

## TERRIBLE LANDSLIP AT SANDGATE.

GREAT DESTRUCTION OF PROPERTY.  
SEVENTY HOUSES DAMAGED.

Between seven and eight o'clock on Saturday evening a female rushed out of the Coastguard cottages, Sandgate, exclaiming "There's an earthquake, the house and ground are all of a tremble." Simultaneously some hundreds in other houses were terror stricken with similar experience of what turned out to be a serious landslip, which has worked havoc amongst the homes, roadway, and property in all directions in this charming watering place. That there were indications of what was likely to happen is only now too palpable. Witness the evidence of Mr. Turner, a lodging house keeper, of Wellington Terrace. He says that on a previous night, he heard a rumbling sound, and remarked to his wife about the peculiarity, and the next day there was an ominous crack in the wall of a back room. On Saturday evening there was the same rumbling sound, a sense of rocking, a crash at the back, and a rush out of the house terror stricken, only to find neighbours in the roadway suffering from the same awful experience. Then the news flew far and wide that Sandgate was falling, an earthquake or some other terrible calamity had happened to the place. They came rushing down from the hillsides, people dazed with fright got out of their residences in Chapel-street, and in several houses at the back of Sandgate. Mothers held clinging children in their night shirts, men terrified about their household treasures and themselves. From fire, possessions can be saved, but who cares about clearing out houses with large cracks in them? small houses too, which for a sudden seemed to sink into the ground and to lean over. The pavements in the streets were jerked up, falling tiles rattled upon the ground, and every now and then there was a sound like the tearing of calico, which meant a crack in the wall, or a breach in a building, a gap in some structure. Reverting to Mr. Turner's house, as an instance of the force of the movement, the outhouses at the back were displaced. The washhouse, the coal-house, and outbuildings seemed suddenly squeezed together, and the door of the coal cellar cannot now be forced to remove a full stock of coal for fear of the whole of the building collapsing. This is but a sample of the injury done to the whole of this terrace. No overdrawn picture can be made of the people who, from the hour of the wreckage, right through that fearful night, were to be met with flying from Sandgate to Hythe, or to Folkestone, for shelter. No one can have any idea of the mischief unless they know Sandgate. Most people look upon the town as one street. But on the hillsides, in sheltered nooks, are cottages, villas, and artisans' dwellings, with gardens attached, and here this awful visitation becomes more apparent. The cause, perhaps, is not far to seek. The heavy rains, acting upon a treacherous subsoil, had loosened the earth, which must have swept down like a torrent of moving matter, and sent upheavals in all directions. Let us take the beach, for instance. The sea wall has given away from time to time, no doubt through the want of protecting groynes. Groynes have been put up by the Sandgate Local Board, with the result that the beach has lately largely accumulated. But this mighty force has actually made splits in

the Parade, it has come with such an impetus that one groyne is split in twain, and another turned into a zig-zag, splintering the wood, which makes this strange curve. Then opposite one sees paving stones upheaved, cracks in walls, seams in the fronts of houses—everywhere the effects of this remarkable subsidence. The Coastguard Station seems, however, to have felt the severe brunt of the shock. Not only has the boundary wall been split, and the cottages mutilated in every possible way, plaster falling, fissures in the walls, and staircases doubled up, but the land has moved, and the roadway in front of the houses has been jagged and ruffled and strained out of shape. In this general detail, for other particulars of this event are elsewhere given, we must draw special attention to Encombe. Probably most of our readers will remember this lovely place, for in the summer the owner, Miss Reilly, opened it to the public for the benefit of charities. The land rose in lovely greensward, with dales and dells, and in uneven patches, prolific in emerald verdure, but probably only too suggestive of the treacherous soil beneath. It was a land bursting with springs. Here, years ago, Mr. Morris had a house, which was injured by gradual land subsidences, and was eventually pulled down. The effects of the landscape can be seen here with plain suggestiveness. Picquets were told off of military and police, to prevent people going there, for greenhouses in heaps of ruins, falling masses of earth, gaps in the pathway, fissures in all directions, fallen trees, the roots almost wrenched out of the soil, told only too plainly that the mischief, to a great extent, arose in this direction.

The most remarkable circumstance in connection with the event is the variety of damage done, and the limited area over which it is spread. Experts must decide the cause, but a cursory inspection almost confirms the opinion that the slip is purely local and confined to one part, that is where ever the shock touched, which does not appear to have affected the east side of the town, certainly not near the railway station, and probably this confinement of the evil may hold out the hope of tracing its source and somewhat mitigating fears of future calamity. The houses facing the sea within the area of the mischief, Gloucester Terrace, Castle House, Lymington House, and Mr. Birch's residence, below the Clarendon Inn, on Brewer's Hill, have severely suffered, but in contradistinction to this, and showing the eccentric course of the landslip, it may be instanced that Beach Rocks Convalescent Homes escaped injured. Spring House seems to be the most notable instance of damage done. The house is half capsized, and this particular form of injury is evidenced in several houses on the hill side, particularly near Brewer's Hill. Here there has been a subsidence in the hill just above the Clarendon Inn, and men were busy on Monday digging up the soil, endeavouring to reach the drain pipes beneath. Of course such a subsidence has seriously injured the drains, the water pipe, and the gas pipes, and so the difficulties affecting these has greatly added to the misery of the situation. Sunnyside, Prospect House, Portland Villa, Littlebourne Lodge, the Homes'ead, Stanhope Villas, Glenart House, and Devonshire Terrace, all these houses are more or less rendered uninhabitable. The vacant houses at Seabrook and Hythe have been taken by families, and all Sunday and Monday was occupied in the removal of goods, whilst thousands of spectators came to inspect the scene of havoc. In



Chapel Street, where the damage has been most severe, the artisan and the labouring classes are the sufferers, also that class has occupied many humble dwellings with which the back of Sandgate abounds, and it was pitiable to see them removing in the panic their goods on Saturday night. Through the kindness of the Rev. Russell Wakefield the National Schools were utilised for sleeping purposes. The rev. gentleman has been most energetic in this grave crisis, and his kindness, forethought, and promptitude in action have been of great service.

The half-past nine o'clock bus was besieged by a number of worried women who had taken just enough clothes for the night's use and were going to Hythe in search of lodgings. The White Hart, the Swan, and the Seabrook Hotels being speedily filled with the refugees. It was not until about nine o'clock that the news became generally known, and as it was a lovely moonlight night, crowds soon assembled and discussed the situation. It must be spoken to the credit of Sandgate people, that those whose property was safe, speedily extended hospitality to their distressed neighbours. When the first shock was over, men and women settled themselves down to the inevitable consideration of what was to be done for the night. It is in such cases that we realize the truth of the saying "one touch of nature makes all the world akin," for frightened children were caressed, and weeping women comforted. Unlike a fire, there was no need to remove the furniture, there was time the next day to survey ruined homes, and to remove the household goods. Long into the night, stragglers were seen with bundles seeking a resting place. All the occupants of the Coastguards cottages were cleared out, and, perhaps, sympathy was not accorded in their case so much as with others, as Government will see these out of the difficulty. Early next morning the people were astir. Police and military provosts had guarded the town during the night, and with early morning, came streams of people, thousands, who inspected the ruinous scene. Now men and women wearing troubled looks, and children whose laughter was hushed, were seen overhauling the furniture, some removing it into the roadways or gardens attached. Then the suffering such a calamity entails, became apparent. People went in search of cottage property in Seabrook and Hythe. There is very little in either to let, and that available was eagerly snatched up. In Folkestone they very probably fared little better. But if the artisan and labouring class suffered, the lodging house keepers perhaps, in comparison suffered more. Several of them have invested the whole of their capital in furniture, spring cleaning has been going on, and they were preparing for the season. The injury that furniture has received, the difficulty of getting other houses, the loss of all hope of a return this season, means absolute ruin. It would be unfair if we did not put the deplorable plight of these people in the most forcible light. Sandgate is ruined for this season. With the loss of lodging houses will be the decline of trade, lack of work for the labouring class, and if ever public sympathy should flow in a genuine channel of relief, this is one. Happily the Local Board were alive to their responsibilities. A meeting was held on Sunday, report of which appears in another part of the paper. Unfortunately for Sandgate a most ill-judged report was sent to the Sunday papers. In all conscience the affair is bad enough without piling on the agony a report likely still to do further damage to the town. There is a dif-

ference between a landslip and an earthquake which perhaps the scribe could hardly understand. It must not be taken that all the houses affected will be rendered uninhabitable this year. Some probably will be repaired, but confidence will have to be restored.

On Monday morning and throughout the day crowds visited Sandgate, coming from all parts of the neighbourhood, indeed greater numbers than visited the Benvenue wreck on November 11th, 1891. Mr. and Mrs. Kennett early in the morning distributed tea, coffee, and bread and butter to the night occupants of the National School Rooms, the Congregational Chapel, and those who had taken refuge in other welcome retreats.

Foremost in the work of sheltering the homeless was Mr. J. J. Jones, the Hon. Director of the great Convalescent Home of the London Samaritan Society, called Beach Rocks, a view of the front elevation of which is given in the centre of this page. Both he and the Rev. Russell Wakefield, the Chaplain of the Home, did real yeomen's service in the great catastrophe. It is not the first occasion on which the wonderful energy and practical help of Mr. J. J. Jones have been abroad and a blessing to the inhabitants. He devotes himself heartily to alleviate the sufferings of all who are in distress, and this splendid building will remain as a fitting monument of his life work long after he has ceased to labour in this world.

It had been reported that the Convalescent Home itself was imperilled (perhaps because Mr. Jones's residence, "The Homestead," was practically destroyed, and the laundries, stables, dairy and outbuildings connected with the Convalescent Home were greatly damaged, as described elsewhere), but happily it stands outside the area of the disturbance, and in order to allay the fears of the inmates, and to show that the building was not in any way affected, he engaged Mr. Andrew Bromley, architect, to examine it thoroughly, and his report was published as follows:—

"Dear Sir,

"BEACH ROCKS, SANDGATE.

"At your request I made a careful examination of this building and premises to-day at 11 a.m., from bottom to top, in order to ascertain if the recent subsidence of land in the neighbourhood had affected them in any way, and I am able to certify that there is not the slightest sign of a crack either in buildings or the terraces abutting upon the sea shore.

"I am of opinion that from the substantial way in which the buildings have been erected and the precautionary measures taken in constructing a substantial sea wall and groyne on the beach, you have rendered your building safe. I am, yours faithfully,

"ANDREW BROMLEY.

"J. J. Jones, Esq., Beach Rocks."

The effects of the catastrophe cannot be estimated by the appearance of the outside of the buildings, except perhaps in the case of Spring House and Mr. Birch's stables. But, through the kindness of the Rev. Russell Wakefield, who generously spared the time to conduct one of our representatives through the ruins, and obtained permission for him to inspect the houses which had suffered most severely, we are able to give our readers a fairly well detailed account of the mischief wrought.

Somerville House, the residence of Mrs. Hallett, was first visited. It lies up on the bank. There is a large opening in the south east of the boundary wall and a huge crack in







came and listened, and saw the wall move as though the cliffs behind were going right in." Gloucester Villa, occupied by Mr. Hooker, a double-fronted house with large cant windows, has several gaping cracks in it; the roadway is full of crevices, and the garden wall on the opposite side is divided in many places. Grafton House, on the sea front, is built of wood and is not much injured, if at all, and seems to suggest that any houses erected here in the future should be of the genuine Indian bungalow type. The row of six houses, comprising Sunnyside are severely damaged. At No. 1, an old lady, Mrs. Williams, who had been bedridden for years, had to be hastily removed on Saturday night, as it was almost certain the house would fall.

At Cheriton Cliff Gardens, the one occupied by the Misses Charlton and the other by Surgeon-Colonel Reynolds, two handsome and valuable houses have been, so to speak, absolutely destroyed. Externally they, at a short distance off, appear to be uninjured; internally they are wrecked. The western wall of No. 2 suffered considerably. The houses are practically split in two. Of these again Mr. W. Pledge is the unfortunate owner. In the high ground behind there are some remarkable crevices showing the course of the slip. By the side of the Misses Charlton's there is a broad flight of steps leading up to the Camp, and these have been displaced considerably. Behind the houses too, there are some short flights with iron railings, which have been pushed very nearly close to the back walls. Miss Charlton had an exceedingly unpleasant experience. Her sister was dining out on Saturday, and while awaiting her return, she heard a kind of tapping and cracking. She thought someone was in the house who had no business there, and on going to the room where the noise apparently proceeded from, found she could not open the door. She called out to know who was there, and got no answer, and her suspicions that something was wrong were strengthened. She went to the next door, and an officer who was there returned with her, and together they went all over the house. The cracking continued. Her sister returned at half-past ten. The servant was so terrified that she went away to sleep. The Misses Charlton courageously remained in the house but did not go to bed. In the morning they saw that the house had sunk bodily at least five inches. These houses have gone distinctly forward, but in several cases, as before stated, the movement was backward. The military have earned the gratitude of the Misses Charlton, and they speak in terms of the highest praise of the energy and untiring zeal with which they worked all the day on Sunday in removing the furniture from these two houses. It is the same everywhere, in fact civilian labour would have been quite unable to cope with the difficulties of the situation. On the authority of Miss Charlton and others, we give it that the gentlemen were more alarmed than the ladies, who performed great deeds of valour under the most trying circumstances.

At Littlebourne Lodge, the residence of Mrs. Christie, there are ominous cracks in the walls, and internally several of the rooms are much damaged. The large verandah in front, however, indicates most plainly the extent of the shifting, and it is evident that in this case there is a decided forward tilt. At Marine Villa there is also considerable damage.

In front of this house is the damaged groyne. There is a considerable bellying out of the sea wall, and in a line with it is the x-shaped fracture or "buckling" in the groyne, showing clearly that the movement of earth went right out to sea.

At the Homestead where Mr. J. Jones is located, and where the Convalescent Home laundry work was carried on, the damage is so great that the family have wisely migrated. In the basement there are indications of the great force of the slip, solid concrete walls being cracked, the principal injury being at the back, but there are also indications that the older and the newer portions are about to part company. In the garden and the outbuildings there are great fissures, the paving bricks in the latter being forced apart right across the yard from the scullery to the stable. Immediately in front of the Homestead are two very nice houses, one occupied by Mrs. Foster, and the other (Shorncliffe House) by Mr. Hammond. The occupiers are also the owners, and it is satisfactory to state the houses have only received a minimum of damage, and the occupants have decided to remain in them, they having been assured by Mr. J. J. Jeal that they are perfectly safe.

In Gloucester Terrace all the houses appear to be cut completely through in the centre, the back rooms being divided by a wide fissure from the fronts. We inspected the house occupied by Mr. Walker, 24th Regiment, who like his neighbours, has wisely decided to clear out. In the next house, the tenant, Mrs. Jefferys, is in sore trouble. The house belongs to Mr. Amos, of Hythe, who, she says has been most considerate, but her home is broken up, and she has nowhere to go. This is the trouble of many of the tenants.

There are many other places more or less injured, but the foregoing account fairly states the general condition of the district affected by the slip.

At a meeting of the Folkestone Corporation on Monday morning, the following resolution was passed:—"That this Corporation takes this the earliest opportunity of expressing its sympathy with the inhabitants of Sandgate in the terrible catastrophe which has happened to them by the great landslip there on Saturday evening last, and that with a view to practical help being afforded the Mayor be asked to write to the Lord Mayor of London, the Lord Lieutenant of the County, the Archbishop of Canterbury, Lord Radnor, and Sir Edward Watkin to raise funds for the benefit of the unfortunate sufferers by the landslip."

#### SUNDAY'S MEETING OF THE SANDGATE LOCAL BOARD.

On Sunday afternoon there was an urgent meeting of the Sandgate Local Board, held at the Board Room, Sir Charles Keyes presiding, and all the members being present. The proceedings were of a formal character, and the meeting was of a short duration. It was decided to send at once to the Local Government Board asking the Board to institute an enquiry, and at the instance of Mr. J. J. Jones and the Rev. Russell Wakefield, it was resolved to make a special appeal to the country through the medium of the London newspapers for pecuniary aid for the sufferers by the disaster, which it will be seen has been the production of a liberal response. The Mayor of Folkestone (Alderman John Banks), said he would give ten guineas, and his excellent example has been followed by many others. The Mayor also promised to render what assistance he could in the matter of sending down police. Sir Charles Keyes brought to notice the petty thefts which had been committed in the Encombe Grounds, in which people had helped themselves to flowers from the damaged green-houses.





## THE LANDSLIP AT SANDGATE.\*

By W. TOPLEY, F.R.S.

[Read Friday, 7th April, 1893.]

THE coast of Kent, from Hythe to Abbotscliffe (halfway between Folkestone and Dover) has long been noted for landslips. Measured along the shore this is a distance of eight miles, and in this distance there is probably in all not more than one mile in which the beds along the sea front are normally in place. There has been a general slipping seawards over the various clays—Gault on the east of Folkestone; Sandgate Beds between Folkestone and Shorncliffe; Atherfield Clay to the west. The slips over the Atherfield Clay extend westwards along the Lower Greensand escarpment to Lymne. Here the old Roman fortress of Studfall Castle, built on the slope of the escarpment, has been destroyed by a landslip, the ruins being spread about on the irregular ground formed of Weald Clay. An interesting account was published of a slip near Lymne in 1725, which occurred during a very wet season. The side of the hill gave way; "raising by that means the flat at the bottom and letting the brow, with the farm house upon it, sink 40 or 50 feet at least. What is remarkable it sunk in one night, and so gently that the farmer's family were ignorant of it in the morning when they rose, and only discover'd it by the door-caves, which were so jam'm'd as not to admit the door to open."†

All the Atherfield Clay outcrop east of Lymne has slipped; some small slips took place near Hythe at the same time as the Sandgate landslip. Between Hythe and Shorncliffe the whole cliff has slipped; the Hythe Beds capped by Sandgate Beds are exposed in a quarry on the west of the Seabrook Valley, but much below their normal level, the whole line of cliff having slipped over the Atherfield Clay, whilst the Sandgate Beds have also slipped on themselves.

Passing by Sandgate for the present we may note some important slips on the west of Folkestone, one of which occurred in the early part of the last century and was described in the *Phil. Trans.*‡ The Folkestone Beds here form the upper part of the cliff; the Sandgate Beds the lower part; the Hythe Beds appearing on the foreshore. The cliff sank about 40 feet, and the

\* This paper was illustrated by a series of lantern slides, kindly lent by Mr. R. Kerr F.G.S., of Folkestone.

† Rev. W. Gostling, *Gentleman's Mag.*, vol. xxvi, p. 160, 1756. The letter was written in 1727. See also P. Collinson, *Phil. Trans.*, vol. xxv, p. 551, 1728. For description of other landslips in the Weald, along the Lower Greensand escarpment of Kent and the Upper Greensand escarpment of Hampshire, see "Geology of the Weald," pp. 316-319, 1875.

‡ Rev. J. Suckette, vol. xxvi, p. 459, 1756. *M. King*, vol. lxxvi, p. 224, 1756.



movement forced up the rocks on the shore, where they are now seen to have an abnormally high dip.

The most important landslip along this coast is that of the Warren, between Folkestone and Dover. The Gault of Copt Point dips gently toward the north-east, and passes under the Chalk along the foreshore. The exact line of outcrop cannot be accurately determined in consequence of the great amount of slipping. The Upper Greensand is here locally developed as a clayey sand, and this may aid the slips by holding some water. The Warren extends from the mouth of the Martello Tunnel to Abbotscliffe, a distance of  $1\frac{3}{4}$  miles, and has an average width of about  $\frac{1}{2}$  mile. The whole of this is a slipped and tumbled mass of Chalk.

In February, 1877, some serious slips occurred here. The first was at the east end of the Martello Tunnel, where an area of about 100 acres slipped along and over the railway. The cutting, 100 feet deep, was filled with fallen chalk for a length of about 200 yards. The pressure of this movement forced up the Gault on the beach in mounds 6 or 7 feet high.

Two days afterwards another serious slip occurred at the east end of the Warren, where the line was again blocked. These slips followed heavy rains in January, the rainfall being about double the average. Similar falls occurred about the same time at the Undercliff in the Isle of Wight.

In March, 1881, another slip occurred in the Warren.

Mr. Price\* has recorded a slip which took place at the west end of the Warren in January, 1886. The area affected was about one mile in length, and the beds were forced up all along the shore opposite the slip: near the east end of the slip the Chalk was forced up nearly 20 feet, and at one place the Gault was raised into hillocks several feet high. This was a very wet month, the rainfall in East Kent being more than in any year since 1877.

In order to render the Warren less insecure, the S.-E. Railway has under-drained it. Galleries are driven in from the sea, and a horizontal tunnel is carried under the landward side of the undercliff. A large quantity of water finds its way into these galleries, discharging direct into the sea.

In November, 1892, a slip in the Gault occurred near the Warren Inn, which carried the roadway down about 40 feet.

In December, 1839, at about the same time as the great landslip at Lyme Regis, there was a slip at the Warren.

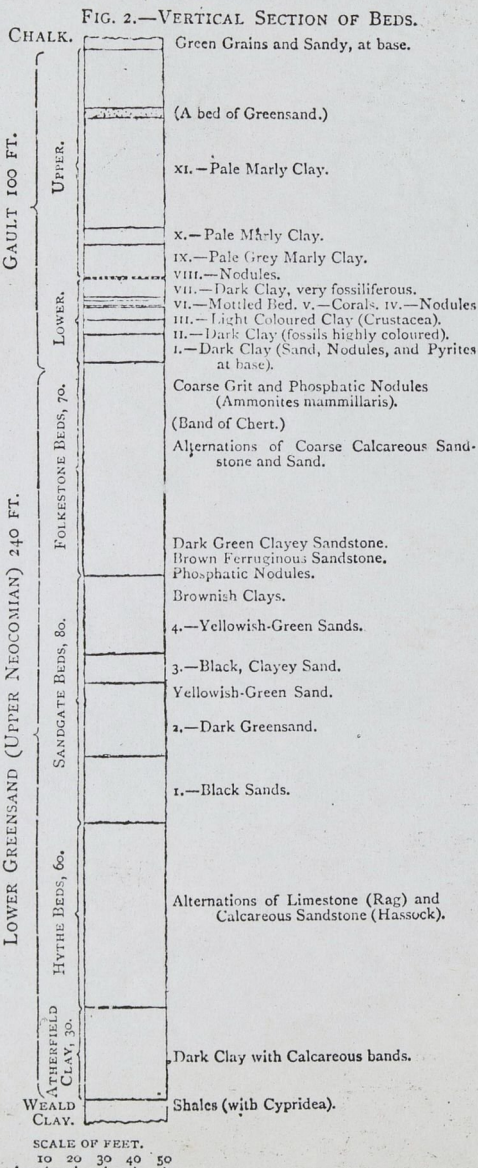
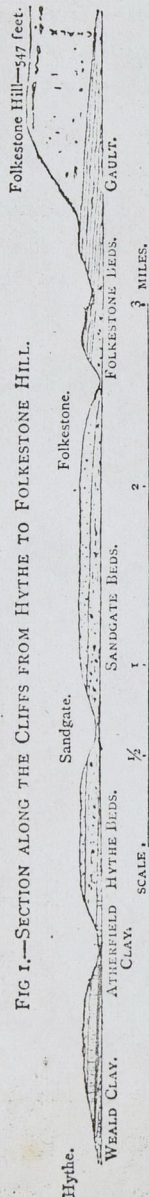
We may now return to Sandgate and consider the geological conditions which have determined the recent landslip there.

