THE STONE ROWS OF DARTMOOR. PART II

BY R. HANSFORD WORTH

(Figures in brackets are the serial numbers assigned to the Rows in Part I.)

In the first part of this paper I listed and described 58 stone-rows. Two others were left without full description and must so remain ; and I am not yet able to deal fully with No. 56 in the Avon Valley. One further Row (59I) has been discovered ; the details are as follows :

56. Black Tor, Avon Valley
Not as yet surveyed.

59. I. Glazebrook, Brent Fore Hill

Devon, 6 inch O.S., cxix. S.E., lon. 3°.53′.31″, lat. 50°.26′.10″, the position given being that of the centre of the cairn at the east end. A double Row. Very near the Corringdon Group (59—A-B-C), and lying to the north-east of that group, with the stream of the East Glaze intervening.

This Row was found on the 16th August, 1947, on the occasion of a visit by the Plymouth Branch of the Devonshire Association to the neighbourhood. It happened that the evening light was peculiarly favourable, and Mr. Masson Phillips detected on the hillside some four or five stones which appeared to be set in a row. Inspection proved that these stones were indeed set and the Row was traced up the hill to its termination in a cairn.

The length of the Row from its present western end to the centre of the cairn is 410 feet. The direction of the western half of the Row is N.53°E, while the eastern half lies N.57°E, a small deviation. From its position, and the practical identity of its direction, it is possible that this Row is part of group 59—A-B-C.

At 194 feet from its western end the Row is crossed by the course of a disused leat, and 131 feet further on the present Corringdon leat crosses the Row. These have created considerable disturbance, with the result that the last set stone occurs at 255 feet.

Forty-two stones in all are undoubted members of the Row ; of these 27 are set and standing, and 15 have fallen. None are large ; the tallest standing stone is 2 feet 3 inches high, one fallen stone is 2 feet 9 inches in length, two still standing measure respectively 1 ft. 10 ins. x 11 ins. x 1 ft. 9 ins. high, and 1 ft. 11 ins. x 1 ft. 3 ins. x 1 ft. 8 ins. high.

Five pairs of set stones still stand, the distance apart of the stones in the pairs, measured between the inner faces are, respectively: 3 ft. 2 ins., 2 ft. 11 ins., 2 ft. 6 ins., 2 ft. 2 ins., and 1 ft. 10 ins.; giving a mean of 2 ft. 6 ins.

Along the length of the row the distance apart of the stones is ascertainable with certainty in twelve places; these distances, from centre of stone to centre of stone are respectively as follows: 6 ft., 6 ft., 5 ft., 5 ft., 5 ft., 5 ft., 5 ft., 4 ft. 6 ins., 4 ft. 6 ins., 3 ft. 9 ins., 3 ft. 6 ins., and 3 ft.; giving a mean of 4 ft. 8 ins. It will be seen that there is considerable irregularity in this respect; but nine measurements lie within the limits of 6 ft. and 4 ft. 6 ins., and only three are outside this range.

Elevation of ground at cairn 1030 O.D.; gradient 1 in 12, falling S.W.

The necessity of making this addition after the paper had been read, is fair proof that the subject is not as yet exhausted; finality in matters concerning Dartmoor seems unattainable. I now, while correcting the proof, learn that Mrs. Z. W. E. Watkin found this Row in 1945; but, believing it to be already known, did not report it. Finding it omitted in Part I, she has written to me.

We thus have details of 59 Rows as a basis for statistical analysis, and may first take the simplest classification.

Single, double and treble rows.

On Dartmoor there are 25 single Rows, 28 double, and 5 treble. There is also one Row which is clearly double as to one end, and single as to the other; and the difference between the ends is certainly original, and not the result of any later interference (60). Another example is in part double, in part single, and there is no evidence to suggest that it was ever wholly double (17).

Where Rows are associated to form a group, the members of the group are rarely all of one class. Thus, at *Trowlesworthy* (14-15) one Row is double, the other is single. At *Drizzlecombe* (17-18-19), of three Rows two are single, one is in part double. The *Harter Group* (22-23) consists of one double and one single Row; while at *Corringdon Ball, Glazebrook* (57-58-59-59I) two treble Rows are associated with one single and one double.

