

# PLAN



OF THE

## STONE CIRCLES AT STANTON DREW,

Modified from that of C. W. DYMOND, F.S.A., C.E., by

C. LLOYD MORGAN.


N.B.—The distance from the centre of the Great Circle to that of the S.W. Circle is reduced on the plan to  $\frac{2}{3}$  of the true scale. The Cove is in its true relative position with respect to the S.W. Circle and the Church.

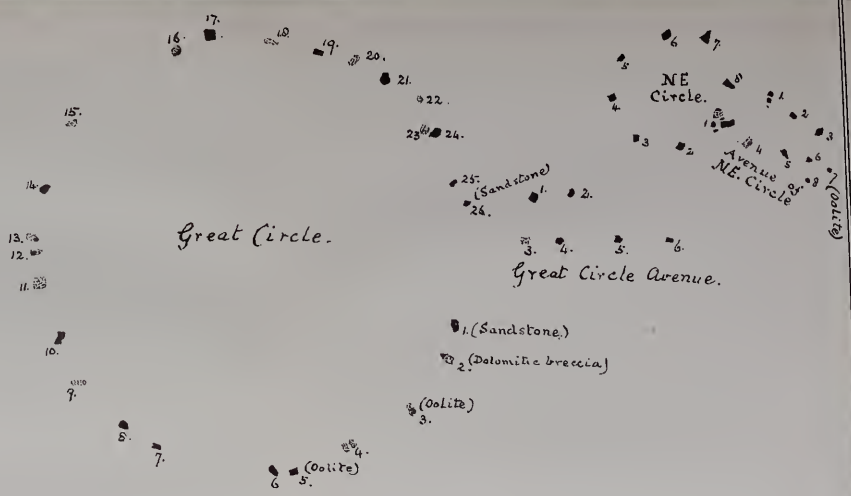
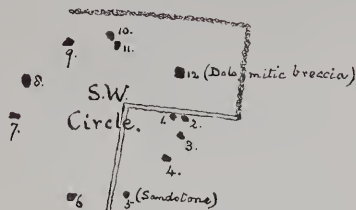
Visible Stones  Buried Stones 

Visible stones not described thus (sandstone, oolite, &c.) composed of silicious breccia.

Church.



 (Dolomitic breccia)  
The Cove.



# The Stones of Stanton Drew: their Source and Origin.

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BY PROFESSOR C. LLOYD MORGAN.

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## I.—Introduction.

CONCERNING the megalithic remains at Stanton Drew much has been written. Local tradition has preserved for us an account of their origin sufficiently miraculous. Around them in later times there has been a delicate play of archæologic fancy.

In this paper it is not my purpose to criticise or to discuss at any length the final cause of their erection. The task I have set before myself is a more practical, and, I venture to hope, a more useful one. My object in the investigations, the imperfect results of which are here with some diffidence laid before the Somersetshire Archæological and Natural History Society, has been—(1) to ascertain the nature of the rocks of which the stones are composed; (2) to ascertain where such rocks may now be found *in situ*; and thus (3) to ascertain whence the ancient Neolithic folk (for by them I believe the stone circles to have been erected) brought these giant stones.

We have the good fortune to possess a very beautiful and accurate plan of the stones, by Mr. C. W. Dymond, F.S.A., C.E.<sup>1</sup> That sold at Stanton Drew, “as given by the Rev. Samuel Seyer, 1822, with boundaries from Rutter’s *Somerset*, 1829,” is inaccurate and misleading. The public ought to be provided with something better. The plan accompanying this paper is modified from Mr. Dymond’s.

(1). *Journal Brit. Arch. Assoc.*, vol. xxxiii, 1877; also *Proc. Som. Arch. and Nat. His. Soc.*, vol. xxiii, 1877.