The Sandgate Beds consist of various beds of clayey sand, some more clayey than others, but probably not any of it is a completely retentive clay. This series may be about 80 feet in

\* Geol. Mag., 1886, p. 240.



## SECTIONS ILLUSTRATING THE GEOLOGY OF HYTHE AND FOLKESTONE.





thickness; the beds can best be seen under the cliff on the west of Folkestone and again in the cuttings and quarries west of Sandgate. At Sandgate itself there are but few exposures and none in an undisturbed condition, as the whole of the sea-front here is a landslip.\*

The Hythe Beds are seen on the shore east of Sandgate with a dip to the N.N.E., and again opposite the middle of Sandgate with a dip in the same direction, but when last seen on the east of Sandgate the strike is turning round to about E. and W., and a very slight change of dip would carry the beds below sea-level in front of the eastern half of Sandgate, where no rocks occur down to low water mark.

The Hythe Beds rise above the shore at the western end of Sandgate, and were formerly quarried there, Wellington Terrace being built on an old quarry. But the beds are not now seen, except on the shore, being everywhere covered by the fallen masses of Sandgate Beds.

In nearly all exposures on the shore, the rocks have an abnormally high dip, often from  $20^{\circ}$  to  $30^{\circ}$ , and in places as much as  $50^{\circ}$  to  $60^{\circ}$ . These dips are probably due to old slips, the pressure of the moving mass of land forcing up the rocks along the shore. Similar high dips are constantly seen in front of landslips.

A band of clay is seen on the shore, with the Hythe Beds dipping apparently over and under it. This strongly resembles Atherfield Clay, especially in the brown colour of its more weathered parts: it seems to be a stiffer clay than any in the Sandgate series; but how it comes in that position is not clear. It may be due to movements of the rocks caused by old landslips, or it may be due to a strike-fault. This clay is not noted on the Survey Map; at the time when this area was surveyed the shore was much more extensively covered with shingle than now, and the clay was probably rarely exposed.†

There is a disturbance in the Hythe Beds at Horne Street, in the Seabrook Valley, which strikes S.  $32^{\circ}$  E. If this is a fault, and not a mere local disturbance of the Kentish Rag, it may range towards the clay-bed on the shore.

With this exception I do not see that the Survey Map, constructed by Mr. F. Drew (and published in 1863), needs correction, nor can I see any evidence for the faults suggested by Prof. Blake in his recent papers on Sandgate.‡

The groyne south-west of the hospital is entirely built on clay;

\* The details of the vertical section, Fig. 2, p. 42, are from Mr. Price's paper, *Proc. Geol. Assoc.*, vol. iv, p. 135 (1875).

† The clay was not seen by Fitton, who describes the beds along the cliffs and shore in great detail; but in a footnote (p. 124) he says, from information supplied to him, that the clay was exposed in 1833: "It is very marly, and includes a great quantity of wood and pyrites, and in places resembles the Gault of Eastware Bay."

‡ *Nature*, March 16th; *The Surveyor*, March 30th, 1893.



this is no doubt the Atherfield Clay, in its normal position below the Hythe Beds.

The higher part of the cliffs behind Sandgate are composed of Folkestone Beds; the junction of the two sets of strata, Folkestone Beds on Sandgate Beds, can be traced round the Enbrook Valley without a break; there is no evidence here of a fault. The whole town of Sandgate is built on a tumbled mass of Sandgate Beds, formed by a series of landslips. The evidence of this was well seen, during March of this year, in a deep cutting for a sewer. Under 8 feet of greenish Sandgate Beds there was a mass of peaty stuff with roots and leaves of recent plants. Many of the houses built on the hill have had to be taken down because of the slow movements of the ground. The eastern half of the area was deeply drained about 40 years back to intercept the underground water, and to render the ground less insecure. This drain passes under the area known as the Undercliff, and ends in the west, just at the east end of Encombe Grounds, exactly where the recent slip commences. The land about the Undercliff was very wet and boggy; but the drain referred to greatly improved it, and this part of the town has of late years shown no signs of movement. There was a slip here in the year 1827.

From the east end of Encombe Grounds the recent slip extended westwards to the Military Hospital. Here a deep cutting for a sewer was made many years back, which has no doubt given a free passage for surface water. To the west of the sewer the land is Government property, and this has been properly drained. Between the Hospital and the east end of Encombe Grounds the land has not been drained, and it is only within this undrained area that the recent slip took place.

The recent slip extended for a length of about 920 yards; it had a maximum breadth of about 233 yards measured from the back of Encombe Grounds to high-water mark; but the foreshore here was also moved for a breadth of about 100 yards.

The greatest vertical movement, at the western part of Encombe Grounds, seems to have been about 10 feet; but the total amount of various small slips at the east end of the grounds is perhaps almost as great. The horizontal movement is small; it may perhaps have amounted to a total of some few feet in parts of the Encombe Grounds, where many slips occur close together; but in the lower parts and along the sea-front it is much less.

The movement was very gentle. Greenhouses were wrecked; but most of the glass was unbroken. Several houses are badly shaken, but no dwelling-house fell. Some are more seriously impaired than appears from a casual inspection outside, the foundations having been greatly damaged.

Some interesting facts were observed where the slipped faces

*i.e. 1853  
when the  
Undercliff house  
was a fine  
beaut.*



of clay were fresh; they were streaked with true slickensides running obliquely down the face. The eastmost end of the slip is a nearly straight line running S.E. from the east end of Encombe Grounds. There are always small slips at this end of the Grounds about this time of year. Some were noticed a few days before the big slip occurred.

There has been considerable movement on the shore. One wooden groyne, opposite Littlebourne Lodge, has been snapped across by the moving land; the lower part of the groyne having stood fast against the Hythe Beds, while the upper part was pushed slightly towards the west. The maximum movement seaward of the sea-wall is about opposite this groyne, at the most it does not exceed 18 inches. The groyne next to this on the east has apparently not moved, or if so it has moved bodily without displacement. The next groyne has been forced up about 4 feet in its lower part; and the same thing has happened to the sewer-outfall opposite Camp Road.

The band of clay opposite Gloucester Terrace and Wellington Terrace was forced up; the movement continuing during the Monday and perhaps later. Mr. R. M. Jenner, of Sandgate, who examined the shore at daybreak on Sunday morning, tells me that the whole of this clay was in motion, the blocks of stone lying on it being slowly lifted up and turned over.\*

The groyne opposite the Coast Guard Station has been pushed up a little; some change also took place at the end of this groyne, for before the slip a boat could get round the end of the groyne at low water, which cannot be done now.

As a rule the houses built of wood have stood best; brick houses come next, but there are comparatively few of these. Stone houses as a rule have stood worst, but this is because they have been badly built, the stones being only roughly cemented and no attention having been paid to the binding. The front of Spring House is of brick; this has given way, bending over to the east, its weight being supported by Spring Cottage, which is built of wood. The back of Spring House is well constructed of stone; and this has scarcely moved.†

A new brick house, strongly built, stands on the site of the west end of Encombe House, which was taken down some years back. This new house is uninjured, there being only a few small cracks in its southern front and signs of a slight movement at its north-western corner, but the stable yard against the southern front is badly cracked, and the stables, only a few yards off, are much damaged.

I have already referred to the fact that the amount of shingle

\* I am greatly indebted to Mr. Jenner, and to Mr. A. G. Sellon, of Sandgate, for much information about the landslip, and for other facts of interest relating to the district.

† For these facts I am indebted to the kindness of Mr. A. Bromley, Architect, of Folkestone, who has reported to the Local Board of Sandgate on the damage done to houses in the town.



in front of Sandgate is much less now than it was some years back. When the Ordnance Survey was made in 1871, the "High Water Mark of Ordinary Tides" was 45 feet from the sea-wall opposite the Coast Guard Station, and from 60 to 70 feet at the west end of the town. In consequence of extensive groyning to the west of Sandgate, the eastward travel of shingle was stopped and the sea-front of Sandgate became almost bare of shingle, the sea-wall was partly destroyed, and a small tract of land near the sluice of the Military Canal was washed away. The sea wall was repaired a few years back, and new groynes were made, the result being that the shingle is now again slowly accumulating.

The loss of shingle has no doubt rendered the land more insecure, there being less permanent weight on the foreshore. The recent slip commenced at about low spring tide on the evening of March 4th; the movement diminished as the tide rose, although not entirely ceasing, and at low tide next morning a second slip took place.\*

The extensive slips at the Warren have no doubt been much aided by the absence of shingle; there used to be a continuous bank of shingle with a cart-road on it, from Folkestone to Dover. The harbour works and the jetty at Folkestone have arrested the shingle there, and the ground in front of the Warren is now practically bare of shingle. The sea undermines the cliff and thus aids the landslips. At Sandgate the sea-wall prevented any direct damage to the town from the want of shingle.

Much water drains away along the shore at low tides: this generally contains some fine sand washed out of the fallen Sandgate Beds behind the town. The constant loss of the sand must tend to make the ground more liable to slips.

Much has been said as to the damage which may have been done to the land by the blowing up of the *Calypso* (by dynamite) in June, 1891, and of the *Benvenue* (by nitro-glycerine, gunpowder, etc.) from September to December, 1892. The *Benvenue* was wrecked 450 yards from the sea-wall opposite Littlebourne Lodge, near Wellington Terrace; the *Calypso* was about half a mile from the shore opposite the Battery Steps, beyond the west end of the town. A pond east of the Encombe Grounds was suddenly drained at the time of the *Calypso* explosions: a crack opened at the bottom of the pond and fish there got away which were taken out of the crack lower down the hill. The cellar of Salem House, near the Convalescent Home, is said to have been thus flooded. A house in Gloucester Terrace is said to have cracked, and the roofs of other houses were damaged. These

\* The Rev. E. Hill in his description of the Zug landslip, July 5th, 1887, attributes this in part to the unusually low level of the lake, *Rep. Brit. Assoc.*, for 1887, and *Geol. Mag.*, 1887, p. 473.



appear to be the only evidences of the effect of this explosion. The pond and Salem House are not within the area affected by the recent slip, but Gloucester Terrace is within it. The vibrations caused by the *Calypso* explosions are said to have been more felt than those of the *Benvenue* although much farther off and probably on Weald Clay. The *Benvenue* vibrations as felt at the Coast Guard Station were not greater than those caused by heavy gales at high spring tides. It is impossible to say that these explosions had no effect in rendering the ground more insecure; but sufficient other cause for the landslip can be found.

The rainfall of February was unusually heavy. Mr. Mackeson's rain-gauge at Hythe registered 4·3 inches in that month, 24 out of the 28 days being wet; 1·06 in. fell on one day (Feb. 21st). The average February rainfall for the ten years 1883-92 was 1·95 in., with 13·8 wet days.\*

The whole evidence points to the fact that the slip was due to the great accumulation of water in the broken mass of Sandgate Beds caused by the excessive rainfall of the preceding month. The slipped area is not drained, whereas the districts immediately east and west of it are drained, and this renders them comparatively safe. Mr. Baldwin Latham, who is advising the Local Board on the subject, recommends a deep drain at the back of the landslip to catch all water coming from the Folkestone Beds of the hills behind. This is certainly the proper step to take, and it will no doubt render any such calamity as that now described very improbable in the future.

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\* In Symons' "Monthly Meteorological Magazine" for March there is an account of "The Sandgate Disaster," giving the February rainfall for East Kent. The fall varied, at six stations from 3·06 to 4·3 in.; that at Hythe being the largest.



FARLEIGH HOUSE,  
SANDGATE,

MARCH 20th, 1893.

TO THE MEMBERS OF THE SANDGATE LANDSLIP RELIEF FUND.

LADIES AND GENTLEMEN,

Sir Charles Keyes has issued a circular to the Members of the Committee, in which he gives several reasons, *but not the real one*, for not continuing to act on the Committee with me.

As his particular friends nominated him for the Executive on Friday, I trust Sir Charles Keyes has already regretted issuing his circular, but I cannot refrain from a very short reply, at present, to the reasons referred to.

It is true I did use the words "raising the devil" and "war to the knife," but not in the sense that Sir Charles Keyes would have you to believe. I was deputed by a considerable number of influential gentlemen to ask Sir Charles to call a public meeting to appoint a large representative Committee, from which an executive could be formed. Sir Charles's reply to me was to this effect. "If any others than the Local Board had to do with the distribution of the funds, he would resign his position as Treasurer." I then told Sir Charles that but few people in Sandgate, and certainly nobody outside of it, would have any confidence in such a body distributing a National Fund, and if he did not call a meeting and arrange for others than the Local Board clique to disburse this money the "spirit of the devil" would be raised in the town, and the passion of party warfare would arise and be detrimental to the interest of the sufferers and the town in every way.

Sir Charles Keyes says an appeal was made in the *Daily Chronicle* by me on March 10th. I say that is a wilful and deliberate misstatement. I neither wrote nor consented to any such appeal. Whatever was written, was written by some one of whom I have no knowledge. But even if I had made an appeal, I should feel perfectly justified, inasmuch as the London Samaritan Society is not going to ask any aid from the funds to restore their property and losses. Sir Charles has no more right to expect me to repair property, of which I am only one with others in trust, than I have to expect him to repair the property of the Local Board of Sandgate, because he is Chairman.

As to Sir Charles's insinuation that my interest and the interest of the fund are antagonistic, I give you an extract from a letter, seven thousand copies of which were printed by Messrs. Thorpe & Co., of Folkestone, on March 14th, and sent out to the 7000 Subscribers to the London Samaritan Society. I leave this letter to speak for itself:—

"By the large number of sympathetic telegrams I have received, I gather that many who are personally unknown to me and our Trustees and Council have condoled with us in our great suffering and anxiety in Sandgate during the past terrible and distressful week. We thank you more heartily than we can find words to express to you for the deep, kind, and earnest sympathy you have shown in our work and in our institution.

"I rejoice to be able to tell you that through God's goodness our Beach Rocks Convalescent Home at Sandgate has escaped uninjured from the late dire calamity which overwhelmed so many houses, and there is every probability that it will escape, as it is built on an altogether different *stratum* to those houses which were damaged or destroyed by the sudden subsidence of the land.

"I know how benevolent and generous our friends are, and if any of our subscribers or donors desire to help the Landslip Relief Fund, I may state that the joint treasurers, General Sir Charles Keyes, K.C.B., J.P., the Rev. H. Russell Wakefield, Vicar of Sandgate; or J. H. Du Boulay, Esq., J.P. Chairman of the Petty Sessional Division, who is Joint Hon. Secretary with myself of that fund, will gratefully receive their kind contributions."

Sir Charles Keyes, probably not intentionally, makes statements that are absolutely untrue.

About two years ago a correspondent of the press reported after a severe storm that Sandgate was practically washed away, and that the Beach Rocks Convalescent Home was destroyed.

P. T. O.



I suggested to Sir Charles Keyes and the Rev. Russell Wakefield that a letter should be written to contradict such statements. They agreed with me, and a letter was drafted by us contradicting the report. The draft was made on three rough pieces of paper, and was given to me to make a fair copy of and send to the London press. In it it was said "the Homes are not injured," and I added "The London Samaritan Society's Homes" to make it more clear.

No reference was made to this until nearly twelve months afterwards, when Sir Charles and I had some dispute on the Board, and he then referred to it. There is not an atom of truth in his statement that it was done to obtain subscriptions, for there was no reference to money matters in any way in the letter. I am astonished at Sir Charles stating that the money that he has received, has been sent to him in answer to his personal solicitation, and that he is so ill advised as to say that he will carry the fund with him if his views are not carried out.

The following may be interesting to the members of the Committee :—

On the Sunday after the calamity, the Local Board met and I suggested that a letter should be written to the London Press by the Chairman of the Local Board and the Vicar of the Parish. This was agreed to; the letter was duly drafted by Mr. Wakefield. The Board formed itself into a Committee, and Sir Charles, acting for the Board, signed and gave me the letters, which I sent to London by my Secretary at my personal expense by the evening train, and he took a conveyance on his arrival in London and delivered the letters to the editors of the London papers. I shall have no objection to test in a court of law, in my capacity as a subscriber of £5 to the Fund, as a Member of the Local Board of Health or as a Member of the Committee, the right of Sir Charles to deal with those funds other than through a Committee, and that Committee which was formed by the public meeting held on Wednesday the 8th inst. Once and for all, I shall not retire from the position of Honorary Secretary to the fund. The same authority that made me Honorary Secretary without a dissenting voice of either Sir Charles Keyes or anyone else in the Town, made Sir Charles the treasurer of the fund. And only on the calling of a public meeting in the same way as that called by Sir Charles Keyes on Wednesday, the 8th inst. and a statement made by Sir Charles and myself only; then if the vote is adverse to me I will at once retire, but certainly not at the request of any official or any one member of a Committee of 60 or 70 Members.

I am perfectly satisfied that the Executive Committee now chosen is one of capability and integrity, and will meet with the approval of every donor to the fund; but the gentlemen Sir Charles selected were not, in my opinion, nor in the opinion of the public meeting, competent to carry through such an important and delicate matter. The wishes of those I represent, and myself, have been acceded to, and I am prepared to say to Sir Charles, that there may have been in the past faults on both sides, but that now is the time to drop contentious matter and attend to the work of alleviating the sufferings and repairing the losses of those who have been practically ruined by this calamity.

I am,

Ladies and Gentlemen,

Your obedient Servant

JOHN JAMES JONES.



## To the Members of the Relief Committee.

"CROGHAN,"

SANDGATE,

March 17th, 1893.

LADIES AND GENTLEMEN,

I feel that it is impossible for me to continue to act upon the Committee with Mr. Jones.

My reasons are as follows :

1.—Before the Public Meeting was held Mr. Jones, at a Meeting of the Local Board, publicly expressed his intention of "*raising the Devil*," and said that he would *carry on war to the knife*, by way, I suppose, of furthering the interests of the people of Sandgate.

2.—An appeal has been made in his name (through the medium of the *Daily Chronicle*, of March 10th) for subscriptions for the Samaritan Society's homes, to make good the damage done to them by the landslip, in the following words :

"The joint secretaries to the relief fund are Mr. DuBoulay, J.P., and Mr. John James Jones. The London Samaritan Society's Homes here will suffer greatly by the loss they have sustained in the Homestead, dairy and stables, which are hopelessly damaged by the subsidence. Any help to repair the loss may be sent to the London office of the society, or to Mr. Jones, the managing director at Beach Rocks, Sandgate."

and the effect of this appeal (if responded to) must be to divert subscriptions from the Relief Fund for the sufferers by the disaster.

3.—On a former occasion Mr. Jones avowed that he was justified in making use of a public calamity to advertise the Samaritan Society's homes, and thus obtain subscriptions from the Public, and he did not fear, for this purpose, to garble a letter entrusted to him to forward to the public press.

From the first of these reasons, it seems that Mr. Jones is himself, in any event, an improper person to act in the administration of this fund.

From the second of these reasons, it appears that the other interests which Mr. Jones represents are actually adverse to those of the sufferers by the landslip.

For these reasons I feel that it is impossible for me to continue to act with Mr. Jones and I therefore decline to serve on the Committee unless Mr. Jones removes himself.

Although Mr. Wakefield is in no way associated with this letter, I have his authority to say that if I resign he will also feel himself bound to withdraw.

In conclusion, I would point out that nearly all the money that has been subscribed in answer to the joint appeal of Mr. Wakefield and myself, has been sent to us personally, in response to our personal solicitation, and that therefore, if we retire, we carry the fund with us, and will hold the money in trust to apply it according to the necessities of the sufferers.

I am, your obedient Servant,

C. P. KEYES, General,

Chairman Local Board.

P.S.—As I have no intention of attending any meeting of the Committee, until this question is settled, I have requested members thereof to move and second the resolution to be found overleaf. C. P. K.



THE VICARAGE, SANDGATE,  
May 17th, 1893.

*To the Members of the General Committee of the  
Sandgate Relief Fund.*

LADIES AND GENTLEMEN,

1 As a very important question in which I am keenly interested will arise at our Meeting on Friday, the 19th, I wish to put you in possession of certain facts bearing thereupon, which may help to guide you in forming a judgment.

2 The Relief Fund, which is now being administered, was raised for the purpose of helping those who have suffered through the Landslip of the 4th March, and we may consider the whole amount collected as about £8,500. Of that sum, some £3,000 may be regarded as already voted, leaving £5,500 at the disposal of the Committee. A large part of the money already dealt with by the Executive, has been assigned to owners of damaged property conditionally upon their houses being put into habitable repair. But this property cannot be considered safe until the area injured by the slip has been drained in a special manner. No struggling lodging-house keeper can honestly say to a visitor that there is absolutely no danger; no poor owner of one or two houses can expect to let his property—until this drainage is done, and several people have not yet touched their damaged property because of this fact.

3 Consequently it is still true (to quote from the letter for the issue of which I was responsible, and which produced the principal part of the fund) that "many are left homeless, and without any means of support."

4 The question now arises as to how the money required for the drainage is to be procured, and it is on the propriety of part of the present surplus of the Relief Fund being used for this purpose that your advice is sought. The estimate of Mr. Baldwin Latham, who has been employed to prepare a scheme of drainage, is that £1,750 will be needed. My contention is that, in order to safeguard the houses now under repair, or about to be repaired, it is the duty of the Relief Committee to expend some part of the Fund at their disposal in carrying out this scheme of drainage, nor have I heard one objection of any weight to this suggestion.

5 Some may regard this as a matter for a rate on the whole District. The result would be that the people already impoverished by the slip, would be reduced to greater misery, and I am also advised that it would be practically impossible to legally make such a rate. Others might argue that this work ought to be done by the land owners in the district. Some of these could not now afford it, some would decline to assist, some are, I believe, prepared to contribute—but none could be compelled to bear any part therein. I might argue the injustice of a rate in this matter as simply the laying of another burden upon those already seriously suffering.