Size of individual stones, omitting terminal menhirs.

In every Row there is much variation in the size of the stones. In practically every Row some of the stones are insignificant in size, while still significant as part of the alignment. There are stones which have never stood more than six to nine inches above the surface. On the other hand,

omitting terminal menhirs, and those occasional large stones which are to be found standing next to the graves, we may cite the entirely exceptional series at the north end of *Staldon* (7) some of which stand over eight feet in height.

Even in such a considerable example as the triple Row on *Yar Tor* (49) a fair average for the size of the stones is 12″ x 4″ x 8″ high, while the largest is but 18″ x 19″ x 32″ high. The largest upright at *Glasscombe Ball* (60) measures 24″ x 13″ x 41″ high.

In general it may be said that of the stones many are less than eighteen inches, few are more than three feet in height; this remark is applicable to Rows which have suffered little or no interference since their construction. The case of those which lie near newtake walls is one of greater poverty. Robbery for walling purposes has reduced some to insignificance. An extreme instance is to be found at *Shuggledown*, from the *Longstone* southward (38); there, of a double Row originally 555 feet in length, there now remain but two small stones, and one larger (which formerly had two somewhat longer companions). The ordinary stones of the Row went to make the newtake wall of Thornworthy; the two larger stones were taken for gateposts, and their companion was left as being too large for the wall, too small for a post.

Another example is the group at *Corringdon Ball* (57-58-59) which was robbed for the purpose of the *Corringdon Newtake* wall. The largest stone now standing is but 25 inches in height, three others are 21, 20 and 18 inches high respectively, and with a very few exceptions none of the others exceed 10 inches in height, and many stand less than 5 inches.

The larger stones which are sometimes placed next to the terminal barrow are, perhaps, best mentioned here; a few examples will suffice. At *Down Tor* (20) the stone next the retaining circle of the barrow is 9′ 6″ in height; it is followed by a short series of stones in descending order of height, but all well above the average in the Row.

At *Assacombe* (43) the three stones nearest the barrow are respectively 7′-6″, 4′-6″, and 4′-6″ in height; this is a double Row. A double Row at *Shuggledown* (34) starts, at a fourfold retaining circle, with two stones, both fallen, the one 11′-6″ and the other 7′ 4″ in length; and on *Watern Hill* (44) another double Row starts at a barrow with a stone 5′-10″ in height in the east alignment, while its companion in the west alignment is but a little larger than the average of the Row. These are notable examples; but it may be said that, in general, the stones nearest the grave give evidence of selection, being for the more part larger than the average; and no comparatively small or insignificant stones are used in that position.

With the exception of such as have been selected for special positions, the factor which governs the size of the stones is the material available within a reasonable distance; the importance of a Row, as determined by its length, is not necessarily reflected by the size of its individual members.

THE SPACING OF THE STONES IN THE ROWS.

In this section all obvious gaps left by loss or robbery have been excluded from consideration.

No Row is a strictly regular structure, and the spacing of stones in any Row may vary considerably, especially the spacing along the length of the Row. Thus, at *Merrivale A* (27) the mean longitudinal spacing, centre to centre, is 5′-6″, with extremes of 4′-7″ and 7′-9″; *Merrivale B* (28) has a mean distance of 7′-1″, with extremes of 5′-3″ and 9′-10″. At *Watern Hill* (44) the mean longitudinal spacing is 9′-1″, while the extremes are 6′ and 11′-7″; but in this instance there is greater regularity than the extreme figures suggest, since eighty per cent. of the measurements fall within the limits 8′-3″ and 10′.