The long-continued drought of this summer (1887) has enabled me to detect the position of buried stones by the burnt appearance of the grass above them. All those marked on Mr. Dymond's plan were thus indicated; but of those marked 3, 10, and 19, on Seyer's plan, sold on the spot, there was no visible indication. In addition to those marked on Mr. Dymond's plan, there were indications of four additional stones, of which, however, two are but small. No. 22 in the Great Circle on the accompanying plan was indicated by a brown patch, four feet long by one foot broad, about twenty-two feet from No. 24, and a little outside the circle. No. 23 is just one yard to the north-west of No. 24, and may be the broken base of this stone. The brown patch measured five feet by four. No. 3, in the Great Circle Avenue was indicated by a small (three feet by one-and-a-half) but well-marked patch. No. 4, in the Avenue of the North-east Circle was very clearly indicated. The brown patch measured six feet by three, lay with its long axis directed nearly north and south, and was twenty-two feet south-east of the middle of the large *mênhir* stone of the North-east Circle. The Rev. H. T. Perfect, Vicar of Stanton Drew, has kindly, at my suggestion, verified the presence of these buried stones by means of the crowbar.

“No one, say the country people about Stantondrue, was ever able to reckon the number of those metamorphosed stones, or to take a draught of them; though several have attempted to do both, and proceeded until they were either struck dead upon the spot, or with such illness as soon carried them off.”<sup>1</sup> There would seem to be some truth in the first part of this tradition. My own reckoning and draught shows four more stones than Mr. Dymond's reckoning and draught. The fearful judgment on the scientific enquirer, described in the second part of Mr. Wood's sentence, I can scarce contemplate with equanimity!

(1). Wood's *Description of Bath*.

II.—*Previous Observations on the Nature of the Stones.*

Mr. Long, in his paper in the *Archæological Journal* (1858), has collected the views of some of the older writers on this subject. From him I quote:—

“Among the many questions to which Stanton Drew has given rise, one of the most debated is the geological character of the stones of which the circles are composed. Aubrey says, ‘They seem to be the very same stone as St. Vincent’s rocks, near Bristow, about six miles hence. They are of several tunnes: in some of them is iron-ore, as likewise appears at St. Vincent’s rocks.’”

The rock here alluded to is, I presume, the Dolomitic Conglomerate. The beds near the junction of this rock and the Mountain Limestone were well exposed during the digging of the foundations of Harley Place, and contained iron-ore and potato-stones, lined with quartz crystals—the so-called Bristol diamonds. I continue to quote from Mr. Long:—

“Musgrave writes that ‘they are of that kind of stone which contains pyrites, and is very plentiful in that district.’ Stukeley says—‘The stone it is composed of is of such a kind as I have not elsewhere seen; certainly entirely different from that of the country, which is of a slab kind. If any stone ever was, this would tempt one to think it factitious, though I think nothing less. It looks like a paste, of flints, shells, crystals, and the like solid corpuscles, crowded together and cemented, but infallibly by Nature’s artifice. . . . If I have any judgment, by oft surveying these kind of works, and with a nice eye, I guess by its present appearance, and consideration of its wear, to be older than Abury or Stonehenge. One would think, from its dusky and rusty colour, that it is a kind of iron-stone: it is very full of fluors and transparent crystallisations, like Bristol stones—large and in great lumps; so that it shines eminently, and reflects the sunbeams with great lustre. I cannot but think that it is brought from St. Vincent’s rock, near the mouth of Bristol river, as Mr. Aubrey

says expressly; though Mr. Strachey, who has curiously observed every thing of this kind, cannot affirm it. . . . I found some stone, like this, by the seaside, this summer, at Southampton; and the walls of the town are mostly built of it."

With regard to this last statement, I learn from Mr. Whitaker, F.R.S., that the chief stone used in the Southampton walls is Tertiary Limestone of the Isle of Wight (Bembridge). There are, however, he informs me, a great variety of stones built in—partly derived, he supposes, from ships' ballast. There are also "some huge blocks by the canal-side (? for lock), a few miles north, which are suggestive of Dolomitic Conglomerate."

Stukeley thinks that the Stanton Drew stones had not been "hewn with a tool, but rather broke by flints and a great strength of hand in those early ages, when iron tools were not found out." I may mention here, however, that I can find no evidence of their having been worked at all. I regard the surface as a weathered surface, produced by the long-continued action of atmospheric agencies, dating from a period long antecedent to their erection at Stanton Drew, when they lay exposed at the surface. No conclusion as to the relative age of these circles, as compared with Avebury or Stonehenge, can be drawn from any "consideration of the wear" of the stone.