6 It must be borne in mind that the inhabitants of the *whole* town, and not merely those living in the affected area are sufferers, and no one knows so well perhaps as I do how heavily some of our tradesmen for instance are just now burdened. Yet there are people who would suggest that when this overwhelming calamity deprives them of their trade they should be further weighted with this rate. I hold it to be the fairest, the most wholesome, and the most beneficial way in which we now can use £1,750 of the Relief Fund, to devote it to this drainage scheme. By doing this we shall relieve the whole of Sandgate, and we shall restore public confidence as we can in no other way. I am confident that any man who knows the circumstances would strongly support this view. My great desire is to have the Committee absolutely agreed upon this subject, and I, therefore, have drafted this explanatory letter.

7 As Vicar of the Parish, and as one who, therefore, in the eyes of the public, will be regarded as a person largely responsible for the fitting expenditure of the money collected in all parts of the world, I hold this scheme to be that best calculated to relieve our dear little town from a burden so sore that it ought to awaken the sympathy of every feeling soul. Trusting we may arrive at a decision worthy and unanimous,

I am,

Yours faithfully,

H. RUSSELL WAKEFIELD.

Vicar of Sandgate,  
Chairman of the Sandgate Local Board,  
and Joint Treasurer of the Sandgate Relief Fund.



# Preliminary Report of the Executive Committee

To be submitted to the meeting of the General Committee called for Friday, May 19th,  
at 6 o'clock, at the Schools, Sandgate.

LADIES AND GENTLEMEN,

The Executive Committee was appointed on March 17th, after the following resolution had been passed:—

"That no person who owns any property in the damaged area shall be eligible for the Executive Committee, nor shall any person who sells or has sold his property be entitled to any aid from the Relief Fund, nor shall any claim preferred by any member of the Committee for compensation from the funds be entertained."

At the same meeting the General Committee passed the following resolution:—

"That the Executive Committee be requested to at once consider and relieve urgent cases of distress, and that with a view to the fund being utilised for the purpose of relieving *the town as a whole*, by a reinstatement of the wrecked houses, they should make an enquiry into every case of damage done to buildings by the subsidence, employing such professional or other assistance as may be necessary to enable them to report to the Committee with the least possible delay, with estimates of the cost of reinstatement in each case."

Since the appointment of the Executive Committee, the Honorary Secretaries, appointed by the Public Meeting when the General Committee was formed, having resigned, the Executive Committee appointed Mr. A. G. Sellon as Honorary Secretary.

The Executive Committee relieved all urgent cases of distress, and have granted amounts in aid of repairing or rebuilding certain of the wrecked houses.

The following owners or occupiers within the affected area, all of whom suffered serious loss by the landslip, have made no claim on the fund:—Miss Reilly, Lord Radnor, Mr. Wilfred Cripps, C.B., Mr. DuBoulay, J.P., Mr. J. C. Keene, Mrs. Christie, Rev. T. Lloyd Coghlan, Mr. Fred Ralph, Mrs. Crighton, Mr. A. F. Clark, Mr. Campion, Miss Charlton, Mr. Mark Judge, Mr. J. Pearson, Mr. W. B. Horton, Lieut.-Col. R. J. Fynmore, Mr. J. J. Jones, Major Kelly, Dr. Reynolds, Miss Robinson.

As the losses sustained by the above cannot be correctly estimated, no claims having been sent in, the Executive have no reliable data upon which to base accurate figures, still there can be no doubt that the loss is heavy not merely in actual reparable damage but also in the injury than can only be remedied by rebuilding.

This depreciation of house property applies more or less to the whole of the effected area, and it seems desirable to state that in all cases in which relief has been offered to claimants this is a factor which the Executive and its advisers have been compelled to ignore.

After a careful examination of the dwellings in the effected district, an estimate was made of damage done to the houses; these estimates, however, did not take into account any damage which might have been done to drains, nor did the estimates have any pretence to cover that depreciation which may be classed under the head of necessary ultimate depreciation of the fabric after the most advantageous expenditure has been spent on the repairs of the buildings.

NAME OF HOUSE.	AMOUNT OF GRANT.			NAME OF HOUSE.	AMOUNT OF GRANT.		
	£	s.	d.		£	s.	d.
Valentine Villa ...	25	0	0	9, Wellington Terrace	40	0	0
Shorncliffe House ...	25	0	0	10, " " ...	60	0	0
Varne View ...	5	0	0	Wesley Cottage ...	30	0	0
1, Gloster Terrace ...	10	0	0	5, Wellington Place ...	20	0	0
2, " " ...	30	0	0	6, " " ...	20	0	0
3, " " ...	40	0	0	House and Cottages, Camp Road ...	200	0	0
4, " " ...	30	0	0	Back of Castle House	10	0	0
5, " " ...	20	0	0	Prospect House ...	60	0	0
6, " " ...	20	0	0	1, Prospect Place ...	15	0	0
West Grove House ...	30	0	0	2, " " ...	35	0	0
Gloucester Villa ...	25	0	0	3, " " ...	50	0	0
1, Wellington Place ...	10	0	0	Somerville House ...	60	0	0
Stanhope Villa ...	10	0	0	1 & 2, Hillside ...	20	0	0
Back Gloucester Villa	10	0	0	Spring House ...	200	0	0
Queen's Mews ...	65	0	0	Spring Cottage ...	150	0	0
1, Wellington Terrace	30	0	0	Back of Spring House	20	0	0
2, " " " ...	40	0	0	Store, Yard, Stable, and Cottage, Chapel Street	20	0	0
3, " " " ...	40	0	0	1, 2, 3, Chapel Street, if repaired ...	50	0	0
4, " " " ...	40	0	0	If rebuilt ...	100	0	0
5, " " " ...	45	0	0	Barton House ...	25	0	0
6, " " " ...	40	0	0				
7, " " " ...	40	0	0				
8, " " " ...	40	0	0				



## SANDGATE LANDSLIP RELIEF FUND.

### Committee:

Appointed at a Public Meeting, March 8th, 1893.

ALSTON, SURG-MAJOR, W.E., J.P.	FYNMORE, MRS.	SMYTHIES, COMMANDER.
ALSTON, MRS.	HUGHES, MR. W.	SHERWOOD, MR. JOHN.
BAKER, MR. D.	HUNTLEY, MR. JOHN	SCOTT, MR. J.
BAKER, MRS.	HARDY, MR. LAURENCE, M.P.	SCOTT, MRS.
BANKS, MR. JOHN, J.P.	HANKEY, LADY EMILY	SIMONS, MR. H.
BANKS, MRS.	JONES, MR. J. J.	SIMONS, MRS.
CANTERBURY, ARCHBISHOP OF	JONES, MRS. J. J.	SMITH, MR. O. H.
CRIPPS, MR. W., C.B.	JUDGE, MR. MARK H.	SELLON, MR. A. G.
CHUBB, MR. W. L.,	KEATINGE, REV. C. W. R.	THOMPSON, MR. F. G.
CHARLTON, MISS	KEYES, GEN. SIR CHAS. P., G.C.B.	THOMPSON, MRS.
CHICHESTER, EARL OF	KEYES, LADY.	TROWSDALE, MR. J.
CHICHESTER, COUNTESS OF	KELLY, MAJOR.	WAREFIELD, REV. H. R.
DuBOULAY, MR. J. H., J.P.	LEQUESNE, GEN., J. C.	WAREFIELD, MRS.
DuBOULAY, MRS.	McLACHLAN, MR. HENRY	WAREFIELD, DR. WILLIAM
DOUGLAS, MR. AKERS, M.P.	MARTIN, MR. F.	WAREFIELD, MRS.
EDWARDS, MR. JOHN	MALTY, MR. THOMAS	WATKIN, SIR EDWARD, BART., M.P.
FRANCIS, MRS. GENERAL,	PENFOLD, LIEUT. COL. S., J.P.	WATTS, MR. W.
FRANKLIN, MR. F.	PALMER, REV. A. J.	WALLIS, MR. JOHN
FYNMORE, LIEUT-COL, R.J.	RILEY, MR.	

### Hon. Treasurers:

GENERAL SIR CHARLES KEYES, G.C.B., J.P.  
REV. H. RUSSELL WAKEFIELD, M.A.

### Hon. Secretaries:

MR. J. H. DuBOULAY, J.P.  
MR. JOHN JAMES JONES, M.G.C.

Offices—LOCAL BOARD ROOM, 51, HIGH STREET,

SANDGATE, MARCH 15TH, 1893.

At the Committee Meeting held last Evening, the Members present were equally divided on the following motion, namely:—"That the appointment of an Executive Committee be adjourned until after the Committee has been informed of the amount of Subscriptions received, the conditions, if any, under which such Subscriptions have been given, and further that the Committee first proceed to consider the object to be aimed at in continuing to appeal for funds."

After which, on the motion of the Mayor of Folkestone, the Meeting was adjourned till to-morrow (Friday), at 8 p.m., at the Gough Assembly Room, when it is hoped that you as a Member of the Committee will be able to attend.

Your obedient Servants,

J. H. DU BOULAY,  
JOHN JAMES JONES,  
Hon. Secretaries.



THOUGHTS SUGGESTED THROUGH SEEING THE

## DISASTROUS SLIP AT SANDGATE,

Whilst travelling with BENTLEY'S IMPERIAL RELISH.

---

We oft are awed with trembling fear  
When gazing on some trouble near,  
But unbelief hides light from view  
Of mercies that are ever new.

A prettier view could scarce be found  
Than Sandgate's scenery miles around ;  
The hills protect from Northern wind,  
The bracing sea-breeze suits mankind.

Alas ! the 5th of March, at eight,  
The people were in greatest strait ;  
The earth began to move and quake,  
And many hearts seemed like to break.

With anxious fear—what does it mean ?—  
As out their houses many came.  
The walls they cracked, and ceilings fell,  
And many now the story tell.

If it had been a midnight scene  
Far greater had the horror been ;  
For if they all had gone to bed  
Most likely some would now be dead !

A little girl did lose her sight  
(So we were told) on that dread night.  
No other accident occurred,  
A miracle, indeed, we heard.

The John B. Gough's Hotel, they said,  
Found many folk a nice, warm bed ;  
And all the friends most kindly sought  
To shelter neighbours, as they ought.

In God's kind providence there's room  
To praise His Name amid the gloom ;  
For, while exposed to dangers many,  
No sudden death occurred to any.

To Sandgate send a brighter day,  
Though this disaster shades their way ;  
May cheerful givers aid their loss,  
To help them bear their heavy cross.

If John B. Gough had been alive  
He would have helped the funds to thrive ;  
For good he did—his birthplace there—  
In gratitude his place we'll share.

Our Queen subscription, too, has sent ;  
Her heart is always kindly bent,  
With tender sympathy and care—  
God spare her long to us down here !

The rich will send a generous gift,  
To give the sufferers a kind lift ;  
The poor will give their humble mite,  
To light the shadow of their night.

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Should any appreciative readers be disposed to send the Author a stamp, the proceeds will be equally divided between the Sandgate Sufferers' Fund and the "Liberator" Fund.—J. GWYER, c/o BENTLEY'S IMPERIAL RELISH AND VINEGAR WORKS, Beckenham Road, London, S.E.

Upwards of £100 has been collected for various charitable purposes through J. GWYER'S verses.



(Sandgate Visitors' List, 1893/4)

THE SANDGATE LANDSLIP

In February, 1893, happened the most traumatic event in Sandgate's history. The land slipped downwards towards the the sea over half a mile area from Chapel Street to the Sandgate Military Hospital. It was at 7.30 in the evening. People rushed from their houses in alarm and invalids were taken from their beds. 73 houses were affected; 44 could be repaired but the rest were definitely unsafe. By a miracle, there was no loss of life, but walls and ceilings were cracked and windows broken. Houses in Wellington Place, Prospect Place and the Esplanade were affected. The carriage drive at Encombe dropped a foot. Over the next two days there was further slow subsidence.

Relief measures were immediate. The homeless were given temporary housing and a National Disaster Fund was set up. In two days, £2,500 had been collected. The Archbishop of Canterbury visited and gave £50. A crowd of curious sightseers thronged the village. Official inspections of the damage were made and several reports drawn up, one to the Local Government Board. An article was written for "Nature" and the Geologists' Association discussed the occurrence.

The experts decided that this was an area with a past history of landslips. There was an underlying band of clay which, when waterlogged, had a tendency to slip and rainfall had been exceptionally heavy. An efficient land drainage system would do much to aid stability.

The popular vicar, the Rev. Russell Wakefield, refused preferment until his flock was over the effects of the disaster. Contributions continued to pour in and, in the end, £8,000 was collected, an enormous sum for those days. This was dispensed, not without some disagreement, partly on house repairs and partly on a new system of deep drainage, completed in 1984.



*The Reading Room* PATRONS: *The Sandgate Library*  
H.R.H. The Duchess of Fife: His Grace The Duke of Fife, K.G. *Two*  
&c., &c., &c.

## GRAND EVENING CONCERT

GIVEN BY Mrs. MARK H. JUDGE,

(CASTLE GLEN, SANDGATE).

✱ In aid of the Sandgate Landslip Relief Fund. ✱

Town Hall Folkestone, Saturday, April 1st, 1893, at 8 p.m.



FOLKESTONE

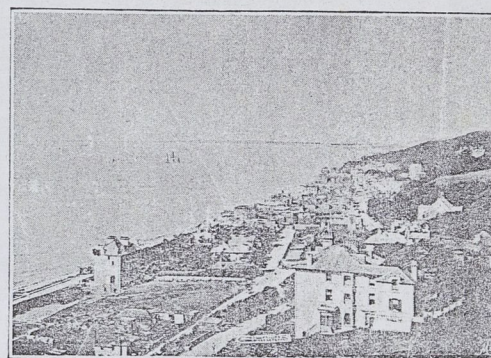
AND

SANDGATE

FROM THE

INTERVENING

CLIFFS.



Artistes:

MADAME GIULIA VALDA  
(Of the Royal Italian Opera, Covent Gdn.)

MADAME ENRIQUEZ  
(Of the Principal London Concerts).

MR. JOSEF CLAUS  
(Of the Royal Opera Houses of Rome and Florence).

MR. TEMPLAR SAXE  
(Of the Principal London Concerts).

MR. H. WOODHOUSE  
(Society Humourist).

MR. MAX REICHEL  
(The eminent Violinist).

MR. HIRWEN JONES  
(Of the Principal London Concerts).

SEÑOR GUETARY  
(Of the Royal Italian Opera, Covent Garden).

At the Piano:

MRS. MARK H. JUDGE

MR. RAPHAEL ROCHE

BOOK OF WORDS - - SIXPENCE.



The tramway ran from Sandgate School to Red Lion Square, Hythe, via Sandgate High St., The Esplanade, Prince's Parade, Stade St. and Rampart Road. The final section was opened in June, 1892.

There were 5 cars, No. 1 being covered for winter use, two with roofs and two totally open (the "toast-racks"). The seats were reversible to enable the passengers to face forward each journey.

In 1893 the South Eastern Railway Company obtained full control and the staffs then wore railway style uniforms. In 1905 and 6 there were plans to electrify the line, but residents protested as the overhead wires and poles would have spoilt the view.

It was a picturesque excursion and popular with visitors but the line was never particularly profitable. In 1903 large open motor cars of the Folkestone Motors Co. ran between Folkestone and Hythe for an 8d. fare.

During World War I the horses were requisitioned. The trams started to run again from June, 1919, but they lasted only for two summer seasons. Mules, taken from the former Canadian Army Camp at Sellinge, were used and they were prone to stopping suddenly or trying to take the wrong turning. There were women conductors.

Most of the track was taken up, except for the Princes Parade section, removed before World War II.

(Material from The Folkestone Hythe Tramway,  
by David G. Coadlyer, BY GONE KENT, Vol. VII, No. 11)



The Sandgate Hill lift was opened in February, 1893. Intended as a connection with the Hythe and Sandgate Tramway, it carried passengers from the Leas to Sandgate Hill and up again. It was 670 $\frac{1}{2}$  ft. long, four times the length of the other lifts, and was carried on a bridge over Radnor Cliff Crescent. The stone supports are still standing. (Wells, who lived at Spade House, said the lift attendants mistook him for "The Man who Broke the Bank at Monte Carlo" and told their passengers the ace of spades had won <sup>him</sup> his money.)

The lift worked on a system of water balance and was one of four lifts built along the Leas. The one by the harbour is still working. A 17,000 gallon water tank was installed at the top station and one holding 21,000 gallons beneath the floor of the waiting room at the lower end, a powerful gas engine returning discarded water. There was direct communication between the two stations by telephone.

After World War I the lift needed repairs and was found to be running at a loss, partly due to competition from the busses. It closed in 1923.

(Folkestone's Cliff Lifts, Brian Hart,  
Millgate Publishing Company.)



Relief Fund NOT launched to pay for drain.Evidence.

1. Letter in Daily Graphic of Monday March 6th, 1893 signed by General Keyes, Chairman of Sandgate Local Board and Rev. H.R. Wakefield, Vicar of Sandgate, launching the Relief Fund makes no mention of the drain. 2/C/1. Written Sun. 5th March. 128/2.
2. Government Inspector, Rienzi Walton, only came down on 6th March, 1893. His report advocated a proper system of surface and sub-soil drainage. No earlier official recommendation of a drain.
3. Daily Graphic comment 8th March, 1893 - "The Local Government Board will doubtless sanction a loan for purposes which their own representative has declared to be imperative;..." 2/C/6  
55 & 56/2/para 2 MH 5050 26188 - LAST PARA.
4. Baldwin Latham, engineer appointed on Rienzi Walton's advice to advise, attended special meeting of Sandgate Local Board on 10th March, 1893. (2/C/8). He said "...The remedy was to tap the hill by the insertion of drains at a sufficient depth in the ground where the subsidence had taken place... At a cost of about £1000 the Board could meet the present requirements and prevent a further extension of the slip..." 3.A
5. Drake Brockman, Clerk to Sandgate Local Board wrote the Local Government Board in London on 24th March, 1893:-  
"...Mr. Baldwin Latham... advises a scheme of land drainage of the affected areas..."

"There appears.. to be only three courses open if the expense is to be met by a rate.

1. The issue of a Commission of Sewers
2. A provisional order under the Land Drainage Act 1875 or
3. The passing of an Act of Parliament enabling the Local Board to borrow money and to levy a rate for the expense of the necessary work."

56/3/MH 12 5050  
33304 (K(i))

COST OF DRAIN KEPT DOWN - 128/2

6. Ex 128-3. Russell Wakefield's letter re possible use of Relief Funds to pay for drain - dated 17<sup>th</sup> 1893 when fund had reached £8500





1B

*J. H. H.*

# SPECIAL VIEWS OF THE SANDGATE DISASTER,

*14<sup>th</sup> March 1893*



SANDGATE LOOKING WEST. (FROM A PHOTOGRAPH BY W. H. JACOB).

## WITH FULL ACCOUNT

Reprinted from the Folkestone Express.

**Price, 1d.**

*OF 43.93*

PRINTED AND PUBLISHED BY J. ENGLISH, FOLKESTONE AND HYTHE.

COPYCAT  
DRAWING NO 46/



# TERRIBLE LANDSLIP AT SANDGATE.

GREAT DESTRUCTION OF PROPERTY.  
SEVENTY HOUSES DAMAGED.

Between seven and eight o'clock on Saturday evening, a female rushed out of the Coast guard cottages, Sandgate, exclaiming: "There's an earthquake, the house and ground are all of a tremble." Simultaneously some hundreds in other houses were terror-struck with similar experience of what turned out to be a serious landslip, which has worked havoc amongst the homes, roadway, and property in all directions in this charming watering place. That there were indications of what was likely to happen is only now too palpable. Witness the evidence of Mr. Turner, a lodging house keeper, of Wellington Terrace. He says that on a previous night, he heard a rumbling sound, and remarked to his wife about the peculiarity, and the next day there was an ominous crack in the wall of a back room. On Saturday evening there was the same rumbling sound, a sense of rocking, a crash at the back, and a rush out of the house terror-stricken, only to find eight hours in the roadway suffring from the same awful experience. Then the news flew far and wide that Sandgate was falling, an earthquake or some other terrible calamity had happened to the place. They came rushing down from the hillsides, people dazed with fright got out of their residences in Chapel street, and in several houses at the back of Sandgate. Mothers held clinging children in their night shirts, men terrified about their household treasures and themselves. From fire, possessions can be saved, but who cares about clearing out houses with large cracks in them? Small houses too, which for a sudden seemed to sink into the ground and to lean over. The pavements in the streets were jerked up, falling tiles rattled upon the ground, and every now and then there was a sound like the tearing of calico, which meant a crack in the wall, or a breach in a building, a gap in some structure. Reverting to Mr. Turner's house, as an instance of the force of the movement, the outhouses at the back were displaced. The washhouse, the coal house, and outbuildings seemed suddenly squeezed together, and the door of the coal cellar cannot now be forced to remove a full stock of coal for fear of the whole of the building collapsing. This is but a sample of the injury done to the whole of this terrace. No overdrawn picture can be made of the people who, from the hour of the woe, right through that fearful night, were to be met with flying from Sandgate to Hythe, or to Folkestone, for shelter. No one can have any idea of the mischief unless they know Sandgate. Most people look upon the town as one street. But on the hillsides, in sheltered nooks, are cottages, villas, and artisans' dwellings, with gardens attached, and here this awful calamity becomes more apparent. The cause, perhaps, is not far to seek. The heavy rains, acting upon a treacherous subsoil, had loosened the earth, which must have swept down like a torrent of moving matter, and went upheavals in all directions. Let us take the beach, for instance. The sea wall has given away from time to time, no doubt through the want of protecting groynes. Groynes have been put up by the Sandgate Local Board, with the result that the beach has lately largely accumulated. But this mighty force has actually made splits in

the Parade, it has come with such an impetus that one groyne is split in two, and another turned into a zig-zag, splintering the wood, which makes this strange curve. Then opposite one sees paving stones upheaved, cracks in walls, seams in the fronts of houses—everywhere the effects of this remarkable subsidence. The Coastguard Station seems, however, to have felt the severe brunt of the shock. Not only has the boundary wall been split, and the cottages mutilated in every possible way, plaster falling, fissures in the walls, and staircases dented up, but the land has moved, and the roadway in front of the houses has been jagged and ruffled and strained out of shape. In this general detail, for other particulars of this event are elsewhere given, we must draw special attention to Escombe. Probably most of our readers will remember this lovely place, for in the summer of 1897, Miss Billy, opened it to the public for the benefit of charities. The land rose in lovely greenward, with daisies and dells, and in uneven patches, prolific in general verdure, but probably only too suggestive of the treacherous soil beneath. It was a land bursting with springs. Here, years ago, Mr. Morris had a house, which was injured by gradual land subsidence, and was eventually pulled down. The effects of the landslip can be seen here with plain suggestions. Perpetual were told off military and police, to prevent people going there, for green houses in heaps of ruins, falling masses of earth, gaps in the pathways, fissures in all directions, fallen trees, the roots almost wrenched out of the soil, told only too plainly that the mischief, to a great extent, arose in this direction.

