

THE FARMERS' YEARS.

II.

CARNAC AND ITS ENVIRONS.

IT has long been known that the stones which compose the prehistoric remains in Brittany are generally similar in size and shape to those at Stonehenge, but in one respect there is a vast difference. Instead of a few, arranged in circles, as at Stonehenge, we have an enormous multitude of the so-called menhirs arranged in many parallel lines for great distances.

The literature which has been devoted to them is very considerable, but the authors of it, for the most part, have taken little or no pains to master the few elementary principles which are necessary to regard the monuments from the point of view of orientation.

It is consoling to know that this cannot be said of the last published contribution to our knowledge of this region, which we owe to Monsieur F. Gaillard, a member of the Paris Anthropological Society and of the Polytechnic Society of Morbihan at Plouharnel.¹

M. Gaillard is a firm believer in the orientation theory and accepts the view that a very considerable number of the alignments are solstitial. But although he gives the correct azimuths for the solstitial points and also figures showing the values of the obliquity of the ecliptic as far as 2200 B.C., his observations are not sufficiently precise to enable a final conclusion to be drawn, and his method of fixing the alignments and the selection of the index menhir is difficult to gather from his memoir and the small plans which accompany it, which deal with compass bearings only.

All the same, those interested in such researches owe a debt of gratitude to M. Gaillard for his laborious efforts to increase our knowledge, and will sympathise with him at the manner in which his conclusions were treated by the Paris anthropologists. One of them, apparently thinking that the place of sun rising is affected by the precession of the equinoxes, used this convincing argument: "Si, à l'origine les alignements étaient orientés, comme le pense M. Gaillard, ils ne le pourraient plus être aujourd'hui; au contraire, s'ils le sont actuellement, on peut affirmer qu'ils ne l'étaient pas alors!"

M. Gaillard is not only convinced of the solstitial orientation of the avenues, but finds the same result in the case of the dolmens.

I cannot find any reference in the text to any orientations dealing with the farmers' years, that is with amplitudes of about 24° N. and S. of the E. and W. points; but in diagrams on pp. 78 and 127 I find both avenue and dolmen alignments, which within the limits of accuracy apparently employed may perhaps with justice be referred to them; but observations of greater accuracy must be made, and details of the heights of the horizon at the various points given, before anything certain can be said about them.

I append a reproduction of one of M. Gaillard's plans, which will give an idea of his use of the index menhir. It shows the cromlech and alignments at Le Ménéac. The line A—Soleil runs across the stone alignments and is fixed from A by the menhir B, but there does not seem any good reason for selecting B except that it appears to fall in the line of the solstitial azimuth according to M. Gaillard. But if we take this azimuth as $N. 54^\circ E.$, then we find the alignments to have an azimuth roughly of $N. 66^\circ E.$, which gives us the amplitude of 24° N. marking the place of sunrise at the beginning of the May and August years, and the alignments may have dealt principally with those times of the year.

I esteem it a most fortunate thing that while I have

¹ "L'Astronomie Préhistorique." Published in "Les Sciences Populaires, revue mensuelle internationale," and issued separately by the administration des "Sciences populaires," 15 Rue Lebrun, Paris.

been casting about as to the best way of getting more accurate data, Lieutenant Devoir, of the French Navy, and therefore fully equipped with all the astronomical knowledge necessary, who resides at Brest and has been studying the prehistoric monuments in his neighbourhood for many years, has been good enough to write me a long letter giving me the results of his work in that region, in which the problems seem to be simpler than further south; for while in the vicinity of Carnac the menhirs were erected in groups numbering five or six thousand, near Brest they are much more restricted in number.

Lieut. Devoir, by his many well-planned and completely accurate observations, has put the solstitial orientation beyond question, and, further, has made a most important observation which establishes that the May and