Wood, as quoted by Mr. Long, writes:—"The predominant colour of that part of the stone in the works at Stanton Drew, supposed to have been taken from Oaky Hole, is red; and it is so exceedingly hard that it will polish almost as well as some of the purple Italian marble, and is as beautiful. The other stone is of two colours, white and grey; the white stone seems to have been the produce of Dundry Hill, but the grey stone resembles the sand rocks about Stanton Drew, and seems to have been taken from them." To Collinson they appeared to be "a composition of pebbles, grit, and other



concrete matter, and never to have been hewn from the rock." Phelps, in his *History of Somerset*, says, "These huge masses were supposed to have been brought from East Harptree, near the Mendip Hills, where stones of a similar quality (a shelly chert or conglomerate of Calcareo-magnesian Limestone) are to be found; but upon a more accurate examination of the strata of the vicinity, it seems they were raised near the spot on which they stand, from a stratum about six feet under the surface.'"

Mr. Charles Moore, quoted by Mr. Long, says, "Dr. Buckland, in his observations on the south-west Coal-field of England, refers to a peculiar cherty conglomerate, which he states is found at East Harptree, belonging to the Dolomitic Conglomerate; and he also mentions that there are in that neighbourhood smaller cherty pebbles distributed over the surface. Phelps alludes to the idea that these blocks originally came from Harptree, but that on a more accurate examination of the vicinity of Stanton Drew, it is probable they were raised near the spot on which they stand, from a stratum about six feet under the surface. I have lately observed numerous pebbles of chert distributed over the surface in this neighbourhood as at Harptree, and though I have had no opportunity of testing the correctness of Mr. Phelps's conclusions—as the geological position of the conglomerates would not be far beneath where the stones now stand, it is probable he may be correct. Great mechanical power must have been needed to have transported them from Harptree; a supposition not to be entertained, when the same rocks are found within a distance of three miles (*i.e.*, at Broadfield Down). Most of the blocks are composed of this conglomerate, which has been slightly coloured by red oxide of iron; but there are others of a much finer grain, and were these found in Wiltshire, they might readily be mistaken for 'Sarsen stones.' These appear to be derived from the Carboniferous grits of the immediate neighbourhood."

In Mr. H. B. Woodward's survey memoir on *The Geology of East Somerset and the Bristol Coal-fields*, p. 107, there is the following note:—"Some of the Druidical stones at Stanton Drew consist of Liassic cherty Conglomerate; while others are composed of yellowish and ash-grey, porous, fine-grained Sandstone, composed of grains of quartz, with a few scattered minute spangles of silvery mica. A few consist of Millstone Grit, or of a breccia (of Dolomitic Conglomerate age) formed of fragments of Millstone Grit."

Mr. C. W. Dymond, in the paper which he presented to the British Archæological Association, in 1877, says:—"Two of the stones are New Red Sandstone—the rock of the site; one is similar to that obtained from Dundry, four miles north-west; a few are Limestone from neighbouring quarries; and the rest—forming by far the majority—are a pebbly breccia of the Magnesian Limestone, probably brought from Broadfield Down, six miles west, or from East Harptree, six miles south" (*loc. cit.*, p. 307).

The Rev. H. T. Perfect, in a paper read before the Clifton and Bristol Archæological Society (Part I), gives Compton Martin as the probable source of the stones.

### *III.—The Author's Observations on the Nature of the Stones.*

In addition to the stones of the Great Circle and its Avenue, the North-east Circle and its Avenue, and the South-west Circle, there are three stones, known as the Cove, situated near the Church; there are two small stones in the Middle Ham or Lower Tynning, about one thousand yards west (and a little north) of the Great Circle; and there is one large stone (Hautville's or Hackwell's Quoit), about six hundred yards east-north-east of the Great Circle.