The most remarkable circumstance in connection with the event is the variety of damage done, and the limited area over which it is spread. Experts must decide the cause, but a cursory inspection almost confirms the opinion that the slip is purely local and confined to one part, that is where over the shock touched, which does not appear to have affected the east side of the town, certainly not near the railway station, and probably this confinement of the evil may hold out the hope of tracing its source and somewhat mitigating fears of future calamity. The houses facing the sea within the area of the mischief Gloucester Terrace, Castle House, Lynton Hill House, and Mr. Brown's Terrace, "The Clarendon Inn," on Brewer's Hill, have severely suffered, but in contrast to this, and showing the eccentric course of the landslip, it may be instanced that Beach Rocks Convalescent Homes escaped injured. Spring House seems to be the most notable instance of damage done. The house is half captured, and this particular form of injury is evidenced in several houses on the hill side, particularly near Brewer's Hill. Here there has been a subsidence in the hill just above the Clarendon Inn, and men were busy on Monday digging up the soil, endeavoring to reach the drain pipes beneath. Of course such a subsidence has seriously injured the drains, the water pipes, and the gas pipes, and so the difficulties affecting these has greatly added to the misery of the situation. Sunnyside, Prospect House, Portland Villa, Littlebourne Lodge, the Housemaid, Stanhope Villa, Glenart House, and Downshire Terrace all these houses are more or less rendered uninhabitable. The vacant houses at Seabrook and Hythe have been taken by families, and all Sunday and Monday was occupied in the removal of goods, whilst thousands of spectators came to inspect the scene of havoc. In



Chapel Street, where the damage has been most severe, the artisan and the labouring classes are the sufferers, also that class has occupied many humble dwellings with which the back of Sandgate abounds, and it was pitiable to see them removing in the panic their goods on Saturday night. Through the kindness of the Rev. Russell Wakefield the National Schools were utilised for sleeping purposes. The rev. gentleman has been most energetic in this grave crisis, and his kindness, forethought, and promptitude in action have been of great service.

The half-past nine o'clock bus was besieged by a number of worried women who had taken just enough clothes for the night's use and were going to Hythe in search of lodging. The White Hart, the Swan, and the Seabrook Hotels being speedily filled with the refugees. It was not until about nine o'clock that the news became generally known, and as it was a lovely moonlight night, crowds soon assembled and discussed the situation. It must be spoken to the credit of Sandgate people, that those whose property was safe, speedily extended hospitality to their distressed neighbours. When the first shock was over, men and women settled themselves down to the inevitable consideration of what was to be done for the night. It is in such cases that we realize the truth of the saying "one touch of nature makes all the world akin," for frightened children were caressed, and weeping women comforted. Unlike a fire, there was no need to remove the furniture, there was time the next day to survey ruined homes, and to remove the household goods. Long into the night, stragglers were seen with bundles seeking a resting place. All the occupants of the Coastguards cottages were cleared out, and, perhaps, sympathy was not needed in their case so much as with others, as Government will see these out of the difficulty. Early next morning the people were astir. Police and military provosts had guarded the town during the night, and with early morning, came streams of people, thousands, who inspected the ruinous scene. Now men and women wearing troubled looks, and children whose laughter was hushed, were seen overhauling the furniture, some removing it into the road ways or gardens attached. Then the suffering such a calamity entails, became apparent. People went in search of cottage property in Seabrook and Hythe. There is very little in either to let, and that available was eagerly snatched up. In Folkestone they very probably fared little better. But if the artisan and labouring class suffered, the lodging house keepers perhaps, in comparison suffered more. Several of them have invested the whole of their capital in furniture, spring cleaning has been going on, and they were preparing for the season. The injury that furniture has received, the difficulty of getting other houses, the loss of all hope of a return this season, means absolute ruin. It would be unfair if we did not put the deplorable plight of these people in the most forcible light. Sandgate is ruined for this season. With the loss of lodging houses will be the decline of trade, lack of work for the labouring class, and if ever public sympathy should flow in a genuine channel of relief, this is one. Happily the Local Board were alive to their responsibilities. A meeting was held on Sunday, report of which appears in another part of the paper. Unfortunately for Sandgate a most ill-judged report was sent to the Sunday papers. In all conscience the affair is bad enough without piling on the agony a report likely still to do further damage to the town. There is a dif-

ference between a landslip and an earthquake which perhaps the scribe could hardly understand. It must not be taken that all the houses affected will be rendered uninhabitable this year. Some probably will be repaired, but confidence will have to be restored.

On Monday morning and throughout the day crowds visited Sandgate, coming from all parts of the neighbourhood, indeed greater numbers than visited the Benvenue wreck on November 11th, 1891. Mr. and Mrs. Kennett, early in the morning distributed tea, coffee, and bread and butter to the night occupants of the National School Rooms, the Congregational Chapel, and those who had taken refuge in other well-known retreats. Mr. J. J. Jones, of the Convalescent Home, was also most indefatigable in his endeavours to give assistance and relief.

The effects of the catastrophe cannot be estimated by the appearance of the outside of the buildings, except perhaps in the case of Spring House and Mr. Birch's stables. But, through the kindness of the Rev Russell Wakefield, who generously spared the time to conduct one of our representatives through the ruins, and obtained permission for him to inspect the houses which had suffered most severely, we are able to give our readers a fairly well detailed account of the mischief wrought.

Somerville House, the residence of Mrs. Hallett, was first visited. It lies up on the bank. There is a large opening in the south east of the boundary wall and a huge crack in the garden. The culinary offices and lavatory were built at the back of the main building. They are all in ruins. This house was occupied by an elderly lady Mrs. Hallett, and the owner is Mr. William Pledge, who, it may be remarked, is one of the largest sufferers by this calamity. Mrs. Hallett was first alarmed at seven o'clock on Saturday evening by ominous sounds. On Monday morning she was leaving, evidently with reluctance, the house in which she had lived, and she begged of those around to tell her if she might remain with safety.

Adjacent, on Hill Side, are Enbrook Villas, which are very much shaken, and two cottages occupied by Mr. Hogben and Mr. Lee, of which Mr. Purday is owner, are considerably damaged. Mrs. Hogben was sorely troubled all Saturday night, and did not go to bed till four o'clock on Sunday morning. At three o'clock she went out into the front garden with a light and saw the fissures in the ground. At nine o'clock at night the path had subsided four inches. She was awoken by her son soon after six, who called out to all the inmates to get up as the house was falling. They took chairs and went and sat under some trees on the hill side, and awaited in anticipation the destruction of the house, but it did not suffer much.

But the adjacent house, Spring House, occupied as a lodging house by Mrs. Kemp, and owned by Mr. Riggs, was an absolute wreck. Our illustration shows it as it was on Sunday, shored up by the wooden house, "Spring Cottage," adjoining. Its condition was so perilous that people feared to enter, and it was not until the evening that Mr. W. B. Kennett, captain of the Fire Brigade, entered and brought out a quantity of valuable articles belonging to an officer and his wife.

Then we cross to the Coastguard Cottages, of which there are 16. The pavement on the north side of the high wall was split and the slabs as they descended overlapped one another. The first of these 16 cottages

(X) SEE CARD "GANE"



(X) DU BOULAY SHOWN ON 1882 MAP AS OWNING LAND  
BEHIND (NORTH OF) TAVENERS' GARDENS. EX. 49  
SHOWS FENCE ACROSS SOUTHERN EDGE OF  
DU BOULAY'S LAND.



something was wrong were strong-headed. She went to the next door, and an officer who was there returned with her, and together they went all over the house. The cracking continued. Her sister returned at half-past ten. The servant was so terrified that she went away to sleep. The Misses Charlton courageously remained in the house but did not go to bed. In the morning they saw that the house had sunk bodily at least five inches. These houses have gone distinctly forward, but in several cases, as before stated, the movement was backward. The military have earned the gratitude of the Misses Charlton, and they speak in terms of the highest praise of the energy and untiring zeal with which they worked all the day on Sunday in removing the furniture from these two houses. It is the same everywhere, in fact civilian labour would have been quite unable to cope with the difficulties of the situation. On the authority of Miss Charlton and others, we give it that the gentlemen were more alarmed than the ladies, who performed great deeds of valour under the most trying circumstances.

At Littlebourne Lodge, the residence of Mrs. Christie there are ominous cracks in the walls, and internally several of the rooms are much damaged. The large verandah in front, however, indicates most plainly the extent of the shifting, and it is evident that in this case there is a decided forward tilt. At Marine Villa there is also considerable damage.

In front of this house is the damaged groyne. There is a considerable bulging out of the sea wall, and in a line with it is the x-shaped fracture or "buckling" in the groyne, showing clearly that the movement of earth went right out to sea.

At the Homestead, the handsome-looking house at which Mr. J. J. Jones resided, the damage is so great that the family have wisely migrated. In the basement there are indications of the great force of the slip, solid concrete walls being cracked, the principal injury being at the back, but there are also indications that the older and the newer portions are about to part company. In the garden and the stable yard there are great fissures, the paving bricks in the latter being forced apart right across the yard from the scullery to the stable. Immediately in front of the Homestead are two very nice houses, one occupied by Mrs. Foster, and the other (Shorncliffe House) by Mr. Hammond. The occupants are also the owners, and it is satisfactory to state the houses have only received a minimum of damage, and the occupants have decided to remain in them, they having been assured by Mr. J. J. Jeal that they are perfectly safe.

In Gloucester Terrace all the houses appear to be cut completely through in the centre, the back rooms being divided by a wide fissure from the fronts. We inspected the house occupied by Mr. Walker, 24th Regiment, who like his neighbours, has wisely decided to clear out. In the next house, the tenant, Mrs. Jefferys, is in some trouble. The house belongs to Mr. Amos, of Hythe, who, she says has been most considerate, but her home is broken up, and she has nowhere to go. This is the trouble of many of the tenants.

There are many other places more or less injured, but the foregoing account fairly states the general condition of the district affected by the slip.

At a meeting of the Folkestone Corporation on Monday morning, the following resolution

was passed:—That this Corporation takes this the earliest opportunity of expressing its sympathy with the inhabitants of Sandgate in the terrible catastrophe which has happened to them by the great landslide there on Saturday evening last, and that with a view to practical help being afforded the Mayor be asked to write to the Lord Mayor of London, the Lord Lieutenant of the County, the Archbishop of Canterbury, Lord Ralston, and Sir Edward Watkin to raise funds for the benefit of the unfortunate sufferers by the landslide.

On Monday afternoon a crowded meeting was held at the Gough Soldiers Home, Mr. Mark Judge in the chair. He stated that the meeting had been called to consider the actual position the town had been placed in with regard to the Trinity Board in blowing up the Bouvencue. The Board had been cautioned through a public meeting held in Sandgate of the likely results. He felt that the Sandgate Local Board ought in the first place to have taken action in this matter, and have convened a public meeting. The chairman read the letter which the Trinity Board had sent in reply to the resolution passed at a public meeting, in which it was stated that needless alarm had been excited. This serious landslide had practically destroyed 200 houses. If the destruction was in any way traceable to these explosives, he thought the Government should be fixed with the responsibility.

Mr. J. J. Jones moved that this public meeting of the inhabitants of Sandgate, West Folkestone, and Sealbrook, whilst lamenting the sad catastrophe which has befallen the town in consequence of the dynamite explosions in connection with the blowing up of the Calypso and the Bouvencue cannot but call the attention of the Government, the Board of Trade, and the Trinity Board, to the fact that some such calamity was foreseen if the blowing up of the Bouvencue was persisted in, and that the inhabitants protested against it in public meeting on September 10th, and that this meeting is of opinion that it is the duty of the Government to see that the loss is made good, either by the Trinity Board or the Local Government Board. Mr. Jones said that in moving that resolution, he was doing what was right and what would commend itself to the nation at large. He had that they had told the country through the press what would happen, and their prophecy was fulfilled. The Trinity Board was responsible. They exploded large charges, houses were shook, and land quivered and cracked. He instanced a crack in the land which occurred at the back of the Homestead after an explosion. He gave examples of the very terrible effect of that landslide, and if they could not get justice from the Government they should appeal to the courts of law.

Mr. Salmon seconded the resolution. Mr. Maltby suggested that they should add to the resolution that the explosion of the Calypso as well as the Bouvencue had contributed to that result, which was agreed to.

In answer to a question. The Chairman said he understood that through Folkestone the Lord Mayor had been approached to open a national subscription for the relief of the sufferers.

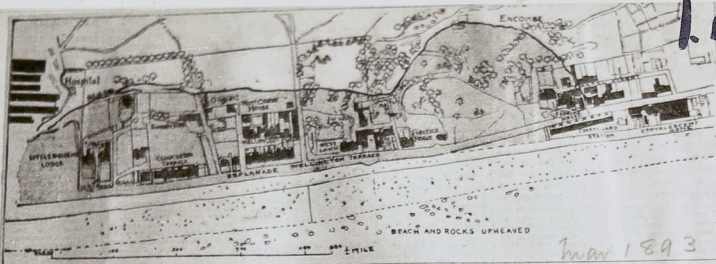
On the motion of the Rev. Dr. Giddon, it was agreed that a copy of the resolution should be sent to the Borough Member and to the County Member, asking for their support.

It was stated during the meeting that Sir Edward Watkin had sent a subscription list.



1.E

May 1893



## THE SANDGATE DISASTER

### THE EXPERT'S REPORT.

A special meeting of the Sandgate Local Board, under the presidency of General Sir Charles Keyes, was held yesterday. Mr. Baldwin Latham, C.E., stated that the chief cause of the landslide had been probably the scouring action of the sea on the beach. He did not think it would be a very serious matter to prevent a further extension of the slip.

Mr. George C. Chapman, sub-district surveyor at Shorncliffe Camp, sends the following remarks with reference to the geological section that we published on Wednesday, which with the aid of the plan of the sea front and endangered area that we publish to-day will throw some light on the question that has been raised as to the real origin of the catastrophe:—"With regard to the general geological conditions in the immediate vicinity of this camp, which is 200ft. to 250ft. above the sea, the lower greensand formation comprises, in following order from the surface—(1) The Folkestone beds; (2) Hythe beds (Kestish rag); and (3) The Atherfield clay. These rest upon the Wealden strata, the upper bed of which is Weald clay. As Hythe, at about 50ft. to 100ft. above the sea, we came upon the Atherfield clay (immediately below the surface), which rested upon the Weald clay,

X

this movement, owing to the weight of water on the sea bed being reduced, and until the greensand beds settle down on to the blue clay of the Wealden strata, further disturbances are extremely probable. The condition of the surface at Sandgate resembles by its configuration what has evidently taken place from time to time in many other parts of this district."

The Royal yacht Osborne, with the Princess of Wales, the Princesses Victoria and Maud of Wales, and the Duke of York on board, arrived at Spain at four o'clock yesterday afternoon. The Italian Admiral and the head of the naval arsenal proceeded on board the Osborne to pay their respects to their Royal Highnesses.

## THE SUBSIDENCE AT SANDGATE: PLAN OF THE SEA FRONT AND ENDANGERED QUARTERS OF THE TOWN.

The thick black line indicates the limits of the area affected. The X marks the spot where the Darnmore was wrecked and subsequently destroyed by dynamite.

## MAIL AND STEAMSHIP NEWS.

(FROM LLOYD'S.)

ADEN, March 9.—Siam, from Bombay, arrived.  
AMSTERDAM, March 10.—Unibot, from London, arrived.  
ANTWERP, March 9.—Adour, from Australia, arrived.  
BOSTON, March 8.—Fervian, for Glasgow, left.  
BRUSSELS (by tel.). Europa, from Calcutta, arrived.  
BRISBANE, March 9.—Hydaspes, from Alexandria, arrived.  
BROU HAUS, March 10.—Ottoman, Boston for Liverpool, passed.  
CANTON, March 9.—Cusco, from Sydney, left for London.  
DARTMOUTH, March 10.—Denderah, from Valparaiso, arrived and proceeded for Hamburg.  
GIBRALTAR, March 9.—Rosetta, from Calcutta, left for Plymouth.  
GLASGOW, March 9.—Circasia, for New York, left.  
GRAND CANAL, March 9.—Old Rivers, from Liverpool, arrived.  
HAGUE, March 9.—Amoyan, from Clyde, left.  
HAMBURG, March 10.—Tiverton, from Savannah, Uruguay, from Buenos Ayres, arrived.  
KINGSTON, March 8.—Louisiana, for Vera Cruz, left.  
LAN PAULAN, March 10.—Zebua, from London, for Fremantle, &c., arrived.  
LIVERPOOL, March 10.—Britannia, from New York, arrived; Scholar, for Pernambuco, and Clara MacIntyre, for Cape Town, left.  
MARSEILLE, March 9.—Persia, Bombay for Liverpool, left.  
MELBOURNE (by tel.). Hamburg, from Bremen, and Darnmore, from London, arrived.  
MONTA VIDE, March 9.—Louisiana, for Liverpool, left.  
MORSE HAY, March 10.—Warranabool, from London, arrived.  
MORSE, March 10.—Circasia, for New York, and Sardinian, for Halifax, left.  
NATAL, March 10.—Rosie Castle, from London and Cape Town, arrived.



Cutting probably dated Sat. 11<sup>3</sup>/1893.  
(See dates in 3 vol. col) Hence, "yesterday"  
= 10<sup>3</sup>/1893.

82/17A

Original in "Kendall's Drawer",  
Yale Western Ref. Library.  
(From daily fragment of 11<sup>3</sup>/93 - see En 2-c-8)





MAIDSTONE

TOWN CLERK'S OFFICE.

13<sup>th</sup> May 1893

Dear Sir

I beg  
herewith to send you  
draft for £ 32 being  
Monies collected here on  
behalf of the sufferers  
from the Sandgate  
landship, & with the  
sum of £ 25 raised by  
a concert here representing  
the collections in this Town

Yrs faithfully

Geo Keyes Esq. B.  
Rev'd H. R. Wakefield  
Sandgate.

Alfred Spencer

Mayor





National Provincial Bank	£6.5.0
Free Mason's Hall	30.0.0
St Mary's Church do	62.3.8
Christ Church x "	39.5.8
St Michael's Church "	10.0.1
St John's Church "	16.2.0
Lecture per Rev. H. Jeffery	12.7.6
Assault at Anne's Hall	72.11.2
Mayor of Canterbury	154.10.1
Mansion House Fund	} 730.2.8
per the Lord Mayor	
Merchant Taylors	52.10.0

8<sup>th</sup> June 1893

Dear Sir

Sandgate Relief Fund  
In reply to your letter  
of the 6<sup>th</sup> inst the money  
received from Public Bodies  
are as follows

W. S. S. S.

The Vicarage  
Sandgate

Yours truly  
W. S. S. S.



# The Government and the Sandgate Landslip.

*To the Inhabitants of Sandgate, West Folkestone, and Seabrooke.*

LADIES AND GENTLEMEN,

On Saturday night and Sunday this district suffered from a serious subsidence of the land, for a distance of about half a mile, immediately opposite the spot where the *Calypso* and the *Benvenue* were destroyed by dynamite explosions, resulting in the complete wreck of numbers of houses, causing intense suffering to the people and injury to property of the estimated value of £100,000.

Yesterday afternoon you met in public meeting in the largest Hall the Town possesses, and, as is natural under the circumstances, the meeting was a large one, and included the Vicar and other Members of the Local Board. You did me the honour of electing me as your Chairman, and, after considering the situation brought about by the disaster, the following resolution was unanimously passed:—"That this public meeting of the Inhabitants of Sandgate, West Folkestone, and Seabrooke, whilst lamenting the sad catastrophe which has fallen upon the town, in consequence of the dynamite explosions in connection with the blowing up of the *Calypso* and *Benvenue*, cannot but call the attention of the Government, the Board of Trade, and the Trinity Board to the fact that some such calamity was foreseen if the blowing up of the *Benvenue* was persisted in, and that the inhabitants protested against it at a public meeting on September 10 last; this meeting is therefore of the opinion that it is the duty of the Government to see that the loss which has fallen upon the town should be made good by the Trinity Board or the Government itself."

The meeting requested me to forward copies of the resolution to the President of the Board of Trade and to the Corporation of the Trinity House, and this was done. I was further asked to go to the House of Commons for the purpose of submitting the case to the Rt. Hon. A. Akers-Douglas, M.P. I came to London accordingly last night, had a most satisfactory interview with Mr. Akers-Douglas, with the result that notice of a question was at once given which has this evening been put and answered as follows:—

"MR. AKERS-DOUGLAS asked the President of the Board of Trade whether his attention had been called to the catastrophe which had befallen the town of Sandgate by a serious landslip, resulting in the destruction of some 200 houses; and whether he was aware that this disaster had been attributed by a public meeting of the inhabitants to the use of dynamite in connection with the blowing up of the wrecks of the *Calypso* and the *Benvenue*, whether he was also aware that, in September last, prior to the destruction of the latter vessel, a public meeting was held at which, in view of the damage done to property by the explosives employed in the destruction of the *Calypso*, the authorities were urged to abandon their determination to blow up the *Benvenue*, and whether the resolution protesting against the proposed explosions was passed by this meeting and forwarded to every member of the Trinity Board; and whether, under these

circumstances, Her Majesty's Government were prepared to give compensation for the damage which had been done.

"MR. MUNDELLA.—My attention has been called to the sad calamity which has befallen the town of Sandgate, and to the public meeting which has been held there on the subject. In June last, I understand, the Sandgate Local Board called the attention of the Board of Trade to the rumoured intention of dispersing the wreck of the *Benvenue* by explosives, but the Board of Trade had no power to interfere with the statutory discretion vested in the Trinity House by the Removal of Wrecks Act. There is no evidence that the recent subsidence has been caused by the dispersion of the wreck by dynamite. Indeed, it has been attributed on engineering authority to natural causes. But in no case can Her Majesty's Government be held to be liable to pay compensation.

"MR. J. LOWTHER.—Do I understand that the Trinity Board is an irresponsible body, not subject to the control of Parliament?

