high water at London Bridge be known, the time of high water at any of the undermentioned places may be found by subtracting from it the time set opposite the name of the place in the following table:—

Boulogne	2 hours 42 min.
Dover Harbour . . .	2 ,, 55 ,,
Folkestone and Hythe . .	3 ,, 21 ,, (*b*)

(*a*) 'Book of Almanacks,' De Morgan, Introduction, p. 1.
(*b*) 'British Almanack.'

Hence the times of high water in the channel for B.C. 55 and B.C. 54 may be deduced from the times of high water at London Bridge for 1860 and 1861, which are known (*a*), by means of the foregoing table, with the above correction of 12 minutes for the difference in the moon's age.

9. Thus, to find the state of the tide at Boulogne, when Cæsar set sail on his first voyage—

It was high water at London Bridge on the 26th of August, 1860, at	10.22 p.m.
Subtract difference of time, as given in the table	2.42 „
This leaves	7.40 p.m.
the time of high water at Boulogne on the 26th of August, 1860.	
Again, subtract the difference for the moon's age in B.C. 55	.12 „
This leaves	7.28 p.m.

the time of high water at Boulogne on the 26th of August, B.C. 55. It was, again, high water at London Bridge at 11.5 a.m., on the 27th of August, 1860; that is, 12 hours and 43 minutes after the high water there, at 10.22 p.m., on the 26th. It was, therefore, low water at London Bridge about 6 hours and 22 minutes after that time; similarly, it was low water at Boulogne 6 hours and 22 minutes after the high water there at 7.28 p.m. on the 26th; that is, about 1.50 a.m. on the 27th of August, B.C. 55. Hence, as Cæsar set sail about 11.50 p.m. on the preceding night, he started about 2 hours before low water. This proves that he was under no apprehension as to the depth of the water at the mouth of the harbour, and consequently that the latter was then accessible at all periods of the tide. It follows that the accumulation of sand by which it is now obstructed was not in existence in the time of Cæsar (*b*).

(*a*) Those given in the 'British Almanack' are used in the following pages.

(*b*) See above, sec. v. par. 3; sec. xxi. par. 2.

10. In the same manner the state of the tide in the Channel may be ascertained throughout the continuance of the first voyage. It is exhibited in the fourth column of the table, Appendix A.

11. It has already been stated that the stream in the Channel turns east, or up-channel, about 2 hours before high water, and turns west, or down-channel, about 4 hours after high water (*a*). This fact having been questioned, has been several times submitted to the test of actual observation, and its truth must now be considered as established. It has also been doubted whether the stream in-shore turns at the same time as that in the Channel. This question has also been set at rest by repeated observations, and it is certain that there is no practical difference in the turn of the stream in-shore and in mid-channel (*b*). Hence the direction of the stream, for every position of Cæsar's ships during the voyage, may be ascertained; and it may be shewn that the stream was running down-channel at midnight on the 26th of August, B.C. 55, as the ships were leaving the mouth of the harbour at Boulogne; that it turned up-channel about 5.32 a.m. on the morning of the 27th, when the fleet was in mid-channel; and that it again turned down-channel about 11.32 a.m. on the same day, and so continued for some time after the last ship had reached Britain at 2.18 p.m. These changes are shown in the fifth column of the table, Appendix A.

12. The velocity of the stream in the channel has also been stated to be about $2\frac{3}{4}$ knots an hour at springs, and about $1\frac{1}{4}$ knots an hour at neaps (*c*). This is equivalent to nearly $3\frac{1}{4}$ miles an hour at springs, and to nearly $1\frac{1}{2}$ mile an hour at neaps, as a knot is nearly equal to $1\frac{1}{6}$ mile. Now Cæsar's voyage took place about four days before the full moon, and therefore about midway between neaps and springs; the velocity of the stream, therefore,

(*a*) See above, sec. xii. par. 1.
(*b*) Lewin, 'Invasion of Britain by Julius Cæsar,' lxxvii. et seq.; 'Archæologia,' vol. xxxix. p. 301.
(*c*) See above, sec. xii. par. 1.

was about the mean between its velocity at neaps and its velocity at springs, that is about $2\frac{3}{5}$ miles an hour.

13. Again, the velocity with which a body drifts in a stream is always something less than the velocity of the stream. It also depends on the form of the body and the depth to which it is immersed: for instance, a ship with her broadside to the stream will drift faster than she will with her head to it; and when loaded will drift faster than when light (*a*). Hence Cæsar's ships being heavily laden would drift with a velocity something less than the velocity of the stream, when broadside on, and at a somewhat slower rate when end on. In the former position they would probably drift half-a-mile an hour, and in the latter perhaps three-quarters of a mile an hour slower than the stream, that is, would drift when broadside on at the rate of $1\frac{7}{8}$ miles an hour, and when end on at the rate of $1\frac{5}{8}$ miles an hour.

14. The general state of the wind during the voyage may also be ascertained with considerable accuracy. At starting it was such that the eighteen ships at Ambleteuse could not reach Boulogne; and, therefore, as Ambleteuse lies as nearly as may be North (*b*) of Boulogne, and the ships could sail within seven points of the wind (*c*), the latter must have been somewhere in the south between E. by S. and W. by S. At the same time the wind must have been fair for the voyage from Ambleteuse to Hythe, the course for which is N.W. $\frac{1}{2}$ W. The wind, therefore, must have been seven points at least from this, or to the south of S.W. $\frac{1}{2}$ N. At starting, therefore, it was somewhere between this point and E. by S. Then there was a delay in the sailing of the cavalry from Ambleteuse. They did not appear in the Channel as soon as Cæsar expected to see them, although they did set sail at last. The wind, therefore, still remained fair for some considerable time after the fleet had left Boulogne. Then the cavalry could not keep their course, and were driven back to Amble-

(*a*) 'Lewin's Invasion of Britain by Julius Cæsar,' 82.

(*b*) The true points, not the magnetic, are always referred to in the following pages.

(*c*) See above, sec. xxii. par. 3.

teuse. Hence the wind at this time had veered and was now blowing from some point near the N.W. Lastly, when Cæsar says he waited at anchor off the coast of Britain until the 9th hour (2.18 p.m.) at which time he had got both wind and stream in his favour, he uses an expression which implies a change. This change, therefore, must have been either in the wind or in the stream. Now the latter had been running down channel since 11.32 a.m. The change, therefore, must have been in the wind, which must at that time have veered to some point near the north-east (*a*).

15. The wind, therefore, on the first voyage was somewhere about S. at starting, and so continued for a period long enough for the cavalry to put to sea; it then changed to somewhere about N.W., and remained in that quarter for a period sufficiently long to enable the cavalry to get back to Ambleteuse; and lastly, it changed rapidly to somewhere about N.E. a little before 2.18 p.m., while Cæsar was lying at anchor off Britain.

SECTION XXIV.—*Details of the First Voyage.*

1. Now to show in detail how it was possible for the voyage to have been performed in accordance with the exigencies of Cæsar's narrative.

2. The wind might have been S.W. at starting, and have continued so till 3.30 a.m.; it might then have changed to W.N.W. $\frac{1}{2}$ W., and have remained there till 5.32 a.m.; it might then have changed to N.W. by N., and have remained there till 1.32 p.m.; and lastly, it might have changed to E.N.E. for its final point in the direction of the stream down channel. These changes are all shown in the third column of the table, Appendix A.

3. When the fleet left Boulogne about 11.50 p.m. on the 26th August, B.C. 55, the wind was S.W., the course for Hythe was N.W. $\frac{1}{3}$ N. (*b*), so that with the benefit of the stream which had just begun to run down channel at 11.28 p.m. with a velocity of about $2\frac{3}{8}$ miles per hour in a direction at first nearly and after a little while quite on

(*a*) 'Lewin's Invasion of Britain by Julius Cæsar,' p. 39.
(*b*) See map.

the beam, none of the ships would have any difficulty in keeping their course, and all would sail on a fair average at the rate of nearly $6\frac{1}{2}$ miles an hour. If this continued until 3.30 a.m., the trireme in which Cæsar was leading would at that time have passed over nearly 22 miles, and would be rather more than 11 miles S.E. $\frac{1}{3}$ S. of Hythe, and the last trading vessel in the fleet would at the same time be about $3\frac{1}{2}$ miles (*a*) further off in the same direction, or rather more than $14\frac{1}{2}$ miles S.E. $\frac{1}{3}$ S. of Hythe.

4. At some time during this period of about $3\frac{1}{2}$ hours the cavalry set sail, so that at 3.30 a.m. they were well at sea; perhaps 5 or 6 miles from Ambleteuse. It is impossible to make any very close approximation to their exact position, nor do the circumstances of the case require it.

5. At 3.30 a.m. the wind changed to W.N.W. $\frac{1}{2}$ W.; the effect of which was of course to turn all the ships up channel. The triremes would then have no difficulty in sailing N. by W. $\frac{1}{4}$ N., that is within about $5\frac{3}{4}$ points of the wind at the rate of rather more than 4 miles an hour, which would bring Cæsar's vessel to about 6 miles W. of Hythe in 2 hours, or at 5.32 a.m. just after sunrise, which occurred at 5.6 a.m., and at the conclusion of the fifteen minutes' slack water preceding the turn of the stream up channel, which took place at that time.

6. The trading vessels would not be able to sail with a sufficient velocity to retain their proper places nearer the wind than about $6\frac{3}{4}$ points. They would therefore proceed in a direction about N. $\frac{1}{4}$ E., and each vessel following the other according to orders, the whole of the trading vessels would advance up channel in echellon, and in doing so would naturally endeavour to keep their line as much as possible parallel to its original position of N.W. $\frac{1}{3}$ N. and S.E. $\frac{1}{3}$ S. In this manner the last of the infantry transports at 5.32 a.m. would be at the intersection of a line about N. $\frac{1}{4}$ E. from its former position at 3.30 a.m., and a line S.E. $\frac{1}{3}$ S. from the position of Cæsar's ship at 5.32 a.m.; that is, would be about $11\frac{1}{3}$ miles E.S.E. $\frac{1}{4}$ S. of Hythe.

(*a*) See sec. xxii. par. 10.

7. The cavalry transports in like manner would be driven up channel, and being so far to the east would have little or no prospect of reaching Hythe in anything like reasonable time, even if they could manage to get there at all. They would therefore put back again at once, or at any rate would do so when the wind got still further round to the north.

8. At 5.32 a.m. the wind again changed to N.W. by W. The triremes would then tack, and with the aid of the stream, which turned up channel at the same time, would be able to creep along due W. to Hythe at about 5 points from the wind, at the rate of a trifle over 2 miles an hour. The distance being about 6 miles, Cæsar's vessel with the first ships would arrive in something less than 3 hours, or about 8.25 a.m., that is, just before the fourth hour, which began at 8.33 a.m.

9. The trading vessels, on the contrary, not being able to sail so close to the wind, would be obliged to carry on towards the north, so that each vessel might tack when she was sufficiently high up channel to enable her to reach Mill Point between Folkestone and Sandgate. This would not be the case for the last vessel for more than three hours. In three hours, sailing as close as she could to the wind, that is within about 6 points, at the rate of $1\frac{1}{2}$ miles an hour, she would pass over $4\frac{1}{2}$ miles N.E. by N., and therefore as nearly as may be in the same direction as the stream, which would carry her with it end on at the rate of about $1\frac{5}{8}$ miles an hour. This added about $4\frac{7}{8}$ miles to her distance up channel in the 3 hours. Her position at 8.32 a.m., therefore, would be rather more than 12 miles E. by N. of Mill Point, so that on tacking at 8.32 a.m. she would proceed still at 6 points from the wind in a direction W. by S., or a little to the south of Mill Point. The velocity with which she would then sail, with the aid of the stream up channel, would be about 2 miles an hour. Losing this she would only sail at the rate of about $1\frac{1}{2}$ miles an hour. For 3 hours she would have the assistance of the stream up channel; she would then lose this benefit for the next 15 minutes of slack water, so that in this period of $3\frac{1}{4}$ hours she would advance rather more than

6 miles in a direction a little to the south of Mill Point. The time would now be 11.32 a.m., at which hour the stream again turned down channel. During the next two hours she would continue sailing in the same direction at the rate of $1\frac{1}{2}$ miles an hour, and during the same period would be carried down channel by the stream, which she was crossing at the rate of $1\frac{7}{8}$ miles an hour, so that at the end of these two hours, that is at 1.32 p.m. she would altogether have sailed 9 miles W. by S. from her position at 8.32 a.m., and at the same time she would have been carried down channel a distance of $3\frac{3}{4}$ miles. Her position, therefore, at 1.32 p.m. would be about two miles S.S.E. of Mill Point.

10. The wind now veering rapidly to E.N.E.; those transports which had not already arrived would have no difficulty in reaching their anchorage. The last would have a distance of about $3\frac{1}{2}$ miles to sail from her position at 1.32 p.m., for the vessels already at anchor in two lines from about W.N.W. to E.S.E. would cover about $1\frac{1}{4}$ mile at intervals of 50 yards. This distance she would easily accomplish in about half-an-hour or a little more, and so would drop her anchor about 2 p.m. or a few minutes later, that is just before the 9th hour, which began at 2.18 p.m.

SECTION XXV.— *Voyage from Hythe to Bonnington.*

1. On reaching Britain Cæsar says he saw the armed forces of the enemy drawn up on all the hills, and in the next sentence he adds, by way of describing the nature of the place, the sea was so shut in by steep mountains that a dart could be thrown from the high grounds to the shore (*a*). Here it will be observed that in the first sentence Cæsar uses the word all, and applies it to hills in the plural; and that in the second sentence he again speaks of the mountains in the plural, thus pointedly implying, if

(*a*) "Ipse horâ circiter diei IV cum primis navibus Britanniam attigit, atque ibi in omnibus collibus expositas hostium copias armatas conspexit. Cujus loci hæc erat natura: adeo montibus angustis mare continebatur, uti ex locis superioribus in littus telum adjici posset." B.G. iv, 23

not in fact asserting, that there were more than two hills, in which case the expression both or on each side, instead of all, would be more appropriate. His language, therefore, points to the conclusion that there were more than two hills in sight at the place in question, a description which is perfectly accurate when applied to Hythe and to Hythe alone. Here Cæsar would have seen no less than five separate and distinct hills lying nearly in a line from east to west, namely, the cliff to the east of Sandgate on the east, his view being terminated by Mill Point in that direction; the Shorncliff; the hill between the Shorncliff and Hythe; the hill on which Hythe is built; and the hill between that town and West Hythe, beyond which he could not see, on the west. Moreover, it being about half-an-hour after high water, the sea reached quite up to the mouths of the three valleys between Hythe and Sandgate, so that the bay of Hythe appeared to Cæsar to be shut in by the hills exactly as he describes it. At no other place on this part of the coast can more than two hills be seen at once; and two hills can only be seen at once at Folkestone, Dover, St. Margaret's and Kingsdown. All the rest of the coast, except at Eastware Bay, where the ground slopes steeply to the sea, is a sheer wall of cliff, and no part of it answers the description given by Cæsar. The only other place any where near at all answering the description is the western shore of the Bay of Apuldore from Fairlight to the Isle of Oxney, but here the valleys are so broad that the sea could hardly be described as shut in by the hills. In fine, if full force be given to Cæsar's expressions, his description alone, independently of any other considerations, is sufficient to identify Hythe as the place at which he arrived on first reaching the shores of Britain.

2. Again, Dion Cassius says that Cæsar did not land where he ought, because the British were aware of his approach, and were occupying all the landing places which looked towards the Continent. He couples the word all with landing places in the plural, implying, as in Cæsar's description, that there were more than two landing places, and his reference to them as looking towards the Continent,

accurately describes the mouths of the three valleys between Hythe and Sandgate (*a*).

3. All hope which Cæsar had of meeting with a friendly reception was of course dissipated the moment he saw the British on the hills armed in readiness to oppose his disembarcation. The nature of the place was such as to preclude all idea of forcing a landing where he was. He must, therefore, needs go either to Deal or Bonnington, at both of which places he knew, from Volusenus' report, that the ground was practicable for his intended operations. He accordingly ordered the triremes to come to an anchor, and there await the arrival of the trading vessels with the troops. He also summoned his officers on board his own vessel to give them their orders, and to explain the plan of operations he intended to adopt (*b*). Volusenus probably accompanied Cæsar on the voyage: at all events, there can be little doubt that he was present on this occasion, to give any further information which might be required. If an hour be allowed for the officers to assemble, the time would now be about 9.30 a.m. The tide was falling, the stream was running up channel at about $2\frac{3}{8}$ miles an hour, and the wind was about N.W. $\frac{1}{2}$ N.; a state of circumstances which was of course evident to the Romans as they lay at anchor.

4. Now at this time the Romans had but little acquaintance with the phænomena of the tides. Cæsar himself says they did not even know that the highest tides occur at full moon (*c*). Of course they were completely ignorant of the turn of the stream in the Channel. As far as Cæsar could tell, therefore, it was utterly impossible to go to Bonnington. On the other hand, the ships could sail as far as the South Foreland with ease; and then they could row the rest of the distance, with the aid of the stream, if they kept well under the shelter of the cliff. Accordingly Cæsar gave

(*a*) "*οὐ μέντοι καὶ ἦ ἔδει προσέσχεν, οἱ γὰρ Βρεττανοὶ τὸν ἐπίπλουν αὐτοῦ προπυθόμενοι, τὰς κατάρσεις ἁπάσας τὰς πρὸ τῆς ἠπείρου οὔσας προκατέλαβον.*" Dion. Cass. xxxix. 51.

(*b*) See above, sec. xxii. par. 8.

(*c*) "Eâdem nocte accidit, ut esset luna plena, quæ dies maritimos æstus maximos in Oceano efficere consuevit; nostrisque id erat incognitum." B. G. iv. 29.

orders for a landing at Deal, but when the stream turned down channel, at 11.32 a.m., these arrangements had to be altered. The wind still remaining N.W. ½ N., the ships might possibly be able to sail to the South Foreland, but it would be quite impossible to row from that point to Deal against the stream. He must row with it, and therefore go to Bonnington, which he would be able to reach by keeping under the shelter of the high ground between Hythe and Aldington Knoll.. Fresh orders were given accordingly a little after 11.32 a.m.