A cursory examination of the stones shows that they are not all composed of the same rock-material. The majority of them are, as has often been pointed out, of a very peculiar nature, being composed of a highly silicious breccia, full of

angular fragments, of various sizes and shapes, embedded in a reddish silicious matrix, freely impregnated with iron. The rock is also full of hollows, some of which are lined with crystalized quartz, while others are completely filled up with this material. The embedded fragments have also a curious banded appearance; the banded layers running parallel with the contour of the fragments. The stones of this class exhibit considerable variety of structure and external appearance; some are composed throughout of a close red or brown cherty material, with but few embedded fragments, and scarcely any hollows. Others have many larger or smaller hollows, and have a rough and slaggy appearance, giving rise to the popular but erroneous idea that they are of volcanic origin. Collinson might well be excused for calling some of these rock masses "a composition of pebbles, grit, and other concrete matter," and doubting that they were "ever hewn from the rock." I shall speak of the rock of which these stones are composed as Silicious Breccia.

Besides the stones which are composed of this Silicious Breccia, there are others, five in number (the three stones of the Cove, No. 2 of the Great Circle, and No. 12 of the South-west Circle), which are composed of a Dolomitic Breccia, in which comparatively small fragments of (Mountain) Limestone are embedded in a reddish matrix, containing iron and carbonate of lime. This has, so far as I know, never been differentiated from the Silicious Breccia by previous observers. It is, however, a distinct rock, and the fact that all three stones of the Cove are composed of it, is, I think, noteworthy.

The two small stones in the Lower Tyning, as well as No. 5 (and probably also No. 3), in the Great Circle, and No. 7 in the North-east Circle Avenue, are a yellowish Limestone. The presence of an Echinoid in one of the stones in the Lower Tyning marks this rock as belonging to the Oolite series of geologists.

The following stones are composed of Sandstone: the Quoit



(I cannot understand how Mr. Dymond was led to call this Limestone), Nos. 1 and 26 in the Great Circle, and No. 5 in the South-west Circle. Mr. Dymond regards Nos. 1 and 26 in the Great Circle as "New Red Sandstone—the rock of the site." In this determination I cannot concur. On the banks of the Chew, between Stanton Drew and Chew Magna, the New Red Marl—the rock of the site—is well exposed, and is at once seen to be of a very different nature. No. 5 in the North-east Circle, Mr. Dymond determines as Breccia. I think it not unlikely that the Sandstones in the circles are of Palæozoic age, perhaps Old Red Sandstone. But that of the Quoit is of a different and closer character.

Thus, if we separate these Sandstones, there are five distinct kinds of rocks. Silicious Breccia, Dolomitic Breccia, Oolitic Limestone, coarser Sandstone, and the close, fine-grained, cherty Sandstone of the Quoit.

Whence were these severally brought?

#### *IV.—The Geological Surroundings of Stanton Drew.*

Stanton Drew is situated on the right bank of the Chew. The rocks of the immediate neighbourhood are the Marls and Sandstones of the Trias (Keuper). These beds occupy nearly the whole of the upper basin of the Chew. Their surface has been so fashioned by denudation as to give rise to a gently rolling contour, with hills of very moderate elevation, and valleys of no great depth. To the east this basin is bounded by the more sharply contoured Coal-measures, through which the river cuts its valley by Pensford and Compton Dando, as far as the village of Chewton Keynsham. To the north the basin is bounded by the elevated hill-outlier of Dundry, the upper part of which is composed of Inferior Oolite, based upon Liassic beds. To the west is Broadfield Down, composed of Mountain Limestone, and fringed to the east by Dolomitic Conglomerate, the ancient beach deposit of the Triassic sea or lake. To the south-west the basin is bounded

by hills of Lias, overlying the Keuper beds, but here (especially to the south, south-west) the water-shed between the Chew basin and that of the Yeo is of no great height. To the south lie the Mendip Hills, composed of Mountain Limestone and Old Red Sandstone, but fringed near East and West Harptree by beds of Dolomitic Conglomerate and curiously altered Lias or Rhætic. A steep Lias escarpment between Stowey and Litton overlooks the basin from the south-east.

The softer Keuper Marls, which lie in the lap of the Chew basin, are, owing to their yielding nature, seldom exposed at the surface. But the more stubborn Dolomitic Conglomerate offers exposures which sometimes, as in the Harptree glen, form striking mural faces. Occasionally, as near Rudd, and at Green Down, this rock is exposed at the surface in large flat slabs, two or three feet in thickness.