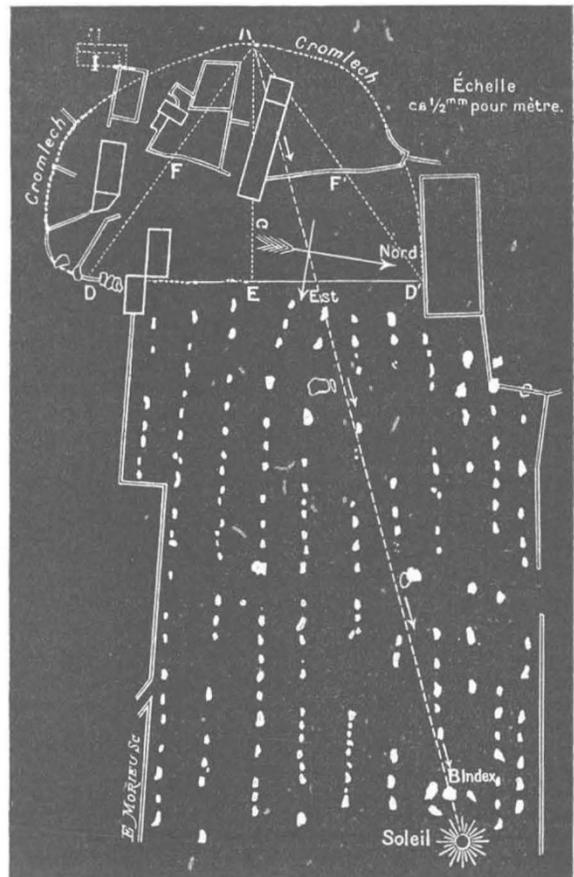


FIG. 1.—Alignments at Le Ménéac.

August sunrises were also provided for by a system of alignments. He permits me to make the following extracts from his letter:—

"It is about twelve years ago that I remarked in the west part of the Department of Morbihan (near Lorient) the parallelism of the lines marked out by monuments of all sorts, and frequently oriented to the N. E., or rather between $N. 50^\circ E.$ and $N. 55^\circ E.$ I had ascertained, moreover, the existence of lines perpendicular to the first named, the right angle being very well measured.

"The plans, which refer to the cantons of Ploudalmezeau and of St. Renan (district of Brest) and of Crozon (district of Chateaulin), have been made on a plane-table; the orientations are exact to one or two degrees.

"In the cantons of Ploudalmézeau and of St. Renan, the monuments are generally simple; seven menhirs are visible of enormous dimensions, remarkable by the polish of their surface and the regularity of their section. The roughnesses hardly ever reach a centimetre; the sections are more often ovals, sometimes rectangles with the angles rounded or terminated by semicircles. In the canton of Crozon the monuments are, on the contrary, complex; we find a cromlech with an avenue leading to it of a length of 800 metres, another of 300 metres. Unfortunately, the rocks employed (sandstone and schist from Plungastel and Crozon) have resisted less well than the granulate from the north part of the Department. The monuments are for the most part in a very bad condition; the whole must, nevertheless, formerly have been comparable with that of Carnac-Leomariaquer.

"For the two regions, granitic and schistose, the results of the observations are identical.

"The monuments lie along lines oriented S. 54° W. \rightarrow N. 54° E. (54° = azimuth at the solstices for $L = 48^{\circ} 30'$ and $i = 23^{\circ} 30'$) and N. 54° W. \rightarrow S. 54° E. Some of them determine lines perpendicular to the meridian.

"One menhir (A), 6m. 90 in height and 9m. 20 in circumference, erected in the small island of Melon (canton of Ploudalmézeau, latitude $48^{\circ} 29' 05''$) a few metres from a tumulus surrounded by the ruins of a cromlech (B and C), has the section such that the faces 1 and 2, parallel and remarkably plane, are oriented N. 54° E. (Figs. 2 and 3.)

"At 1300 metres in the same azimuth there is a line of

3k. 700m. an overturned block of 2m. 50 in height, which is without doubt a menhir; towards the S.-W. it passes a little to the south some lines of the island Molène. . . . (Fig. 4.)

"There exists in the neighbourhood other groups, forming also lines of the same orientation and that of the winter

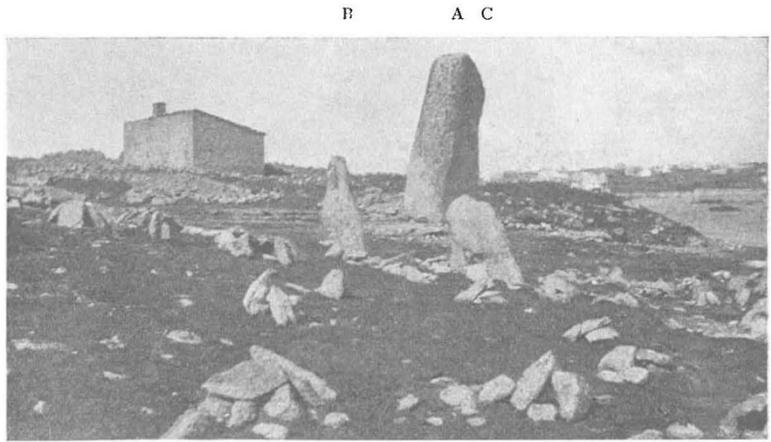


FIG. 3.—Melon Island, showing Menhir (A), and Cromlech (B and C).

solstice. It is advisable to remark that orientations well determined for the solstices are much less so for the equinoxes, which is natural, the rising amplitude varying very rapidly at this time of year.