"MR. MUNDELLA.—The Trinity Board acted under the statutory powers of the Removal of Wrecks Act; but it is not believed that what the Trinity Board did had anything to do with this unfortunate occurrence."

When I left Sandgate last night I had not seen any notice that an Official Inquiry on behalf of the Local Government Board was to be made to-day, and I now hear that not only has such an Inquiry been opened, but that it has been concluded. I cannot believe that such an Inquiry can be otherwise than quite preliminary, as it would be an insult to the Government to suggest that an investigation into the causes of a disaster so ruinous in its results could be made in the course of a single day, to say nothing of the injustice that would be done to individuals by proper notice of the Inquiry not being given.

I will apply to the President of the Local Government Board for a copy of the Report of to-day's Inquiry, and at the earliest possible date arrange for a further public meeting for the consideration of Mr. Mundella's reply, and what steps ought to be taken in view of the fact that the Government practically say *it does not matter whether the disaster has been caused by the explosives or otherwise, in neither case are the Government responsible.*

I am glad to be able to assure you of the thorough co-operation of Mr. Akers-Douglas, and hope to arrange for the next public meeting at a time when he will be able to attend.

I AM, LADIES AND GENTLEMEN,

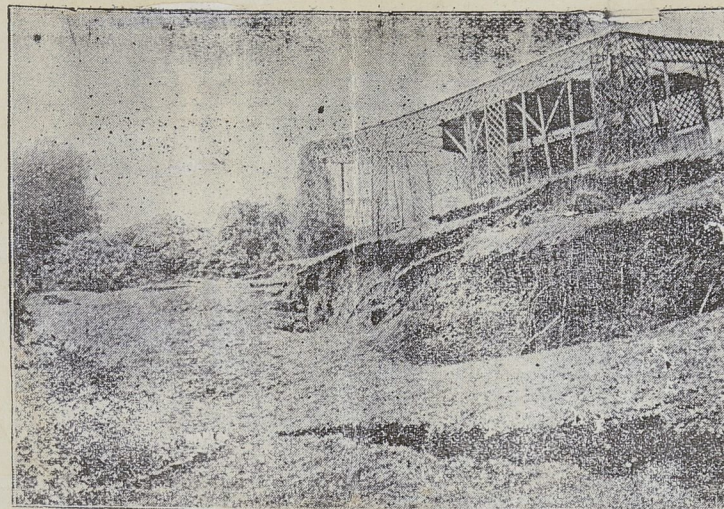
Your faithful servant,

MARK H. JUDGE.

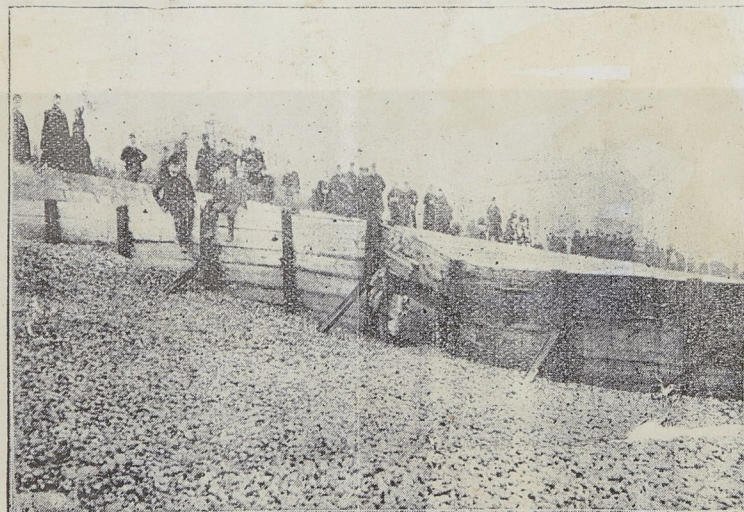




HOUSES IN CHAPEL STREET. (From Photo by Jacob, Sandgate.)



SUMMER HOUSE AT ENCOMBE, SHOWING BROKEN GROUND.  
(From photo by Jacob, Sandgate.)



BROKEN GROYPE AT SANDGATE. (From photo by Jacob, Sandgate)

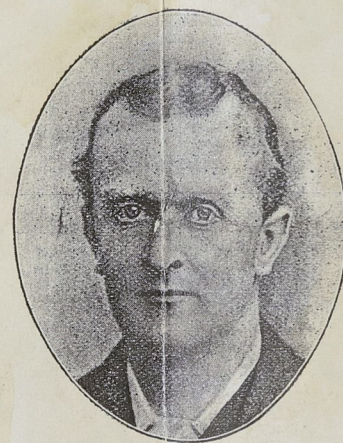


MR. BIRCH'S COTTAGE. (From Photo by Jacob, Sandgate.)





SPRING HOUSE AND SPRING COTTAGE. (From Photo by Jacob, Sandgate.



REV. RUSSELL WAKEFIELD.



GLASS STAFFE AND GREENHOUSES AT ENCOMBE, (From photo by Lambert Weston and Son).



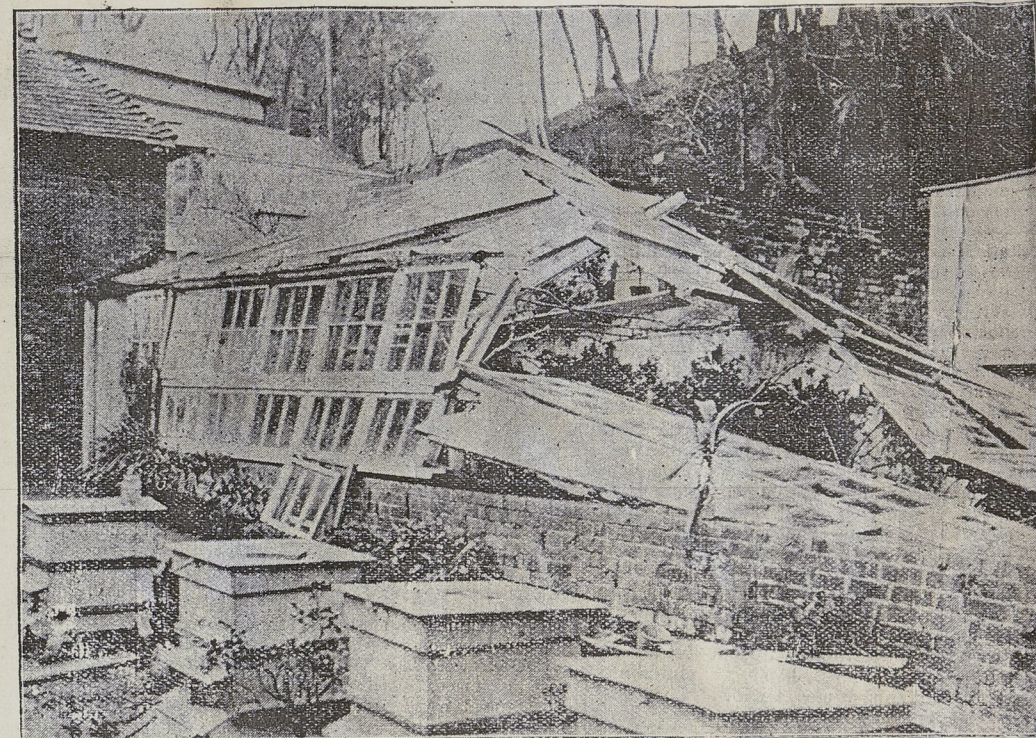
## THE SANDGATE LANDSLIP—SPECIAL VIEWS.



MR. BIRCH'S STABLES. (From Photo by Jacob, Sandgate).



(ANOTHER VIEW OF MR. TAVENOR'S GREENHOUSES.  
(From Photo by Lambert Weston and Son).)



GREENHOUSES IN MR. TAVENOR'S GARDEN. (From Photo by Jacob, Sandgate).



F&H GAZETTE 24.3.1976

P.17

# Button- holed!

125  
79

THIS week's post brought a vitriolic letter from Harry Button, sometime candidate for Parliament and long-time candidate (failed) for a place on the local council.

Harry, in an untypical tirade, takes me to task for not fully researching the Encombe landslip story on which I commented last week.

Not for the first time, I fail to see his line of reasoning, particularly the part where he says that I am looking for "overtime for journalists."

I suggest that he does some research. Journalists are not paid overtime.

If they were, we could probably have a whip-round in the office to pay the £65,000 bill for the Encombe landslip. . . .

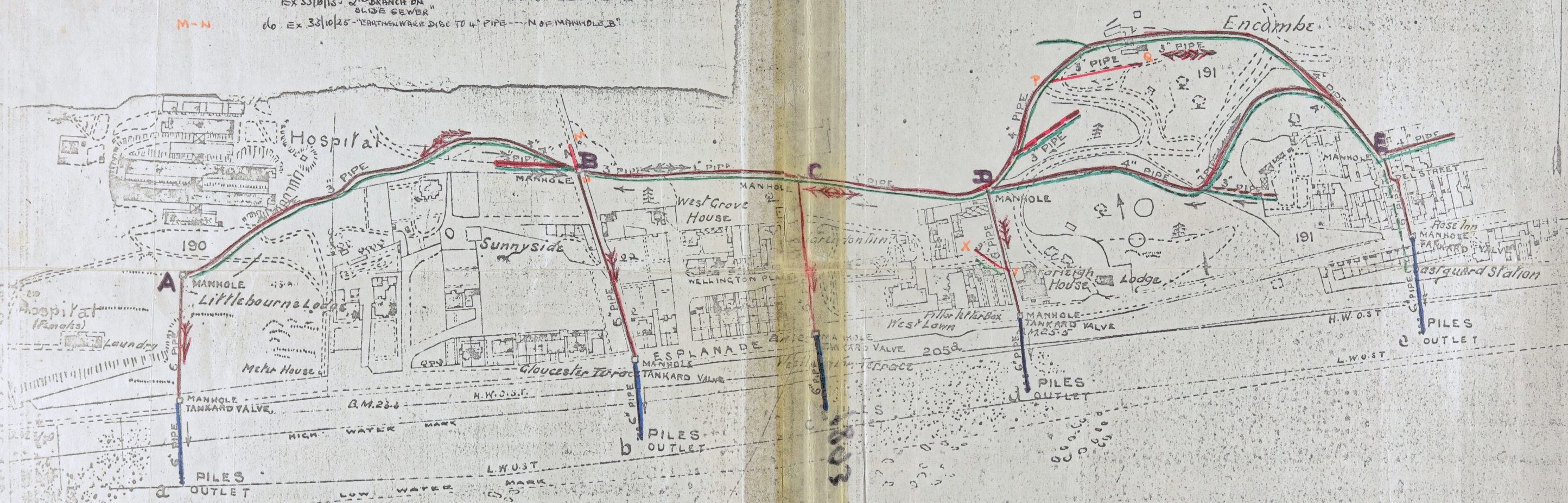


Drainage installed following 1893 Landslip

Copy of plan attached to Board of Trade Authorisation to lay drains on foreshore, dated the 15th August, 1893.

Based on 1872 O/S?

- X-Y COLOURED RED & GREEN BY A.T.O. SEE EX 33(6)13 (TOP) (FORM OF TENDER - LATHAM)
- P-Q COLOURED RED BY A.T.O. "BRANCH BETWEEN A & D"
- EX 33(6)13 "2" BRANCH ON SLIDE SEWER"
- M-N do. EX 33(10)25 "EARTHENWARE DISC TO 4" PIPE - N OF MANHOLE B"



WATER 1893

ON THIS PLAN -  
ABOUT 200 FT  
TO LINES

REFERENCE  
The Green Lines represent Lines of Landslip  
" Red " " Stoneware Pipes  
" Blue " " Cast Iron "

Feet 0 500 1000

Scale - 2500 being 25.344 inches to a Statute Mile or 208.3 Feet to One Inch

208.33

1500

2000 Feet



THE  
**SANDGATE DISASTER.**

---

For the best and most reliable account  
see the

*"Folkestone Herald"*

Of SATURDAY, MARCH 11th, 1893

SUPPLEMENT GRATIS,

CONTAINING,

**Six Large Views**

Of Scenes of Ruin in the Streets and the  
Encombe Estate.

---

**FULL REPORT**

OF THE

**Great TEMPERANCE**

(Local Option) MEETING

**ON FRIDAY NIGHT.**



# SANDGATE DISASTER.

PROGRAMME of an Amateur Theatrical and Variety ENTERTAINMENT,

In Aid of the Sufferers, at the

Pleasure Gardens Theatre, on Monday, March 13th.

Overture ... .. "Tancredi" ... ..  
By the MEMBERS of the PLEYDELL CLUB.  
Song ... .. "How shall I woe her" ... .. M. Willings  
Mr. HORACE POPE.  
Recitation... ..  
Rev H. RUSSELL WAKEFIELD.

## 'INCOMPATIBILITY OF TEMPER.'

A FARCE.

Mrs. Worritt ... .. Miss PUCKLE  
Miss Selina Sweetener ... .. (Her Friend) ... .. Miss STEWART.  
Mr. Worritt ... .. Mr. HERBERT

Scene: Drawing-room at Mrs Worritt's.

Valse ... .. "Le Triomphe"  
By the MEMBERS of the PLEYDELL CLUB.  
Song ... .. "Name the Day" ... .. H. Pontet  
Miss F. KNIGHT-LANE.  
Recitation ... ..  
Rev. H. RUSSELL WAKEFIELD.  
Cornet Solo ... .. "The Better Land" ... .. Cowen  
Mr. T. C. MAJOR.

## ❖ "Q.E.D." ❖

OR, ALL A MISTAKE,

A Comedietta by FRANK A. MARSHALL.

Mademoiselle Celestine Eugenie de la Mayonnaise ... .. MISS STEWART  
Miss Bridget O'Shagnessy Advertising in the "Domestic Sentinel" under the name of "Amaryllis."  
Mrs. Prim ... .. Miss PUCKLE  
Dr. Quintus Epicurus Donne Professor of Moral Philosophy, writing under initials "Q.E.D" Miss HARRISON  
Major Adolphus Spangle ... .. (Late of the Royal Greenshire Yeomanry.) ... .. Mr. HERBERT  
Mr. ROSS

Scene: Donne's Chamber, London.

Furniture kindly lent by Mr. ADOLPHUS DAVIS, and Flowers by Mr. GEO. PEDEN.

Doors open at 7.30.; commence at 8.

Stage Manager—Mr. W. G. HERBERT.



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## DELPHI HOTEL, LIVERPOOL.

THIS WELL-KNOWN ESTABLISHMENT, "The Hotel de Luxe of the North," is in close proximity to the Central (Midland) Station, and is within fifteen minutes' drive of the Pier and Docks. Hotel porters, in uniform, meet all through trains at the Central Station, and Visitors' Luggage is conveyed Free of Charge to and from the Hotel. Visitors arriving at the other stations or docks can be met by our own Omnibuses and Staff on receipt of instructions to that effect.

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COFFEE ROOM,  
PUBLIC AND PRIVATE RECEPTION ROOMS,  
AND BEDROOMS,  
FREE LIBRARY FOR USE OF GUESTS,  
TELEPHONE IN EVERY ROOM.  
LADIES AND GENTLEMEN'S HAIRDRESSING SALOONS,  
DRAWING, SMOKE, AND BILLIARD ROOMS,  
COMMERCIAL AND BUSINESS ROOM.

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WILLIAM TOWLE, Manager.

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MIDLAND, BRADFORD.  
QUEEN'S, LEEDS.  
MIDLAND, DERBY.  
MIDLAND, MORECAMBE.

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Give instant relief from COUGHS,  
HOARSENESS, SORE THROAT, LOSS  
OF VOICE, &c.

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Are USED BY CLERGYMEN, SINGERS,  
ACTORS, AND PUBLIC SPEAKERS.  
1s. per Box.

## EUCALYPTUS SOAP.

PURE AND SUPERFATTED.  
Fragrant and Refreshing. Keeps the skin  
soft and free from blotches.

## "PLATYPUS" EUCALYPTUS SOAP.

ELEGANT, and containing all the  
HEALTHFUL, AND PROTECTIVE  
properties of the Oil. 6d. per Tablet.

## EUCALYPTUS GLOBULUS OIL,

When genuine, the  
BEST OF ALL REMEDIES  
for  
INFLUENZA, FEVERS, BRONCHITIS,  
DIPHTHERIA, ASTHMA, COLDS,  
RHEUMATISM, NEURALGIA, HEAD-  
ACHE.

## "PLATYPUS" EUCALYPTUS OIL,

GUARANTEED GENUINE and of the  
HIGHEST MEDICINAL VALUE, as  
shown by H. HELBIG, F.C.S., and Dr.  
Parnmore.

TASMANIAN EUCALYPTUS OIL COMPY.,  
125, Leadenhall Street, London, E.C., and all  
Chemists. In BOTTLES ONLY bearing  
Trade Mark, 1s., 2s. 6d. Samples and  
information free of the Company.



BILLORD LUCE, MILFORD LANE, LONDON.

## London Theatres.

(For fuller information see opposite page.)

Adelphi.—7.40: Who Speaks First. 8.0: The Lost Paradise.  
Avenue.—8: The Ironmaster.  
Comedy.—8.15: A Welsh Heiress. 9: The Sportsman.  
Criterion.—8.30: The Bangle Shop.  
Drury Lane.—7.30: Little Bo-Peep, Little Red Riding  
Hood, and Hop o' My Thumb.  
Gaiety.—8.15: In Town.  
Garrick.—8.0: Diplomacy.  
Globe.—8.0: Confederates. 9.0: Charley's Aunt.  
Haymarket.—8.15: Hypatia.  
Lyceum.—8.15: King Lear.  
New Olympic.—7.30: Dick Whittington.  
Savoy.—8.25: Haddon Hall.  
St. James's.—8.30: Liberty Hall.  
Strand.—8.0: No Credit. 8.50: Niobe.  
Toole's.—8.0: Off the Line. 8.45: Walker, London.  
Trafalgar Square.—8.10: The Artful Dodge. 9.0: The  
County Councillor.  
Vaudeville.—8.30: The Master Builder.

## MORNING PERFORMANCES.

DRURY LANE, 1.30; NEW OLYMPIC, 1.30.

## TOPICS OF THE DAY.

### THE OUTLOOK FOR THE WEEK.

The Parliamentary week upon which we enter to-day bids fair to be of a stormy character. Both sides of the House are irritated. By sheer mismanagement the work of last week, so far as Government business is concerned, amounted to the first reading of the Local Veto Bill, and the obtaining of six votes in Supply. This want of success has roused the Ministerialists to a high pitch of indignation. Charges of obstruction are freely bandied about. Mr. Mellor, the new Chairman, is severely blamed; and it is even hinted that it will be impossible to pass the Home Rule Bill through Committee if he retains the chair. The Government meanwhile has given notice to again suspend the twelve o'clock rule in order to make progress with the Supplementary Estimates, and new members clamour for an all-night sitting and a meeting on Saturday to boot. This is all

very unfortunate. The Government must know, however, that progress with Supply after midnight is impossible. They must know that real progress can only be made by the consent of the House as a whole, and that any attempt to dragoon the House is certain to be resented and resisted. The truth is, the whole friction has been caused by the determination of the Government to rush the second reading of the Home Rule Bill before Easter. The country ought to have more time to consider a measure the provisions of which were so long and carefully concealed. A conciliatory course in this respect would do more to facilitate Supply than a week of all-night sittings.

### PRESIDENT CLEVELAND ON SELF-HELP.

Mr. Grover Cleveland is now once again President of the United States. Nothing except sunshine was wanting on Saturday to give éclat to the investiture of the Democratic chief. The parades and grand stands were of those barbaric dimensions which the American soul loves, while Mrs. Cleveland's impulsive kisses aptly differentiated the popular function from the stiff and automatic courtliness with which the Old World hails those whom it delights to honour. The new President's confession of faith was in many respects superior to the addresses delivered by his predecessors. It was wordy, as all American oratory is, but it was not overloaded with verbiage, and its matter was full of good sense, arranged in a very harmonious scheme. The text of the discourse was the evil of what the orator called "Paternalism," but what in this country is known as "grandmotherly legislation." Illustrations of the working of this principle were adduced in the shape of the wickednesses of the Republicans. The silver question, the tariff question, the pensions question, the instability of the Civil Service, and many other grievances of the great American nation were very ingeniously shown to result from this Paternalism. It was an admirable sermon on political self-reliance, with special reference to the backslidings of the Opposition. In countries other than the United States it will well repay perusal, for the great Republic is not the only State in which the truth requires to be taught that, "while the people should patriotically and cheerfully support their Government, the functions of Government do not include support of the people."

### A SPLENDID GIFT.

In opening the new Free Library at Brixton on Saturday, the Prince of Wales gave admirable expression to the general feeling with regard to Mr. Henry Tate, at whose cost the building has been erected. Mr. Tate has most effectually shown not only that he is a man of generous impulse, but that he has a thoroughly enlightened conception of the enduring needs of the community. All his gifts to the public are of a kind which cannot but tend to exercise a wholesome and stimulating influence on the best qualities of those for whose benefit they are intended. The institution he has just established will be of immense advantage to the people of South London, for, as was explained on Saturday, it will serve as a centre for the local libraries which have already been opened in different parts of the district. The commissioners by whom these libraries are administered have displayed much energy and forethought in the discharge of their duties, and Mr. Tate's gift will provide them with many opportunities for the development of their work. It might be worth their while to consider whether a new departure might not now be taken by the creation of a special department for the supply of the finest books on the various trades and industries of the classes by whom the collections are most extensively used.

### THE SANDGATE CALAMITY.

The immediate cause of the lamentable disaster which has wrecked a portion of the town of Sandgate seems to be clear enough. It was not unnatural that, in the first terror of the calamity, the inhabitants should have attributed it to earthquake; but the effects of seismic disturbances are seldom confined within so small an area. The more reasonable theory is that it was a subsidence of land consequent upon the sapping of the foundations of the houses by the subterranean springs

which are said to be numerous in the locality, and which have doubtless been considerably reinforced by the recent rains. The allegation that the disaster was partly due to the means adopted for destroying the wreck of the Benvenue is not, on the face of it, very credible. If it were possible for the submarine explosion of a few pounds of dynamite at a distance of many yards to produce such terrible consequences one would hardly know which to blame most—the Trinity Brethren, who sanctioned the operations, or the people who built and bought houses upon so insecure a foundation. The only pleasing aspect of the unfortunate event is the promptitude with which aid has been brought to the sufferers. Already a Committee has been appointed to collect subscriptions for their relief, and a certain amount of money has already been subscribed. A great deal more will, however, be required, as the majority of the victims are not in a position to bear the loss without assistance.