5. As the day wore on, the trading vessels with the troops on board kept coming up. They all joined before 2.18 p.m., a little after the wind had changed to E.N.E. The fleet could now sail to Bonnington, and Cæsar, cautioning his officers to be ready to act the moment the signal was made, sent them to their respective commands. About 2.18 p.m., he gave the signal to weigh (*a*); the triremes fell into their places between the two lines of trading vessels, and the whole fleet sailed westward with Cæsar at its head in the leading trireme. He then says that after advancing about seven miles he brought up his ships on an open and flat coast (*b*). And here, it will be observed that Cæsar uses the word advanced, which means that he went forward in the direction in which he was originally going; an expression which is perfectly accurate, if he went from Hythe to Bonnington, whether he refers to the manner in which he actually reached Britain, as shown above, or whether he refers to the direct course from Boulogne which he ought to have kept.

6. The place at which Cæsar had now arrived was the flat ground to the west of Aldington Knoll. The distance he advanced was about seven Roman miles, that is on the calculation hitherto used, about 6½ English miles. This is, of course, applicable to the ship in which Cæsar was leading, from which he would naturally take the distance. Cæsar's ships, therefore, brought up about half way between Bonnington and Bilsington; and the leading trading

(*a*) "Ad horam IX in anchoris expectavit." B. G. iv. 23.
(*b*) "Circiter millia passuum VII. ab eo loco progressus, aperto ac plano littore naves constituit." B. G. iv. 23.

vessels did the same close to it. This was the extreme left of the line; the remaining trading vessels covered about a mile and a quarter (*a*), so that the extreme right of the line was at the foot of the spur from Aldington Knoll, nearly opposite the present bridge over the Military Canal. From this point westward to the end of the promontory of Apuldore the ground is perfectly open, and so nearly level that it is almost impossible in many places to distinguish the line of junction of the upland with the marsh. Indeed, it slopes so gently to the marsh that it is evident that in Cæsar's time, when the sea filled the bay of Apuldore, there must have been extensive flats at low water, and at high water the sea must have come up in many places, and especially in the direction of Bonnington Parsonage, several hundred yards above the present junction of the upland with the marsh.

7. Of this part of the voyage, Dion Cassius gives some further particulars, which afford great assistance in determining the place where Cæsar landed. His account also corroborates the theory that Romney Marsh was not in existence in the time of Cæsar. After explaining, as mentioned above, that Cæsar did not land where he ought, he proceeds to say that he sailed round a kind of projecting point, and coasted along to another place (*b*). This language, it will be seen, exactly agrees with Cæsar's narrative. It also accurately describes the appearance which the promontory between Hythe and West Hythe, round which of course Cæsar sailed if he went from Hythe to Bonnington, must have exhibited when the sea filled the bay of Apuldore.

SECTION XXVI.—*The First Landing.*

1. The British forces consisted of infantry, cavalry and chariots. Their infantry were unincumbered with armour, and therefore could move with great rapidity. Their chariots excited the admiration of Cæsar, who gives the

(*a*) See above, sec. xxii. par. 8.

(*b*) "*ἄκραν οὖν τινα προέχουσαν περιπλεύσας, ἐτέρωσε παρεκομίσθη.*" Dion. Cass. lib. xxxix. cap. 51.

following account of their manœuvres in a chapter which appears to be interpolated in the Commentaries after he had obtained some experience of their use. He says they first keep moving about in all parts, throwing darts, and generally succeed in throwing the infantry into confusion by the very terror of the horses and the noise of the wheels. When they have managed to force their way among troops of cavalry, they get out of their chariots and fight on foot. Meanwhile, the drivers draw off a little from the battle, and so place the chariots that if the fighting men are overwhelmed by the number of the enemy they can retreat to them. They thus combine the rapidity of cavalry with the solidity of infantry; and are so efficient, from daily drill and exercise, that they gallop down steep and precipitous places, halt and turn abruptly, run along the pole, stand on the bar, and thence get into their chariots again with the greatest quickness (*a*).

2. The number of the British troops is not mentioned. They were, however, in sufficient force on the heights about Hythe when the first ships of the Romans arrived there on the morning of the 27th to forbid any attempt at landing. They were also no doubt constantly receiving accessions of strength from the interior of the country, while Cæsar lay at anchor awaiting the arrival of his troops, so that when he set sail about 2.18 p.m. there was a large force of British in the vicinity of Hythe. Their front probably extended from Sandgate on the east to the salient point between Hythe and West Hythe on the west.

3. As soon as Cæsar set sail, the British, who had divined his intentions, moved their forces in the same direction along the shore. The cavalry and chariots led the way; the infantry followed as fast as they could. The former and some of the latter arrived at Bonnington in time to oppose the disembarcation of the Romans (*b*).

(*a*) B. G. iv. 33.

(*b*) "At barbari, consilio Romanorum cognito, præmisso equitatu et essedariis, quo plerumque genere in præliis uti consuerunt, reliquis copiis subsecuti, nostros navibus egredi prohibebant." B. G. iv. 24. The word essedariis, translated chariots in the text,

The position they now occupied was this. In front, all along the water's edge, the ground was nearly level, and well adapted for the manœuvres of the cavalry and chariots. On the right, they could advance as far as was necessary towards Bilsington. On the left, fresh troops were constantly coming up from the direction of Hythe; and in the rear was open ground interspersed with wood, which would facilitate their retreat, if they were obliged to retire.

4. Of the battle which ensued, Cæsar gives the following account. The Romans laboured under several disadvantages. The sea was so shallow that the transports could not be brought up to the dry ground, but were obliged to remain where the water was comparatively deep. The soldiers were unacquainted with the locality, and had their hands full of weapons; besides which they were weighed down by their armour. They had also to descend from their ships and keep their footing and ranks in the midst of the waves, and fight the enemy all at the same time, for the latter, who were unincumbered and had all their limbs free, and were moreover well acquainted with the ground, stood either on the dry land or advanced a little into the sea, and boldly kept up a shower of darts, while their chariots and cavalry (*a*), who were used to the sea, made constant charges into the water. This novel mode of fighting terrified the Romans, and there was some hesitation on their part; whereupon Cæsar ordered the triremes to be cleared from the trading vessels and rowed to the open flank of the enemy, and from that position to drive them off with slings, arrows and missiles from the engines. This was of great service. The British wavered, and slightly retired. The Roman soldiers, however, still hung back, chiefly on account of the depth of the sea.

properly means the men in the chariots. It seems to be here used by Cæsar to include the chariots in the same way as he so often uses the word equites, which properly means horsemen, to include the horses when he speaks of cavalry. See above, sec. xxii. par. 1, notes.

(*a*) Cæsar mentions horses only, equis, but the context implies that the British made use of their chariots as well as their cavalry. See the next sentence.

Then the standard bearer of the 10th legion, having called on his comrades to disembark and follow him if they did not wish to lose their eagle, threw himself from his ship, and began to carry his standard towards the enemy. His comrades thereupon leaped from the ship, and when the Romans in the next nearest ships of the front rank saw what had happened, they, too, followed and began to approach the enemy. The fight was severe on both sides; the Romans were thrown into great confusion, being unable to keep their ranks, to get a sure footing, or to follow their proper standards. Many from different ships formed on any standard they happened to meet with. The British were familiar with all the shallow places, and charged the Romans with chariots and cavalry (*a*) wherever they saw from the shore any small parties descending from the ships, the many surrounding the few; others kept throwing darts from the open flank. When Cæsar saw this, he ordered the boats of the triremes, and the reconnoitring vessels to be filled with soldiers, and from them he sent reinforcements wherever he saw his men in difficulties. The Romans at last made good their footing on the dry land, and the rest of the army following, the whole charged the British and put them to flight. They could not, however, pursue them far, for want of the cavalry who had been unable to keep their course and make the island (*b*).

(*a*) Here Cæsar again mentions the horses only equis.

(*b*) "Erat ob has causas summa difficultas, quod naves propter magnitudinem, nisi in alto, constitui non poterant; militibus autem, ignotis locis, impeditis manibus, magno et gravi onere armorum oppressis, simul et de navibus desiliendum, et in fluctibus consistendum, et cum hostibus erat pugnandum; quum illi aut ex arido, aut paulum in aquam progressi, omnibus membris expeditis, notissimis locis, audacter tela conjicerent, et equos insuefactos incitarent. Quibus rebus nostri perterriti, atque hujus omnino generis pugnæ imperiti, non eadem alacritate ac studio quo in pedestribus uti prœliis consuerant, utebantur. Quod ubi Cæsar animadvertit, naves longas, quarum et species erat barbaris inusitatior, et motus ad usum expeditior, paulum removeri ab onerariis navibus, et remis incitari, et ad latus apertum hostium constitui, atque inde fundis, sagittis, tormentis, hostes propelli ac submoveri jussit; quæ res magno usui nostris fuit. Nam et navium figurâ, et remorum motu, et inusitato genere tormen-

5. Dion Cassius gives a similar account of the battle. He says that Cæsar having defeated those who attacked him while disembarking in the shoal water, made good his landing, and gained the victory before the greater part of the troops had come up. He afterwards repulsed the enemy. Few, however, of the barbarians fell, for being mounted on chariots and on horses, they easily escaped from the Romans, whose cavalry had not yet joined them (*a*).

6. The time when Cæsar reached Bonnington must now be ascertained. He had started from Hythe about 2.18 p.m., a little after low water, which happened at 1.51 p.m. (*b*), with the wind on the quarter and the stream in his favour. When off Lympne, he lost the benefit of

torum permoti barbari constiterunt, ac paulum modo pedem retulerunt. Atque nostris militibus cunctantibus, maxime propter altitudinem maris, qui decimæ legionis aquilam ferebat, contestatus Deos, ut ea res legioni feliciter eveniret; 'Desilite,' inquit, 'Commilitones, nisi vultis aquilam hostibus prodere: ego certe meum reipublicæ atque imperatori officium præstitero.' Hoc quum magnâ voce dixisset se ex navi projecit, atque in hostes aquilam ferre cæpit. Tum nostri cohortati inter se, ne tantum dedecus admitteretur, universi ex navi desiluerunt; hos item alii ex proximis primis navibus, quum conspexissent, subsecuti, hostibus appropinquarunt. Pugnatum est ab utrisque acriter: nostri tamen, quod neque ordines servare, neque firmiter insistere, neque signa subsequi poterant, atque alius aliâ ex navi, quibuscunque signis occurrerat, se aggregabat, magnopere perturbabantur. Hostes vero, notis omnibus vadis, ubi ex littore aliquos singulares ex navi egredientes conspexerant, incitatis equis impeditos adoriebantur; plures paucos circumsistebant, alii ab latere aperto in universos tela conjiciebant. Quod quum animadvertisset Cæsar, scaphas longarum navium, item speculatoria navigia militibus compleri jussit, et quos laborantes conspexerat, his subsidia submittebat. Nostri, simul in arido constiterunt, suis omnibus consecutis, in hostes impetum fecerunt, atque eos in fugam dederunt, neque longius prosequi potuerunt, quod equites cursum tenere atque insulam capere non potuerant." B.G. iv. 24, 25, 26.

(*a*) "*Τοὺς προσμίξαντάς οἱ ἐς τὰ τενάγη ἀποβαίνοντι νικήσας, ἔφθη τῆς γῆς κρατήσας πρὶν τὴν πλείω συμβοηθείαν ἐλθεῖν· καὶ μετὰ ταῦτα καὶ ἐκείνους προσβαλόντας ἀπεώσατο. καὶ ἔπιπτον μὲν οὐ πολλοὶ τῶν βαρβάρων ἁρματηλάταί τε γὰρ ὄντες καὶ ἱππεῖς, ῥᾳδίως τοὺς Ῥωμαίους, μηδέπω του ἱππικοῦ αὐτοῖς παρόντος, διέφυγον.*" Dion. Cass. lib. xxxix. cap. 51.

(*b*) See table, Appendix A.

the latter, and met the eddy in the bay of Apuldore running from west to east along its northern shore. On reaching his destination, he had to form line and make his last preparations for the attack. By the time this was done the British chariots and cavalry, supported by some of their infantry, had reached the intended landing place, and as the leading companies of the latter had to march about five and a half miles from their former position on the British right at Hythe, this would take about an hour and a half, and would also be about the time which Cæsar would require for his voyage and preparations, if his ships sailed, as they probably would, before the wind at about seven miles an hour. The time, therefore, at which the battle commenced was about 3.48 p.m.

7. The details of the battle, every incident of which is clearly explained and elucidated by the configuration of the land and sea at Bonnington, may now be supplied. The time was about 3.48 p.m. The tide was about two hours flood (*a*), and therefore when the Romans approached the intended landing place, and while they were arranging their ships for the operation, a considerable extent of the flat shore at this part of the country lying between high and low water mark, was exposed. The British cavalry and chariots who had preceded the infantry on the march from Hythe descended the spur from Aldington Knoll, and arrived simultaneously with, or perhaps a little before, the Romans. As soon as the latter drew near to the shore, the British chariots and cavalry kept making hostile demonstrations according to their usual tactics all along the water's edge, sometimes even charging into it; and by their determined aspect causing the Romans to hesitate. Now, any one who has seen a collier beached, and witnessed the efforts made by five or six horses to draw a load of coals through shingle, with which one horse easily walks away on the road, or who has attempted to ride through shingle, will agree that there could have been no shingle at the place where the British chariots and cavalry acted in this manner. There could have been no shingle at the place where Cæsar landed. Bonnington fulfils this con-

(*a*) See Appendix A.

dition. There is no shingle along the inland margin of the marsh.

8. While the British chariots and cavalry were still holding the Romans in check, the leading companies of the British infantry arrived at the scene of action; more were following as fast as the men could march. It was Cæsar's object, therefore, to attack as soon as possible, before the whole of the British troops could arrive. It was also clear that his extreme left was the point from which an attack would meet with the least resistance, as that was the farthest from the direction in which the British were fast arriving. Accordingly, the open flank on which Cæsar began the battle by the attack with the triremes was the British right; their left was covered by the troops arriving from Hythe.

9. The attack succeeded, with the aid of the rising tide (*a*), through the valour of the standard bearer of the 10th legion, who gained the shore under cover of the missiles from the triremes. The 10th legion, therefore, was on the left of the line. The Romans had now obtained a footing on the upland about half way between Bonnington and Bilsington. The time would be about 4.30 p.m., if half an hour be allowed for the triremes to row to the left flank and commence operations. The battle then extended along the line towards the right, the soldiers from each ship reaching the shore successively, so that the attack practically became one in direct echellon. The fight was severe on both sides, the Romans being greatly confused by the charges of the chariots and cavalry. The British now copied Cæsar's tactics, and attacked the open flank of the Romans, which was of course their right, on the spur from Aldington Knoll. Their left was covered by the triremes.

10. It was at this period of the battle that Cæsar filled the boats of the fleet with soldiers, and sent reinforcements from the second line to those points where he saw his own men were in danger of being overpowered. The time would now be about 5 p.m.

11. In the course of another hour, or about 6 p.m., the

(*a*) See Appendix A.

whole force had gained the shore; and the British, whose right was in danger of being cut off by the rise of the tide over the low ground in the centre of their position, reaching nearly up to Bonnington parsonage, gave way. The Romans then made a general attack with all their forces, and succeeded in defeating the British, who had no difficulty in making good their retreat. The woods with which the open ground in their rear was interspersed, though no doubt more extensive, were of course not so thick as they are now that they are cut every ten or twelve years for hop poles. In Cæsar's time they probably consisted almost exclusively of timber trees, so that there would be little or no underwood. They would therefore be passable without any great difficulty, especially by those who were acquainted with the ground; and on this occasion would be of great service to the British, but would offer considerable obstacles to the Romans, who were without any cavalry to assist them in the pursuit.

SECTION XXVII.—*Camp at Bonnington.*

1. The first thing to which Cæsar turned his attention after having made good his landing seems to have been the formation of a camp. That he built a camp is certain, and that it was made on the night of his landing, or within two days afterwards, is clear, for he refers to it as actually in existence, as a matter of course, on the fourth day of his arrival in Britain (*a*). Now, as it was the universal custom of the Romans never to halt an army for the night without building a camp (unless it was absolutely necessary to do so), it is more probable that the camp was constructed in the evening of the landing than on either of the two following days. At this time Cæsar could have had but little choice of situation. It was necessary that the camp should be close to the water to afford protection to the ships, and that it should be formed with as little delay as possible on account of the lateness of the hour, which could not have been earlier thon 6.30 p.m. Accordingly, while the Romans were still engaged in pursuing the

(*a*) See this section, par. 3.

British, Cæsar most probably employed himself in selecting the site for the camp, that it might be constructed the moment his men returned. For this operation there would be plenty of light, even after sunset, as the moon had risen at 5.13 p.m., and would be full on the 31st. The landing had been effected from the extreme left, and the ground to the right was commanded by Aldington Knoll, which was then, no doubt, as much, or perhaps more covered with wood than it is at the present day. Hence a camp placed on the east of Bonnington Church would be liable to a surprise from the high ground. Besides, the battle was probably still raging on the right while Cæsar was selecting the site for the camp. In all probability, therefore, he ordered it to be placed on the crest of the upland immediately to the west of Bonnington Church, from which there is an uninterrupted view of the whole country, from Aldington Knoll to the west of Bilsington (*a*). It was smaller than usual, because the heavy baggage had been left in Gaul (*b*). He had the triremes drawn up on land, but left the trading vessels at anchor (*c*), and no doubt sent a vessel to Ambleteuse to look after the cavalry and let them know where he was to be found; although he does not say that he did so.

2. As soon as the Romans were thus established the British made overtures of peace, which were accepted. A treaty was made, and they resumed the occupation of their cottages and fields, which of course had been deserted on the landing of the Romans. They also frequented the camp on friendly terms to supply corn and other necessaries.

3. On the fourth day of Cæsar's arrival in Britain, that is on the 30th of August, the cavalry sailed from Ambleteuse. Cæsar says that as the ships were approaching Britain, and could be seen from the camp, so great a storm arose suddenly that none of them could hold their course.

(*a*) There is here a very curious field, in shape nearly rectangular, and containing about four acres, which projects, as it were, into the grass field immediately to the west of the road at Bonnington Church. It is entirely surrounded by a ditch, with a bank and hedge on the inside, and may be the site of Cæsar's camp.

(*b*) B. G. iv. 30. (*c*) B. G. iv. 29.

Some were beaten back, others were driven down, with great danger, to the lower part of the island, which is nearer the west; and though they cast anchor, the waves washed over them to such a degree that they were obliged to go to sea, and return to the continent (*a*).

4. This is evidently an account of what Cæsar saw from the camp, and therefore the lower or southern part of Britain nearer the west to which some of the ships were driven was visible from it. It is impossible to determine what Cæsar here refers to by the expression nearer the west. He may mean nearer the west than the ships, or nearer the west than the northern part of Britain, or nearer the west than the camp. Most probably the latter. But whatever he really did mean to refer to, the expression is an appropriate one for him to use in all three cases, when he is describing what he saw from a camp at Bonnington; the lower part of Britain nearer the west being the western shore of the Bay of Apuldore, and therefore to the south and west of the ships, the northern part of Britain, and the camp.