"The same general dispositions are to be found in the complex monuments of the peninsula of Crozon. I take for example the alignments of Lagatjar. Two parallel lines of menhirs, GG' HH', are oriented to S. 54° E. and cut perpendicularly by a third line, II'. There



FIG. 2.—Menhir (A) on Melon Island.



FIG. 4.—Menhirs of St. Dourzal, D, E, F.

three large menhirs (D, E, F) of which one (E) is overturned. The direction of the line passes exactly by the menhir A. Prolonged towards the N.E. it meets at

existed less than fifty years ago a menhir at K, 6 metres high, which is to-day broken and overturned. This mégalith, known in the country by the name of 'pierre

du Conseil' (a bronze axe was found underneath it) gives with a dolmen situated near Camaret the direction of the sunrise on June 21.

"I have just spoken of the lines perpendicular to the solstitial one; there exists more especially in the complex

Lieut. Devoir points out the wonderful regularity of form and the fine polish of many of the menhirs. The one at Kerloas (11 metres high)-heads the list in point of size; others in the island of Melon (7 metres), at Kergadion (8 metres and 10 metres), Kerenneur, Kervaon and Kermabion follow suit. He considers them to have been erected at the time of the highest civilisation of the Megalithic peoples. It will be of interest to inquire whether they are generally associated with solstitial alignments. He also states that these regularly formed menhirs do not exist at Carnac, or in the region of Pont l'Abbe, so rich in other remains. It may be, then, that in these localities the May-August worship predominated, and that the index menhirs of M. Gaillard which do not form part of the alignments were erected subsequently.

THE YEARLY FESTIVALS IN EGYPT.

The vague year in Egyptian chronology makes it a very difficult matter to determine the exact Gregorian dates for the ancient Egyptian Festivals, but, fortunately, there is another way of getting at them.

Mr. Roland Mitchell, when compiling his valuable "Egyptian Calendar" (Luzac and Co., 1900), found that the Koptic Calendar really presents to us the old Egyptian year, "which has been in use for thousands of years and has survived all the revolutions."

Of the many festivals included in the Calendar, the great Tanta fair, which is also a Mohammedan feast, "is the most important of all held in Egypt. Religion, commerce and pleasure offer combined attractions." As many as 600,000 or 700,000 often attend this great fair. Mr. Mitchell holds that it is "no doubt the survival of one of the ancient Egyptian national festivals."

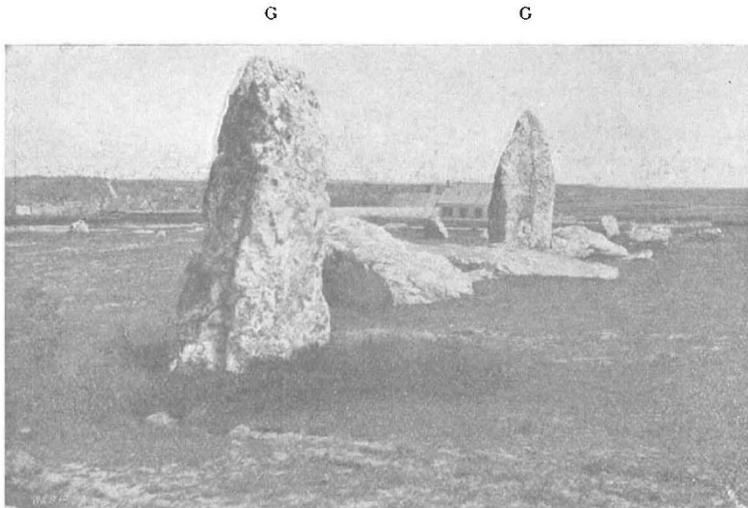


FIG. 5.—Alignment at Lagatjar, G G'.

monuments another particularity which merits attention. Between two monuments, M and N, on a solstitial line, sometimes other menhirs are noticed, the line joining them being inclined 12° to the solstitial line, always towards the east."

I must call particular attention to this important observation of Lieut. Devoir, for it gives us the amplitude 24° N., the direction of sunrise at the beginning of the May and August years. It shows, moreover, that, as at Le Méneac according to M. Gaillard, the solstitial and May-August directions were both provided for at the monuments in the neighbourhood of Brest so carefully studied by Lieut. Devoir.