Subject to the qualification as to irregularity it remains that the mean of the measurements in any Row has a real descriptive value, and I have selected twenty-six rows the condition of which is sufficiently perfect to give validity to the measurements. I have accordingly ascertained the mean longitudinal distance, centre to centre, between the stones in each of the twenty-six Rows, the highest figure which I obtained being 10′-1″ and the lowest 3′; while the mean of all the means is 5′-7″. In this calculation I have rejected the north end of the *Staldon* Row (7) where the entirely exceptional spacing of from 30′ to 50′ is to be found. That spacing has been accurately ascertained, but it is in a class to itself.

Of the Rows which I have used in this calculation, some are single, some double and some treble. For the seven single Rows the mean of means is 5′-7″, the same dimension as for the whole group; while the four treble Rows give a mean of 4′-10″. As far as a figure based on so few examples has any validity, it would appear that the tendency was to space the stones along the length of treble Rows at less distance than in either the single or double.

The width across, at right angles to the length, I have measured between the stones, from face to face, and not from centre to centre, in other words the width of the track between the stones; but in using the word "track" I have no intention of suggesting a processional path. Fourteen double rows are included in the measurements, and the results are: the highest figure obtained is 9′-6″ and the lowest is 1′-10″, while the mean of means is 4′-2″.

The figures for the treble Rows are, highest 6′-5″, lowest 3′-0″, mean of means 5′-0″. It would appear that the stones were spaced wider apart in the treble Rows than in the double; but here again, the data are insufficient to show a deliberate intent.

In considering the width across the Rows I have purposely left out of account the double Row on *Sharpitor*, at the base of the eastern slope (26) where the space between the stones is but 6 to 7 inches; this Row is in a class to itself.

Even as there was a strong tendency to place the best and largest stones next to the barrow, so there is clear indication that the Rows were at places purposely widened as they neared the grave. A good example is afforded at *Watern Hill* (44), where the width between the two stones next to the barrow is 8′-2″, and 36 feet farther from the barrow the width is reduced to 6′-0″.

TERMINALS.

In their original form it is probable that all Rows had formal terminals at either end. These terminals, where still in being, take one of three forms :—

(1) A barrow or cairn, with or without a retaining circle.

(2) A menhir, being a stone larger, especially in the matter of height, than the ordinary stones of the Row.

(3) A blocking-stone, standing across the space between double Rows, or the spaces between treble Rows. Such blocking-stones are set with their greatest width at right angles to the lengths of the Row, while the normal stones of the Row always stand with their greatest width parallel to the length.

Thirty-eight Rows have barrows at one end (1-3-4-5-6-9-10-**11**-12-13-14-**15?**-16-**17**-18-19-20-22-**23-24-26-29-30**-33-34-**36-40-41**-43-**44-45-47?**-51-**57-58-59-59I-61**).

Of these barrows twenty are without retaining circles, and their reference numbers are printed in heavy type.

Four Rows have barrows at both ends (1-42-48-60); of these 1, 48 and 60 each have one circled barrow, and one barrow without a circle, while neither barrow at 42 is circled.

Two Rows have each a barrow interrupting the length of the Row (28-49), and in each instance the barrow is circled.

There are thus forty-four instances in which a barrow or barrows form a definite part of the Row.

Ten menhirs appear as terminals (2-14-16-17-18-19-30-37-38-50). A menhir at one end and a barrow at the other occur in seven instances (2-14-16-17-18-19-30). Menhirs are especially liable to removal to serve as gateposts and for other

utilitarian purposes, while cairns and barrows are convenient sources of precollected stone. It is a matter for congratulation that so many have been left in association.

Only eight blocking-stones are known, seven certain and one doubtful, (21-24-27-28-39?-44-46-55). Two Rows (24-44) have at one end barrows, at the other blocking-stones. One (28) has a barrow in the centre, and a blocking-stone at one end; at the other end no terminal remains. Rows 21-27-46-45 have no terminals at the ends remote from the blocking-stones.

The largest and most prominent blocking-stone is that which closes the south end of the *Challacombe* Row (46). This is about five feet in width at the base and over six feet in height. It is well to repeat that a stone set athwart the middle row of this Row, somewhat in the manner of a blocking-stone is, in its present position, no more than the product of a modern restoration.