5. The same night it was full moon, and consequently a very high tide; so much so that the waves filled the triremes which had been drawn up on shore, and beat against the transports as they lay at anchor with such violence that many were wrecked and a great number injured. This made the army very uneasy about their means of retreat, for they had no other ships, and no means of repairing those which had been injured. Moreover, as they were to winter in Gaul, they had no store of provisions with them in Britain (*b*).

(*a*) "Post diem IV. quam est in Britanniam ventum, naves XVIII. de quibus supra demonstratum est, quæ equites sustulerant, ex superiore portu leni vento solverunt. Quæ quum appropinquarent Britanniæ, et ex castris viderentur, tanta tempestas subito coorta est, ut nulla earum cursum tenere posset, sed aliæ eodem, unde erant profectæ, referrentur; aliæ ad inferiorem partem insulæ quæ est propius solis occasum magno sui cum periculo dejicerentur: quæ tamen, anchoris jactis, quum fluctibus complerentur, necessario adversâ nocte in altum provectæ continentem petiverunt." B. G. iv. 28.

(*b*) B. G. iv. 29.

6. Cæsar, therefore, to allay the anxiety which the army so naturally felt, determined to try what could be done towards repairing the fleet and laying in a stock of provisions in case he should be obliged to pass the winter in Britain. Accordingly, regardless of the treaty he had concluded with the British (*a*), he sent out one of the legions every day in turn to forage in the fields round about where there was plenty of standing corn just ready for harvest (*b*), and employed the other in repairing the least injured of his ships with the materials of those which had suffered too much to be repaired, at the same time sending to the continent for any thing that was required in addition. In this manner he managed to refit his fleet, with an ultimate loss of twelve ships only (*c*).

7. The British were naturally much annoyed that Cæsar should take forcible possession of their crops; and when they saw the disaster that had befallen his fleet, and understood that the Romans were in want of cavalry, ships, and provisions, and when they also perceived from the smallness of the camp how very few soldiers Cæsar really had, they thought the best thing to do was to prevent the Romans from obtaining provisions, and to prolong matters into the winter, trusting that if they could conquer the Romans, or prevent their return, no one would ever again want to invade Britain. They, therefore, began to leave the camp, and to withdraw their people from the fields (*d*).

8. Cæsar guessing their intentions prepared for all accidents, and one day when it was the turn of the seventh legion to forage, and there was no suspicion of any fighting to be done, the guard before the gate of the camp reported that there was more dust seen in the direction in which the legion had gone than was usual. Cæsar suspected that some new move had been made by the British,

(*a*) Cæsar endeavours to throw the blame of breaking the treaty on the British; but he admits that he took the initiative before he knew their designs: "etsi nondum eorum consilia cognoverat." B.G. iv. 31. He drew a conjectural conclusion from the circumstances in which he was placed that the British would attack him. Lewin's 'Invasion of Britain by Julius Cæsar,' p. 50.

(*b*) "Frumentum ex agris in castra quotidie anferebat." B.G. iv. 31.

(*c*) Ibid.

(*d*) B. G. iv. 30.

and directed the cohorts on guard to march with him at once. He also ordered two fresh cohorts to go on guard, and the remainder of the legion in camp to arm and follow immediately. As soon as he had got some little distance from the camp he perceived that the Romans, who had been foraging, were hard pressed by the British, and bore the attack with difficulty. The enemy were throwing darts on all sides on the legion, which was crowded together and unable to manœuvre. It had been caught in an ambuscade. For all the corn round about had now been cut down and carried away, except at one place, and therefore the British knew that if the Romans continued to forage they must go there. The British accordingly concealed themselves by night in the woods, and when the Romans were busily employed in reaping, and were therefore unarmed, the British attacked them with cavalry and chariots (*a*). By the time Cæsar had arrived they had killed several, and had thrown the rest, who were unable to form properly, into confusion. His assistance was of great service. The British made a pause. The Romans recovered from their confusion. Cæsar, who says he wished to avoid a battle, held his own ground, and after a short time led his troops back to camp (*b*).

9. Several days of bad weather ensued. These the British employed in collecting a large force of infantry and cavalry, with which they marched to the camp. Cæsar drew up both his legions before it, and received the attack in line. The British were ultimately repulsed, and the Romans pursued them as far as they could on foot. They then set fire to all the buildings far and wide, and returned to the camp (*c*).

10. Peace was again made. The British, however, instead of giving hostages at once were to send them to the

(*a*) "Omni ex reliquis partibus demesso frumento, una pars erat reliqua, suspicati hostes huc nostros esse venturos, noctu in silvis delituerant: tum dispersos, depositis armis, in metendo occupatos, subito adorti, paucis interfectis, reliquos incertis ordinibus perturbaverant; simul equitatu atque essedis circumdederant." B. G. iv. 32.

(*b*) B. G. iv. 34.

(*c*) B. G. iv. 34, 35.

continent, because, says Cesar, it was close upon the equinox, and he did not like to take them in his shattered vessels (*a*). It seems more probable that he could not have obtained the hostages if he had asked for their immediate delivery. In fact, the expedition had completely failed, and Cæsar was glad to get away. He accordingly set sail as soon as the weather was fit for his purpose, and thus brought his first expedition to an unsuccessful end. Lucan says, he dignified the shoal waters of the uncertain deep by the name of ocean, and was so frightened by the British that he turned his back on them as soon as they were found (*b*), thus showing that in his opinion at least the expedition was a failure, and that Cæsar sailed over a shallow sea. His description is hardly applicable to any part of the Channel, but is very appropriate to the Bay of Apuldore.

SECTION XXVIII.—*Survey for the Second Expedition.*

1. While Cæsar was practically beseiged in his camp at Bonnington, he would naturally console himself with the thoughts that he would make another attempt the following year with so large a force that there should be no doubt of success. With this view he would make himself acquainted with the country around, as far as he was able, and would of course obtain a very accurate knowledge of the shores of the Bay of Apuldore, which he could survey from a boat in perfect safety. He would see at a glance the peculiar fitness of the eastern side of the peninsula of Apuldore for a site for a camp, which would have to be near the water, in order to afford protection to the ships and keep up communications with the continent.

2. Here it would be close to a good and extensive landing place, and would also be in such a position as not to be liable to be surprised by the enemy. For the peninsula of Apuldore is of Wealden clay, some 2½ miles long from north to south, and from 1½ to 2 miles wide from east to

(*a*) B. G. iv. 36.

(*b*) "Oceanumque vocans incerti stagna profundi
Territa quæsitis ostendit terga Britannis."
Lucan Phars. lib. ii. v. 571.

west. It slopes gently to the marsh on all sides except the north, and therefore in Cæsar's time it afforded a good and extensive landing-place on the east. On the west it was protected by extensive marshes, or more properly, perhaps, mud flats, now Shirley Moor, which were covered by the sea at high water, and at low water were intersected by numerous channels and water-courses, much in the same way as Romney Hoy is at the present day; and these channels uniting as they approached the Bay of Apuldore afforded a strong natural defence on the south.

3. On the north the peninsula was separated from the main land by an isthmus of low open ground not quite a mile in length, which was commanded by the high ground on which Kennardington Church now stands, so that a picket stationed there would have an uninterrupted view of the whole country from Woodchurch to Bonnington, and any signal made by them could be easily seen from a camp on the eastern side of the peninsula. In the same manner a picket on the island of Ebony, which is a conical hill of Wealden clay (*a*), some 100 feet high, would command the whole of the mud flats on the west, the upland beyond them from Woodchurch westward, the main land from Reading Street to Small Hythe, and the north-eastern side of the island of Oxney: a signal from this picket would also be easily seen from a camp in the above situation. Cæsar would therefore naturally decide on the eastern side of the peninsula of Apuldore as the site for his camp in the following year.

SECTION XXIX.—*The First Return to Boulogne.*

1. The return voyage was accomplished without difficulty. Cæsar merely says that the whole of the fleet reached the continent in safety. Two of the trading vessels, however, were unable to make the same ports as the rest, and were driven down a little below. The soldiers they carried, in number about 300, disembarked, and began to march towards the camp. On their way they were attacked by some of the Morini in hopes of plunder, who surrounded them and

(*a*) Geological Survey Memoir, No. iv. p. 13.

ordered them to lay down their arms. The Romans defended themselves, and many more of the Morini, attracted by the noise, joined in the affray, until their numbers amounted to about 6,000. The attack being reported, Cæsar sent all the cavalry from the camp to the rescue. Meanwhile the Romans bore the attack of the enemy, being hotly engaged for upwards of four hours. When the cavalry came in sight the Morini decamped, and a great number of them were killed (*a*).

2. The neighbourhood of Boulogne exactly suits this incident. In the first place there were more ports than one, namely, Wimereux and Ambleteuse, which, with the harbour of Boulogne, answer with perfect accuracy to Cæsar's mention of ports in the plural. Then about two miles south of the head of the harbour of Boulogne, as it was in Cæsar's time, the hills sink down to a strip of low flat ground, which extends along the sea shore to the cliff at Tréport beyond the mouth of the Somme, joining the sand-hills which form the present line of coast. Here, therefore, was an easy landing-place for the troops in the two trading vessels. It was either just within or just without the territory of the Morini. In either case they lived close by, and had a good opportunity of making the attack in the manner described by Cæsar.

3. When the two trading vessels missed the mouth of the harbour of Boulogne and were carried to the south, out of sight of the Romans as they were disembarking on the southern shore of the harbour, Cæsar knew that he would probably see nothing more of the soldiers they had on board for some considerable time. The troops would not be likely to land under the cliffs of Cape Alprech, but would pass on and land on the open ground to the southward, as near the head of the harbour of Boulogne as circumstances would permit. The distance they would have to sail was nearly seven miles; and this would occupy at least an hour. Then there was the disembarcation, and the march to the head of the harbour of Boulogne, a distance of about two and a half miles; this would take another hour, and probably more. Cæsar, therefore, would

(*a*) B. G. iv. 26, 27.

not expect to see or hear anything of the troops in the two trading vessels for more than two hours at least after they had disappeared. But when they did not make their appearance at the end of that period, he naturally began to feel anxious, and sent after them. His messenger would probably be one of his staff on horseback, and would start about three hours after the two ships had disappeared. He would ride round the edge of Cape Alprech to see that the two trading vessels had not met with any accident under the cliff, and on passing down its southern slope, from which the whole of the coast as far as Tréport is visible, he would see the Romans suffering under the attack by the Morini. He would then return and report to Cæsar. By this time another hour would have elapsed. Cæsar, thereupon, ordered the cavalry to the rescue. His orders had then to be conveyed to them, and the cavalry had to prepare for their march, and ride at least two miles from their station at the head of the harbour, before they came in sight of the Morini. Their route lay over the top of the hill, a little to the west of the chapel of St. Etienne, so that it was not until they had nearly reached the scene of action that they became visible to the combatants. For this another hour must be allowed, in all five hours from the time when the two trading vessels first disappeared. Thus the configuration of the land to the south of Boulogne affords a reason why Cæsar allowed his soldiers to remain exposed to the attack of the Morini for so long a period as four hours without sending them any assistance.

4. The next day Cæsar sent Labienus with the two legions which he had brought back from Britain against those Morini who had attacked the Romans, and nearly all of them fell into his power, as the marshes in which they had found a refuge the summer before were now dry (*a*).

5. The generals, too, who had been sent in command of detachments to watch the Menapii had now returned. They had wasted the enemy's country, destroyed their harvest and burnt their houses. The people had escaped by betaking themselves to their thick woods (*b*). Thus the Romans

(*a*) B. G. iv. 38. (*b*) Ibid.

became completely masters of the whole country. The strength of the Morini and Menapii was broken, and the result was that the harbour of Boulogne fell altogether into the possession of the Romans. Cæsar, therefore, was now at liberty to make use of both sides of the harbour for the future operations he was contemplating in Britain, without any apprehension of having the base of his operations attacked by an enemy on the continent during his absence.

SECTION XXX.—*Winter Quarters.*

1. Cæsar now placed the whole of his army in winter quarters, in that part of the country which lay to the north of the Seine (*a*), and ordered them to employ the winter in refitting the fleet, and in building as many new vessels as they possibly could (*b*). Hence a great number, if not all of the winter quarters, lay along the banks of the Seine, and the streams which ran into the sea to the north of that river. One of them, perhaps the most easterly, was located among the Meldi, a tribe who inhabited the country about the confluence of the Marne and Seine (*c*).

2. Remembering the difficulties he had experienced on landing on his former expedition, by reason of the large size of his ships and the shallowness of the water, he ordered the new fleet to be built lower than usual to facilitate the disembarcation, and wider than usual to carry the baggage and long train of animals necessary for the large force he contemplated employing. He also ordered the whole of the vessels to be fitted for rowing, for which they were well adapted on account of the lowness of their sides. He then returned to Italy, as was his usual custom, to administer the civil and political affairs of the various countries within his jurisdiction.

SECTION XXXI.—*Cæsar's Journey from Lodi to the Winter Quarters.*

1. In the spring of the following year, B.C. 54, Cæsar returned to his army, passing through Cisalpine Gaul on

(*a*) 'In Belgis.' B. G. iv. 38. (*b*) B. G. v. 1. (*c*) B. G. v. 5.

his way (*a*). It will be shown hereafter that he was at Lodi on the 25th April (*b*).

2. From this point it is necessary to trace Cæsar's proceedings in detail up to the time when he sailed from the continent, and to compute the time they occupied, in order to ascertain approximately the date of the second expedition. The day on which it sailed will be determined by other considerations mentioned in the sequel.

3. First, then, with regard to the time which Cæsar must have employed in travelling from Lodi to the army.

4. Taking the winter quarters among the Meldi as the nearest point, the distance was upwards of 400 miles, which had to be accomplished by posting. The arrangements for this were as follows: on all the great Roman roads there were inns or places where travellers could pass the night, at an average distance from one another of something less than twenty English miles. They comprised commodious buildings adapted for the reception of the travellers, and at them gigs were kept for hire, and for conveying government dispatches. Besides the post stations at the end of each day's journey, there were others at convenient intervals, which were used merely to change horses, or to take refreshments (*c*).

5. Such being the means of locomotion, it is not very difficult to form a pretty correct estimate of the rate of travelling. This would of course vary according to the road. On hilly roads the rate would naturally be less than on level roads. From forty to sixty miles in a day would be good travelling, and this rate could hardly be kept up for many successive days without great fatigue. A few instances of journeys actually performed may be mentioned. Cicero speaks of a journey of about fifty-six miles from Rome to Ameria, which was accomplished in a summer's night, between sunset and sunrise, as an instance of very fast travelling (*d*). Horace on his way to Brundisium made two days' journey of the seventy miles

(*a*) B. G. v. 2.
(*b*) See post, sec. xlii.
(*c*) Smith's 'Dict. of Antiquities,' Art. Mansio. Cisium.
(*d*) Cic. pro Sex. Rosc. Amer. 7.

between Rome and Forum Appii, a distance in many cases accomplished in one (*a*). A letter from Britain reached Cicero at Arpinum, a distance of some 950 miles, on the twentieth day (*b*). And Cæsar, in the Commentaries, says that on one occasion he travelled from Rome to Geneva, a distance of about 400 miles, as fast as he possibly could (*c*), while Plutarch supplies the additional information that he arrived at Geneva on the eighth day (*d*). On the whole, therefore, it may be very safely concluded that Cæsar could not have travelled from Lodi to his army in less than eight days at the very least. In all probability, he employed a fortnight or more in that journey. He had no reason for haste, but rather the contrary, inasmuch as the later he arrived the more ships he would find built. Besides, he must have had business to transact with the authorities of many of the towns through which he passed.

6. On reaching the army, Cæsar's first care was to make a tour of inspection of all the winter quarters. This involved a journey, which certainly included the whole of the Seine, from its confluence with the Marne to its mouth, the sea coast between it and the Somme, and all the navigable part of that river. In all probability the journey also extended to Boulogne. The distance to be travelled thus amounted to 300 miles at the least. The forces to be inspected consisted of 4000 cavalry and eight legions of infantry (*e*), the latter comprising 36,000 men, on the calculation used above, that each legion was composed of about 4500 men (*f*). There were thus altogether some 40,000 men to be inspected, to say nothing of at least 4000 horses, and the ships which had been built or were in course of construction. If, therefore, Cæsar travelled twenty-five miles, and inspected 3333 men, with the corresponding naval and other work, on an average, every day (and this seems a great deal for one day's work), the inspection must have occupied at least twelve days. In all

(*a*) Hor. Serm. lib. 1, Ecl. v, vers. 1—6.
(*b*) Cic. Ep. ad Quint. Fr. iii. 1.
(*c*) B. G. i. 7.
(*d*) Life of Cæsar. c. 17.
(*e*) B. G. v. 8.
(*f*) See above, sec. xxii. par. 9.

probability, as he had no cause for haste, for the reasons referred to above in reference to his journey from Lodi, the operation occupied a much longer period.

SECTION XXXII.—*Rendezvous at Boulogne.*

1. The result of the inspection of the winter quarters was most satisfactory. About 600 vessels of the description ordered by Cæsar and 28 triremes were nearly ready, being so far advanced that the whole number were capable of being launched in a few days (*a*). Cæsar, therefore, ordered all to rendezvous at Port Itius, from which port he had found that the passage to Britain was most convenient, about thirty miles from the continent (*b*).

2. This is the only passage in which Cæsar gives the name of the port from which he sailed, either in his first or second expedition. The word itself, Itium, is of course the Latin form which Cæsar adopted to represent to his readers the Celtic name by which the harbour was known to the Gauls, and which was in use by them, just as modern travellers represent in their own language the native names of the places they visit. In some manuscripts it is written *Icius*, in others *Iccius*, and is probably a corruption of the Celtic *Uisge*, water. This is represented in Welsh by *wysg*, a current, and by *gwy* or *wy*, water. This root, subject to various phonetic mutations, is found in the names of a vast number of rivers. There is an Esk in Donegal, in Devon, in Yorkshire, in Cumberland, and in Dumfries, two in Forfarshire, and two in Edinburghshire; an Esky in Sligo, an Eskea in King's County and in Brecknock. In Wales the river which the Welsh call Wysg and the English call the Usk. The Exe in Devonshire, and the Axe in Somersetshire. The Wisk in Yorkshire. In Spain the Eska (*c*). It also appears in the neighbourhood of Boulogne in the name of the little village of Isques, on the

(*a*) B. G. v. 2.