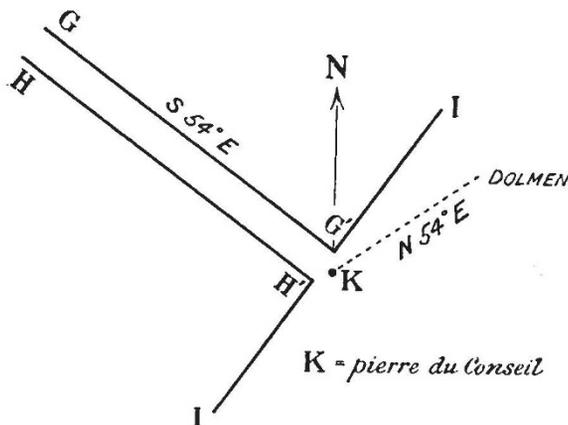


FIG. 5.—Alignments at Lagatjar, showing the pierre du Conseil and the direction of the dolmen. From the pierre du Conseil the dolmen marks the sunrise place at the summer solstice, and the avenue G G' H H' the sunset place on the same day.

I think I have already stated that there is evidence at Stonehenge that the sunrise at the beginning of the May and August years was observed, so that in this we have another point common to the British and Breton monuments.

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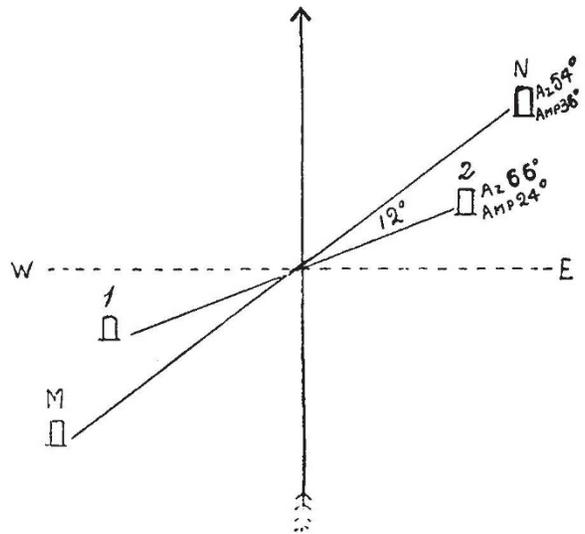


FIG. 7.—Menhirs M, N, on N.E.-S.W. solstitial alignment. Menhirs 1, 2, on May-August years alignment, sunrise May-August, sunset November-February.

It is held so as to end on a Friday, and in 1901 the Friday was August 9!

This naturally suggests that we should look for a feast

in the early part of May. We find the festival of El-Khidr and Elias in the middle of the wheat harvest in Lower Egypt; of this we read:—

"El-Khidr is a mysterious personage, who, according to learned opinion, was a just man, or saint, the Visir of Zu'l-Karneyn (who was a great conqueror, contemporary with Ibrahim—Abraham—and identified in other legends with Alexander the Great, St. George, &c.). El-Khidr, it is believed, still lives, and will live until the Day of Judgment. He is clad in green garments, whence probably the name. He is commonly identified with Elias (Elijah), and this confusion seems due to a confusion or similarity of some of the attributes that tradition assigns to both."

"The 'Festival of El-Khidr and of Elias,' falling generally on May 6, marks the two-fold division of the year in the Turkish and Armenian Calendars, into the Rüz Kāsim and the Rüz Khidr (of 179-80 and 185-6 days respectively)."

This last paragraph is important, as it points to ancient sun worship, Helios being read for Elias; and 179 days from May 6 bring us to November 1. So we find that the modern Turks and Armenians have the old May-November year as well as the ancient Egyptians who celebrated it in the Temple of Min at Thebes.

The traces of the Ptah worship are not so obvious. Finally, it may be stated that the second Tanta fair occurs at the spring equinox, so that the pyramid worship can still be traced in the modern Egyptian Calendar. The proof that this was an exotic is established, I think, by the fact that no important agricultural operations occur at this period in Egypt, while in May we have the harvest, in August and November sowing, going on.

THE NEW YEAR'S OFFERINGS.

In my last article I showed that each year, whenever it began, was, if possible, associated with some fruit of the earth, and that at the winter solstice the chief available vegetable product was the mistletoe.

But about the mistletoe there is this difficulty. Innumerable traditions associate it with the Druids and the oak tree. Undoubtedly the year of the Druids was the solstitial year, so that so far as this goes the association is justified. But as a rule the mistletoe does not grow on oaks. This point has been frequently inquired into, especially by Dr. Henry Ball (*Journal of Botany*, vol. ii. p. 361, 1864), in relation to the growth of the plant in Herefordshire, and by a writer in the *Quarterly Review* (vol. cxiv.), who spoke of the mistletoe "deserting the oak" in modern times and stated, "it is now so rarely found on that tree as to have led to the suggestion that we must look for the mistletoe of the Druids, not in the *Viscum album* of our own trees and orchards, but in the *Loranthus Europæus* which is frequently found on oaks in the south of Europe."

