From the *Transactions* of the
Bristol and Gloucestershire Archaeological Society

**The Severn Bore**

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1979, Vol. 97, 123-126

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THE SEVERN BORE: AN 18TH-CENTURY DESCRIPTION

The book, *The Severn Bore* by Mr. F.W. Rowbotham of the Severn River Board, published in 1964, was the first detailed study of a famous Gloucestershire phenomenon to appear in print. The County Record Office, however, possesses an 18th-century description of the Bore, which is given below. This manuscript (now Glos. R.O., D 1914) came from the Hale family of Alderley and was presented to the Record Office by Mr. John Walter, the Gloucester antiquarian bookseller. There is no indication of the author, but the handwriting appears to be that of Sir Charles Blagden, F.R.S. (1748-1820), a noted physician and Secretary of the Royal Society. His brother, John Blagden, took the name of Hale after marrying the Hale heiress.

The identification of Sir Charles Blagden as the author is confirmed by the fact that his published works included pamphlets 'On the Heat of the Water in the Gulf Stream' and 'On the Tides of Naples'. The only name mentioned in the MS. is that of a 'Mr. Banks', doubtless Blagden's great friend Sir Joseph Banks, the distinguished scientist. If so, it must be dated before 1781, when Banks received his baronetcy.

The reader will not fail to be struck by the careful scientific observation which characterises Blagden's description of the Bore — not then known, it seems, by that name, as it is called throughout the 'Head of Tide'. Speaking of Blagden's 'copiousness and precision of communication', Dr. Johnson observed to James Boswell: 'Blagden, Sir, is a delightful fellow'. Another literary figure, Hannah More, praised Blagden's modesty, saying that he exemplified Pope's line: 'Willing to teach, and yet not proud to know'.

IRVINE GRAY

OBSERVATIONS ON THE HEAD OF TIDE IN THE RIVER SEVERN

Every map shews that the River Severn divides itself about a mile above Gloucester into two branches, which encompass a tract of land nearly two miles long, and half a mile broad called the Isle of Alney. The southernmost point of this Island, formed by the two branches reuniting, is the place to which all people are directed who wish to see the tide come in. In Gloucester and its neighbourhood this spot is universally called the Parting of the Water. It commands a full view of the river downwards for about 200 yards, after which the channel winds so, that the water is hid, but the banks can be traced a good way farther. It is high water here, on the full and change of the moon, a little after nine o'clock, and the highest head of tide commonly comes in about ten; but as the time is by no means certain, depending on various circumstances, people frequently come an hour or even more before the tide appears. If the wind gets up the river, one can sometimes, even at this interval of time, hear a very distant roaring by putting the ear close to the water; the sound continues for a few seconds, and then entirely ceases for some time, after which it may be heard again. There are few better instances, perhaps, of the communication of sound along the surface of water; for at a time when the roaring is heard very distinctly by the ear at two inches distance from the river, if the head be slowly raised up, the sound seems gradually to die away, and can no longer be perceived at the height of a foot. But very favourable circumstances are required for these observations.

As the head of tide approaches, this roaring is more frequently repeated and every time louder, till at length one can be very certain from the sound that it is just at hand. The first thing to be seen is the dashing of water with great violence over the distant banks, and about the same time the current ceases to run downward. This prepares the bystanders, who naturally fix their eyes, with eager expectation, on the most distant part of the river that appears in view, being, as

was mentioned, about 200 yards off; here are commonly some men in boats to meet the tide, and
some dogs are thrown in just as it comes, to observe their howling and distress. On a sudden, the
boats and dogs are instantaneously raised up and thrown into violent agitation, and at the same
time a vast wave or wall of water, reaching across the whole channel of the Severn, and dashing
everywhere over its banks, is seen approaching with extreme rapidity. In a few moments it
breaks violently against the point with a vast surge and prodigious noise; the wave is instantly
divided by the shock, and each part rushing up its proper channel in the same manner as before is
quickly out of sight.