(*b*) "Omnes ad Portum Itium convenire jubet, quo ex portu commodissimum in Britanniam transmissum esse cognoverat, circiter millium passuum XXX. a continenti." Ibid.

(*c*) Taylor's 'Words and Places,' 212.

right bank of the Liane, a short distance above the head of the harbour, as it was in Cæsar's time (*a*).

3. The Portus Itius, therefore, appears simply to mean the port of the water or the river. In the same way the Promontory Itius stated by Ptolemy the geographer to be close to Boulogne (*b*) means the promontory by the water or the river, and refers to Cape Alprech, to which the name was peculiarly applicable, as it was almost entirely surrounded by water in his time. So far as the name is concerned, therefore, the harbour of Boulogne answers well to the Portus Itius.

4. In the next place how does it fulfil the condition as to distance, 30 miles?

5. It will be observed that the distance applies to the sea passage, and that Cæsar does not give the name of the port of arrival on the English side, or indeed state whether the English end was a port or not. His statement is quite general that the sea passage was about 30 Roman miles. Now it is hardly conceivable that when Cæsar speaks of a sea passage from a port he should mean that the termination of it should be under a perpendicular wall of cliff, or any other place from which there was no access to the interior of the country. The only reasonable construction implies that there was a practicable landing place at the termination of the sea passage. What landing places, therefore, were there on the English coast about 30 Roman miles from Boulogne? Taking the calculation used above that 1630 English yards are equal to one Roman mile, the distance would be exactly 48,900 yards, *i. e.* 27 statute miles and 1380 yards, or nearly 28 statute miles. The only landing places on the English coast that could be said to be about that distance from Boulogne are Kingsdown to the north, about 32 miles, then Dover, as nearly as may be, 29 miles, then Eastware Bay and Folkestone between 29 and 30 miles, and lastly, the space between Sandgate and Hythe between 31 and 32 miles from the present mouth of Boulogne harbour.

(*a*) Harbaville 'Memorial Hist. et Archæol. t. ii. p. 80; quoted Lewin's 'Invasion of Britain by Julius Cæsar,' p. 28.

(*b*) Lib. ii. cap. 9.

6. If Cæsar means to refer to Dover as being the only port on that part of the English coast in the strict signification of the term, or as being the nearest English landing place, the sea passage of about 30 Roman miles is within one statute mile of the correct distance. Boulogne therefore answers Cæsar's conditions in distance as well as in name.

SECTION XXXIII.—*Expedition to the Treviri.*

1. Leaving a sufficient part of the army to navigate the fleet to the harbour of Boulogne, and to form a guard there, Cæsar next marched to the Treviri (*a*), a powerful tribe located on the Moselle, and extending to the Rhine, to settle a quarrel between two rival chiefs, Indutiomarus and Cingetorix. The forces he took with him consisted of 800 cavalry and 4 legions (*b*) comprising 18,000 men, if the calculation used above that each legion contained 4500 men be again adopted. The distance he had to march, even if he took the nearest troops, those from among the Meldi and the adjacent winter quarters, was at least 150 miles, a march which would occupy ten days on the assumption, which is doubtful, that so large an army as 800 cavalry and 18,000 infantry could march 15 miles a day for ten consecutive days.

2. On Cæsar's arrival Cingetorix submitted at once. Indutiomarus, on the contrary, began to make preparations for resistance by collecting cavalry and infantry, and by concealing such of his people as were unable from age or otherwise to bear arms in the forest of Ardennes. Finding, however, after a while, that he was being deserted by the most influential of his partisans, he sent to Cæsar offering to appear in the Roman camp and submit (*c*). Cæsar accepted the offer. The reason he gives for doing so was that he might not be obliged to waste the summer among the Treviri, while everything was in readiness for the expedition to Britain (*d*), an expression from which it is clear that the year was then considerably advanced. He accordingly ordered Indutiomarus to present himself in the camp with 200 hostages, including his son and all his

(*a*) B. G. v. 2. (*b*) B. G. v. 2.
(*c*) B. G. v. 3. (*d*) B. G. v. 4.

relations, whom he specified by name. This was done; and Cæsar having convoked an assembly of the chiefs, bound them one by one to a peace with Cingetorix (*a*).

3. Now all this must have taken up some considerable time. Even if Indutiomarus began his preparations before Cæsar and his legions actually appeared on the scene, yet the defection of the chiefs, Indutiomarus' offer to submit, the settlement of the list of hostages, their collection and appearance in the camp, and lastly, the meeting of the chiefs to make peace with Indutiomarus individually, must have extended over a period of several days after Cæsar's arrival, and could certainly not have been concluded in less than three days after that event.

4. Peace being established among the Treviri, Cæsar marched his army to Boulogne (*b*), a distance of at least 240 miles, which occupied sixteen days on the former calculation, that the army could march 15 miles a day continuously.

5. On his arrival at Boulogne he found that 40 ships which had been built among the Meldi had been driven back by a storm; but that all the rest of the fleet were there in readiness to sail, and had been fitted with every requisite according to his orders. He thereupon moved the whole of the Gallic cavalry, 4000 in number, to the port, and everything was ready for the contemplated expedition (*c*).

SECTION XXXIV.—*Preparations for the Second Voyage.*

1. A pretty accurate idea of the form of the new vessels may be obtained from the following considerations. The length of a horse, exclusive of his head and neck, is about 6 feet. Two, therefore, placed tail to tail in the centre of a vessel with their heads towards the sides, would require a space of 12 feet. Another 3 feet on each side would be required for the rowers, who might sit under the heads of the horses. In this manner the vessel would be about 18 feet wide. Now a boat whose length is about $2\frac{1}{3}$ times her width, is wide in comparison with her length, but not dis-

(*a*) B. G. v. 4.
(*b*) "Ad portum Itium cum legionibus pervenit." B. G v. 5.
(*c*) B. G. v. 5.

proportionately so. A vessel, therefore, 45 feet long by 18 feet wide, would answer Cæsar's description of being wider than usual. Such a vessel would have plenty of room for 6 or 7 oars in each side, and would row better than an ordinary ship of the period which would not have so many. In other respects, including her mast and sail, she would resemble an ordinary ship, and her sailing qualities would therefore be about the same. Such a vessel, too, would easily carry 13 horses (12 tail to tail in the centre, and one in the bows), or more, with their riders and a few extra hands for the purposes of navigation, across the channel in any thing like moderate weather; or would have sufficient accommodation for 60 or 70 infantry soldiers under the same circumstances. The boats in Napoleon's flotilla in 1803 were about 50 feet long and 5 deep. They contained about 60 men, and were provided with 4 oars and one mast, with a sail. Each vessel also carried one gun mounted (*a*).

2. Of such vessels, some no doubt smaller, some probably larger, Cæsar had about 560. There were about 600 altogether built in the winter quarters (*b*), but 40 of them which had been built among the Meldi had been unable to join (*c*). He had also 28 triremes, and the ships of the year before, which, it will be remembered, were the heavy ordinary vessels of the period. Of these he originally had the 80, with which he sailed to Britain, and of which he lost 12 there, and the 18 which were left behind with the cavalry at Ambleteuse. On this occasion, therefore, the old ships probably numbered about 86. In addition there was a large number of private vessels, so that the whole fleet consisted of more than 800 sail (*d*), all of which had to be accommodated in the harbour of Boulogne.

3. Placing 400 on the northern, and 400 on the southern shore of the harbour, and taking each vessel on an average to be 18 feet or 6 yards wide, each division of 400 would occupy a length of 2400 yards, or somewhat more than $1\frac{1}{4}$ miles; but as it was of course necessary to

(*a*) 'Annual Register,' 1803, p. 259.
(*b*) B. G. v. 2. See above, sec. xxxii. par. 1.
(*c*) B. G. v. 5. See above, sec. xxxiii. par. 5.
(*d*) B. G. v. 8.

leave spaces between them occasionally for access to the water, and as the ships would not all touch one another, they would in reality occupy a somewhat greater length, say 1½ miles. There would, therefore, be no difficulty whatever in drawing up the whole 800 vessels on the two sides of the harbour, with their heads towards the water, ready for launching, while the preparations for the intended expedition were in progress.

4. Each vessel had a commander and crew (*a*) to take care of her after the troops had landed, and the latter consisted of five legions, or about 22,500 infantry and 2,000 cavalry (*b*). These, of course, required a considerable amount of baggage, which, however, would not be wanted until the landing had been effected. The same may be said of the cavalry, who, of course, could not disembark their horses until the enemy had been driven back; then, and not till then, would their services be required for the pursuit. The baggage would not be wanted until it was time to construct the camp. The infantry, therefore, must lead, the cavalry come next, and the baggage bring up the rear. This, therefore, would naturally be stowed in the 86 heavy transports of the year before. The 2,000 cavalry would have at least 2,000 horses, which would require 154 vessels for their accommodation, on an average of thirteen horses in each vessel. Say that Cæsar allotted the 160 largest of the new vessels to the cavalry, this will leave 400 new vessels for the infantry, or 80 for each legion, with an average of about 60 men in each vessel, including her commander and crew.

5. On the previous expedition Cæsar had made good his landing in the face of a most determined resistance on the part of the British, and on that occasion the manœuvres of the triremes had greatly conduced to the success of the operation. It is not unnatural, therefore, to suppose that he adopted a similar plan for his second expedition; namely, a double line of infantry transports, with the triremes between them, the cavalry and baggage to follow. He intended to land on the northern shore of the

(*a*) B. G. v. 10. (*b*) B. G. v. 8.

Bay of Apuldore, then move westward, and seize the isthmus of Kennardington, so as to secure possession of the whole peninsula of Apuldore, on the eastern side of which he intended to place his camp. The infantry, therefore, would sail in two lines, as on the first expedition. He would reserve the three fastest triremes; one for himself, in which to lead, the two others for use as despatch boats, to convey his orders to any part of the fleet with which he might have occasion to communicate. The remaining twenty-five triremes would sail between the lines of infantry, dividing the distance between them This would give five triremes for each legion. The cavalry would follow the infantry in a double column, so as to be able to form to the right, and land in rear of the infantry as soon as the front was clear. The baggage and private vessels would follow the cavalry in a similar formation, so as to be ready to form line to the front, and land their cargoes on the eastern side of the peninsula of Apuldore as soon as the troops had seized the isthmus of Kennardington. The ships which carried the tools for the formation of the camp would lead, and move directly to the spot intended for it. The heavy baggage and stores, which would not be required so immediately, would follow, and the private vessels would bring up the rear.

6. To carry out this plan, the right wings of the legions, of the cavalry, and of the baggage train, with the vessels to carry them, would be placed on the northern side of the harbour of Boulogne; the left wings, with their vessels, would be placed on its southern side. The infantry would be stationed next the mouth of the harbour; the cavalry would come next; after them the baggage and private vessels; and, lastly, the triremes would be placed at the head of the harbour, so that they might be able to take up their position between the two lines of infantry vessels without causing confusion among the troops. The whole of the forces would be so arranged as to front from the water, with the exception of the infantry on the southern side of the harbour, who would front towards it.

7. It was calculated on the former expedition that each of the trading vessels would require a space of 50 yards,

when in line of attack, to force the landing (*a*). On this occasion the new vessels would be handier than the old ones, and therefore would not require quite so much room. The new vessels, however, would average about 18 feet wide, and their oars would project about another 12 feet on each side, so that when rowing they would cover about 14 yards each. Hence, if 21 yards only be allowed between the vessels as a sufficient space to avoid collisions, each vessel when in line would require a space of 35 yards, and the whole 200 vessels of the front line of infantry would cover a space of 7,000 yards; that is, Cæsar's front, on making the attack, would be just 40 yards short of four miles.

8. It is obvious that the fleet could not cross the Channel in so close a formation as this; nor would it do for the ships to increase their distances to 100 yards or so, which would be about the least interval at which they could sail without fear of an accident, even though they had the assistance of their oars. They might, however, sail in safety in threes, which would give an interval of 105 yards between the sets of threes, and allow the ships to retain their proper fronting distance of 35 yards. While crossing the Channel, too, the vessels in each set of three might open out laterally to a distance of 100 yards or more, so that each vessel would have a clear space around her of about 100 yards. In this formation the whole flotilla would cover a space of about 8 miles long by half-a-mile wide, the triremes sailing one after another between the two columns of infantry vessels. The latter would both be in threes left. The right wings of the cavalry, baggage and private vessels on the northern side of the harbour would also be in threes left; their left wings on the southern side would be in threes right. When the troops had embarked, the flotilla would be moored in the harbour of Boulogne in tiers of threes, with the triremes between the two tiers, so that every vessel would be in a position corresponding to that which she was to occupy when crossing the Channel, and on clearing the mouth of the harbour would be able to drop into her proper place at once. On

(*a*) See above, sec. xxii. par. 8.

reaching the northern shore of the Bay of Apuldore, the infantry vessels would be wheeled to the right in threes, and so form line without any difficulty. The triremes would at the same time be in their proper positions between the two lines of infantry. While the infantry were disembarking, the double column of cavalry vessels, in threes, would move along the rear, and as soon as the right wing had reached its proper position, its vessels, in threes, would wheel to the right and form line just as the infantry had done. The left wing would wheel its threes to the left, and form line to the right in prolongation of the line formed by the right wing. The double column of baggage and private vessels, also in threes, would move along the rear of the cavalry, leading directly towards the centre of the peninsula of Apuldore, and on arriving there would wheel its threes outwards, and form line to the front along the water's edge.

SECTION XXXV.—*The Second Voyage, from Boulogne to the Bay of Apuldore.*

1. For about twenty-five days after Cæsar's preparations were complete, the sailing of the flotilla was prevented by the continuance of an adverse wind called Corus. At the expiration of that period the weather became suitable, and Cæsar gave orders for the troops to embark (*a*). Thereupon a mutiny broke out among some of the Gallic cavalry. It was, however, quickly suppressed; and Cæsar, leaving Labienus on the continent, with three legions and 2,000 cavalry, to guard the ports, provide the commissariat, and manage matters in Gaul, as might be necessary (*b*), started on his voyage. He says that he set sail at sunset with a gentle breeze, called Africus, which dropped about midnight; that he failed to hold his course, and being drifted too far by the stream, saw, at dawn, that he had left Britain behind, on the left; that he then followed the turn of the stream back, and rowed to that part

(*a*) "Itaque dies circiter XXV. in eo loco commoratus quod Corus ventus navigationem impediebat * * Tandem idoneam tempestatem nactus milites equitesque conscendere in naves jubet." B. G. v. 7.

(*b*) B. G. v. 8.

of the island which he had ascertained to be the best for the landing the summer before; that the rowing of the transports was so good that they kept up with the triremes; and that the whole fleet reached Britain just before noon (*a*).

2. Lucan alludes to the rowing on this occasion in his Pharsalia (*b*), and Dion Cassius says that Cæsar went to the same place as before (*c*).

3. The first point to be ascertained, in order to understand the full meaning of Cæsar's description of the voyage, is the quarter from which the wind, called Africus, blew. Now, in the most ancient times of which there is any record, the only two points of the compass known were north and south, and these were determined by observations of natural phenomena. The north was called by the Romans Septentrio, the place of the seven stars, as being that part of the heavens in which the constellation now known as the Great Bear was situate, and corresponds, with sufficient accuracy for all practical purposes, with the true north, as given in modern maps and charts. The south was called Auster. The east and west points were next added, the former being called Subsolanus, the latter Favonius. At a somewhat later period each of the divisions thus formed was again subdivided, and then the compass had eight points, which were as follows, proceeding from north to east: Septentrio, Aquilo, Subsolanus, Vulturnus, Auster, Africus, Favonius, and Corus. About the time of Alexander the Great, who was born B.C. 356,

(*a*) "Ad Solis occasum naves solvit, et, leni Africo provectus, mediâ circiter nocte vento intermisso, cursum non tenuit, et longius delatus æstu, ortâ luce, sub sinistrâ Britanniam relictam conspexit. Tum rursus æstûs commutationem secutus, remis contendit, ut eam partem insulæ caperet quâ optimum esse egressum superiore æstate cognoverat. Quâ in re admodum fuit militum virtus laudanda, qui vectoriis gravibusque navigiis, non intermisso remigandi labore, longarum navium cursum adæquaverunt. Accessum est ad Britanniam omnibus navibus meridiano fere tempore." B. G. v. 8.

(*b*) "Hæc manus, ut victum post terga relinqueret orbem,
Oceani tumidas remo compescuit undas."
Lucan. Phars. lib. i. v. 369.

(*c*) "Κατῆρέ τε οὖν ἔνθα καὶ πρότερον." Dion Cass. xl. 1.

four new points were added, one on each side of the north and south, and then the compass consisted of twelve points, which, proceeding from north to east, were named Septentrio, Aquilo, Cæcius, Subsolanus, Vulturnus, Albus Notus, Auster, Austro Africus, Africus, Favonius, Corus, and Circius. This state of the compass obtained until the reign of Augustus (*a*), and was therefore in use in the time of Cæsar. The modern compass, as is well known, consists of thirty-two points, and therefore each point of the compass in Cæsar's time was equal to $2\frac{3}{4}$ points of the modern compass. Favonius, therefore, or the west point in Cæsar's time, extended from W. by N.$\frac{1}{4}$, N. to W. by S.$\frac{1}{4}$ S. Corus extended from W. by N.$\frac{1}{4}$ N. to N.W., and at Boulogne appeared to blow from some point between Hythe and Fairlight. Africus extended from W. by S.$\frac{1}{4}$ S. to S.W., and may therefore be treated as S.W., without contravening the literal meaning of Cæsar's narrative.

4. It will be observed that Cæsar attributes the fact of his having been unable to keep his course entirely to the effect of the stream in the Channel, and not to any cloudy or foggy state of the atmosphere which prevented him from seeing the moon and the stars. The night, therefore, was clear, and his ships always headed in the right direction. Had they not done so the deviation from the proper course would have been immediately detected. From this it follows that when the wind dropped about midnight it still retained sufficient force to give the vessels steerage way.

5. The next observation which occurs on this part of the subject relates to the direction in which Cæsar drifted, and the very peculiar expressions he here uses in his narrative. When he set sail the wind blew from some point between W. by S. $\frac{1}{4}$ S. and S.W. The direction in which he intended to go, therefore, was towards the north. He then says he was drifted too far, which shows that the drift was in the direction in which he was going, and therefore up channel. He adds that, at dawn, he saw he had left Britain behind. At daybreak, therefore, he must have been off the South Foreland. Then come the words

(*a*) Facciolati 'Lexicon.' Ventus.