On this point I consulted two eminent botanical friends, Mr. Murray, of the British Museum, and Prof. Farmer, from whom I have learned that the distribution of *V. album* is in Europe universal except north of Norway and north of Russia; in India in the temperate Himalayas from Kashmir to Nepaul, altitude 3000 to 7000 feet.

The *Viscum aureum*, *Viscum luteum* or *Loranthus Europæus*, according to Dixon,¹ is a near relation of the familiar mistletoe, and in Italy grows on the oak almost exclusively. There are fifty species of *Loranthus* in the Indian flora, but *L. Europæus* does not occur.

In the *Viscum aureum* we have the "golden bough," the oak-borne *Aurum frondens* and *Ramus aureus* of Virgil; and it can easily be imagined that when the Druids reached our shores this would be replaced by the *V. album* growing chiefly on apple trees and not on oaks; indeed, Mr. Davies, in his "Celtic Researches," tells us that

¹ *Notes and Queries*, Ser. iv. vol. ii. p. 113.

the apple was the next sacred tree to the oak, and that apple orchards were planted in the vicinity of the sacred groves. The transplanting of the mistletoe from the apple to the oak tree before the mystic ceremonies began was not beyond the resources of priestcraft.

It must not be forgotten that these ceremonies took place at both solstices—once in June, when the oak was in full leaf, and again in December, when the parasitic plant was better visible in the light of the young moon. Mr. Fraser, in his "Golden Bough" (iii. p. 328), points out that at the summer solstice not only was mistletoe gathered, but many other "magic plants whose evanescent virtues can be secured at this mystic season alone."

It is the ripening of the berries at the winter solstice which secured for the mistletoe the paramount importance the ceremonials connected with it possessed at that time, when the rest of the vegetable world was dormant.

NORMAN LOCKYER.

THE RECENT VOLCANIC ERUPTIONS IN THE WEST INDIES.

IN continuation of the articles which have already appeared in NATURE upon the recent volcanic disaster in the West Indies, we are able to give this week some further information upon the character and consequences of the eruptions. Prof. Milne traces the development of the disturbances and uses his intimate knowledge of volcanic and seismic effects to show how they may be interpreted. In addition, we give two separate notes upon the ash ejected during the eruptions, and seismographic records in France on May 6. The nature of the dust ejected from the Soufrière will soon be satisfactorily determined, for last week's West Indian mail brought to this country numbers of packets of the volcanic ash which fell at Barbados, 100 miles to windward, during the night of May 7-8. The Imperial Department of Agriculture has despatched specimens to the Natural History Museum, the Geological Society, Prof. Judd, &c.

Arrangements have been made for the small scientific expedition referred to in last week's NATURE, and the members are to sail as we go to press with this number. The expedition consists of Dr. Tempest Anderson, Dr. Flett, and another member of the staff of the Geological Survey. The Colonial Office has promised to assist the Royal Society in defraying the expenses of this expedition.

For convenience, we bring together in diary form the reports of volcanic and other possibly related disturbances which have occurred during the past few days. This record of events is in continuation of those already abridged from dispatches published in the *Times*, *Daily Mail*, *Daily Graphic* and other papers:—

May 18, *Autun (France)*.—Uneasiness is beginning to be felt in regard to the volcano of St. Pierre-de-Varennes, between Couches-les-Mines and Le Creusot, which has always been considered extinct. Low rumblings have been heard, accompanied by tremblings of the earth, and at 11.30 p.m. similar noises of more than usual loudness caused considerable alarm among the inhabitants of the district.

May 18, *St. Vincent*.—An eruption of the Soufrière occurred between about 8.30 p.m. and midnight, accompanied by thundering noises and incessant electrical discharges.

May 19.—There was a great eruption of Mont Pelée. The volume of lava emitted surpassed that of May 8. It overflowed Grande Rivière and destroyed the buildings and cultivation which were previously untouched.

May 20, *Pointe à Pitre*.—Mont Pelée ejected thick black cloud and hot mud and stones, covering the greater part of Martinique. A heavy pall hung over Fort de France, followed by flashes of light.

May 21, *Fort de France*.—A further eruption of Mont Pelée occurred.

May 22, *Victoria (B.C.)*.—An explosion occurred in the Crow's Nest coal mines at Fernie, in the Kootenay district.