It has been stated by a recent writer that the end of a Dartmoor "alignment" is almost invariably marked by a transverse blocking-stone. This is certainly incorrect even if menhirs are to be accepted as "blocking-stones," without regard to the question whether they be transverse or not. He also says that sometimes the first as well as the last stone is placed transversely, and cites Assacombe and Cosdon, both of which are restorations, and two instances at Trowlesworthy Warren, where he may have mistaken stones in the retaining circles of the barrows. But even that explanation will not suffice; the one perfect circle at Trowlesworthy has the stone next to the Row turned with its broad face pointing along the Row, which is most unusual, and effectively counters his statement.

The length of the Rows.

No Row is complete, nor can its original length be ascertained with certainty, unless it has a formal terminal at either end. It is not safe to relax this rule, although it seriously restricts the number of measurements available.

This requirement limits the number of ascertained lengths to fourteen (1-2-14-16-17-18-19-24-30-38-42-44-48-60), but the list certainly includes both the longest and the shortest Dartmoor Rows. There are none longer whether perfect or imperfect, and all which are shorter have obviously been the victims of extensive spoilation.

The greatest length is 11,150 feet (1), and the least is 104 feet (42). I give the whole list:—11,150 ft.; 6,280 ft.; 1,740 ft.; 634 ft.; 555 ft.; 491 ft.; 488 ft.; 473 ft.; 437 ft.; 426 ft.; 366 ft.; 330 ft.; 296 ft.; 104 ft. The mean of which is 1,698 ft., but this figure is obviously unduly influenced by the exceptional lengths of the first three.

Provided we keep in mind the fact that every incomplete row must, to some extent, be of less than its original length, it may be useful to take a view of the figures excluded above as lacking in precision; arranging them in groups, with 50 feet intervals. The results are:—0 to 50 feet in length, one Row; 50 to 100 ft., three Rows; 100 to 150 ft., two; 150 to 200 ft., two; 200 to 250 ft., four; 250 to 300 ft., four; 300 to 350 ft., one; 350 to 400 ft., two; 400 to 450 ft., four; 450 to 500 ft., three; 500 to 550 ft., two; 550 to 600 ft., five; 600 to 650 ft., one; 650 to 700 ft., one; 700 to 750 ft., one. Followed by individual lengths of 864 ft., 950 ft., 1,038 ft., 1,200 ft., 1,460 ft., 1,500 ft., 1,643 ft. The whole giving a mean of 509 feet in length.

I conclude that no Row in its original condition was less than 100 ft. or more than 11,150 ft. in length; that the majority lay between the limits 220 and 620 ft.; and that eight rows had lengths ranging between 880 ft. and 1,740 ft., while the two outstanding examples were 6,280 ft. and 11,150 ft. in length respectively.

SELECTION OF SITE.

Elevation above sea level appears to have had little direct influence on the choice of sites. Stated in feet above Ordnance Datum the distribution of the Rows is as follows:—

750 to 1000 ft.	16%
1000 to 1200 ft.	37%
1200 to 1400 ft.	33%
1400 to 1600 ft.	12%
above 1600 ft.	2%

The lowest site is at 750 feet, and the highest at 1,660 feet.

But, indirectly, elevation makes for deeper deposits of peat; and where any but a slight depth of peat is to be found the setting of stones in firm and stable manner is not possible. Above 1,300 O.D. this precluded the use of all but a small area.

At a level of about 1,250 feet on the *Stallmoor-Green Hill* Row (1) it appears at first sight that the builders miscalculated in this matter, since the stones seem to have sunk; but, in truth, it is not the stones which have sunk; they are firm set, but the peat, originally shallow, has grown in depth to the extent of about two feet. In most places, whether the site be on ordinary soil or on shallow peat, some growth in depth has taken place, and the stones are less prominent accordingly.