"on the left," an unmeaning expression, if the configuration of the coast had been the same in his day as it is at the present time, for Britain could not by any possibility have been in any other position. The expression, however, is peculiarly appropriate if the sea then filled the Bay of Apuldore; for Cæsar sailing, as he thought, from Boulogne to Kennardington, of course expected to see Britain on his right when daylight appeared, and being very much surprised to find it on his left, naturally mentioned the circumstance in his narrative.

6. In order to ascertain the date of this voyage it is necessary to revert to Cæsar's proceedings from the 25th of April, when he was at Lodi (*a*). It has already been shown that the least possible time occupied in his

Journey from Lodi to the Meldi was .	8 days.
Inspection of the winter quarters .	12 „
March to the Treviri . . .	10 „
Stay among the Treviri . . .	3 „
March to Boulogne . . .	16 „
Detention by adverse wind . .	25 „
Which gives a total of .	74 days.

Assuming, therefore, that no delays or waste of time occurred by reason of bad weather or other causes while these events were taking place, it is clear that a period of 74 days at least must have elapsed between the day on which Cæsar left Lodi and the day on which he set sail for Britain; that is, he could not possibly have set sail for Britain before the 7th of July, which is 74 days after the 25th of April (*b*). If a fair allowance be made for delays, he could not have done so for ten days or a fortnight after that date.

7. Again, Cæsar set sail at sunset, and was in sight of Britain at daybreak on the following morning. His voyage, therefore, took place by night. Now as it must have been impossible for his vessels, which were more than 800 in number, to have retained their proper places, or indeed to have avoided collisions while crossing the Channel in the

(*a*) See above, sec. xxxi. par. 1. (*b*) See Appendix B.

dark, it follows that the voyage must have taken place when there was a moon, and therefore on some moonlight night after the 7th of July.

8. Moreover, when Cæsar had drifted to the South Foreland he took the turn of the stream back again just after sunrise, and rowed to the place where he intended to disembark.

9. There are, therefore, three conditions by which the date of the second voyage may be determined.

1st. It was after the 7th of July, and probably a fortnight or so later than that day.

2nd. The voyage was made by moonlight.

3rd. The stream in the Channel turned west off the South Foreland just after sunrise on the following morning.

10. In B.C. 54, the moon was full about 6.8 p.m. on the 21st of July. On the 23rd of the same month she rose about 8.16 p.m., and set about 5.40 a.m. on the following morning; and on that day, the 24th, the sun rose about 4.13 a.m., and the stream in the Channel turned west off the South Foreland about 4.25 a.m. (*a*), or just 12 minutes after sunrise. The second voyage took place, therefore, on the night between the 23rd and 24th of July, B.C. 54.

SECTION XXXVI.—*Details of the Second Voyage.*

1. The details of the second voyage may now be filled in. As soon as the wind changed from Corus to Africus on the 23rd of July, Cæsar gave orders for the embarcation to commence. The mutiny among the Gallic cavalry then broke out, but was quickly suppressed. Meanwhile the embarcation went steadily on; the transports, as they were loaded, taking up their position in the harbour in threes, and the triremes moving from the head of the harbour to their places in line between the tiers of transports. At 0.17 p.m. it was high water; at 4.17 p.m. the stream in the Channel turned west; at 6.27 p.m. it was low water; at 7.59 p.m. the sun set; and at 8.16 p.m. the moon rose. At sunset, all was in readiness, and Cæsar gave the signal to sail, leading the way in one of the fastest

(*a*) See above, sec. xxiii. par 4, et seq.

triremes, with two others in attendance as despatch boats. The other vessels followed in succession as fast as they could, taking up their proper places and distances as they cleared the mouth of the harbour. The wind was a gentle breeze from the S.W. The moon was two days after the full, and therefore the stream was running down channel at nearly its maximum velocity of $3\frac{1}{4}$ miles an hour, the drift due to it with the vessel's broadside on was about $2\frac{3}{4}$ miles an hour (*a*). Under these circumstances none of the vessels would have any difficulty in keeping their course to Kennardington, N.W. by W., seven points from the wind. They of course steered by the wind, moon, and stars.

2. The rate at which the flotilla sailed was probably not very great. There was no necessity for speed, but rather the reverse, in order that the vessels might keep together and preserve their proper distances. Five miles an hour is perhaps as much as ought to be allowed, and not more than what the worst sailer in the fleet might easily have accomplished with the wind and stream as they were.

3. The flotilla, therefore, would sail N.W. by W. at the rate of five miles an hour during the continuance of the stream down channel. This ceased at 10.23 p.m. At that time the most westerly vessel of the southern line had sailed over $12\frac{1}{2}$ miles from the mouth of the harbour, and was in mid-channel about $21\frac{1}{2}$ miles S.E. by E. $\frac{1}{4}$ E. of New Romney (*b*).

4. For the next 15 minutes it was slack water. During this period the Romans, who appear to have known nothing about the stream in the Channel (*c*), continued to steer by the wind, moon, and stars, in the same direction, N.W. by W., as before. The consequence of this was that the flotilla, losing the benefit of the stream down channel, fell off from the wind, and was carried to leeward, or up channel, with a velocity equal to that of the drift which it had lost, viz., $2\frac{3}{4}$ miles an hour; so that during the 15 minutes of slack water the flotilla sailed $1\frac{1}{4}$ miles N.W. by W., and in the same time fell off the wind a distance of $\frac{11}{16}$ths of a mile up channel. The position of the most

(*a*) See above, sec. xxiii. par. 13. (*b*) See Map.
(*c*) See above, sec. xxv. par. 4.

westerly vessel at the end of this period, or at 10.38 p.m., was about 20 miles S.E. by E. $\frac{1}{2}$ E. of New Romney.

5. The stream then turned up channel, running as nearly as may be in the same direction as the wind. This added another $2\frac{1}{4}$ miels an hour to the rate at which the flotilla fell off from the wind. The rate was therefore now $5\frac{1}{4}$ miles an hour up channel, while the rate in the original direction N.W. by W. remained 5 miles an hour as before. From 10.38 p.m. till midnight, when the wind dropped, a period of 1 hour and 22 minutes, the flotilla still steering by the wind, moon, and stars, sailed rather more than $6\frac{3}{4}$ miles N.W. by W., and in the same period drifted rather more than $7\frac{1}{3}$ miles up channel, and the position of the most westerly vessel at midnight was about $8\frac{1}{3}$ miles S.E. by S. of Folkestone.

6. When the wind dropped the flotilla could no longer sail as fast as before. The velocity of $2\frac{3}{4}$ miles an hour up channel due to the stream of course remained unchanged. The velocity of $2\frac{3}{4}$ miles an hour in the same direction, as well as the velocity of 5 miles an hour N.W. by W., both of which were due to the wind, of course decreased. Now, the wind being very light, and yet sufficiently strong to give the vessels steerage way, may be estimated at about one-fifth of its original strength without much error. On this calculation a velocity of one mile an hour N.W. by W., and a velocity of $\frac{1}{10}$ths of a mile an hour up channel would be due to the wind. While this state of wind and stream continued, which it did from about midnight until 4.10 a.m., when the stream ceased to run up channel, the flotilla sailed $4\frac{1}{2}$ miles N.W. by W., and in the same time drifted $13\frac{3}{4}$ miles up channel; the position of the most westerly vessel at 4.10 a.m. being about 4 miles E. $\frac{1}{4}$ N. of the South Foreland lights.

7. If the course of the most easterly vessel of the flotilla, which was about eight miles in length (*a*), be traced from the northern shore of the harbour of Boulogne in a similar manner, it may be shown that her position at 4.10 a.m. was about fourteen miles E.S.E. $\frac{1}{2}$ S. of the South Foreland lights, and about ten miles from that of the most westerly

(*a*) See above, sec. xxxiv. par. 8.

vessel at the same time. The fleet, therefore, had lost distance a little, a circumstance attributable to the different directions in which the stream runs in different parts of the Channel (*a*).

8. It was now daylight, as the sun rose at 4.13 a.m., and Cæsar saw that he had left Britain behind. He therefore lowered his sail, and the rest of the fleet followed his example. As soon as the operation was completed, he turned his vessel down channel, to row to the northern shore of the Bay of Apuldore. It was now about 4.25 a.m., at which time the stream in the Channel turned west. He would therefore have the stream in his favour, and there would be no difficulty on account of the wind, which was too light to have any appreciable effect on the vessels without their sails. The whole fleet had still to keep together, and therefore the rate at which Cæsar led could not have been very great. It may perhaps be taken at about three and a half miles an hour without any great error. At this rate, every vessel on turning down channel would pass through the water with a velocity of three and a half miles an hour due to her oars, and a velocity of two and a half miles an hour due to the stream, to which she was end on (*b*). Every vessel, therefore, when rowing down channel would move with a velocity of six miles an hour, and Cæsar's vessel would reach Mill Point, between Folkestone and Sandgate, fourteen miles distant from her position off the South Foreland, in two hours and twenty minutes, that is, about 6.45 a.m. On rounding the point, each vessel would lose the benefit of the stream down channel, and shortly afterwards would meet the eddy in the Bay of Apuldore. This, however, would have but little effect, and the flotilla would have no great difficulty in maintaining their rate of rowing at three and a half miles an hour under the land towards Kennardington. At this rate, the leading vessel would reach Ham Street, fourteen miles from Mill Point, in four hours, *i.e.*, at 10.45 a.m. This would be the extreme left of the intended landing place.

9. On leaving their position off the South Foreland at

(*a*) 'Admiralty Chart,' South-coast, sheet vii.
(*b*) See above, sec. xxiii. par. 13.

4.25 a.m., the whole of the flotilla would follow Cæsar's ship in their original formation; the vessels in threes wheeling to the left down channel successively as each set of threes reached the wheeling point. Hence each vessel, while rowing to the wheeling point, would meet the stream in the Channel on her beam, and would therefore be swept by it down channel with a velocity of two and three quarters of a mile an hour. The last set of threes, which had to row the whole length of the flotilla, a distance of about ten miles, would be exposed to the influence of the stream for a period of nearly three hours. In this time they would be carried down channel a distance of eight miles, and their wheeling point would be off Shakspeare's Cliff, which they would reach by the combined action of their oars and the stream in three hours. They would then row the remaining six miles to Mill Point in another hour, and so arrive there in four hours after starting, *i. e.*, at 8.45 a.m.

10. At Mill Point, therefore, the last vessel of the flotilla would be one hour and forty minutes astern of the leading vessel. Her proper time, as the flotilla was eight miles long, and the rate of rowing three and a half miles an hour, would be about two hours and eighteen minutes. Hence, the vessels would be too close together, and on rounding the point would have to open out to their proper distances. Thus the flotilla would regain its proper length as it rowed from Mill Point towards Kennardington, and when the leading vessel reached Ham Street at 10.45 a.m. the last infantry vessel and the leading cavalry vessel would be off the spur from Aldington Knoll, four miles distant. This would be the extreme right of the intended landing place, and the whole of the infantry would reach their destination simultaneously at 10.45 a.m. The cavalry would then move to their position in rear of the infantry, and the baggage vessels would pass them to go to the centre of the eastern side of the peninsula of Apuldore. The last vessel of the flotilla would have four miles to row before she reached the extreme right of the line of infantry vessels. This she would accomplish in one hour and nine minutes, and the whole fleet would reach Britain at 11.54 a.m., or a little before noon, as Cæsar says it did.

11. Cicero, the orator, gives a few more particulars of the second voyage in one of his letters to Atticus. He there says that he has received a letter from his brother Quintus, who was one of Cæsar's officers on this expedition (*a*), from which it appeared that the approaches to Britain were defended by stupendous masses (*b*). This accurately describes the South Foreland, which Quintus Cicero had a good opportunity of inspecting while the vessel in which he had crossed the Channel was rowing round its base.

SECTION XXXVII.—*The Second Landing.*

1. Cæsar gives but few details of his second landing. He says no enemy was in sight, and that after the army was landed, and a fit place taken for the camp, he ascertained from some captives that the British had been present in great numbers, but being terrified at the number of the ships had left the shore and concealed themselves in the higher ground. He also says that he learnt from the captives the exact spot to which the British had retired, and therefore left ten cohorts and 300 cavalry, under the command of Q. Atrius, for a guard on the ships, and marched in pursuit of the enemy soon after the commencement of the third watch, in no apprehension for the safety of the ships, as he left them at anchor on a soft and open coast (*c*).

2. Dion Cassius says that no one dared to resist him, on account of the great number of his ships, and because they reached the shore at many points simultaneously (*d*).

(*a*) B. G. v. 24.

(*b*) "Ex fratris litteris * * Britannici belli exitus expectatur. Constat enim aditus insulæ esse munitos mirificis molibus." Ad. Att. iv. 16.

(*c*) "Neque in eo loco hostis est visus; sed ut postea Cæsar ex captivis comperit, quum magnæ manus eo convenissent, multitudine navium perterritæ, * * a littore discesserant, ac se in superiora loca abdiderant. Cæsar, exposito exercitu, et loco castris idoneo capto, ubi ex captivis cognovit quo in loco hostium copiæ consedissent, cohortibus X ad mare relictis et equitibus CCC qui præsidio navibus essent, de tertiâ vigiliâ ad hostes contendit, eo minus veritus navibus, quod in littore molli atque aperto deligatas ad anchoras relinquebat; et præsidio navibus Q. Atrium præfecit." B. G. v. 8, 9.

(*d*) "μηδενὸς ὑπό τε τοῦ πλήθους τῶν νεῶν, καὶ ὑπὸ τοῦ πολλαχόσε ἅμα αὐτὰς κατασχεῖν τολμήσαντος ἀντιστῆναι." Dion. Cass. lib. xl. cap. 1.

3. It appears, therefore, that there was no opposition on the part of the British; that the whole of the 22,500 infantry and 2000 cavalry were landed; that the ground for the camp was selected; that the ships had anchored; that ten cohorts of infantry and 300 cavalry had been told off as a guard upon them; and that the remainder of the troops, who must have had some time to rest and get food after their long row in the morning, were ready to march —all in about twelve hours. It is clear, therefore, that the disembarcation was, as Dion Cassius says, as nearly as may be simultaneous, and must, therefore, have extended over many miles. It may have been effected in the following manner.

4. As Cæsar led the fleet along the northern shore of the bay of Apuldore, he must have been most agreeably surprised at not finding any enemy in sight, and by the time the flotilla had reached Ham Street, he must have felt convinced that no opposition was intended. By this time the whole of the infantry vessels and triremes were in position between Ham Street and the spur from Aldington Knoll. He would therefore at once order the first line of infantry vessels to row to the shore and land the soldiers they contained. At the same time he would order the triremes, whose services would not be required by the infantry, to retire through the intervals of the second line of infantry vessels, move to the low ground of Kennardington Cross, seize the isthmus there, and so secure the whole of the peninsula of Apuldore, on the eastern side of which he intended to form his camp. He would also order the second line of infantry vessels to follow the first line, and land the soldiers they contained as soon as they could. The infantry would, of course, be moved westward, as they were formed, to support the triremes and ensure the possession of the promontory of Apuldore.

5. Cæsar would also send one of his despatch boats to bring the 160 cavalry vessels to the left of the infantry, where they would also be ordered to form line to the right and land the troops they contained as quickly as they could: the cavalry would be ordered to push their videttes forward into the interior of the country as soon as they

had landed, in order to cover the isthmus of Kennardington. At intervals of thirty-five yards the cavalry vessels would extend over a length of about three and a quarter miles; and therefore the ground between the infantry and the triremes, or from Ham Street to Kennardington Cross, would be sufficient to accommodate them.

6. The other despatch boat would be sent to order the baggage and private vessels to advance at once to the centre of the eastern shore of the promontory of Apuldore, to form line there along the water's edge, and land the entrenching tools and other necessaries for the formation of the camp as fast as they could. This division of the flotilla numbered about 212 vessels, and would cover about four and a half miles at intervals of thirty-five yards. They would, therefore, occupy the whole of the eastern shore of the peninsula of Apuldore.

7. The ships would, of course, anchor as they were cleared along the northern and western shores of the Bay. Here they would be sheltered from the full force of the waves in the Channel. The shore, too, from Hurst to the extremity of the peninsula of Apuldore was Wealden clay, and sloped gently to the water's edge, without a single rock or cliff throughout the whole distance. Cæsar, therefore, might well have been satisfied that his fleet would be in safety, anchored as they were on a soft and open shore.

8. While the landing was going on, Cæsar would give directions for posting pickets at Kennardington and Ebony, and would employ himself in superintending the construction of the camp.

9. Now, in a temporary camp, each legion with its staff quarters ordinarily required a space 1450 feet long, by 450 feet wide; the legions also were encamped side by side; and between the space occupied by them and the line of fortification an open space of 200 feet broad was left for defensive purposes. A temporary camp, therefore, to accommodate five legions would require a space of 1850 feet from front to rear, by 2650 feet wide, or would be rather more than half a mile long by rather more than one-third of a mile wide (*a*). On this occasion, however, a permanent

(*a*) Smith's 'Dict. of Antiquities,' Art. Castra.

camp was required to serve as the base of future operations, and there was a long baggage train to provide for. A much larger space than usual, therefore, was required, probably not much less than a mile long by nearly half a mile wide. A camp of these dimensions might very well be constructed on the eastern side of the peninsula of Apuldore.

10. After the army had landed, the prisoners they had taken were brought to Cæsar. This event probably occurred in the early part of the afternoon, perhaps about 3 p.m., while Cæsar was engaged in superintending the construction of the camp. From them he learnt the exact position to which the British had retired, namely, the gap in the chalk downs to the north of Ashford, through which the river Stour flows (*a*). This position covered their chief town of Canterbury, the direct road to which lay along the valley of the Stour. The distance, measuring from Kennardington Cross, is about twelve miles.

11. On receiving this information, Cæsar resolved to take the initiative, and strike a blow while the British were disheartened, and before their army was increased by any accession of numbers, knowing that he would have the benefit of the moon, which had been full only four days before, and which would rise at 8.33 p.m., and set at 6.55 a.m. the following morning, he determined to make a night march, so as to come up with enemy at daybreak. He accordingly ordered his army, who by this time were massed on the isthmus of Kennardington, to bivouac where they were, and be in readiness to march at midnight. They would thus have seven or eight hours to rest and get their food before starting, and as the march of twelve miles by moonlight would occupy four hours or a little more, they would reach the enemy about sunrise, which took place at 4.15 a.m.