## COURT CIRCULAR.

### WINDSOR CASTLE, Saturday.

The Queen drove out yesterday afternoon, accompanied by her Highness Princess Victoria of Schleswig-Holstein and attended by the Hon. Ethel Cadogan.

Her Imperial Majesty the Empress Frederic, accompanied by their Royal Highnesses Prince and Princess Henry of Battenberg, arrived at the Castle last evening from Belvoir Castle.

Countess Brühl, Count Seckendorff, and Lieut.-Colonel Clerk were in attendance.

Her Royal Highness Princess Louise (Marchioness of Lorne) and the Marquess of Lorne, K.T., left the Castle for Kensington Palace.

The Duke and Duchess of Sutherland, the Marquess and Marchioness of Salisbury, and Sir Frederick Leighton, Bart. (President of the Royal Academy), arrived at the Castle and had the honour of dining with their Majesties the Queen and the Empress Frederic and the Royal Family.

Their Majesties the Queen and the Empress Frederic went out this morning.

Her Majesty's guests have left the Castle.

### Sunday.

The Queen and her Royal Highness Princess Beatrice drove out yesterday afternoon attended by Viscountess Downe.

Her Imperial Majesty the Empress Frederic, attended by Countess Brühl and Count Seckendorff, drove to Bagshot Park, where they were met by their Royal Highnesses the Duke and Duchess of Connaught, who had come from Portsmouth, and who afterwards accompanied Her Majesty to Windsor Castle.

Colonel and the Hon. Mrs. Egerton were in attendance on their Royal Highnesses the Duke and Duchess of Connaught.

Lieut.-General Sir Robert Biddulph, G.C.M.G., Quartermaster-General, arrived at the Castle.

The Queen's dinner-party included:—Her Imperial Majesty the Empress Frederic, their Royal Highnesses the Duke and Duchess of Connaught and Prince and Princess Henry of Battenberg, Viscountess Downe (Lady in Waiting), the Hon. Mrs. Curzon-Howe, Lord Camoys (Lord in Waiting), Lieut.-General Sir Robert Biddulph, Colonel Lord Arthur Wellesley (commanding 1st Battalion Grenadier Guards), and Lieut.-Colonel Douglas Willan (commanding 1st (King's) Dragoon Guards).

The Ladies and Gentlemen of the Household in Waiting had the honour of joining the Royal circle in the drawing-room.

The Queen's private band played a selection of music during the evening under the direction of Sir William Cusins.

Their Majesties the Queen and the Empress Frederic, the Royal family, and the members of the Royal Household attended Divine service in the private chapel this morning.

The Very Rev. the Dean of Windsor officiated, assisted by the Very Rev. the Dean of Worcester. The Dean of Worcester preached the sermon.

## SUBSIDENCE AT SANDGATE.

### TWO HUNDRED HOUSES UNINHABITABLE

### APPEAL FOR THE SUFFERERS.

On Saturday evening about half-past seven a serious subsidence took place at Sandgate, many houses being wrecked, roads being torn up, and much damage to property being caused. Yesterday the subsidence still continued. The area affected includes a portion of Chapel Street, the western end of High Street, the Coastguard buildings, and Wellington and Gloucester Terraces, at Sandgate, extending for a distance of a mile. The London Samaritan Society's Convalescent Home fortunately escaped. The first shock was observed between seven and eight o'clock, when many ceilings and the foundations of several houses were seriously affected. Little children had to be taken from their beds and carried in their night clothes to safer parts of the town. People hastily removed their belongings in fear of a further subsidence.

Another disturbance took place yesterday morning, and there were indications of a further extension of the disaster. About two-thirds of the area of Sandgate has been affected, and nearly two hundred houses have been rendered uninhabitable. Great numbers of people have been temporarily housed in Hythe and Folkestone, while others have left the neighbourhood altogether. The coastguards' buildings are so seriously damaged, and the walls have been so twisted about, that the occupants were ordered to leave the buildings.

The most feasible explanation of the subsidence appears to be that the effect is due to a natural cause, namely, to the heavy rains which have prevailed during the last fortnight. The same agencies are at

work at Sandgate as produced the recent slips at the west end of the warren, Folkestone. Sandgate is built upon the greensand which rests upon the blue gault. The same geological characteristics are present throughout the district, and subsidences of smaller import in the neighbourhood have been more or less common, the greensand becoming surcharged with water becomes of the nature of a quicksand, hence the liability to slip or subsidence. This is the generally accepted theory of the cause of the present disaster. Only quite recently the contractor for the new officers' quarters at the School of Musketry at Hythe had a similar experience, as it was dug out in the side of the hill, and before it could be built upon, the ground becoming surcharged with water, slipped and filled it up again. Sandgate last night presented an extraordinary appearance, and crowds of people occupied the darkened streets.

Many people believe that the shocks caused recently by the blowing up of the Calypso and Benvenue have given vent to the pent-up water, with the result that the whole track of land undermined has bodily subsided.

The effects of the subsidence must be seen to be understood. Cottages with gaping walls and falling ceilings, houses rent from top to bottom expected to fall within a short time, roads and paths cracked with here and there crevices from 3ft. to 6ft. wide, gas and water pipes broken, leaking, and in many cases projecting several feet out of the ground where the land has bulged; paving stones forced edge on edge and raised several inches from the ground; groyne "buckled" and broken by the enormous pressure from the land—such are the evidences of the catastrophe. Large houses, containing valuable property, whose owners have shared in the general flight, have been put under the charge of military escorts and special police, in conjunction with the Local Board employees, are doing all that can be done, under the circumstances, to protect property.

Notice has been given by the authorities that the water supply from two of the town reservoirs, and the gas supply from Hythe, are stopped owing to the breakage of mains. The removal of families and their furniture still continues, and the greatest excitement prevails.

### A RELIEF FUND.

General Keyes, chairman of the Sandgate Local Board, and the Rev. H. R. Wakefield, vicar, write to us:—In consequence of the calamity which has befallen our little town, great distress has been caused to our poor, and especially to our struggling lodging-house keepers. Many are left, for the time being, homeless and without any means of support. It is felt that the whole of the charitable feeling of the country will be aroused by such a sudden misfortune, and we are confident that, in making an appeal for generous assistance, we shall receive a prompt and ready response. The Mayor of Folkestone has joined our relief committee, and has himself subscribed a handsome sum. On behalf of those who cannot plead for themselves we earnestly commend this matter to the sympathy of your readers. Donations can be sent to Messrs. Jenner and Co., The Bank, Sandgate.

Mr. Mark H. Judge, writing to us last night from the Kent Hotel, Sandgate, says:—"Only a few short months have passed since the people of Sandgate were watching with intense anxiety the unfortunate sailors of the Benvenue in their struggle with the stormy sea, and to-day another result of the calamity which began with the wreck of that splendid ship has changed the scene of danger to the town itself, where the people have had to fly from their homes to save their lives. My own house is in ruins, the greater part of the furniture stored on the lawn, thanks to some of the brave fellows who saved the crew of the ill-fated steamer a year ago. Fortunately for me, I and my family were in London, and thus far I have not heard that there has been any loss of life, but the loss of property has been so serious that many lives will be made less worth living by the ruin that has been caused, not by any mysterious natural disturbance, but by the foolhardiness of a Government department. That something of the kind would happen if large charges were used in blowing up the Benvenue was foreseen and foretold, though none of us adequately pictured the dire calamity that has befallen the town. We did, however, enter our protest against the proposal to thus blow up the ship in its close proximity to the shore, a protest of which no notice was taken by the authorities to whom it was sent. These authorities had the power to act irrespectively of the inhabitants, and having exercised it they will, I trust, be made responsible for the damage that has resulted therefrom."

## AN HEROIC CAPTAIN.

The steamer Gustav Bitter, of Newcastle, ran ashore at the Lizard at six o'clock on Saturday morning, in a dense fog and a heavy sea. There was terrible excitement on board when the steamer struck the rock, and the captain's efforts to maintain order met with little assistance. He ordered the boats to be lowered, and upon the punt reaching the water several men jumped in and put off. Captain Bull thereupon leaped in the sea and swam after the boat, and tried to get its occupants to return, but unsuccessfully. Oliver Cowans, of Greenock, the second mate, also jumped into the sea, whereupon the men, who had become calmer, put back to pick him up. He nevertheless quickly went under, being unable to swim, and was drowned before the boat could reach him. The Lizard lifeboat picked up the men in the boat and the captain, while the Cadgewith lifeboat rescued three of the four men in the rigging. The fourth man was disabled. Captain Bull, however, who was in the lifeboat, was determined to save him; so, despite a heavy sea, he jumped off the lifeboat into the rigging of the steamer, and climbing up to Goss, the disabled seaman, lashed a rope round him and got him down on deck. He then threw the seaman into the water and followed himself. The crew succeeded in picking both up.

The Princess of Wales and the Princesses Victoria and Maud arrived at Turin yesterday, and after a short rest resumed their journey to Genoa, where they arrived at six o'clock in the morning. They went on board the "Osborne" which will sail this afternoon.



# DAILY GRAPHIC



An Illustrated Newspaper.

LONDON, TUESDAY, MARCH 7, 1893.

[PRICE ONE PENNY.]

[REGISTERED AS A  
NEWSPAPER.]

XIII.

October.



AT FIRST."

The following forecasts for to-day were issued from the Meteorological Office at 8.30 last evening:

DISTRICTS.	FORECASTS.
1. Scotland, N.	South-westerly to north-westerly winds; changeable, rain at times, unsettled.
1. Do. E.	Same as No. 4.
2. England, N. E.	Same as No. 5.
3. Do. E.	Same as No. 5.
4. Midland Counties.	South-westerly to north-westerly breezes, light; fine to showery.
5. England, S.	North-westerly and westerly winds, light; fine, cold, and hazy, then milder and less fair.
(London and Channel.)	Same as Nos. 0 and 1.
6. Scotland, W.	North-westerly winds, freshening; showery, unsettled.
7. England, N. W.	North-westerly winds, freshening; showery, unsettled.
(and N. Wales.)	Same as Nos. 0 and 1.
8. England, S. W.	North-westerly winds, freshening; showery, unsettled.
(and S. Wales.)	Same as Nos. 0 and 1.
9. Ireland, N.	Northerly and north-westerly winds, fresh or strong; showery.
10. Do. S.	Same as Nos. 0 and 1.

WARNINGS.—None issued.

## REMARKS.

Temperature was—Highest: 62deg. at Lisbon, 51deg. in the south-west of France, 50deg. at Belmullet. Lowest: 31deg. at Stockholm and Skagen, 35deg. at Christiansund, 44deg. at Sumburgh Head, and 46deg. at the North Foreland. It had exceeded 50deg. over the greater part of the kingdom during the day, after a somewhat cold night over England, but the changes in progress were fitful.

Some new disturbances advancing from the north-west are likely to cause showers in the north and east to-morrow, with lower temperatures.

## LATEST READINGS BY NEGRETII & ZAMBRA'S INSTRUMENTS.

Barometer (corrected for temperature and reduced to sea level), 30.26. Thermometer, 50. Wind, N.N.W.

## HIGH WATER AT LONDON BRIDGE.

To-day .....Morning, 4h. 44m. ....Afternoon, 4h. 50m.  
To-morrow.....Morning, 5h. 12m. ....Afternoon, 5h. 26m.

## THE SANDGATE DISASTER.

### FURTHER SLIPS.

Confidence at Sandgate is now returning, thanks to a growing belief that the worst effects of the land slide have now been experienced. There were several small slips yesterday, however, and it is evident that the high-lying land will require careful watching for some time to come. The best idea of the gravity of the subsidence can perhaps be gained by a visit to Encombe, the residence of the Misses Riley. All over the grounds are cracks, rents, and chasms. Huge trees, which were uprooted by the earth disturbance, lie about in all directions, and the carriage drive to the house has been irregularly upheaved in such a fantastic manner as to give it the appearance of a rough terrace. The stables are quite ruined and the walls may fall at any moment, and the new and handsome lodge is also badly damaged. Water is trickling down in various directions where the land has moved, strengthening the views of those who maintain that the action of water on the sandy soil was the immediate cause of the disaster. The view locally entertained, however, that the subsidence was primarily due to the blasting operations on the wrecks of the Calypso and Benvenue is still strongly urged. As the result of a house to house inspection yesterday afternoon it was ascertained that not one of the damaged houses has actually fallen

in, but several are in a dangerous condition, and it is estimated that about seventy will have to be pulled down. A public meeting was held yesterday afternoon, at which it was decided to take further steps for the relief of the sufferers by the disaster. Mr. Mark H. Judge, the chairman of the meeting, stated that he was so strongly of opinion that the subsidence was due to the concussions following the dynamite explosions at the wrecks, and was consequently exceptional and not likely to recur, that he has removed his furniture from his wrecked house to the largest house vacant at the other end of the town, which he has taken on a long lease. Contrary to first reports, the new Alhambra Theatre of Varieties at Sandgate has not been in the least damaged.

### CROWDED WITH VISITORS.

The town was yesterday crowded with visitors. No fewer than ten thousand people entered the town, and shop-keepers reaped a rich harvest, and they will need all they can get, for there is no doubt that their trade will be ruined for a long time to come, the area affected including the property upon which the tradespeople depended for their living. The Local Board employes were busily engaged in the streets all day, and excavations have been made in many places to get at the gas and water mains—in fact, the west of Sandgate is in such a state of ruin that it is difficult to know where to begin. There are now very few houses left tenanted,

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many more people left their houses yesterday and removals were going on up to night. The work of removing was yesterday in many cases carried on under difficulty and in the face of considerable danger. In one case where an officer belonging to one of the regiments in the camp was endeavouring to get some valuables from a house, he had a narrow escape of some of the debris falling upon him. Several cases of great hardship are reported where people who have invested their savings in property have lost their all.

## THE CAUSE OF THE DISASTER.

The public meeting in the afternoon, while not attributing the disturbance to the blowing up of the Calypso and Benvenue, called the attention of the Board of Trade and the Trinity Board to the fact that some sad calamity was foreseen when the blowing up of the Benvenue was proceeding, and that the inhabitants protested against it; and resolved "that this meeting thinks it is the duty of the Government to see that the loss to the town should be made good by the Trinity Board or by the Government itself."

An official meeting was held at the Local Board's Office in the evening before Mr. Walton, one of the Local Government Board Inspectors, who has been specially sent down to make full inquiry into the matter. The meeting decided to adjourn until this morning, in order that an inspection might be made of the part of the town in which the subsidence has occurred. There appears to be very little doubt that the condition of the foreshore during recent years has greatly facilitated the disaster. Either from want of more groynes or some other cause the shingle has been washed away, leaving the foreshore at times quite bare. The effect of this has been that the toe of the hill at the back has been weakened, and in confirmation of this many of the inhabitants state that large quantities of land sand have taken the place of sea sand. This, together with the enormous quantities of rain lately, helped perhaps by the explosions on the Benvenue, would account for a great deal. Letters and telegrams of sympathy pour in from every direction. Sir Edward and Lady Watkin have forwarded a cheque for £100, the Countess of Chichester £50, Life Guards at Shorncliffe Camp £25, and considerable sums of money have also been sent by Sir Myles Fenton, the Mayor of Folkestone, and others.

The value has been sworn at £21,011 9s. 7d. of the personal estate of the late Bishop of St. Andrews, Dunkeld, and Dunblane, Dr. Charles Wordsworth, of Kirlymont, St. Andrews, N.B., a nephew of the poet Wordsworth, and formerly (1835-1845) second Master in Winchester College and (1846-1854) Warden of Trinity College, Glenalmond, who died on the 5th of December last, aged eighty-six years.

provinces have caused a sensation. The Ministerialists blame the Conservatives for this result, and the Conservatives are equally ready to cast the responsibility upon the Ministerialists. The enthusiasm among the Republicans here is unbounded. All their clubs were illuminated last night when the triumph of the candidates of the party became known. The Civil Governor of Madrid has resigned, and the Governor of Barcelona is expected to take a similar course. In general the elections have passed off quietly. At some few places, however, there was some fighting at the polls. A Carlist voter was set upon by some Liberal electors at Nava del Rey, in the Province of Valladolid, and fell, mortally wounded, having been stabbed and shot.

## EXPLORATION OF THE CONGO.

### IMPORTANT DISCOVERIES.

(THROUGH REUTER'S AGENCY.)

BRUSSELS, Monday.—Major Thys, the Administrator of the Katanga Company, has received telegrams from the two expeditions to the Katanga country, which have now returned to Leopoldville, and will come back to Belgium next month. The telegrams announce that the expeditions have succeeded in proving the identity of the Lukuga river with the Lualaba, the navigation of which has now been completed, and the entire country surveyed along 6,000 kilometres of its course. As the river, heretofore known as the Lukuga, flows out of Lake Tanganyika, the discovery of its identity with the Lualaba means the existence of a direct water way between the Lake and the River Congo, of which the Lualaba is a tributary.

The telegrams add that two powerful chiefs have submitted to the authority of the Congo State, and when the expeditions left Katanga the country was perfectly quiet, Kassongo being the only point where the Arabs were in revolt.

According to a supplementary despatch, all the territory between Lake Moero, the River Luapoula, and Lake Bangweolo have been surveyed, and the entire country has submitted to the Congo State.

The Independence Belge announces that half the members of the military expedition against the Arabs left to-day for the Congo, and will join the forces under M. van den Kerckhoven, rating to the north-east of the Congo.

## THE LATE M. TAINÉ.

### A DEATH-BED DREAM.

(THROUGH REUTER'S AGENCY.)

PARIS, Monday.—M. Taine's death was the effects of diabetes and pulmonary phthisis which he had been suffering for more than twenty years. A week ago, on the advice of M. Brouard, he had recourse to a Brown-Sequard injection, which the patient gradually improved until when he seemed well on the road to recovery he recognised all the friends who came to visit him, and conversed for a few minutes successively with D'Hulst and with MM. Berthelot, Boutin, Paris, and Alexandre Dumas, who had regularly at his residence for some time past to make inquiries. The patient was evidently in a dream in which he had relived the performance of a Greek play. On Saturday evening M. Taine took some nourishment, but yesterday morning a serious crisis set in, and notwithstanding a fresh injection the weakness rapidly increased. The end was quite sudden, M. Taine expiring while in the act of taking a cup of coffee.

## LOSS OF A FRENCH WAR VESSEL.

### TWENTY-THREE MEN DROWNED.

(THROUGH REUTER'S AGENCY.)

PARIS, Monday.—The Minister of Marine has received a despatch from the commander of the French squadron in the Indian Ocean announcing the loss of the screw despatch vessel La Bourdonnais, which was wrecked in a cyclone at Sainte Marie, Madagascar. Twenty-three of the crew were drowned. The La Bourdonnais was a wooden vessel built at Havre in 1875, of 890 tons displacement. She carried four three-ton guns, and the same number of machine guns.

either race. Pensioner is named for Lincoln than the Malton horse Wrinkle. The price current certainly takes place during many market changes. The present my inclination is to Prince Hampton, Tanzein Crag will among them the Lincoln Handicap, Grand National favourite Midshipmite — will p this week, but Cloister Liverpool, and under the fancy him rather more the pair have, however, like Sarsfield and The Prim is full early yet to supply but according to present horses and riders should al (Dollery), The Midshipmite Nightingall, Father O'Fly Oak (Lord Danzan), The Lady Helen, Field Marshal (Guy), Sarsfield (Mr. W. Thompson), Prince Henry, neux, Faust, Harlequin, Cherooot (Gregor), and Gold At Gatwick to-day my International Hurdle R LIAH THE SILENT. Surrey Steeplechase, V Tantiy Steeplechase, Horleyland Hurdle R Saxon Steeplechase.—M

## GATWICK MA

### ORDER OF RUN

Cotland Flat Race  
Surrey Steeplechase  
Horleyland Hurdle  
International Hurdle R  
Tantiy Steeplechase  
Saxon Steeplechase

ARRIVALS.—Tottie, Lord Ze Hugger Mugger, Sherborne, Panic Stricken, Alcaeus, Go Little Demon, Lord of the Rawe, Dalwhinnie, William Hastings, Young Glasgow, Alps, Blanchardstown, Roy Warrington.

Several others expected in

## LONDON

### LINCOLNSHIRE

7 to 1 agst Pensioner (t & o)  
100 — 7 — Acrobat (t & o)  
100 — 7 — Wolf's Crag (t & o)  
100 — 7 — Wrinkle (t & o)  
100 — 7 — Marion (t & o)  
20 — 1 — Friar John (t & o)  
20 — 1 — Prince Hampton (t & o)

## LIVERPOOL

100 to 15 agst Cloister (t & o)  
8 — 1 — Midshipmite (t & o)  
11 — 1 — Father O'Flynn (t & o)  
33 to 1 agst Tournesol (t & o)  
50 — 1 — Haut Brion (t & o)

## OFFICIAL

Liverpool Grand National.  
Gatwick and Kempton Hu  
Gatwick Engagements.—I  
Princess's Handicap, Gat  
O'More.  
Wickham Hurdle Race, Grange.  
All Engagements.—L'Est  
Whitehead was struck out on Tuesday, February 28.

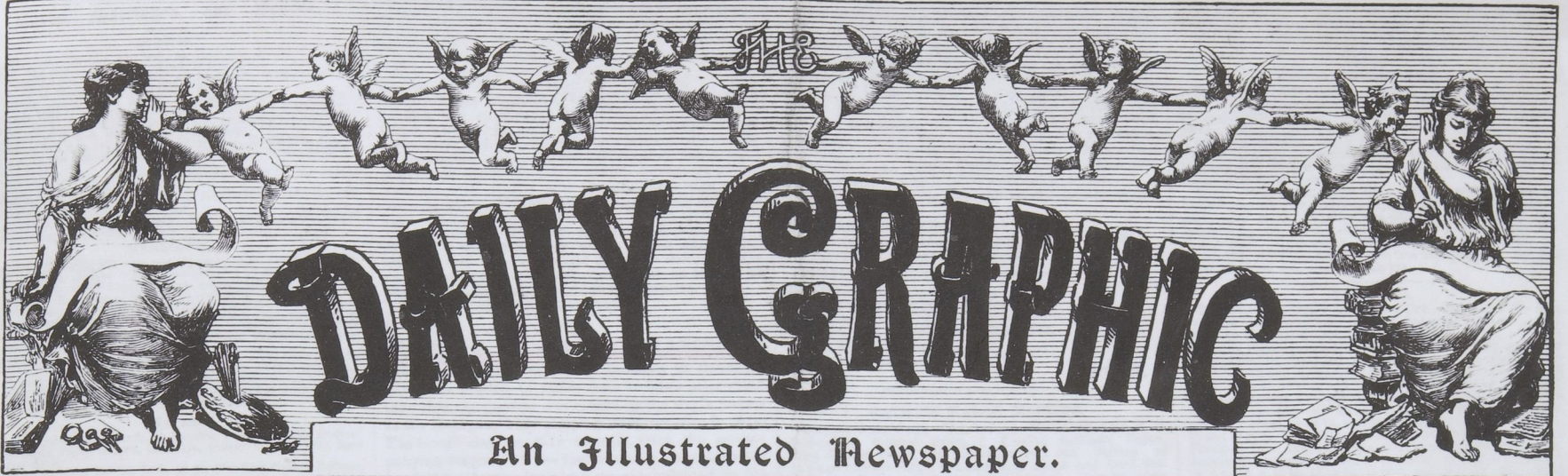
## ASSOCIATE

ASTON VILLA V. NEWTON place at Perry Bar, Birmingham before about 4,000 spectators for Aston Villa by two goals. SHREFFIELD WEDNESDAY was only a moderate attendance witness this match yesterday Wednesday, four goals: Iron GOLF AT BLACKHEATH.—T no match for Blackheath yesterday afternoon. No n and Blackheath at the final

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MR. GLADSTONE.—A COLOURED ILLUSTRATION OF MR. GLADSTONE READING THE LESSONS IN HAWARDEN CHURCH IS PRESENTED WITH THE CURRENT NUMBER OF THE "GRAPHIC." PRICE 6d. FRAMED IN OAK 7s. 6d.