Although the elevation of the ground does not appear to have exercised much influence over the choice made, there is another matter of level which I believe to have been regarded as a matter of extreme importance, the gradient. The gradients along the length of the rows are distributed in the following proportion:—

1 in 6	2.5%
1 in 10	15.0%
1 in 11	5.0%
1 in 12	12.5%
1 in 15	2.5%
1 in 22	12.5%
1 in 36	2.5%
1 in 40	2.5%
Slight to level	45.0%

Now these are gradients which, among the hills of Dartmoor have to be sought for, if the flats by the riversides are to be avoided ; and even the riversides are often steep and irregular.

It has followed that many of the Rows are located on the ridges between the watersheds, for there the longest lines of easy gradients are to be found. Take as an example the Row at *Challacombe* (46) where the gradient ranges from 1 in 11 to level, and is concave, so that the whole row can be seen from either end. If that Row had been directed east toward the course of the East Webburn it would have run into a gradient of 1 in 4, or if to the West toward the course of the West Webburn, the gradient would have been 1 in 10, and in either instance the ground would have been convex ; so that but a short distance of the row would have been visible from any point. I do not suggest that there are not many Rows in which the one end is hidden from the other by the convexity of the ground ; but from the barrow it is always possible to view a considerable length of the Row.

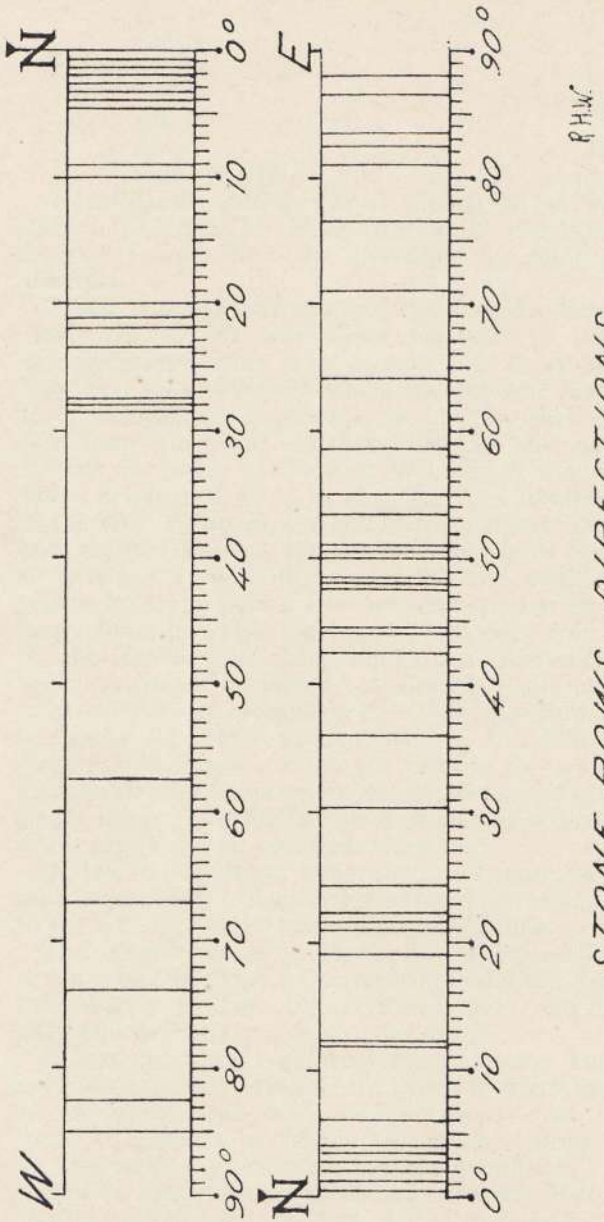
An even better example is the *Down Tor* Row (20) which lies along the water parting between the *Deancombe* and *Newleycombe* brooks. From the barrow the ground gently inclines, then for a short space becomes level, and subsequently gently rises. The site of the Row is thus concave, and its whole length can be seen from either end.

Of the shorter Rows some, such as *Launceston Moor* (3), were kept on approximately level ground by being set parallel to the contours on relatively flat-topped hills.