Such a striking spectacle which no one can behold without emotion, and of which so few
instances are known in the world, seemed to deserve a more accurate examination. The first
object was to trace it down the river. About five miles by water below Gloucester is a place called
Stone Bench, from a ledge of rock which runs across the river, and makes it very shallow,
excepting one place near the western bank where the rock is discontinued, and through which lies
the only channel for the trading vessels. The river here seems to be about 50 yards wide. At this
place I resolved to wait for the tide, and it came about half after nine, but in a very different form
from what I had seen before, the great wave, instead of being no thicker at its base than it was
high, now measured at least 10 yards in thickness, and did not rise more than four or five feet
above the surface of the water, though a very high tide was expected. But to my great surprise, as
the wave rushed on its base gradually contracted and its height increased, and on passing the
ledge of rock, its sides suddenly pressed together and its top shot up, breaking over with a white
foam and great roaring. At this moment the height of the wave was between 8 and 9 feet, and the
thickness of its base scarcely 6. This is indeed the finest spot of all I have tried for a near view; the
wave as it approaches you gradually rises higher and higher, till just beside you it shoots up in the
most surprising manner to a great height, and dashes over the bench of rock, and the adjacent
banks, with irresistible fury. Upon inquiry it appeared that the channel was very deep where the
wave comes first in view, and grows gradually shallower toward the bench.

Finding, however, that the head of tide was here at least as high as in my part of the river, if
not higher, I determined to proceed lower down ’till I should come to a place where there was a
material difference in this respect. Successive inquiries brought one to Newnham, a town on the
western bank of the Severn, and by computation about 21 miles distant from Gloucester by
water but I believe it would measure much more. Here I procured some intelligence, which was
afterwards confirmed by the watermen of the river. In very high springs some head of tide is
observed at Purton, about 9 miles by water below Newnham. Near Slimbridge which is only
four miles it is frequently perceived. At this place there is a large track of flat land lying on the
eastern side of the river, and extending to a considerable distance from its channel; over this the
head of tide rushes with great impetuosity, covering it by the first wave to the width of quarter of
a mile or more with a most dreadful roaring, which is perhaps that first heard at the Parting of the
Water. After passing this place the channel of the Severn begins to contract, and the head of tide
becomes gradually more conspicuous, so that it is perceived every high spring at Newnham.
Here then I determined to take my post. It was a late tide, the spring beginning to break; a little
before nine in the morning I heard the water roaring over Slimbridge sands. The breadth of the
river where I stood just above Newnham seemed then about half a mile wide. About quarter after
nine the head rushed by, extending fairly quite across the river, but very low in some places. It
was highest about the mid-channel, which ran nearest to the opposite or eastern bank, and might
there be about four feet high; there was no roaring, but the water had risen instantly a good deal
on the banks, and the breadth of the river seemed on a sudden considerably increased.
Immediately after it had passed, I rode on pretty fast toward Gloucester, but perceived that the
tide kept always before me, ’till I came to a cliff about five miles from Gloucester by land. Just
below this place the river makes a great turn, which had given me time to overtake the tide. This
cliff commands a pretty distant view, both down and up the river. I had not waited here five minutes when the wave came in sight; it appeared to be about eight feet high and rushed along with great rapidity, making one of the finest sights that can be imagined. Though the wave always reached quite across the river, yet its height was greatest at the sides; one moment it shot over one bank, and the next over the other, the effect of which was that part of the water seemed to be dashed with extreme velocity from side to side, whilst the whole wave moved onwards as one irresistible body. The height of the head varied very much, apparently from five to nine feet, and the thickness of its base seemed to bear some proportion, as if there was always pretty nearly the same quantity of water employed, but sometimes forming a high and steep, at other times a lower and more sloping wave. This, as well as the different heights at the sides, seemed, as nearly as I could judge, to depend on the different depths of the water at each place.

As soon as the wave was out of sight I rode forwards, hoping to overtake it again at Oover Bridge, which crosses over the western branch of the Severn into the Isle of Alney, but on coming there, which was an hour and a quarter after my leaving Newnham, I was told that the tide had passed about ten minutes before. It had therefore gone above 20 miles in 65 minutes.

I next set myself to observe more minutely the circumstances of this head of tide. And the first thing that occurred, particularly on a side-view, was that there were commonly one or two smaller waves preceding the principal one. The number, height and even existence of these smaller waves, seems to depend on certain proportions between the strength of the tide and that of the current which opposes it; partly also on the depth of the water. When the base of the great wave is very thick, which seems to depend on nearly the same circumstances, and in low slow tides, these preliminary waves are seldom to be seen.