No. 904.—VOL. XIII.

[REGISTERED AS A  
NEWSPAPER.]

LONDON, WEDNESDAY, MARCH 8, 1893.

[PRICE ONE PENNY.]

### The Weather.



#### "FAIR GENERALLY."

The following forecasts for to-day were issued from the Meteorological Office at 8.30 last evening:

DISTRICTS.	FORECASTS.
0. Scotland, N.	North-westerly winds, strong to moderate; unsettled; some showers, colder.
1. Do. E.	
2. England, N. E.	
3. Do. E.	
4. Midland Counties, S.	North-westerly winds, moderate; fair generally, but local showers; colder.
5. England, W.	
6. Scotland, W.	
7. England, N. W.	
8. England, S. W.	North-westerly and northerly winds, light; fair generally.
9. Ireland, N.	North-westerly to westerly winds, freshening; some showers.
10. Do. S.	

WARNINGS.—At 9.50 a.m. to Districts 0 and part of 1, "Hoist N. Code."

#### REMARKS.

Temperature was—Highest, 60deg. at Lisbon, 56deg. at Biarritz, 54deg. at Shields, 53deg. at Paris, 52deg. at Roche's Point, and 50deg. at Belmullet, Valencia Island, and Brest. Lowest: 35deg. at Stockholm, 37deg. at The Scaw, 41deg. at Christiansund and Skudesnaes, 43d g. at the Helder. The thermometer had been as high as 60deg. at Aberdeen during the afternoon, 55deg. in the north-east of England, and 54deg. in London. The depression in the north is passing away towards the Baltic and Russia, and at present there is no indication of any new disturbance approaching our coasts.

LATEST READINGS BY NEGRETTE & ZAMBERA'S INSTRUMENTS. Barometer (corrected for temperature and reduced to sea level), 30.29. Thermometer, 53. Wind, W.N.W. Sunshine, as registered by the Jordan Recorder, thirty minutes.

#### HIGH WATER AT LONDON BRIDGE.

To-day	Morning, 5h. 12m.	Afternoon, 5h. 26m.
To-morrow	Morning, 5h. 41m.	Afternoon, 5h. 57m.

### THE SANDGATE DISASTER.

#### RESULT OF THE OFFICIAL INQUIRY.

ESTIMATED DAMAGE £100,000.

A further subsidence of the land at Sandgate was noticeable yesterday, but the progress of the movement is of course very slow. In one or two cases it is very noticeable, particularly at the range of Coast-guard buildings, which stand right on the seashore. The Coastguard are at present driven away, some of the men and their families being at Hythe and some at Folkestone, while there are several for whom quarters are still required. The Admiralty yesterday approached Mr. Jones, the managing director of the Beach Rocks Convalescent Home, with whom they are making temporary arrangements for the accommodation of the men there. The Government propose to erect corrugated iron buildings for them as soon as possible.

#### THE VALUE OF THE PROPERTY AFFECTED.

The landslip continues to attract enormous numbers of spectators. The value of the property affected by the subsidence is roughly estimated at very nearly

£100,000. The land is freehold, and belongs mostly to small holders. The town is already highly rated, owing to troubles caused by the sea, the rates being about 6s. in the £. Several further subscriptions

were received during yesterday, but at present the amount is quite insignificant compared with what is required to meet the exigencies of the  
(Continued on page 3.)

Removing Furniture from wrecked Houses.

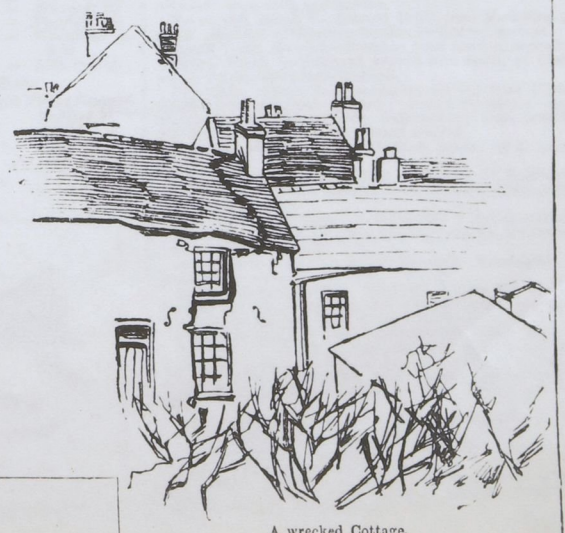


Spring House, in High Street, as it appeared yesterday.



A Dangerous Pavement.

AFTER THE LANDSLIP AT SANDGATE.



A wrecked Cottage.



**NOTICE.—THE CHARGE for ADVERTISEMENTS of BIRTHS, MARRIAGES, and DEATHS is FIVE SHILLINGS per insertion. Payments for these announcements must be made by P.O. order or cheque.**

### BIRTHS, MARRIAGES, and Deaths.

#### BIRTHS.

**CROSLAND.**—On the 5th inst., at Yew Tree House, Lechlade, Glos., the wife of Walter Crosland, of a son.  
**FAWCETT.**—On the 5th March, at Dunrobin, Wimbledon, the wife of H. H. Fawcett, War Office, of a son.  
**GEORGE.**—On the 5th March, at Ewhurst, Dickenson Road, Crouch Hill, N., the wife of Herbert T. George, of a daughter.  
**HEAGERTY.**—On the 5th March, at Cloyne, Upper Tooting, S.W., the wife of Wm. H. Heagerty, of a daughter.  
**HORNCASTLE.**—On the 5th March, at Teymouth House, Hackney, the wife of Walter Radcliffe Horncastle, of a daughter (Gladstone).  
**OCHS.**—On the 5th inst., at 4, Sloane Gardens, S.W., the wife of James Frank Ochs, of a son.  
**WICKSTEED.**—On the 5th inst., at Headingley, Leeds, the wife of J. H. Wicksteed, of a daughter.

#### MARRIAGES.

**BACON.—MARRIAGE.**—On the 4th inst., at St. James's Church, Camberwell, Gilbert William, second son of the late Francis John Bacon, of Peckham, to Eva, second daughter of the late Benjamin Marsland, of Walworth, and Seething Lane, E.C.  
**SATCHELL.—PEASEY.**—On Saturday, the 4th March, 1893, at Camberwell Presbyterian Church, William Gerard, eldest son of John Gilbert Satchell, J.P., of Rugby, to Bertha Harriet, only daughter of George Peasey, of Park House, Camberwell Green, London.  
**SOUTHAM.—ARMITAGE.**—On the 4th inst., at the Church of St. James's, Hope, George Armitage Southam, of Clarendon Cottages, to Emily, eldest daughter of the late George Southam, of Oakfield, Pendleton, to Mary Elizabeth (Libby), elder daughter of Benjamin Armitage, of Cholmeley, Pendleton.

#### DEATHS.

**DENT.**—On the 5th March, at Bouillon, France, Stanley Dent, of Balmace Place, Sussex, and 1154, Sloane Street, S.W., aged sixty-three.  
**GODWARD.**—On the 5th inst., at 21, Cornford Grove, Balham, William Godward, formerly of Chelsea, in his ninety-second year.  
**GRAHAM.**—On the 5th inst., at Oaklands, Yardley, near Birmingham, George Graham, in the seventy-ninth year of his age.  
**HUNTINGTON.**—On the 5th inst., at 4, College Grounds, Malvern, the Rev. Henry Edward Huntington, M.A., Assistant Master Malvern College, in his thirty-third year.  
**MONTFORT.**—On the 5th March, at 4, Cleveland Row, St. James's, Archibald Harman Montfort, of Glensara, Blackrock, Dublin, in his fifty-third year.  
**PUGH.**—On the 5th inst., at 9, Lloyd Street, W.C., the Reverend Thomas Pugh, many years Curate of St. Sepulchre, City, aged eighty-four years.  
**TENNANT.**—On the 5th inst., at 21, Rockwood Road, South Hackney, Jane, widow of Henry Dalzell Tennant, of Poplar, in her ninety-third year.  
**STRAIGHT.**—On the 5th March, at Guy-Harling, Chelmsford, Elizabeth, wife of William Straight, aged eighty years.

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case. The Dover Freemasons are among those who have sent help. An influential meeting of the inhabitants is to be held to-day to appoint a large and representative committee to administer the funds, so that the charitable public may be assured of the money being well spent. Excavations are being continued throughout the town for the repair of the water service pipes. The sewage system, fortunately, is not interfered with.

#### LOCAL GOVERNMENT BOARD INQUIRY.

The Local Government Board inquiry into the cause of the disaster was held and concluded at the Board Room yesterday before Mr. R. Walker. Mr. Jenner, an officer of the Sandgate Local Board, said that on the day previous to the first shock caused by the subsidence there was a slight settlement, the tide at the time being at low-water mark. The maximum depth of the subsidence was about ten feet. The total length of sea face and portion included in the slip was 2,800 feet. There was a slight lateral movement. His opinion was that it was a subsidence, and not a slip. There was a rupture in the sea wall to low-water mark. The stratum was of clay with an upper layer of greensand. The surface of the clay declined towards the town, and there was a cropping out of this stratum on the Encombe property, where extensive damage was done. The depth of clay was fifty feet, all the intervening stratum was greensand. The operations at the destruction of the Benvenue caused land vibrations, not atmospheric. People opposite the wreck had had the dishes shaken off the shelves in their houses by the force of the concussions of the dynamite and gun cotton. Men had refused to work on the town drains during the operations. New sewers had recently been laid at Sandgate, but only about 10ft. of the affected area had been opened for this purpose. There were practically no foundations to the old portion of the sea wall. At low water a constant stream of water was seen flowing from the land into the sea. The direction of the fall of the houses had been to the north. Mr. Duboulay, a local magistrate, stated it as his

opinion that the disaster was caused by a rock mass falling into a fissure, which had forced the under soil in its course. The inspector, after hearing further evidence, stated that in his opinion they should have proper surface water and storm drains constructed for the purpose of carrying off the sub-soil water. He had come to this conclusion after a most careful examination of the affected area. The whole slip was the result of a previous one at some time. Owing to the peculiar formation of the soil it had water-holding properties, and the recent abnormal rainfall had surcharged it, releasing the impounded water, which had rushed forward, leaving caverns underneath. All precipitous hills and inclines should have adequate provision for carrying off the subsoil water, and careful attention should at once be given. The sea wall should also be provided with more weeping holes. He did not wish to cast any reflection upon the Sandgate Board officers, but he thought an expert, unassociated with the town, should be employed to undertake this work. If his suggestions were carried out they would never, he thought, have an occurrence of this sort again, but as it was at present the slip would continue in its course. The proceedings then terminated.

#### PROBABLE CAUSES OF THE LANDSLIP.

Several explanations of the landslip at Sandgate have been offered, of which none is more interesting than that the disaster was caused by the strata known as the Sandgate beds slipping over the Gault clay. The Gault clay, as may be seen from the accompanying diagram of the formations in the neighbourhood of Sandgate—for which we are indebted to the courtesy of Mr. F. W. Rudler, Curator of the Museum of Practical Geology—is above the beds of the lower greensand, of which the Sandgate beds are one formation. The three strata of the lower greensand are:—1. The Folkestone beds; 2. The Sandgate beds; 3. The Hythe beds. The Hythe beds are the lowest, and rest upon the Atherfield clay. Below the Atherfield clay is the Weald clay. The descriptions of these strata are briefly as follow:—1. The Folkestone beds: Brown or buff sands. 2. The Sandgate beds: Dark clayey sand and clay. 3. The Hythe beds: Of about equal proportions of limestone and sand. 4. The Atherfield clay: Brown, and somewhat differing in colour from the Weald clay—thirty feet thick.

"THE RAIN DESCENDED AND THE FLOODS CAME."

There are two plausible explanations of the landslip from the geological point of view. Which is right cannot be precisely determined by any one but a geologist well acquainted with the exact vicinity of the slip. The first explanation is that the Sandgate beds slipped over the Atherfield clay, the nature of which is to freely absorb water, and then to become of a soapy and treacherous character. The recent heavy rains percolating through the more porous strata above would be sufficient to charge it with water. The other explanation—and from the position of Sandgate and the neighbouring strata on our diagram it seems at the moment an equally plausible one—is that the landslip was caused by some part of the Sandgate beds slipping over some other part of the same beds. The sandy clay of the formation is intersected by several belts of clay, of two to three feet thickness, and it seems possible that the upper beds have slipped over some rain-charged belt of clay in the lower part of the formation.

"AND GREAT WAS THE FALL OF IT."

Our sketches represent scenes at Sandgate on Monday and yesterday. In the area affected—the western part of Sandgate—there are few, if any, houses which are not out of line or do not show cracks. Everywhere walls are cracked, and buildings sunk or displaced. The greatest assistance has been rendered by the military authorities, who have sent over working parties from the camp at Shorncliffe hard by to help in the removal of property from damaged buildings and places where further destruction and subsidence are feared.

### SPORTING INTELLIGENCE.

#### TURF NOTES.

For long enough after racing was inaugurated at Gatwick the fates were particularly unkind, and frost, snow, rain, wind, and every other disagreeable element tended to spoil the sport and keep away the people. Yesterday, by way of a change, was perfect as regards weather, and naturally the attendance was much better than usual, though the rings and club enclosure are so much bigger than those of other racecourses that it would take a Derby crowd to give them the congested appearance which Sandown and Kempton sometimes have. In addition to good weather and good company, the sport was good too, but backers were not in their luckiest vein, and Stocktonian and Royal Red were the only favourites successful during the day. This self-same Stocktonian ought to have been beaten by Rajah had the Windsor form been confirmed, but Rajah broke down, and Stocktonian, having slipped his opponents before half-a-mile had been covered, won as he liked, and was bought in for 165 guineas. Warren Hastings fell when apparently about to win the Surrey Steeplechase, and the other favourite, Wynberg, was beaten half-a-mile from home, but Ulysses, who will not always put his best foot foremost, was for once in a way caught in a good

humour, and, after the Irish horse had dropped out, forged ahead, and won as he liked. In the Horley land Hurdle Race Dower easily defeated the penalised Fetterosso, and in the International Hurdle Race Vanguard beat William the Silent by a head, after a really pretty race, the favourite, Warrington, finishing third. The duel between Royal Red and Red Rube in the Tantiy Steeplechase ought to have been the tit-bit of the day, but the Sandown winner fell at the first fence, and Mr. Abington's horse got home a neck in advance of Benediction, to whom he was giving 12lb. The last-named had been beaten out of place behind Red Rube on Saturday, and his improved form suggests that there is little to choose between the chestnuts, provided both of them escape accidents. Royal Red is, however, the better fencer, and having now won three off the reel he is fairly entitled to a rest.

For the concluding day my selections are as follow:—

Wickham Hurdle Race—RED EYES.  
 Stewards' Steeplechase—OWICK or BAY COMUS.  
 Atalanta Flat Race—MOSQUITO.  
 Harkaway Steeplechase—CORREZE.  
 At Lichfield:—  
 Gopsall Steeplechase—RING ON.  
 Lichfield Hurdle Race—DING DONG.  
 Beaudesert Steeplechase—HARLOW.  
 Flat Race—BUELLA.  
 Alrewas Steeplechase—BEACON.

#### CEIDIPUS.

#### GATWICK MARCH MEETING.

**COTLAND FLAT RACE.** (Two miles.)—Stocktonian (Mr. E. P. Wilson), 1. Richard Rube, 2. Payful, Brilliant, Rajah, Lord Zetland, Tottie, and Sherborne also ran. Betting: 13 to 8 agst Stocktonian, 3 to 1 each agst Rajah and Lord Zetland, and 20 to 1 agst the other (offered). Won by thirty lengths: a length between second and third.  
**SURREY STEEPLECHASE.** (Three miles.)—Ulysses (Sensier), 1. Paul Pry, 2. The Saxon, 3. Wynberg, Warren Hastings, The Sikh, Young Glasgow, and Blanchardstown also ran. Betting: 3 to 1 each agst Wynberg and Warren Hastings, 11 to 2 agst Young Glasgow, 6 to 1 agst The Saxon, 7 to 1 agst Paul Pry, 100 to 12 agst Ulysses, and 100 to 8 agst any other. Won by twelve lengths: a bad third.

**HORLEYLAND HURDLE RACE.** (Two miles, over eight hurdles.)—Dower (Nye), 1. Fetterosso, 2. Pendragon, 3. Betting: Evens on Fetterosso, 5 to 2 agst Dower, and 3 to 1 agst Pendragon. Won by six lengths; the same distance between second and third.

**INTERNATIONAL HURDLE RACE.** (Two miles and a quarter, over nine hurdles.)—Vanguard (G. Williamson), 1. William the Silent, 2. Warrington, 3. Theosophist, Alcous, Serenity, Wrangler, Goldminer, and Alga Bay also ran. Betting: 2 to 1 agst Warrington, 7 to 2 agst Goldminer, 11 to 2 agst William the Silent, 100 to 12 agst Serenity, 9 to 1 agst Vanguard, 100 to 8 agst each Theosophist and Alga Bay, and 100 to 7 agst each Alcous and Wrangler. Won by a head; three lengths separated second and third.

**TANTIY STEEPLECHASE.** (Two miles.)—Royal Red (A. Nicholson), 1. Benediction, 2. St. Bede, 3. Red Rube, Athlumney, Shevbreed, and Panie Stricken also ran. Betting: 6 to 5 agst Royal Red, 4 to 1 agst Red Rube, 5 to 1 agst Panie Stricken, 10 to 1 agst Benediction, 100 to 8 agst St. Bede, and 20 to 1 each agst others. Won by a neck; a bad third.

**SAXON STEEPLECHASE.** (Two miles and a half.)—Miss Perkins (Mr. G. P. Russell), 1. Alps, 2. Bridget, 0. Mr. Gore weighed for Junius, but the horse was found to be lame and his number was taken down, and must not be considered a starter. Betting: 11 to 10 agst Bridget, 6 to 4 agst Alps, and 4 to 1 agst Miss Perkins. Won by a length and a half. Bridget fell.

#### LATEST BETTING ON THE COURSE.

**LINCOLNSHIRE HANDICAP.**  
 100 to 14 agst Pensioner (t) 1000 to 50 agst Friar John (t)  
 1000 to 80 — Wolf's Crag (t) 25 to 1 — Lady Hermit (t)  
 1000 to 80 — Mina (t) 25 to 1 — Macready (t)  
 1000 to 70 — Marston (t)

**GRAND NATIONAL.**  
 1200 to 200 agst Cloister (t)  
 100 to 8 — The Grinace (t)  
 100 to 8 — Mire (t) 2000 to 140 — Why Not (t)

**ORDER OF RUNNING THIS DAY.**  
 Atalanta Flat Race .. .. 2.0  
 Burstow Steeplechase .. .. 2.30  
 Wickham Hurdle Race .. .. 3.0  
 Stewards' Steeplechase .. .. 3.30  
 Coudson Hurdle Race .. .. 4.0  
 Harkaway Steeplechase .. .. 4.30

**ADDITIONAL ARRIVALS.**—Theosophist, Royal Red, Athlumney, Leybourne, Holmwood, Paul Pry, A. G. Bay, Junius, Winterbloom, Miss Perkins, Benediction, Mosquito, Bridget, Minister, Ulysses, Dower, Partisan, Fetterosso, Red Rube, Mohican, Oregon, Wrangler, Mosquito, Young Marden, Red Eyes, Shevbreed, Young Fern, Lord of the Valley, Carthusian, Carlo, Roy, Jolly Tar, Mareschal Neil, Lady Clare, Cupid, Springbank, Fugieban, Silversand, Peerless, Esher, and Ordeal.

#### LICHFIELD MEETING.

**ORDER OF RUNNING THIS DAY.**  
 National Hunt Flat Race .. .. 2.0  
 Alrewas Selling Steeplechase .. .. 2.30  
 Gopsall Steeplechase .. .. 3.0  
 Staffordshire Red-coat Hurdle Race .. 3.30  
 Ingestre Selling Hurdle Race .. .. 4.0  
 Lichfield Hurdle Handicap .. .. 4.30  
 Beaudesert Steeplechase .. .. 5.0

**ARRIVALS.**—Aunt Bessie, Antony, Arthur, Athol, Beacon, Boa, Bogie Man, Buella, Cinderella, Caustic, Dynamite, Foreshore, Fairfax, Golden Oriole, Jessamy, Joe Miller, Ina, Lucrative, Love Knot, Laurentia, Lady Gwen, Lambwood, Lord Tommy, Morphia, Marquis, May Day, Magnet, New Guinea, Novice, O. d. Ben, Ottawa, Poacher, Pincener, Red Amber, Rising Storm, Seznecot, Security, Redist, Stonebroke, Tyrol, Theba, Victory, Wilfrid Murray, Whitewood, Wandina, Willie Gray, Harlow, Odd Trick, and Happy-go-Lucky (aged).