SECTION XXXVIII.—*Night March to Wye.*

1. The account which Cæsar gives of this night march, and of the battle which ensued, is as follows: after marching about twelve miles, Cæsar came in sight of the enemy, who advanced to a river, with cavalry and chariots,

(*a*) Lewin's 'Invasion of Britain by Julius Cæsar,' p. 87.

and barring the way from the higher ground, commenced the battle. Being repulsed by the Roman cavalry, they hid themselves in the woods in a place wonderfully fortified both by nature and art, which they seemed to have built at some former period, on account of a war of their own, for all entrance was precluded by a stockade of timber. The British throwing their missiles from the wood, some at one place and some at another, prevented the Romans from entering, until the 7th legion, by forming a testudo, and casting a mound against the fortification, took the place, and drove the British from the woods, without much loss. Cæsar, however, would not let his men pursue the enemy far, because he was ignorant of the nature of the place, and because so much of the day had been spent that if he did so there would be no time to construct a camp for the night (*a*).

2. Now Cæsar's position at Apuldore had been this. The infantry were massed on the isthmus of Kennardington; the cavalry were covering the front, and Cæsar, though he knew where the enemy were to be found, had never seen the ground on which they were posted. He was, therefore, unable to form any detailed plan of attack, and was obliged to move in such a formation as to be able to form line to the front or to either flank, as might be required. Under these circumstances, the infantry would probably advance in double columns: each legion taking its own route, so that the line of march would be upwards of a mile in width. The infantry would of course be covered by the cavalry. When

(*a*) "Ipse noctu progressus millia passuum circiter XII hostium copias conspicatus est. Illi equitatu atque essedis ad flumen progressi, ex loco superiore nostros prohibere, et prælium committere, cœperunt. Repulsi ab equitatu se in silvas abdiderunt, locum nacti, egregie et naturâ et opere munitum, quem domestici belli, ut videbatur, causâ jam ante præparaverant; nam crebris arboribus succisis omnes introitus erant præclusi. Ipsi ex silvis rari propugnabant, nostrosque intra munitiones ingredi prohibebant. At milites legionis VII., testudine factâ et aggere ad munitiones adjecto, locum ceperunt, eosque ex silvis expulerunt, paucis vulneribus acceptis. Sed eos fugientes longius Cæsar prosequi vetuit, et quod loci naturam ignorabat, et quod, magnâ parte diei consumptâ, munitioni castrorum tempus relinqui volebat." B. G. v. 9.

the order to march was given, a little after the beginning of the third watch, that is, a little after midnight, the moon was well up, and as she came to the meridian, at 1.30 a.m., and had been full just three days before, there was plenty of light for the troops to see their way. The cavalry would lead in extended order, the infantry would follow, through the woods at Kennardington towards Ashford, and so down the valley of the Stour. That river was then very shallow, for the spring and summer of B.C. 54 were very dry (*a*), and there were then of course no mill dams to retain the water as at present. In the dry summer of 1865, the water was about a foot deep below the mill at Wye. In Cæsar's time, therefore, it offered no serious obstacle to the movements either of the cavalry or of the infantry.

3. As soon as the whole of the infantry were clear of the isthmus of Kennardington, or perhaps before, Cæsar would move to the front in order to obtain the earliest view of the ground on which the enemy was posted, so that he might be able to make his arrangements for the attack according to circumstances.

4. The march altogether was about twelve Roman miles, that is, on the calculation hitherto used that a Roman mile was 1630 English yards, about eleven English miles and 260 yards; and at its termination, Cæsar with the cavalry skirmishers would be near Olantigh, close to the 72nd mile stone on the railway from Ashford to Canterbury. Reckoning that the troops marched about three miles an hour, it would now be a little after 4 a.m.; and as the sun rose at 4.15 a.m., Cæsar would have plenty of light to see the British forces as they stood in position on the high ground at the edge of Challock Wood, with their left on Godmersham Church, where the hill meets the Stour. The ground presented a steep incline to the Romans, as it stretched for about two miles and a half from south-west to north-east, forming a ridge considerably above the level of the valley. The ridge terminated abruptly where it met the Stour; and on the opposite side of the river the ground

(*a*) "Quod eo anno frumentum in Galliâ propter siccitates angustius provenerat." B. G. v. 24.

again rose steeply to form the continuous line of chalk downs which extend from Godmersham to Dover.

5. The battle began by an attack from the British left. Their cavalry and chariots advanced as far as the Stour, and barred the way from the high ground, which reached down to the banks of the river. The Roman cavalry being in advance were the first to become engaged. They overpowered the British, who retired to their stronghold in Challock Wood, from which they were driven by the 7th legion, in the manner described by Cæsar. The Romans then constructed a camp for the night, according to their almost universal custom. This would be placed somewhere in the valley, and close to the river, for the sake of the water, probably not far from Olantigh.

SECTION XXXIX.—*Camp at Apuldore.*

1. The next day, the 25th of July, Cæsar sent three flying columns of infantry and cavalry in pursuit of the British, but when they had advanced a short distance, their rear being still in sight, some cavalry sent by Quintus Atrius from Apuldore came to report that there had been a great storm in the night which had injured and driven ashore nearly all the ships; that their anchors and cables would not hold; that their captains and crews could not withstand the force of the gale; and that the ships had sustained great damage by reason of their numbers. Thereupon Cæsar recalled his troops, and returning to Apuldore found that with a loss of forty vessels he could manage to repair the rest. He therefore told off workmen from the legions for this duty, and ordered others to be sent for from the Continent. He also wrote to Labienus at Boulogne to build as many ships as he could with the legions that were with him; and to prevent future accidents to the fleet ordered all the ships to be drawn up on land and united to the camp in one fortification (*a*).

2. The triremes being required for the purpose of communicating with the Continent, would probably be drawn up in a place by themselves, so that they might easily be launched when their services were required. The re-

(*a*) B. G. v. 10, 11.

mainder, as has already been shown when drawn up on shore in a single line, would extend over about three miles (*a*); drawn up in three lines therefore, they would cover about a mile. It is not probable that there were more than three lines, as this would have added so greatly to the labour of drawing up the ships on shore. It will therefore be safe to conclude that the ground required for the ships could not have been much, if at all less than a mile in length. If they averaged 50 feet in length, the breadth of the ground required for them would be something more than 50 yards. The infantry vessels would be drawn up first, as they would be the lightest, and would be wanted last on the return to the Continent. The heavy vessels carrying the baggage would be nearest the water, as they would be wanted first on that occasion, besides which they would thus have the shortest distance to be drawn up on the land. Ten days were employed in refitting the fleet, hauling up the ships, and fortifying the camp; the soldiers working night and day. During this period the British received large reinforcements, and intrusted the entire command to Cassivelaunus, a chieftain from the North of the Thames (*b*).

3. It was at this time that the exploit of Scæva, related by Valerius Maximus, probably occurred. His account, which refers particularly to the topography of the place where the event happened, is to the following effect.

4. Scæva, with four comrades, had rowed in a boat to a look-out place near an island which a large force of the enemy was holding. The tide shortly afterwards ebbed and made the space by which the look-out place and the island were divided so shallow, as to be easily fordable; a great multitude of the British then rushed at Scæva and his comrades, and the latter escaped to their boat, leaving Scæva behind, who was thereupon attacked in all directions, and afforded an example of valour to the Roman spectators on the one side, and the British spectators on the other, which one could hardly believe without seeing. At last, after being severely wounded, and when his helmet and shield had been been broken to pieces he swam through

(*a*) See above, sec. xxiv. par. 3. (*b*) B. G. v. 11.

the water, and implored Cæsar, who had witnessed the occurrence, to pardon him for having lost his armour (*a*).

5. Plutarch gives the same story in his life of Cæsar in a somewhat different dress. He also alludes especially to the topography of the place at which it occurred, and says, that when the British attacked the leading ranks of the Romans who had fallen into a marshy place, and one full of water, a soldier of Cæsar, who was himself looking on at the fight, forced his way to the front, and by great deeds of daring saved the leading rank. The enemy being repulsed, the Roman soldier was the last to throw himself into the marshy streams, and without his shield crossed them with difficulty, partly swimming and partly wading. Those about Cæsar were astonished, and met him with joy and acclamation; but he, much dejected and in tears, fell at Cæsar's feet, and entreated forgiveness for having lost his shield (*b*).

(*a*) "Cum IV commilitonibus rate transvectus in scopulum vicinum insulæ, quam hostium ingentes copiæ obtinebant, postquam æstus regressu suo spatium quo scopulus et insula dividebantur in vadum transitu facile redegit, ingenti multitudine barbarorum affluente, ceteris rate ad littus regressis, solus immobilem stationis gradum retinens, undique ruentibus telis et ab omni parte acri studio ad te invadendum nitentibus, V militum diurno prælio suffectura pila, una dextra, hostium corporibus adegisti; ad ultimum, destricto gladio, audacissimum quemque, modo umbonis impulsu, modo mucronis ictu, depellens, huic Romanis, illinc Britannicis oculis incredibili, dum cernereris spectaculo fuisti. Postquam denide ira ac pudor cuncta conari fessos coegit, tragula femur trajectus, saxique pondere ora contusus, galea jam ictibus discussa, et scuto crebris foraminibus absumpto, profundo te credidisti, ac duabus loricis onustus, inter undas, quas hostili cruore infeceras, enatasti; visoque imperatore armis non amissis, sed bene impensis, cum laudem merereris, veniam petiisti." Val. Max. iii. 23.

(*b*) "'Εν δὲ Βρεττανίᾳ, τῶν πολεμίων εἰς τόπον ἑλώδη καὶ μεστὸν ὕδατος ἐμπεσοῦσι τοῖς πρώτοις ταξιάρχαις ἐπιθεμένων, στρατιώτης Καίσαρος, αὐτοῦ τὴν μάχην ἐφορῶντος, ὡσάμενος εἰς μέσους, καὶ πολλὰ καὶ περίοπτα τόλμης ἀποδειξάμενος ἔργα, τοὺς μὲν ταξιάρχους ἔσωσε, τῶν βαρβάρων φυγόντων, αὐτὸς δὲ χαλεπῶς ἐπὶ πᾶσι διαβαίνων, ἔῤῥιψεν ἑαυτὸν εἰς ῥεύματα τελματώδη, καὶ μόλις ἄνευ τοῦ θυρεοῦ, τὰ μὲν νηχόμενος, τὰ δὲ βαδίζων, διεπέρασε. Θαυμαζόντων δὲ τῶν περὶ τὸν Καίσαρα, καὶ μετὰ χαρᾶς καὶ κραυγῆς ἀπαντώντων, αὐτὸς εὖ μάλα κατηφὴς καὶ δεδακρυμένος προσέπεσε τῷ Καίσαρι, συγγνώμην αἰτούμενος ἐπὶ τῷ προέσθαι τὸν θυρεόν." Plut. Vit. Cæs. c. 16.

6. The real story seems to have been this; while Cæsar was busily engaged in constructing his camp, the British collected all the forces they could, and gave the entire command to Cassivelaunus. He conceived the idea of making a sudden attack on the Roman camp from the south, in which quarter it would probably be quite unexpected by the Romans, who had left the British in full retreat on Canterbury. Accordingly, he marched with all the troops he could collect to the western end of the Isle of Oxney; making a detour by Charing and the West of Bethersden and High Halden, and passing by the East of Rolvenden to Potman's Bridge, where he would have no difficulty in crossing to the Isle of Oxney, at any rate, at low water, as the Channel there between it and the mainland was not above 50 yards in width. The British could thus easily collect a large body of troops on the south side of the Isle of Oxney unknown to the Romans at Apuldore. If they crossed to Oxney at low water they would have some twelve hours to rest and make their dispositions for the attack at the ensuing low water, of the time of which they were of course well aware.

7. When the time for making the attack arrived, it so happened that Scæva, with his four comrades, had been detailed to form the picket on the Isle of Ebony. They had rowed in a boat from the end of the peninsula of Apuldore to the Isle of Ebony, at the foot of which they had left their boat and had ascended to the top from which they could see the whole of the north-eastern side of the Isle of Oxney. Everything remained quiet till it was nearly low water, when the British suddenly appeared in force over the ridge of the island. The Roman picket on Ebony thereupon signalled to the camp, and Cæsar drew out his forces with all possible speed to meet the enemy as they crossed the water channels between Ebony and the peninsula of Apuldore.

8. Meanwhile the British crossed from Oxney to Ebony, and Scæva with his companions was obliged to retire. The latter managed to gain their boat and escape in it, while Scæva was nearly caught, and only saved his life by swimming and wading through the water, Cæsar and the

Romans on the peninsula of Apuldore, and the British on Ebony and the north-eastern side of the Isle of Oxney, of course having a full view of the whole occurrence. The end of the matter seems to have been that the British failed in their attempted surprise on the Roman camp.

SECTION XL.—*Passage of the Thames.*

1. As soon as the camp was completed Cæsar left the same force as before for a guard upon it, and again set out for the place from which he had returned (*a*), that is, for the camp on the Stour near Olantigh. On the march the British cavalry and chariots had several sharp skirmishes with the Roman cavalry (*b*), in which the latter had the superiority, and drove the British into the woods and hills (*c*). Shortly after the Romans had reached their destination, and while they were keeping a bad look-out, being engaged in fortifying the camp, the British made a sudden sally from the woods and attacked the guard before the camp (*d*). A sharp battle ensued which ended in the repulse of the British.

2. The next day the latter appeared in force on some hills at a distance from the camp, showing themselves only at intervals (*e*). This would be upon Wye Downs. They annoyed the Roman cavalry less than on the day before; but at noon, when Cæsar had sent three legions and all his cavalry to forage they suddenly rushed on the foragers from all sides (*f*). Another battle ensued, in which the Romans were again victorious. This was decisive. The British never afterwards dared to meet the Romans in a pitched battle.

3. Cæsar now determined to carry the war into the country of Cassivelaunus, which he describes as separated from the maritime states by a river called the Thames,

(*a*) "Eodem unde redierat proficiscitur." B. G. v. 11.
(*b*) B. G. v. 15.
(*c*) "In silvas collesque compulerint." B. G. v. 15.
(*d*) "Subito se ex silvis ejecerunt." B. G. v. 15.
(*e*) "Procul a castris hostes in collibus constiterunt rarique se ostendere * * cæperunt." B. G. v. 17.
(*f*) "Repente ex omnibus partibus ad pabulatores advolaverunt." B. G. v. 17.

about eighty miles from the sea (*a*). He says he led his army to the borders of Cassivelaunus, to the Thames, which was fordable on foot, and that with difficulty at one place only. On reaching the river, he saw a great number of the enemy drawn up on the opposite bank, which was fortified with pointed stakes, fixed in front of it, while other stakes of the same kind were fixed under water, and were covered by the river. Having ascertained these facts from the prisoners and deserters, Cæsar sent his cavalry over first, and ordered his infantry to follow close behind them. This they did with such rapidity and dash, although their heads only were above the water, that the enemy could not withstand the onset of the infantry and cavalry, but left the bank of the river, and fled precipitately (*b*).

4. Having crossed the river, Cæsar advanced into the country of Cassivelaunus, who did all he could to oppose the Romans on their march. Finding, however, that it was impossible to prevent their progress, he sent to the four kings of Kent to attack the naval camp, in hopes of creating a diversion in his favour. Cæsar, however, was not to be diverted from his purpose, but marched upon the capital of Cassivelaunus (St. Albans), which he took and sacked. In the meantime, the attack on the naval camp was made. It was, however, unsuccessful; and when Cassivelaunus heard that it had failed, he made overtures of peace, which Cæsar accepted, because he was desirous of returning to the continent, the summer being nearly

(*a*) * * "Cassivelauno, cujus fines a maritimis civitatibus flumen dividit, quod appellatur Tamesis, a mari circiter millia passuum LXXX." B. G. v. 11.

(*b*) "Ad flumen Tamesin in fines Cassivelauni exercitum duxit; quod flumen uno omnino loco pedibus, atque hoc ægre, transiri potest. Eo quum venisset, animadvertit, ad alteram fluminis ripam magnas esse copias hostium instructas: ripa autem erat acutis sudibus prefixis munita, ejusdemque generis sub aquâ defixæ sudes flumine tegebantur. His rebus cognitis a captivis perfugisque, Cæsar præmisso equitatu confestim legiones subsequi jussit. Sed eâ celeritate atque eo impetu milites ierunt, quum capite solo ex aquâ extarent, ut hostes impetum legionum atque equitum sustinere non possent, ripasque demitterent ac se fugæ mandarent." B. G. v. 18.

over (*a*). Terms were, therefore, imposed on the British, and Cæsar led back his army to the sea (*b*).

5. Such is the account which Cæsar gives of his expedition across the Thames into the country of Cassivelaunus. From his statement that the river was fordable at one place only, it is clear that he crossed it at the same place both going and returning. His description of the river seems to imply that it crossed the Roman line of march at right angles or nearly so. It may also be inferred that the ford was above the influence of the tide, because he mentions that the soldiers were up to their necks in water, and if the depth of the river had changed during the passage, which must have occupied several hours, he would have noticed the fact which must have appeared to him so extraordinary and unaccountable.

6. Again, had Cæsar crossed any river which offered a serious impediment to the advance of his army while on the march to the Thames, there would in all probability have been some mention of it in the Commentaries. He could not, therefore, have crossed the Medway at any point below Tunbridge, where it begins to attain a considerable breadth. His march, therefore, from Wye lay through Headcorn by the south of Tunbridge, along the line of the railway towards the west.

7. Moreover, when Cæsar says that the Thames was about eighty miles from the sea, it is only reasonable to conclude that he means the distance between those parts of the river and of the sea, with which he was acquainted. He had two opportunities of estimating the distance, the one on his march to the river, the other on his return from it, and must mean that the distance between the neighbourhood of the ford, and some part of the Channel between the North Foreland and Beachy Head, by which his view had been bounded on approaching Britain, was about eighty miles.

8. Now the only part of the Thames which can be said in any degree to fulfil these conditions is the bend of the

(*a*) "Neque multum æstatis superesset." B. G. v. 22.
(*b*) B. G. v. 23.

river between Kingston and Weybridge, and the place which most completely fulfils the conditions is the traditionary ford at Coway Stakes, about a furlong above the bridge at Walton (*a*). It was above the influence of the tide, which did not extend above Teddington (Tide-end-town). Cæsar's route to it lay along the South Eastern Railway to Dorking, and down the valley of the Mole, through a country which is not intersected by any considerable river. His route back to the naval camp at Apuldore lay through nearly the same country. The distance of the ford, viâ Dorking, from the ancient landing place at Hythe, a very appropriate point from which to measure, is as near as possible eighty Roman miles, or seventy-four English miles and one hundred and sixty yards, reckoning 1630 yards to a Roman mile, as before. It also lay in the direct line of march from Dorking to St. Albans. For these reasons it appears probable that Cæsar crossed the Thames at Coway Stakes.