After the water hath been raised by the great wave it does not continue nearly so high, nor does it sink down again to its former level, but remains after the first moment elevated about three feet, when the head hath been eight. But between the wave and this uniformly elevated surface there is always a depression. After this the water runs up very fast and rises to a considerably greater height than the top of the first wave. The interval from the turn of the water to its greatest height is shortest in the highest tides; in good springs it runs up at Gloucester about three quarters of an hour. The water has frequently ebbed nearly a foot before the water appears to run down, and it often happens in low tides when there is no head that the water runs up some time near the banks, whilst the current still sets down in the middle.

The height of the head depends upon various circumstances. Besides the proper time of the moon and season of the year, it is necessary that there should not be too much water in the river; a great fresh is said, in the language of the country, to knock the Head in the head. The wind also is of great consequence; to make the highest tide it should blow a brisk gale from the W or WSW. SW though more immediately up the river, does not answer so well; which is a proof how much the head depends on the quantity of water forced up the Bristol Channel. Most watermen maintain that in great springs the tide rises near the New Passage, that is, at the entrance of the first contraction of the Severn, fully sixty feet. They pretend to determine this by a rock which lies there. It was commonly said to rise . . . feet at Chepstow Bridge, till Mr. Banks found that it could be no more than . . .; so that the height near the New Passage is probably exaggerated. It is certain, however, that the tide sometimes sets up near this rock with remarkable violence; but never with a head, one principal reason of which may be that it flows here as long a time as it ebbs, so that the current is turned upwards at the beginning of the flux, before the tide has come to get strong. Now I apprehend the head to be formed by the tide overcoming the natural current of the river, not leisurely, as happens in the Thames, but with great quickness and force. Higher up, above Beachy Head, the river widens, and there the tide is less sensibly felt, but the channel soon afterwards contracts again, and at Purton is said to be scarcely a mile broad at low water; here the tide, I am informed, runs up but about three hours. In high springs therefore the head
forms somewhere in this contracting part below Purton, and above the broad part near Beachy Head; lower down always as the tide is more violent. Hence running up the river the head gradually gets higher and higher as the channel contracts, and it seems to move in different places with very different velocities, always quickest when the wave is greatest.

Everybody will readily conceive that it is not the same water which rushes all the way up the channel, but a motion propagated through successive portions of the river, the water immediately beyond the wave being pressed up by the weight and force of the incumbent wave, just as happens in the sea.

The watermen who trade up the Severn are extremely careful not to be taken disadvantageously by the head of tide. They are obliged to meet it with the head of their vessel. For want of this precaution several ships have been lost, so great is the violence of this extraordinary tide.

I am informed that a similar head of tide but never so high is observed in the Humber and some other rivers of the north, where it is called the Boar or Bore. Also in the river of Bridgwater in Somersetshire, and that of Calcutta in the East Indies.

ARCHAEOLOGY IN GLOUCESTERSHIRE No. 3
1978

Edited by Bernard Rawes for the Committee for Archaeology in Gloucestershire

The information contained in this review has been arranged under parishes as shown on the O.S. 6-inch series maps. The parish name is followed, where appropriate, by the site name and a grid reference. (The latter has been omitted in certain cases at the request of the contributor).

Abbreviations:

ALDSWORTH Many surface finds of Roman pottery on the S slope of a hill.

G.L. & E. BISHOP

BARNESLEY, Barnsley Park, SP 083067. Work continued in the following areas: (a) The N end of the W range was precisely located thanks to an abutting field wall. But this was a realignment of the original aimed at the earlier NW corner of the large rectangular masonry structure of c. A.D. 360. The stoke-hole area of the channelled hypocaust produced a dry-stone wall of the earlier farmhouse period and other complications yet to be resolved.
(b) The corn-dryer was found to have had originally a deeper flue and a lower firing floor. It had been back-filled with clean clay after an initial firing. The cross-flue was seen to have been built against the inner face of the wall of a circular dry-stone structure. To the W of the dryer there was a surprisingly thick accumulation of black fill over the N yard, as if organic rubbish had been tipped there from the main building, and there are pits or post-holes below this layer.

G. WEBSTER

BOURTON-ON-THE-WATER, Bourton Bridge, SP 159208. Further work has revealed a well, .45 m. in dia. and .87 m. deep, with a stone perimeter, S of the circular building. Overlaid by the circumference wall and stone floor of the building, eight layers of alternate gravel and dark grey silt were found with another stone-flagged surface underneath. These belong to an