The steepest site is at *Assacombe* (43) where the gradient is 1 in 6 (not steep for a Dartmoor hill) and the Row literally charges down the hill ; but the Row is short, and the ground, although inclined, is nearly a true plane.

It was not until I gathered into a narrow compass the available data that I realised the extent to which this question of suitable gradients dominated the direction of the various Rows. I believe it to be the determining feature, and that we need seek no further clue to their orientation.

How far this principle of site selection was justly followed may be judged from the fact that *Drizzlecombe* (17-18-19),



Stone Rows of Dartmoor—*To face page* 183.

on what by these criteria is the most perfect site, presents to the modern eye the most perfect of the groups; and *Merrivale* (27-28-29), on a site but little less in accord with the same criteria, would be classed second in order by modern standards.

But evidence is not lacking that the search for the ideal was not always successful, not always perhaps pursued with due diligence; while the *Stallmoor-Green Hill* Row (1) demonstrates that Dartmoor had no room for a monument on such a scale as a Row $2\frac{1}{8}$ miles in length, except at the sacrifice of perfection.

The vagaries of that Row have broken the hearts of the astronomers. At its south end it leaves the retaining circle on *Stallmoor* and takes a direction $N.1\frac{1}{2}°E.$; meeting a little cross valley it diverges to $N.20\frac{1}{2}°E.$ in order to cross it approximately at right angles; then for a short space it points $N.14\frac{1}{2}°E$, and following this swings back to a trifle $W.$ of true $N.$ to make a crossing of the river *Erme* at a point where that stream can be intersected at right angles, since otherwise the river and the Row would be involved in a struggle for the same site; from the crossing the Row proceeds in much the same direction, to cross the *Redlake*, also at right angles; it then continues its course up the slopes of *Green Hill* for 770 feet, its direction being $N.10°W.$ At this point its line was far out of that necessary to close on the summit of *Green Hill*, and another diversion had to be made to $N.11°E.$, which completed the course. The direction of the Row from end to end is $N.02°W.$

In making this statement I have purposely omitted some minor deviations in direction, in the interest of simplicity; had I introduced them the irregularities would have been greater. Add to the divergences in alignment the variations in gradient which arise from the various hills and ridges crossed or climbed, and one may judge why really long Rows must be rare on Dartmoor.

ORIENTATION.

I once thought that the general trend of the Rows lay in the north-east quadrant, differing in this from the orientation of the kistvaens which lies toward the north-west quadrant.

As regards the Rows this was an error, such as may well arise when one writes too soon, and on incomplete knowledge. It may be an error to write too soon, but delay may mean that one does not write at all; I do not know that this is a sufficient excuse.

Now that the evidence is fairly complete the question of orientation seems to have taken a purely geographical significance. Perhaps one should have guessed as much from

the frequent minor irregularities in individual Rows, culminating in the divergencies of the *Stallmoor-Green Hill* example.

None the less there are those who will rightly wish to know full details as to the direction taken by the Rows. To shorten the statement I have prepared a diagram on which the several directions are marked (fig. 1). This shows that within the limits *N*.4°*E*. and *N*.4°.45′*W*. lie the directions of fourteen Rows, these I call the North group, none being 5° distant from that direction. Thirty-two Rows point further to the east, and fourteen point further to the West. BRAILSFORD (*Antiquity*, Dec., 1938, p. 446) states that the Rows tend to run approximately east and west, which is an obvious error; but adds: "In other cases the direction seems to be governed by the form of the ground," with which, in greater detail, I agree. Neither of us is, it would seem, prepared to attribute any ritual significance to direction.

The fact that sites were dictated by geographical conditions does not necessitate that all the members of a group should have the same direction of length. The *Shuggledown* Rows (34-35-36-37-38-39) are a definite group, although on opposite slopes of a hill; their directions of length are *N*.1°.40′*W*., *N*.21°.15′*W*., *N*.28°.30′*W*., *N*.3°*W*., *N*., and *N*.11°*W*., divergence which still leaves north as the nearest cardinal point. But at *Merrivale* (27-28-29), in consequence of the greater breadth of the approximately level ground, a greater divergence was possible, the bearings being:—*N*.83°.30′*E*., *N*.81°*E*., and *N*.24°.15′*E*.