SECTION XLI.—*The Second Return to Boulogne.*

1. When Cæsar reached the naval camp at Apuldore, on his return from the Thames, he found that his ships had been completely repaired; but as he had a large number of prisoners, and some of the ships had been destroyed in the storm, he determined to make the passage to the continent in two trips (*b*).

2. Now it is evident that the non-combatant portion of the expedition must have been the first to return to the continent, and that the infantry who would be required to protect the embarcation must have been the last. The triremes would be required to cover the embarcation of the infantry. The baggage train, therefore, and the prisoners would be the first to go; and with them would be sent the cavalry, whose services were no longer of any use. These would constitute the first division, and would occupy all the large and heavy transports in which they had arrived, and possibly some of the light vessels in which the infantry

(*a*) See Lewin's 'Invasion of Britain by Julius Cæsar,' p. 100, et seq.

(*b*) B. G. v. 23.

had crossed the Channel in addition. When the first division had sailed there would only be the infantry, the triremes and light vessels left at Apuldore. The plan for the return would be exactly the converse of the plan for the voyage to Britain, and the troops would be landed at Boulogne on the same ground from which they had embarked. The ships of the first division would be ordered to return to Apuldore as soon as they could, to assist in conveying the rest of the army to the continent.

3. It appears from the Commentaries, that Cæsar did not accompany the first division, but remained at Apuldore with the infantry, the triremes, and light vessels, to await the immediate return of the other ships. In this he was disappointed. He says a few only of the ships of the first division, and of some sixty others which Labienus had built at Boulogne ever reached Britain. The rest were driven back. This, of course, means that they were driven back by the wind; and, therefore, the few ships which did reach Apuldore were light vessels only, which had managed to row there against the wind. Cæsar further says that he waited for the return of the ships from Boulogne in vain for some little time, and then (lest he should be prevented from sailing by the time of year, for the equinox was at hand), packed the soldiers on board more closely than was desirable, and taking advantage of a dead calm, put to sea just after the beginning of the second watch, and reached the continent at daybreak in safety (*a*). He therefore rowed across the Channel (*b*).

4. Again, it is clear that at this time Cæsar was not ignorant of the effect which the stream in the Channel would have on his ships, for when he was drifted beyond the South Foreland on his last voyage to Britain he attributed the fact to this very cause (*c*). He must also have been aware that there was a quarter of an hour's

(*a*) "Quas quum aliquamdiu Cæsar frustra expectasset, ne anni tempore a navigatione excluderetur, quod æquinoctium suberat, necessario angustiis milites collocavit, ac summâ tranquillitate consecutâ, secundâ initâ quum solvisset vigiliâ, primâ luce terram attigit omnesque incolumes naves perduxit." B. G. v. 23.

(*b*) Lewin's 'Invasion of Britain by Julius Cæsar,' xxi.

(*c*) See above, sec. xxxv. par. k.

slack water preceding the turn of the stream, for he had experienced its effects on that occasion. Nor could he have been ignorant of the time at which the change in the direction of the stream took place, for this must have been discovered in the frequent communication which had been kept up between the naval camp and the continent. The quarter of an hour's slack water preceding the turn of the stream must also have been observed on these voyages. When, therefore, Cæsar determined to row across the Channel, he must have taken the state of the stream into consideration, and so timed his departure from Apuldore that the leading vessel of the flotilla might catch the turn of the stream westward just as she cleared the bay.

5. Cæsar's object was to reach Boulogne as quickly as possible. When once at sea, there was no reason why the flotilla should preserve its formation with the accuracy which had been necessary on the voyage to Britain. Indeed, it would hardly be necessary to preserve any formation at all. Each vessel might make the best of her way to that part of the harbour from which she had started on her voyage to Britain. The vessels, too, were full of men, all anxious to get back to the continent. Hence the return to Boulogne became, as it were, almost a race across the Channel, at least for the leading vessels; and the trireme in which Cæsar led, and from whose performances he would naturally take the time, must have had to row with great velocity in order to maintain her position. The rate at which she rowed, therefore, will not be over estimated at $4\frac{3}{4}$ miles an hour.

6. On leaving Apuldore, Cæsar had to row about seven and a half miles through the bay before he could reach the stream in the Channel. This would occupy nearly one hour and forty minutes; and therefore, as he started just after the beginning of the second watch, which at that time of the year began a little after 9 p.m. (*a*), he reached the stream in the Channel a little before 11 p.m.

7. From this the date of the return of the second division may be easily ascertained. It must have been the last night before the equinox on which the stream in

(*a*) See above, sec. xxiii. par. 3.

the Channel ceased to run east about 11 p.m., that is, the night of the 14th of September, B.C. 54, when it ceased to run east at 10.50 p.m. (*a*).

8. A close approximation to the date of the day on which the first division left Britain, may be deduced from the following considerations. Cæsar says he waited some little time for the return of the ships of the first division from Boulogne, and then put to sea. This expression is indefinite. The time, however, must have been sufficiently long to allow of the voyage to the continent, the disembarcation, and the return; and must also have included a period of expectation after the ships were due. Three or four days, therefore, must have intervened between the first and second trip, and consequently it will be very nearly, if not quite accurate, to fix the date of the first trip on the 10th of September. This was sixteen days before the equinox, which, in B.C. 54, occurred on the 26th of September, at 3 a.m. (*b*).

9. It appears, then, that the events connected with the return to the continent on the second occasion were somewhat as follows. Cæsar reached the camp at Apuldore with his army on the 8th of September, and the same day ascertained that his ships had been completely repaired, and were ready for sea. He thereupon came to the determination to send his forces back in two divisions, and the same evening gave orders for the prisoners, the baggage, and the cavalry to be got ready for embarcation, and for the heavy vessels in which they were to sail, with as many of the lighter vessels as would be necessary in addition, to be launched the next day. The 9th was employed in carrying out these orders, and on the 10th, the wind being favourable, the first division embarked and set sail, the ships having orders to return to Apuldore as soon as they could.

10. Cæsar was now left with the five legions of infantry, the triremes, and light vessels only, and in the natural course of events, expected that the ships of the first

(*a*) See above, sec. xxiii. par. 8; and see sec. xii. par. 1.
(*b*) Leverrier. 'Hist. of Julius Cæsar,' Emperor Napoleon III. vol. ii. Appendix B, p. 680.

division would return from the continent by the evening of the next day, the 11th, at the latest. In this he was disappointed, for none or a few only, and those light vessels, returned on that day, or on the next, as the wind was in such a quarter as to prevent the main body from reaching Britain. By the evening of the 13th, Cæsar had become very anxious about his position. He could not rely on the wind remaining favourable for a voyage to Boulogne for any length of time. The equinox was at hand, and storms might reasonably be expected. He therefore determined to embark the infantry in the vessels he had with him, and put to sea the very first time it was sufficiently smooth to allow his crowded vessels to cross with any chance of safety. This happened in the afternoon of the very next day, the 14th. There was then a dead calm, than which no weather could be more favourable for Cæsar's intended voyage. He would, of course, be obliged to row across, but this would be a matter of no great difficulty, as his vessels were all fitted for rowing, and he had more men for the work than he well knew what to do with. By the time the embarcation was completed, and all in readiness to put to sea, the stream would be running up channel, but it would cease to do so at 10.50 p.m. The flotilla would have about seven and a half miles to row across the bay of Apuldore before the ships would be affected by the stream, and this would take nearly one hour and forty minutes at the rate of four and three quarters of a mile an hour. He must, therefore, start at 9.10 p.m., which would be quite practicable, for the moon was ten days old, and would rise at 4.6 p.m., two hours and nine minutes before sunset. She would come to the meridian at 8.32 p.m., and set at 11.42 p.m., at which time he would be well at sea. The voyage would have to be accomplished in darkness, and he would have to steer by the stars until he sighted the beacon on the heights of Boulogne, which Labienus, no doubt, kept burning every night during the absence of the army in Britain, as a guide to any vessel which might be sent from Apuldore. It would be daylight before the flotilla could reach the opposite coast, as the sun would rise the next morning at 5.36 a.m.

11. Orders were therefore given accordingly, and the second division started about 9.10 p.m., that is, just after the commencement of the second watch, which began on the 14th of September, at 9.5 p.m., in the same formation as on the voyage to Britain. The ships, however, now moved in threes right instead of threes left, as on that occasion, but were not so particular about preserving their formation. The leading vessel, with Cæsar on board, cleared the bay of Apuldore just as the stream ceased to run up channel at 10.50 p.m. (*a*). She then had the benefit of the quarter of an hour slack water preceding the turn of the stream, in which time she passed over rather more than a mile, so that when the stream turned west at 11.5 p m. she was nearly nine miles on her way towards Boulogne. She of course kept well up channel, in order that the last vessel of the flotilla, which was about four miles, or nearly an hour astern, might not be drifted too far to the south. As the moon was ten days old, the tide was about half way between neaps and springs, and therefore the velocity due to the stream which was on the broadside of the vessel, was about $1\frac{7}{8}$ miles an hour (*b*).

12. When the stream turned down channel at 11.5 p.m., Cæsar steered direct for Wissant. The trireme in which he was leading accordingly passed over $4\frac{3}{4}$ miles in that direction in an hour, and during that time was set down channel, a distance of $1\frac{7}{8}$ mile by the stream, so that her position at the end of the first hour, or at 12.5 a.m., was about seven miles E.S.E. $\frac{1}{2}$ E. of Romney. Continuing to steer in the same direction, her position at the end of the second hour, or at 1.5 a.m., was about eleven miles E.S.E. $\frac{1}{2}$ S. of the same place. Similarly, her position at the end of each hour up to 5.5 a.m. may be ascertained; and it may be shown that she was then about a mile and a half from the French coast, and about half a mile to the north of Boulogne. About twenty minutes was required to accomplish this distance, during which period she was carried down channel by the stream a distance of five-eighths of a mile. She therefore reached the mouth of the harbour about 5.25 a.m., or eleven minutes before

(*a*) See Map. (*b*) See above, sec. xxiii. par. 13.

sunrise (*a*). The last vessel of the flotilla being about an hour astern, arrived about 6.25 a.m., just as the stream turned to run up channel at 6.27 a.m.

SECTION XLII.—*Dates from Cicero.*

1. It has been assumed hitherto that Cæsar was at Lodi on the 25th of April (*b*). The truth of this assumption may be established in the following manner. In a letter of Cicero to his brother Quintus, the writer says—On the fourth day before the nones of June, on which day I came to Rome, I received your letter dated from Piacenza. The next day I received another letter of yours dated from Lodi on the nones, with a letter from Cæsar * *. His letter bears the same date as yours, and begins by saying how pleased he was at your arrival and the renewal of your former friendship (*c*). Cæsar and Quintus Cicero, therefore, met at Lodi on the nones of May. It now remains to show that the nones of May fell on the 25th of April, according to the notation of the modern calendar.

2. In Cæsar's time the Roman calendar was in a state of great confusion. It is, however, certain that the year then commenced on the 1st of March, and contained twelve months, as now, of various lengths, which followed consecutively in the following order, viz.:—

March	31 days.	Sept.	29 days.
April	29 ,,	Oct.	31 ,,
May	31 ,,	Nov.	29 ,,
June	29 ,,	Dec.	29 ,,
July	31 ,,	Jan.	29 ,,
(*d*) Aug.	29 ,,	Feb.	28 ,,

3. The 1st of every month was called the Kalends; the 7th of March, May, July, and October, and the 5th of

(*a*) See Map. (*b*) See above, sec. xxxi. par. 1.

(*c*) "Ad IIII. non. Jun., quo die Romam veni, accepi tuas literas, datas Placentiæ, deinde alteras postridie, datas Laude nonas, cum Cæsaris literis, * * literæ vero ejus, unâ datæ cum tuis, quarum initium est, quam suavis ei tuus adventus fuerit, et recordatio veteris amoris." Ad Quint. Fr. ii. 15.

(*d*) In strictness, Sextilis. The month was not called August until later. The name of August is used for the sake of convenience.

every other month, were called the Nones; and the ninth day after the nones, counting the nones as the first, was called the Ides. The intermediate days were reckoned backwards from the kalends, nones, and ides, counting both extremes. Thus, the fourth day before the nones of June was the fourth day before the 5th of June, that is, the 2nd of June.

4. The year thus consisted of 354 days only, and accordingly some system of intercalation was necessary to bring it in conformity with the natural seasons of the year. This was effected either by removing some days from February, or by inserting an intercalary month between February and March, or by a combination of these methods. Now, the festivals of the Romans were for the most dependant on the calendar, and therefore the regulation of the latter was entrusted to the College of Priests. This privilege gave them great political power, which they were not backward to employ. Everything connected with the matter of intercalation was left, says Censorinus (*a*), to the unrestrained pleasure of the College of Priests; and the majority of these, on personal grounds, added to or took from the year by capricious intercalation, so as to lengthen or shorten the period during which a magistrate remained in office, and seriously to benefit or injure the farmer of the public revenue. Similar to this is the language employed by Macrobius (*b*), Ammianus (*c*), Solinus (*d*), and Plutarch (*e*); and their assertions are confirmed by the letters of Cicero, written during his proconsulate in Cilicia, the constant burthen of which is a request that the priests will not add to his year of government by intercalation.

5. In consequence of this licence, says Suetonius (*f*), neither the festivals of the harvest coincided with the summer nor those of the vintage with the autumn. But a better proof of the confusion cannot be desired than a comparison of the three following passages in the Third Book of Cæsar's Civil War:—"On the day before the nones of January the ship sailed" (*g*). "And now the

(*a*) c. 20. (*b*) i. 14. (*c*) xxvi. 1.
(*d*) i. (*e*) Cæs. c. 59. (*f*) Cæs. c. 40.
(*g*) "Pridie nonas Januarias navis solvit." C. 6.

winter was coming on" (*a*). "Several months had passed, and the winter was now close at hand" (*b*).

6. In B.C. 54, therefore, the incidence of the 1st of March depended entirely on the caprice of the College of Priests; but when it had once been settled, the calendar ran on regularly until the period of intercalation again recurred. Hence, if the incidence of any one day between the 1st of March and the end of February can be established, or is assumed arbitrarily, the incidence of all the other days of the year between those limits will be determined by the calendar. Now, it so happens that Cicero, in one of his letters to Atticus, says—"On the ninth day before the kalends of November I received letters from my brother Quintus and from Cæsar, dated from the nearest shores of Britain, the sixth day before the kalends of October. The campaign in Britain was finished. Hostages had been received. There was no booty, but a money payment had been imposed. They were bringing back the army" (*c*). These letters, therefore, from Quintus Cicero, and Cæsar were sent by the ships which carried the first division to the continent. Hence the sixth day before the kalends of October, on which they were dated, was the 10th of September according to the modern calendar (*d*); and consequently the nones of May, on which day Cæsar was at Lodi, fell on the 25th of April.

7. In order to test the accuracy of this conclusion and to show how closely the dates thus ascertained from Cæsar's narrative agree with the dates as ascertained from Cicero's letters, one more letter of the latter to his brother Quintus may be adduced. In that letter the orator says "the comitia are put off until the month of September."

(*a*) "Jamque hiems appropinquabat." C. 9.

(*b*) "Multi jam menses transierant et hiems jam præcipitaverat." C. 25. This account of the Roman calendar is taken from 'Smith's Dictionary of Antiquities,' Art. Calendar (Roman).

(*c*) "Ab Quinto fratre, et a Cæsare accepi ad IX kalend Novemb. literas, datas a littoribus Britanniæ proximis ad VI kalend Octob. Confecta Britannia, obsidibus acceptis, nulla præda, imperata tamen pecunia, exercitum reportabant." Cic. ad Att. iv. 17.

(*d*) See above, sec. xli. par. 8, 9.

* * * "How pleased I was with your letter from Britain! I was afraid of the ocean. I was afraid of the shores of the island. I do not indeed underestimate the future, but it is more promising than terrible, and I am more hopeful than anxious. But what a splendid theme you have to write on! What a country! What things and places! What manners and habits! What nations! What battles! What a commander you have to be sure!" (*a*).

8. This letter evidently was written towards the end of August, according to the Roman calendar, in answer to a letter from Quintus Cicero, written at some time after his arrival in Britain. It contains appropriate expressions of congratulation and sanguine expectations for the future, which might well be written by one brother to another who was an officer in an army which had just effected a landing on an enemy's coast, and that, contrary to all expectation, without opposition. On the other hand, it contains no reference or allusion whatever to any misfortune, which it must have done had Quintus Cicero made any mention of the storm which caused so much damage to the fleet the very night of the landing. Had his letter been written after this storm it must have contained some account of the disaster. The letter, therefore, was written and sent before that event, and consequently in the afternoon of the day on which the landing was effected.

9. Than this nothing could have been more natural. The army had been detained in enforced idleness at Boulogne for 25 days by an adverse wind, and all Rome was of course anxious to hear that something had been done at last. Cæsar, therefore, would seize the first opportunity of writing to his Government at Rome to tell them he had landed without any loss whatever, and that he intended to

(*a*) "Comitia in mensem Septembris rejecta sunt. * * O jucundas mihi tuas de Britanniâ literas! timebam oceanum, timebam litus insulæ. Reliqua non equidem contemno, sed plus habent tamen spei quam timoris, magis que sum sollicitus expectatione ea, quam metu. Te vero ὑπόθεσιν scribendi egregiam habere video. Quos tu situs, quas naturas rerum et locorum, quos mores, quas gentes, quas pugnas, quem vero ipsum imperatorem habes!" Ad Quint. Frat. II, 16.

pursue the enemy at once before their reinforcements could come up. He would therefore write his despatches while the preparations for the night march to Wye (*a*) were being made, and would send with them the private letters of the army to Rome by one of the triremes the same evening. His despatches and the private letters of the army would thus contain nothing but good news, which might not be the case if he waited for future events. Quintus Cicero's letter, therefore, was written and sent on the afternoon of the 24th of July, according to the modern calendar (*b*).

10. The distance to Rome was some 950 miles, and 50 miles a day for a continuance has been shown to have been a rapid rate of travelling. It has also been shown that in that very year, B.C. 54, a letter from Britain reached Arpinum about 60 miles S.E. of Rome on the 29th day (*c*). Hence if the messenger with the despatches and letters travelled as quickly as he could he would occupy at least nineteen days in the journey to Rome, and therefore, counting the 24th of July as one day, the despatches and letters could not have reached Rome before the evening of the 11th of August according to the modern calendar. Consequently Marcus Cicero could not have answered his brother's letter before that evening. It is much more probable that he did not do so before the following day, the 12th. In either case the expression "the comitia are put off until the month of September" would be appropriate, as the kalends or the 1st of that month would fall on the 17th of August.