The Dolomitic Conglomerate is in places curiously altered. Subsequent to its original deposition, it has been subject to the action of heated waters containing silica and iron in solution. These heated waters have impregnated the rock with these materials, rendering it exceedingly hard, durable, and resistant; they have also seemingly dissolved out any Limestone fragments that were present, leaving hollow spaces, some of which have since been partially or completely filled with crystallised quartz. Some of the silicious enclosures of the Breccia have been so altered by the ferruginous and silicious waters as to have become curiously banded, the banded layers running parallel with the contour of the embedded fragment. Only local patches of the rock have undergone this curious metamorphism.<sup>1</sup> The result of this differential alteration (only local beds or portions of beds having thus suffered metamorphism) is of great importance to our present enquiry. For, certain portions of the rock being thus hardened, while other

(1). On the cause of this metamorphism, see H. B. Woodward, *Geol. Mag.*, 1871, p. 400. I should not, however, be myself disposed to concur in his view, that the patchy nature of the metamorphism may be partly accounted for by local igneous protrusion.

portions remained softer, denudation has selected the softer portions for destruction, but has had little effect upon the stubborn, flinty masses which have been most completely metamorphosed. Hence these masses, like the Sarsen stones or blocks of Druid Sandstone on the Marlborough Downs, lie scattered over the fields, in the valleys, and on the hill slopes. Great weathered blocks of this nature are to be found, especially in the neighbourhood of East and West Harptree, Rudd, Green Down, Chilcompton, and Emborough—that is, along the Mendip margin to the south of the Chew basin. Similar blocks are also to be found on Leigh Down, near Winford. They exhibit great variety of structure and external appearance; some are composed throughout of a close red or brown cherty material, with but few embedded fragments, and scarcely any hollows. Others have many larger or smaller hollows, and have a rough, slaggy appearance, suggesting to the un-instructed observer that they are of volcanic origin.

Above East Harptree, higher up on Mendip than the Dolomitic Conglomerate or the altered Silicious Breccia, are Rhætic and Liassic beds, which have undergone a somewhat similar alteration. Some of these are conglomeratic; others consist of fine-grained, cherty Sandstone.

#### *V.—The Sources of the Stanton Drew Stones.*

1. *The Silicious Breccia.*—Although the variable nature of this rock makes it impossible to say, for certain, from what exact spot this rock was brought, its peculiar and local character enables us to say, with tolerable certainty, that it was obtained either from the neighbourhood of Harptree-under-Mendip or from Leigh Down, on the eastern skirt of Broadfield Down, or perhaps from both these localities.

I feel very little doubt that all the stones of the North-east Circle (Circle of Eight) are from the Harptree neighbourhood. The stones which seem to me to be from Leigh Down, near Winford, are:—Great Circle, Nos. 6, 10, 21; Great Circle

Avenue, No. 5, and perhaps Nos. 4 and 6; South-west Circle, Nos. 6, 7, and 8. I speak, however, with great diffidence.

I am disposed to reject, *in toto*, the view of those who hold that this rock was obtained from the spot on which the stones now stand, from a stratum about six feet under the surface. In the first place, I can find no evidence of the existence of such a rock (the very special nature of which we have seen) in the immediate neighbourhood. In the second place, the derived fragments included in the matrix are for the most part Millstone Grit, which rock does not occur nearer than Leigh Down. It is well known that the fragments contained in the Triassic Breccia are from the Palæozoic rock, on which the deposit rests, or in the immediate vicinity—derived, in fact, from the rocks of the adjacent coast line. In the third place, where the junction of the Trias and the Coal-measures occurs a little to the east of Stanton Drew, this Breccia does not occur. Lastly, I am convinced that the stones were not in any way quarried or mined for, but were found in their present form at the surface.

2. *Dolomitic Breccia.*—Unless we are to go yet further afield, this rock, too, was obtained either from the skirts of Broadfield Down or from the Mendip Margin. As before mentioned, flat slabs, similar to those in the Cove, are found near Rudd, and on Green Down. But I do not think we are restricted to these localities.

3. *The Limestone.*—For some time I was doubtful about the source of the stones composed of this rock. It is very difficult to determine from a weathered surface, and I have not felt justified in chipping any of the stones. From the occurrence of an Echinoid in one of the stones in the Lower Tynning, the weathered surface of which resembles that of the other Limestone monoliths, I am now disposed to refer them to the Inferior Oolite of Dundry.