THE ASSOCIATION OF BARROWS AND ROWS.

Forty-three of the Dartmoor Rows include barrows as integral parts of their construction.

The rule is that the barrow is placed at the higher end of the Row; this rule is subject to occasional exceptions, which will be dealt with later. No question of compass bearing is involved; the higher end, be it north, south, east or west, receives the barrow. Thus, in the *Shuggledown* group, Rows 34 and 36 lie on the north side of the summit of the hill, and their barrows are at the south ends. Row 37 lies on the south slope of the hill; it has a menhir at the south end, so that the barrow, which by analogy we may assume it to have had, must have been at the north end. Taking all the Dartmoor Rows which have each one barrow, in 31 instances it is at the higher end; in four cases the ground is so far level that it is difficult to say which is the higher end, except by the use of a level. In one instance (1) the ground falls from either end of the Row to a central dip, and there is a barrow at either end. There are three examples of barrows at either end, where the

result is a barrow at the higher and another at the lower end. Of these cases one is especially interesting, *Glasscombe Ball* (60); here there is a barrow at the higher end, from which runs a double Row; this Row is abruptly replaced by a single Row in the same direction and that, at the lower end of the composite Row, terminates in another barrow. Thus we have a barrow which is the starting point of a double Row which runs some distance and abruptly changes character, becoming a single Row, which continuing the same direction, ends in a barrow. There is no doubt that the double part of the alignment was always double, and the single part was always single. The spacing along the Row is also different. In the double part the average distance centre to centre of the stones is 5′-5″, and in the single part it is 7′-5″. The arrangement certainly suggests an original Row with a barrow at the higher end, the Row being double; to which at a later date was added a length of single Row, terminating in a barrow at the lower end.

It may be that in all the rows with barrows at each end the second barrow is a later addition.

There are other exceptions to the rule, *Shuggledown* (38), *Challacombe* (46), *Laughter* (50). In the first and last of these the higher end of the Row is terminated by a large menhir, so that, if there were a barrow it must have been at the lower end, where there is now no terminal. In each instance there is some evidence in favour of the view that there was formerly a barrow at the lower end, the stones of the row, near that end, being distinctly above average in size, a feature common as the barrow is approached. If this is so, then *Shuggledown* may be another example of later addition; Row G having been first constructed, terminating in the Longstone, and a further Row added south of the Longstone and terminating to the south in a barrow. (38) and (50) have both been badly robbed by newtake wall builders.

Challacombe (46) is more like *Laughtor* (50). The Row terminates at its highest point in a large blocking-stone, this is to the south; to the north the end of the Row has been wholly removed in the formation of a gully-working for tin. Yet it must have been here, at the lower end, that the barrow, if any, stood. Whatever the explanation, these are three undoubted exceptions to the rule; unless we are to believe that no barrows were ever associated with either of the three Rows.

There are two instances of barrows interrupting the course of a Row, *Merrivale* (28) and *Yar Tor* (49).

CONCLUSIONS.

Barrows occur in such number as integral parts of Rows as to leave no doubt the Rows are sepulchral monuments.

The orientation of Rows is so varied, and so intimately connected with physical conditions that it can have no ritual significance.

The intended length of a Row largely determined the selection of the site. But the Long Row on the Erme (1) is sufficient evidence that the builders were prepared to sacrifice perfection to length when they had reason to desire the latter; some details of other of the longer Rows support this.

Rows as we now find them were not always completed in one operation; where there are two terminal barrows one is probably a later addition. And where either a barrow or a menhir breaks the length of a Row it was probably once a terminal (I exclude the *Merrivale* example, where the Row distinctly widens out to embrace the barrow).

The Rows are of the same period as the hut-circles.

While the Rows are undoubtedly sepulchral monuments, the underlying idea which gave them value in the minds of their builders remains unknown; no study of detail has afforded a clue.

INDEX