11. It thus appears that if the 6th day before the kalends of October (the date of the letter in which Quintus Cicero says they were bringing back the army), fell on the 10th of September, as shown above, the dates as ascertained from Cicero's letters harmonize completely with the dates as ascertained from Cæsar's narrative. By any other arrangement of the calendar this harmony would be impaired. If the incidence of the 6th day before the kalends of October be placed earlier than the 10th of

(*a*) See above, sec. xxxvii. par. 11.
(*b*) See above, sec. xxxv. par. 9.
(*c*) See above, sec. xxxi. par. 4, 5.

September, the kalends of September will fall closer to the day on which Cicero received his brother's first letter from Britain, which was written on the day of the landing, than his language will warrant. If it be placed later than that day the interval between the days on which the first and second divisions left Britain will not be sufficiently long to answer Cæsar's expressions. An inspection of the Calendar, Appendix B., will show this at once.

SECTION XLIII.—*Conclusion.*

1. The story of Cæsar's expeditions to Britain has now been examined in the minutest detail, and has been found perfectly consistent with the theory that Romney Marsh was not in existence in his time. The presence of the sea in the Bay of Apuldore is the key to the whole narrative. That configuration of the land and sea clears up all the difficulties of the story. It supplies an appropriate locality for every incident mentioned by the authorities. It furnishes a suitable battle-ground, free from shingle, for the manœuvres of the British cavalry and chariots on the first landing. It gives a satisfactory reason for Cæsar's statement of what at the present day appears a truism, that when he was drifted up channel he saw that he had left Britain behind on the left. It demands no alteration or forced rendering of the received text of any of the writers. The conclusion is irresistible. In Cæsar's time the sea filled the whole or the greater part of the Bay of Apuldore.

2. Nor does this conclusion rest on these arguments only. The truth of the theory can be further tested by subsequent events, some of which appear inexplicable on any other hypothesis.

3. For instance, when the Romans settled in this country immediately after its invasion by Claudius in A.D. 44, they seem to have established the harbour at Lympne either in addition to or in substitution for the ancient landing-place at Hythe, probably because it was more sheltered from the sea than that place. They also seem shortly afterwards to have made the Stone Street to afford access to the new harbour, and to have built Stutfall Castle to defend it. Thus the theory gives a satisfactory

reason not only for the existence and position of the road and the castle, but also for the form of the latter (*a*). Had the marsh been in existence in the early period of the Roman settlement in this island, neither the road nor the castle would, in all probability, have been required; and if they had, the former would never have terminated abruptly at Lympne, but would have been carried onward to Romney, the seaport; and the latter would never have been built at the bottom of the hill, but would have been placed on the top, like the Roman castle at Dover. It would also have had a wall on its south side.

4. Then Ptolemy the geographer, who lived about A.D. 139-161, gives a description of Britain, in which he mentions the principal rivers, capes, and ports on each side of the island, with their respective latitudes and longitudes. These are obviously incorrect, but indicate to some extent the relative positions of the localities. Their identity mainly depends on the names and distinguishing features or other characteristics which he gives. Proceeding from west to east, he concludes his description of the south coast as follows:—

	Longitude.	Latitude.
Great Haven	19	53
Mouth of the River Trisanton .	20.20	53
New Haven	21	53.30
Promontory of Kent . . .	22	54(*b*)

5. Of these four places, there is no doubt of the identity of the first and last. The first is Portsmouth, for Ptolemy himself says the Isle of Wight was opposite to it (*c*). The last was certainly the South Foreland, because Thanet at that time was an island. Hence the mouth of the river Trisanton must have been either at Littlehampton, Shoreham, or Newhaven, all of which are in about the same latitude as Portsmouth. It most probably means Shoreham, which seems to have been called the Portus Adurni in the later Roman period (*d*). The river there still retains the name of Adur, and ships used to sail up

(*a*) See above, sec. xviii. par. 7.
(*b*) Lib. ii. cap. 8. (*c*) Ibid.
(*d*) See above, sec. xviii. par. 8.

it as far as Bramber until a comparatively modern period (*a*).

6. New Haven is mentioned, like Great Haven, without any reference to a river, as lying next to the South Foreland and to the north of the latitude of Portsmouth. All this points to Lympne. The appellation New, too, necessarily implies another or old harbour near, for which it was substituted, or with which it was used—a state of circustances singularly applicable to the new harbour at Lympne and the old landing-place at Hythe in Ptolemy's time, if the theory that the Romans established the harbour at Lympne shortly after their settlement in this country be true. The only other place which Ptolemy could mean by New Haven is Pevensey, but this is nearly in the same latitude as Portsmouth, and there is no other port near it to warrant the appellation new.

7. Again, Lympne, the Portus Lemanis (*b*) of the Romans was in existence as a port at the time when Antonine's Itinerary was compiled, because it is so described in that document. The date of the work is not known with accuracy, but it contains the name of Constantinople, which was founded by Constantine the Great in A.D. 324, and therefore cannot be placed earlier than that period. Hence Lympne was a port in the early part of the fourth century. It probably continued so for some time afterwards, but this is the latest date at which it is so described. In Peutinger's Table, which is of about the same date as Antonine's Itinerary, because it describes Boulogne as Gesoriacum, now Bononia, and that change of name took place about the reign of Constantine the Great (*c*), the sea is represented as coming up to the castle at Lemanis, just as it does to the castles at Dover and Richborough (*d*). In the Notitia Lemanis appears as a place only. No mention is made of its being a port (*e*) in that document, which is entitled 'A List of the Dignities of the East and

(*a*) Camden, 'Britannia,' vol. i. p. 188.
(*b*) See above, sec. xviii.
(*c*) Horsley's 'Brit. Rom.,' p. 379.
(*d*) See map.
(*e*) See above, sec. xviii. par. 9.

West before the reigns of Arcadius and Honorius' (*a*). It therefore was compiled at some period later than A.D. 395, when the empire was divided into the east and west between those Emperors (*b*). Hence Lemanis ceased to be a port at the end of the fourth or the beginning of the fifth century. The reason is obvious: the harbour had by that time been rendered practically useless by the gradual growth of the marsh and shingle in the manner described above.

8. In A.D. 409 the Romans withdrew the last of their troops from Britain, after having held an uninterrupted sway over the whole of the southern portion of the island for some 350 years. During that period the country became completely Romanised. By the end of it the original population had vanished, just as the Red man in America has vanished before the White. Roman arts and manufactures were then the only arts and manufactures known in the country, and when the Roman troops were withdrawn Roman England became independent; and separated into a number of petty states, under Roman forms of government, which were constantly at war with each other until they were again united into one kingdom under Vortigern in A.D. 445 (*b*). A few years afterwards Hengist succeeded in establishing his Saxon followers in Thanet, and extending his dominions thence, founded the kingdom of Kent in A.D. 455. This was the first permanent settlement of the Saxons in Britain. Other Saxon kingdoms were shortly afterwards founded, and by degrees the Saxon element superseded the Roman.

9. That Romney Marsh was inned before the Saxon element had become predominant, is proved by the Roman name of the Rhee Wall; and this conclusion is also borne out by the remains of ancient pottery, which are found extensively over the whole area of the marsh. A collection of these remains, chiefly from the neighbourhood of Dymchurch, was submitted to a meeting of the Royal

(*a*) "Notitia utraque Dignitatum cum Orientis tum Occidentis ultra Arcadii Honoriique tempora." Horsley, 'Brit. Rom.,' p. 472.

(*b*) 'Oxford Chronological Tables,' p. 24.

Society of Antiquaries for examination in the month of July, 1864. The result was, that while some were pronounced to be "decidedly Roman," the remainder were attributed to subsequent periods. It is clear, therefore, that Romney Marsh was not only dry land, but inhabited before the Roman manufacture of pottery was superseded by that which bore Saxon characteristics; and as the manufacture of pottery could not have been carried on by the Saxons for any considerable period without losing its Roman characteristics—and half a century is, perhaps, the longest possible time that can be allowed for the change—it follows that Romney Marsh must have been enclosed by the year A.D. 500. If half a century be allowed as the time required for the consolidation of the marsh and its habitation after its first enclosure (though this period is probably too great), the year A.D. 450 will be the date at which that enclosure took place. The inning of Romney Marsh, therefore, must be placed somewhere about the middle of the fifth century.

10. This theory satisfactorily explains the absence of Celtic and Roman names of places in its interior (*a*). It also satisfactorily accounts for the fact that there are no Roman roads anywhere in the marsh, though they are numerous on the high ground of Kent, all along its northern margin. It also affords a reason why all the names of places in the interior of the marsh are Saxon (*b*).

11. It follows that the conversion of the Bay of Apuldore from a shallow sea such as Cæsar describes (*c*) into dry land, as it is at the present day, was effected between B.C. 54 and the middle of the fifth century, that is, in a period of about five hundred years. This rate of growth at first sight appears extremely rapid. It falls far short, however, of the rapidity with which silt is deposited on this part of the coast in modern times under favourable circumstances. In Ramsgate harbour, with an area of 42 acres, the deposit is 2 feet in depth in a year; at Folkestone, with an area of 14 acres, it is the same. In

(*a*) See above, sec. vi. par. 6, 7.
(*b*) Ibid, par. 8.
(*c*) See above, sec. xxvi. par. 4.

Dover harbour with an area of 28 acres, there is every reason to believe it is quite as much (*a*). The upper portion of Romney Marsh, therefore, for a depth of thirty feet or so below its present surface (which would give sufficient water for the heaviest of Cæsar's ships at the lowest Spring tides), might very well have been deposited in the above-mentioned period.

12. Such is the history of the formation of Romney March deduced from the evidence of various ancient ruins, and numerous passages from the works of ancient authors, the majority of whom wrote independently of one another. All this evidence tends to show that the Bay of Apuldore was a shallow sea in the time of Cæsar. It is true there is no direct evidence that this was the case. On the other hand, there is no direct evidence that the contrary was the fact; so that the onus of proving that Romney Marsh was in existence in the time of Cæsar lies on the advocates of those theories as to the place where he landed in Britain, which proceed on the assumption that no change of any considerable magnitude has taken place in the line of the English coast between Fairlight and Folkestone, since his time.

(*a*) 'Report to the Commissioners for Enquiring into the State of Tidal Harbours.' Appendix, p. 196, quoted 'Lewin's Invasion of Britain by Cæsar,' p. 53, note.

APPENDIX A.

TABLE, showing the correspondence of the Roman watches and hours with the Modern mean time, and the state of the wind, tide, and stream in the Channel, from Sunset on the 26th to Midnight on the 27th of August, B.C. 55.

AUGUST	Roman Watches and Hours.	Modern Hours and Minutes.	Changes of Wind.	State of Tide.	Turn of Stream.
26 Sunset .	1st watch	6.54			
				H.W. 7.28 Boulogne.	up
	2nd „	9.27			
			S.W.		11.28
27 Midnight	3rd „	12.			
				L.W. 1.50 Boulogne.	down chan.
	4th „	2.33			
			3.30		
„ Sunrise .	1st hour	5.6	W.N.W. ½ W.		
			5.32		5.32
	2nd „	6.15			
	3rd „	7.24			
				H.W. 7.32 Hythe.	
	4th „	8.33	N.W.		
	5th „	9.42	½ N.		
	6th „	10.51			
					11.32
„ Noon . .	7th „	12.			
	8th „	1.9			
			1.32		
				L.W. 1.51 Hythe.	
	9th „	2.18			
	10th „	3.27			
	11th „	4.2			
	12th „	5.45			
			E.N.E.		6.11
„ Sunset .	1st watch	6.54			
				H.W. 8.14 Hythe.	up
	2nd „	9.27			
28 Midnight	3rd „	12.			

APPENDIX B.

Calendar—B.C. 54.

The days marked * are determined by natural phenomena.

MODERN.	ROMAN.		EVENTS.
April 25	7 May	Nones	Cæsar at Lodi.
„ 26	8 „	8 before	
„ 27	9 „	7 „	CÆSAR'S JOURNEY
„ 28	10 „	6 „	
„ 29	11 „	5 „	
„ 30	12 „	4 „	
May 1	13 „	3 „	
„ 2	14 „	day „	
„ 3	15 „	Ides.	TO
„ 4	16 „	17 before	
„ 5	17 „	16 „	
„ 6	18 „	15 „	
„ 7	19 „	14 „	
„ 8	20 „	13 „	
„ 9	21 „	12 „	THE MELDI;
„ 10	22 „	11 „	
„ 11	23 „	10 „	
„ 12	24 „	9 „	
„ 13	25 „	8 „	
„ 14	26 „	7 „	
„ 15	27 „	6 „	
„ 16	28 „	5 „	
„ 17	29 „	4 „	
„ 18	30 „	3 „	HIS MARCH
„ 19	31 „	day „	
„ 20	1 June	Kal.	
„ 21	2 „	4 before	
„ 22	3 „	3 „	
„ 23	4 „	day „	
„ 24	5 „	Nones	TO
„ 25	6 „	8 before	
„ 26	7 „	7 „	
„ 27	8 „	6 „	
„ 28	9 „	5 „	
„ 29	10 „	4 „	
„ 30	11 „	3 „	THE TREVIRI;
„ 31	12 „	day „	

MODERN.	ROMAN.	EVENTS.
June 1	13 June Ides.	HIS STAY
„ 2	14 „ 17 before	
„ 3	15 „ 16 „	
„ 4	16 „ 15 „	
„ 5	17 „ 14 „	AMONG THEM;
„ 6	18 „ 13 „	
„ 7	19 „ 12 „	
„ 8	20 „ 11 „	
„ 9	21 „ 10 „	
„ 10	22 „ 9 „	
„ 11	23 „ 8 „	HIS RETURN
„ 12	24 „ 7 „	
„ 13	25 „ 6 „	
„ 14	26 „ 5 „	TO
„ 15	27 „ 4 „	
„ 16	28 „ 3 „	
„ 17	29 „ day „	BOULOGNE;
„ 18	1 July Kal.	
„ 19	2 „ 6 before	
„ 20	3 „ 5 „	
„ 21	4 „ 4 „	
„ 22	5 „ 3 „	
„ 23	6 „ day „	HIS DETENTION
„ 24	7 „ Nones.	
„ 25	8 „ 8 before	
„ 26	9 „ 7 „	
„ 27	10 „ 6 „	BY THE
„ 28	11 „ 5 „	
„ 29	12 „ 4 „	Corus blowing.
„ 30	13 „ 3 „	„
July 1	14 „ day „	„
„ 2	15 „ Ides	WIND CORUS;
„ 3	16 „ 17 before	„
„ 4	17 „ 16 „	„
„ 5	18 „ 15 „	„
„ 6	19 „ 14 „	„
„ 7	20 „ 13 „	„
„ 8	21 „ 12 „	ALTOGETHER
„ 9	22 „ 11 „	„
„ 10	23 „ 10 „	„
„ 11	24 „ 9 „	„
„ 12	25 „ 8 „	OCCUPYING
„ 13	26 „ 7 „	„
„ 14	27 „ 6 „	„
„ 15	28 „ 5 „	„
„ 16	29 „ 4 „	AT LEAST

MODERN.	ROMAN.	EVENTS.
July 17	30 July 3 before	Corus blowing
„ 18	31 „ day „	„
„ 19	1 Aug. Kal.	74 DAYS.
„ 20	2 „ 4 before	„
„ 21	3 „ 3 „	„
„ 22	4 „ day „	„
„ 23	5 „ Nones	Flotilla left Boulogne.
„ *24	6 „ 8 before	Landing. 1st letters sent to Rome. March to Wye. Return to Apuldore.
„ 25	7 „ 7 „	Naval camp begun.
„ 26	8 „ 6 „	Construction of naval camp.
„ 27	9 „ 5 „	„ „
„ 28	10 „ 4 „	„ „
„ 29	11 „ 3 „	„ „
„ 30	12 „ day „	„ „
„ 31	13 „ Ides	„ „
Aug. 1	14 „ 17 before	„ „
„ 2	15 „ 16 „	„ „
„ 3	16 „ 15 „	„ „
„ 4	17 „ 14 „	Return to Wye.
„ 5	18 „ 13 „	
„ 6	19 „ 12 „	
„ 7	20 „ 11 „	
„ 8	21 „ 10 „	EXPEDITION
„ 9	22 „ 9 „	
„ 10	23 „ 8 „	
„ 11	24 „ 7 „	First letters from Britain reached Rome.
„ 12	25 „ 6 „	
„ 13	26 „ 5 „	
„ 14	27 „ 4 „	
„ 15	28 „ 3 „	
„ 16	29 „ day „	
„ 17	1 Sept. Kal.	
„ 18	2 „ 4 before	
„ 19	3 „ 3 „	ACROSS
„ 20	4 „ day „	
„ 21	5 „ Nones	
„ 22	6 „ 8 „	
„ 23	7 „ 7 „	
„ 24	8 „ 6 „	
„ 25	9 „ 5 „	
„ 26	10 „ 4 „	THE THAMES
„ 27	11 „ 3 „	

MODERN.	ROMAN.	EVENTS.
Aug. 28	12 Sept. day before	
„ 29	13 „ Ides	AGAINST
„ 30	14 „ 17 before	
„ 31	15 „ 16 „	
Sept. 1	16 „ 15 „	
„ 2	17 „ 14 „	
„ 3	18 „ 13 „	
„ 4	19 „ 12 „	CASSIVELAUNUS.
„ 5	20 „ 11 „	
„ 6	21 „ 10 „	
„ 7	22 „ 9 „	
„ 8	23 „ 8 „	Return to Apuldore.
„ 9	24 „ 7 „	
„ 10	25 „ 6 „	1st division left Britain.
„ 11	26 „ 5 „	
„ 12	27 „ 4 „	
„ 13	28 „ 3 „	
„ *14	29 „ day „	2nd division left Britain
„ 15	1 Oct. Kal.	2nd division reached Boulogne.
„ 16	2 „ 6 before	
„ 17	3 „ 5 „	
„ 18	4 „ 4 „	
„ 19	5 „ 3 „	
„ 20	6 „ day „	
„ 21	7 „ Nones	
„ 22	8 „ 8 before	
„ 23	9 „ 7 „	
„ 24	10 „ 6 „	
„ 25	11 „ 5 „	
„ *26	12 „ 4 „	Equinox, 3 a.m.

THE END.

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