4. *The Coarser Sandstone.*—As to the exact locality whence these stones were obtained, I am not at present prepared to



offer an opinion. I am inclined to regard them as Palæozoic: but even of this I would not speak too positively.

5. *The Fine-grained Sandstone.*—Of the source, geological and local, of this rock I am doubtful.

It is possible that one or more of the Sandstone monoliths may be Sarsen—but whence?

#### VI.—*Conclusion.*

The following facts seem to come out definitely from the investigations here recorded.

(1) That the stones of the North-east Circle, containing the largest monoliths, are all of one kind (Silicious Breccia), and probably all from one source—the Harptree neighbourhood; (2) that the Great Circle and South-west Circle are composed of smaller stones of diverse origin; (3) that the stones in the Cove are of one kind of rock (Dolomitic Breccia), which differs from that of which the stones of the North-east Circle are composed, and of which there is only one stone in the Great Circle and one in the South-west Circle.

I think it may fairly be inferred from these facts that the North-east Circle is of different date<sup>1</sup> to that of the other circles, and that the Cove is also of different date. Whether the North-east Circle of larger monoliths is older or later than the Great Circle, with its smaller diverse monoliths, and what is the relative date of the Cove, I do not pretend to say. It is a matter of mere speculation whether the smaller circle of large monoliths, or the larger circle of small monoliths, was the earlier. I imagine, however, that the circles were of gradual growth.

As to the final cause of their erection, I do not presume to speculate. I have no doubt that superstition or religion supplied the motive force for the energy which displayed itself in the removal, to a distance of several miles, of blocks of

(1). When I say of different date, I do not mean to imply erected by a different race or tribe.



rock so huge; and I should suggest that the germ of this lay in the attribution of the occurrence of huge blocks of stone lying on the surface to superhuman or diabolic agency. It is unnecessary to illustrate here this tendency, so well known is it in legend and in traditional names. By far the larger number of *mênhirs* or *dolmens* are directly or indirectly ascribed to the influence of the devil. Nor is it surprising that these huge blocks, too gigantic to be readily moved by man, should, in the absence of geological knowledge, have been regarded with that awe which is reserved for things supernatural. It is not surprising, I think, that these stones, thus invested with a superhuman value, should have been collected, and should have constituted part of the setting of primitive forms of worship.

There is but one more point on which I would touch. The question is often asked, by what mechanical means did these ancient folk transport and erect these giant obelisks. Now, in this, as in other matters of scientific enquiry, we must proceed from the known to the unknown; we must follow the recognised geological procedure of applying the key of the present to read the riddle of the past; we must, in a word, enquire whether there are any rude peoples now existing who are in the habit of erecting such monuments, and, if so, what methods they employ. There does exist such a people—Khasian folk of Eastern Bengal; “an Indoo-Chinese race, who keep cattle, but drink no milk; estimate distances traversed by the mouthfuls of pawn chewed *en route*, and amongst whom the marriage tie is so loose, that the son commonly forgets his father, while the sister’s son inherits property and rank.” In their country “the undulatory eminences, some 4,000 to 6,000 feet above the level of the sea, are dotted with groups of huge, unpolished square pillars, and tabular slabs, supported on three or four rude piers. In one spot,” says Sir J. Hooker, from whose Presidential address to the British Association, at Norwich, I am quoting, “buried in a sacred

grove, we found a nearly complete circle of mênhirs, the tallest of which was thirty feet out of the ground, six feet broad, and two feet eight inches thick; and in front of each was a dolmen or cromlech of proportionately gigantic pieces of rock. The largest slab hitherto measured is thirty-two feet high, fifteen feet broad, and two feet thick. Several that we saw had been very recently erected, and we were informed that every year some are put up" (p. lx).

Such a block as is described by Sir J. Hooker would not weigh less than 60 tons. What mechanical appliances are used by these rude people? "The method of separating the blocks is by cutting grooves, along which fires are lighted, and into which, when heated, cold water is run, which causes the rock to split along the groove; *the lever and rope are the only mechanical aids used in transporting and erecting the blocks.*"

Have we any right to suppose that the Neolithic folk who erected the stones of Stanton Drew employed other and more elaborate means?

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