#### LONDON BETTING.

**LINCOLNSHIRE HANDICAP.**  
 100 to 14 agst Pensioner (t) 20 to 1 agst Friar John (t)  
 11 to 1 — Mina (t & o) 25 to 1 — Macready (t)  
 100 to 9 — Wolf's Crag (t) 33 to 1 — Florrie (t & o)  
 100 to 6 — Acrobot (t & o) 33 to 1 — Worcester (t & o)  
 100 to 6 — Acrobot (t & o) 33 to 1 — Ionia (t & o)

**LIVERPOOL GRAND NATIONAL.**  
 6 to 1 agst Cloister (t & w) 50 to 1 agst Young Glasgow (o, after 33 to 1)  
 11 to 1 — Father O'Flynn (t & w)  
 15 to 1 — Why Not (t)

#### DERBY.

83 to 1 agst Tournesol (t)

#### OFFICIAL SCRATCHINGS.

Liverpool Grand National.—Carrollstown.  
 Kempton Park Engagements.—First Dragoon.  
 A1 Engagements in Mr. W. Chatterton's name, except at Derby.—Avant.  
 All Engagements in Mr. H. Sanders' name.—Sherborne.  
 All Engagements in Mr. C. C. Dorrner's name.—Wild Wales.  
 All Engagements.—Silvius (dead), The Tyne, Theocracy, Theobroma, Clondonia, Benevolence, and the scores of All two-year-olds in Mr. H. Cox's name and Cripple.

#### GOLF.

##### THE UNIVERSITY MATCH.

The annual match between the University golf teams was played yesterday over the links of the Royal Wimbledon Club at Wimbledon Common. Fine weather favoured the golfers, and a good muster of spectators turned up to see the play. It proved a runaway match, and only one of the Oxonians scored. Low just managed to beat Pearson, but the scores of Hambro and Parker were very large. Cambridge won by thirty-three holes to one.

**ROYAL BLACKHATH GOLF CLUB.**—There were twenty-six competitors for this club's monthly medal, at Blackheath, yesterday. Mr. A. Schacht won with a scratch score of 117, followed by Mr. J. G. Gibson, 117, plus 1, equals 118; Mr. F. S. Ireland, 118 (scratch); Mr. T. A. Rayner, 131, less 12, equals 119; Mr. C. Lethbridge, 140, less 21, equals 119; and Mr. W. K. Graham, 130, less 9, equals 121.

#### RACQUETS.

**THE GRAND MILITARY CHALLENGER CUP.**—Yesterday the first round of this competition, commenced on the previous day, came to an end at Prince's Club, Knightsbridge, with the following results:—4th Hussars (Captains F. Molyneux and Kincaid-Smith) beat 3rd Battalion Grenadiers (Captain Sir A. McMahon and H. Ruggles-Brise) by four games to love (15 to 1, 15 to 8, 15 to 9, and 15 to 9). 2nd Battalion 7th Royal Fusiliers (Messrs. Lawford and Fitzclarence) beat 4th Battalion Rifle Brigade (Captains Metcalfe and Mr. Majendie) by four games to three (4 to 15, 3 to 15, 15 to 4, 15 to 9, 4 to 15 and 15 to 9). Royal Horse Guards (Captain Spicer and Mr. C. Forester) beat 2nd Battalion Coldstream (Captains H. Arthur Henniker-Major and F. L. Maxse) by four to two (15 to 12, 9 to 15, 15 to 15, 15 to 10, 15 to 4, and 15 to 4). The West Kent pair drew a bye.

#### BILLIARDS.

**JOHN ROBERTS V. W. J. PEARL FOR £400.**  
 Visitors to the Egyptian Hall yesterday afternoon witnessed a welcome improvement in Peall, which naturally infused much more interest into the proceedings. The position overnight at the adjournment was that Peall had just over 700 points the worst of the handicap, but so well did he play during yesterday afternoon that at one moment he was actually in front upon the terms on which they are meeting. From the outset Peall played in a much more confident style than he had exhibited on any previous occasion during the match, and the manner in which he judged the strength of the table was noticeably better. Going on with his incomplete run of 21 he increased it to 60; and then he commenced a sequence of good breaks which very materially improved his prospects of success. In succession he put together 52, 50, 198, 40, 140, 153, and 25, the easy and finished style in which he controlled the balls continually evoking hearty applause from the spectators. His great rival was also in fairly good vein, but he did not compare so favourably as usual with Peall. His chief efforts during the afternoon amounted to 165, 79, 118, 141, and 87, and when the interval arrived with the scores Peall, 17,907, Roberts, 14,580—the latter had but little the best of the handicap.

In the evening there was again a crowded house, and a splendid display was given by Roberts, who at one period scored 1,024 points in four successive breaks. The Champion's chief efforts were 98, 221, a superb 432, one 20, 201, and 91. Peall did not have the best of luck, but he failed to utilise several chances. His best breaks were 41, 90, 50, 63, 99, and one 22. Scores at the close:—Peall, 18,586; Roberts, 15,921.

**C. DAWSON V. H. COLS.**—The first of the three spot-barred games of 3,000 up, in which Dawson is allowing his opponent 300 start, was brought to a conclusion at the Westminster Aquarium yesterday, the Huddersfield professional winning by 1,263 points.

### MAIL AND STEAMSHIP NEWS.

(FROM LLOYD'S.)

**ADRIATICA,** March 6.—Oroya, from London, arrived.  
**ADEN,** March 7.—Cape Colonna, Batoum for Japan, and Carmarthenshire, New York for Hong Kong, arrived. March 6.—Arcadia and Peninsular left for Australia and Bombay respectively.  
**ALBANY,** March 6.—Polynesian, from New Caledonia, Sydney, Melbourne, and Adelaide with mails, left for Marseilles. March 4.—Britannia, from Sydney, left for Brindisi and London with the mails.  
**ALXANDRIA,** March 4.—Oceanien, from Japan, China, Straits, and Colombo, left for Marseilles.  
**AVONMOUTH,** March 7.—Adair, from Philadelphia, arrived.  
**BARRADOSS,** March 6.—Mexican, from Liverpool (Feb. 19), arrived.  
**BOMBAY,** March 6.—Netherby Hall left for Genoa and Marseilles; Methley Hall left for Havre; Congo, from Hull, arrived. March 5.—Shannon arrived.  
**BOSTON,** March 7.—Sarmatian, from Clyde, arrived. (By cable).—Egyptian Monarch, from London, arrived.  
**CALCUTTA,** March 7.—City of Vienna, from Clyde and Liverpool, arrived; Clan Sinclair, for London via Colombo, left. March 6.—Mira, for London, left; Golconda, from London, arrived at Sangor.  
**COLOMBO,** March 7.—Orient, from London, left for Sydney. March 6.—Assaye, for Liverpool, left; City of Agra left for London. March 6.—Saghalien, from Japan, China, and Straits, with mails, left for Marseilles. March 5.—Sachsen, from Bremen, arrived.  
**COLON,** March 6.—Orinoco, from Southampton, arrived.  
**DEARBARA,** March 5.—Hunt, for London, left.  
**GERALDAR,** March 7.—The Channel Squadron arrived. Clan Matheson, Clyde for Calcutta, passed. March 6.—H.M. troopship Tamar passed.  
**HOLYHEAD,** March 7.—Pavonia, Boston for Liverpool, arrived. Hong Kong, March 6.—Glenogle and Nizam arrived.  
**LAS PALMAS,** March 6.—Herschel, from Liverpool, left for Brazil. March 5.—Ovingden Grange, from Newport, arrived and proceeded for Rosario.  
**LISBON,** March 7.—Gregory, for Para, left. (By tel.).—Itapatica, from Santos, arrived.  
**LIVERPOOL,** March 6.—Scholar, from Pernambuco, arrived. MADRIDA, March 7.—Dunottar Castle, from Cape Town, with mails from Natal and Cape Colony, arrived and proceeded for Plymouth.  
**MARSEILLES,** March 7.—Rosetta, from Calcutta, left for Gibraltar, Plymouth, and London.  
**MELBOURNE,** March 7.—Armand Behic, from Marseilles, arrived. March 6.—Wilcania, London for Sydney, arrived.  
**MONTE VIDEO,** March 6.—Florence, from London, arrived.  
**NATAL,** March 6.—Courland arrived with mails, ex Castle packet Roslin Castle from England.  
**NEW YORK,** March 7.—Pomeranian arrived from Clyde; Apollo, from Antwerp, arrived. March 6.—Rugia, from Hamburg and Havre, arrived; Italy arrived from London. March 5.—J. W. Taylor, from Brazil, arrived.  
**PALERMO,** March 7.—Garonne, from London for Syracuse, arrived.  
**PERIM,** March 6.—Rufford Hall, Liverpool for Kurrachee, Clan Fraser, Clyde for Bombay, and Clan Macarthur, Clyde for Calcutta, passed.  
**PHILADELPHIA** (by cable).—Illinois, from Antwerp, arrived.  
**PLYMOUTH,** March 6.—Sorata, from Va paraiso, arrived and proceeded for Liverpool.  
**QUEENSTOWN,** March 7.—British Princess, Philadelphia for Liverpool, arrived.  
**SABRES,** March 6.—Clan MacNeil, Madras for London, passed. (By tel.).—Dictator, Calcutta for London, passed.  
**SIERRA LEONE,** March 7.—Gambia, for Hamburg, left.  
**SINGAPORE** (by tel.).—Cape Conino, from Batoum, arrived.  
**SUEZ CANAL,** March 7.—Gaelic, Liverpool for Calcutta, arrived at Port Said; City of Perth, Bombay for Liverpool, arrived at Suez; Imperator, from Trieste, arrived at Port Said. March 5.—H.M.S. Euphrates, for Bombay, left Port Said.  
**SWANSEA,** March 4.—Mohican, for New York, left.  
**SYDNEY,** March 7.—Massilia, from London, arrived.  
**USANT,** March 7.—Glengarry, London for Shanghai, and Pindari, Calcutta for London, passed.  
**YOKOHAMA** (by tel.).—Oxus, from Marseilles, arrived. March 5.—Fintshire, from Tacoma, arrived. March 3.—Empress of India, for Vancouver, left.



2-C-6



MILFORD LANE, MILFORD LANE, LONDON.

### London Theatres.

(For fuller information see opposite page.)

**Adelphi.**—7.40: Who Speaks First. 8.0: The Lost Paradise.  
**Avenue.**—8: The Ironmaster.  
**Comedy.**—8.15: A Welsh Heiress. 9: The Sportsman.  
**Criterion.**—8.30: The Bumble Bee.  
**Drury Lane.**—7.30: Little Bo-Peep, Little Red Riding Hood, and Hop o' My Thumb.  
**Gaiety.**—8.15: In Town.  
**Garrick.**—8.0: Diplomacy.  
**Globe.**—8.0: Confederates. 9.0: Charley's Aunt.  
**Haymarket.**—8.15: Hypatia.  
**Lyceum.**—8.15: Decket.  
**New Olympic.**—7.30: Dick Whittington.  
**Savoy.**—8.25: Haddon Hall.  
**St. James's.**—8.30: Liberty Hall.  
**Strand.**—8.0: No Credit. 8.50: Nishe.  
**Toole's.**—8.0: Off the Line. 8.45: Walker, London.  
**Travalgur Square.**—8.10: The Artful Dodge; 9.0: The County Councillor.  
**Vaudeville.**—8.30: The Master Builder.

### MORNING PERFORMANCES.

DRURY LANE, 1.30; GLOBE, 3; NEW OLYMPIC, 1.30; ST. JAMES'S, 2.30; STRAND, 2.30; TRAVALGAR, 2.30.

### TOPICS OF THE DAY.

#### GRIMSBY.

It would be too much to hope that the return of Mr. Henage by a majority of 964 for the borough of Grimsby indicates that the great mass of Liberal electors have had time to appreciate the ruinous absurdities of the Separation Bill. More personal reasons undoubtedly had something to do with the return of the electorate to its old allegiance. In part their verdict probably expressed resentment at the attempt of Sir Edward Watkin to direct them how to vote; in part it seems to represent objection to the personality of Mr. Broadhurst. This latter feature of the election is regrettable; for Mr. Broadhurst's consistent integrity of purpose and manly avoidance of popular but impracticable fads have won him the esteem of his opponents as well as his allies. Still the fact remains that the labour movement has progressed faster than Mr. Broadhurst's programme has developed, and that he fails to excite any exuberant enthusiasm among the classes whom Mr. Keir Hardie and Mr. John Burns lead by the nose. That such considerations should be found to weigh with an important constituency at the present constitutional crisis shows, however, that English Radicals have hardly that intense zeal for the Worse Government of Ireland with which Mr. Gladstone, in his inspired moments, likes to credit them.

#### PLEURO-PNEUMONIA AND DEAR MEAT.

The question brought forward in the House

sibility of the State Agricultural Department is very heavy.

#### THE SANDGATE LANDSLIP.

In the opinion of the official of the Local Government Board sent down to investigate the matter the disaster at Sandgate, might have been prevented by a proper system of surface drainage, and is likely to recur unless such a system is adopted. The cost of the reform cannot, of course, be inconsiderable; and the incidence of it will be the more severely felt because the town is small, and the rateable value of property there has been appreciably lowered by the calamity. Still, if the place is to recover its prosperity as a watering place, this initial step is absolutely necessary. The Local Government Board will doubtless sanction a loan for purposes which their own representative has declared to be imperative; and freeholders will doubtless see that it is to their interest to assist occupiers in bearing the burden of the outlay.

### COURT CIRCULAR.

#### WINDSOR CASTLE, Tuesday.

Their Majesties the Queen and the Empress Frederic drove out yesterday afternoon, accompanied by her Highness Princess Victoria Eugénie of Battenberg.

Their Royal Highnesses Prince and Princess Henry of Battenberg, attended by Lieut.-Colonel Clerk, went to London and returned to the Castle in the evening.

His Excellency Count Deym (Austro-Hungarian Ambassador), his Excellency Rustem Pacha (Turkish Ambassador), and the Earl and Countess Spencer arrived at the Castle.

The Queen's dinner party included her Imperial Majesty the Empress Frederic, their Royal Highnesses the Duke and Duchess of Connaught and Prince and Princess Henry of Battenberg, their Excellencies the Austro-Hungarian and Turkish Ambassadors, the Dowager Lady Southampton (Lady-in-Waiting), Earl and Countess Spencer, Countess Brühl and Count Seckendorff (in attendance on the Empress Frederic), and Lord Camoys (Lord-in-Waiting).

The Queen went out this morning, accompanied by her Royal Highness Princess Beatrice.

His Royal Highness the Duke of Connaught has returned to Portsmouth.

Their Excellencies the Austro-Hungarian and Turkish Ambassadors and Earl and Countess Spencer have left the Castle.

The Dowager Lady Southampton has succeeded Viscountess Downe as Lady-in-Waiting to the Queen. Lord Acton and Captain Walter Campbell have succeeded Lord Camoys and General Sir Michael Biddulph as Lord and Groom in Waiting to Her Majesty.

#### THE PRINCE OF WALES.

#### MARLBOROUGH HOUSE, Tuesday.

The Prince of Wales was present at a meeting this morning of the Royal Commission on the Aged Poor. His Royal Highness went to the House of Lords this afternoon.

### IN THE HOUSE.

"WE'VE GOT THE MEN."

gentleman half way. "There are he urged, "the vote for men and money." "Let us take the men and money." This will afford members prepared speeches an opportunity of them." Sir William Harcourt could not. But while he was musing over the p Gibson Bowles effected a diversion. move a reduction of the vote for and boys by one man—namely, the at Portsmouth. When can I do it hon. member can only move a reduction," explained Mr. Mellor. an admiral!" said Mr. Bowles. solitary joke of the afternoon, and thoroughly enjoyed it. Sir William had not time to smile. One of his moved the closure of the debate, a time members had collected for the was too late to proceed with any fu ness. The vote for men was agreed to division; the vote for the money to still remains to be discussed.

### COURT THEATRE.

#### "THE AMAZONS."

An "original farcical romance" is the given by Mr. Pinero of "The Amazon three-act whimsicality produced with last night at the Court Theatre. It is, most Gilbertian piece Mr. Pinero has given absolute resemblance to any known piece Gilbert's is to be traced, the nearest the story selected being, perhaps, in "Princess." The world in which passes is, however, as quaintly as that of "The Palace of Pygmalion and Galatea." This is not because the characters are in a sense those of day life. With the exception of a cl poacher, and two or three servants, the persons of "The Amazons" are all titled. action passes in Overcote Hall and its the whole is quaintly farced with absurdities and mock heroics. Thwart hopes of a son who is to inherit dignities and perpetuate the family of Lady Castlejordan, known in her court eccentric Marchioness, has brought up her tically as boys. In this scheme she has her widowhood, the support of her husband of Viking giant. Lady Noeline, Lady Wilhelmina, Lady Thelma, Lady Beltrubet are according as Lords Noel, Willie, and Tom.

During his lifetime, indeed, the Marquis even more exigent on the subject than chioness. When the first girl arrived he his wife's bed and said in a whisper, "Miriam, you've lost a whole season's h nothing." Upon the arrival of the second not speak to his wife for a couple of months away from home, or on reception days, the allowed to dress in female gear. In a vi land, Lords Willie and Tom, thus equipped captured the hearts of the Earl of ways and André Comte de Grival, nobleman afflicted with an acute form of As Lord Noel, the eldest, has also captured a different fashion. Dressing herself in attire while in London she has prowled West-end at unseemly hours, displayed gre of a completely masculine sort, has been m after fainting, been carried in strong arm apartments of a stalwart young gentleman to be her unknown cousin, Viscount L stand matters at the outset, when the t bent on seeing their fair ones, crawl furtive jealously-guarded park. From this mo whole is a carnival of absurdity, ending in young noblemen finding their way by invil the gymnasium at Overcote Hall, indulg saturnalia of wine and dancing, and being in their proceedings by the Marchioness.

COLUMN.

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the CHURCH



**THE SUBSIDENCE AT SANDGATE.****FURTHER DAMAGE.**

The high wind which prevailed on Tuesday night, together with a further settling down of the land in the area affected by the subsidence, has considerably intensified the damage already reported. Spring House is settling down fast, and the greatest fears are entertained that it will fall in the course of a few hours. As it is it is only being kept up by the adjoining house—Spring Cottage. Increased damage in the gardens of Encombe is also evident, the fissures in the earth being much larger. Subscriptions to the fund continue to flow in, and it is stated that up to the present the amount received is about £2,000.

The Town Clerk of Folkestone has written to the Mansion House with regard to a subscription, and has received the following reply:—

"Mansion House, London, March 8th, 1893.

"DEAR SIR,—It will afford me great pleasure to do all I can to relieve the distress occasioned by the disaster at Sandgate, both by contributing myself and by receiving donations at the Mansion House from those of my fellow citizens and the benevolent public who sympathise with those suffering from this sudden and (at present) unaccountable calamity. I will send all sums I receive to the Mayor of Folkestone.—Yours truly, STUART KNILL, Lord Mayor."

Now that the excitement has somewhat subsided, the effect of the occurrence on the trade of the town is generally being realised. Whole families have emigrated from the town, and many of the tradesmen will have to lament the loss of their customers as well as the loss of their houses. Men with vans are still busy moving furniture, this time from the places where it was temporarily stored into houses and apartments taken by the sufferers in the adjoining towns.

Yesterday afternoon a private meeting was held at the Town Hall, Folkestone, to consider the advisability of raising a relief fund in the town, and this course was unanimously decided upon.

The Sandgate Local Board has decided to appoint Mr. Andrew Bromley (architect) to examine the houses affected and to advise as to their condition, specifying those which must be destroyed, and those which it may be advisable and possible to repair.

**THE UNIVERSITY BOAT RACE.**

Though it was known that the state of the tide would necessitate all the work of the crews being done late in the afternoon, there was a large crowd yesterday on the towing-path at Putney. Fortunately for all who made their way to the river side, however, the weather was so pleasant that waiting about involved no hardship. At about a quarter to five the Oxford men got into their boat, and as a Leander crew had gone up the river in advance it was clear that something important was impending. With C. W. Kent as stroke, R. P. P. Rowe as No. 7, and Guy Nickalls as No. 6, the scratch crew were more than usually powerful. Starting from a moored skiff at Putney Bridge, Oxford, who had arranged to row the full course, got away at thirty-five to the minute. At this stroke the boat travelled exceedingly well, but Pilkington did not think it wise to keep it up very long, and gradually dropped to thirty-three and thirty-two, the latter rate being maintained, with little or no variation, from the Concrete Wall right away to Barnes Bridge. Beyond Hammersmith the rowing was perhaps not so regular as it had been, but there was no serious fault to be found with it. Moreover, the flood was so sluggish as to give the crew very little help. Above Barnes Bridge the scratch crew were waiting, and, taking a moderate lead, they gave Oxford a very smart race to the Ship at Mortlake. When the spin ended Oxford certainly led, but opinions differed as to the extent of their advantage. Some people reckoned it at half a length, and others at considerably less. In the final spurt Pilkington increased his steady stroke of thirty-two to thirty-six, and at the quicker rate there was certainly some raggedness in the boat, Pilkington, Pitman, and Fletcher, seeming to keep their form much

**THE PANAMA BRIBERY TRIAL.****REMARKABLE DISCLOSURES.**

(THROUGH REUTER'S AGENCY.)

PARIS, Wednesday.—The new Panama trial, which is quite distinct from the action for breach of contract which was before the Appeal Court in January, and ended in the passing of heavy sentences on de Lesseps, Cottu, Fontane, and Eiffel, this morning before the Assize Court in the Palais de Justice.

The accused are charged with bribing to receive bribes. The defendants are M. Charles de Lesseps, M. Fontane, M. Bihaut, former Minister of Public Works, who has confessed to having accepted a sum of money from the Company, the ex-deputies MM. Antonin Proust, Bérail, the deputies MM. Antonin Proust, de la Fauconnerie, the ex-deputies MM. Gobron, and M. Blondin, the private friend of M. Bihaut.

The great crowd which gathered in the Palais de Justice long before the trial opened, bore testimony to the public interest in the proceedings. In the corridors of the Palais de Justice were observed MM. Clemenceau, Spuller, and Floquet, and Baron Mackau. The court filled rapidly as soon as the public were admitted at a little before noon. Among those present were M. Regnault, formerly chief of M. Floquet's Cabinet, and several members of the Parliamentary Committee of Inquiry, who had been delegated by that body to watch the trial. Sixty witnesses were in attendance.

**THE DEFENDANTS IN COURT.**

On being brought into court the nine defendants took their places in the following order: M. Charles de Lesseps, M. Fontane, M. Bihaut, M. Blondin, M. Sans Leroy, M. Bérail, M. Dugué de la Fauconnerie, M. Gobron, and M. Antonin Proust. M. Charles de Lesseps, Fontane, and Bihaut appeared much worn by their long confinement. The others, who only surrendered this morning, seemed acutely conscious of the position in which they found themselves.

The proceedings commenced at ten minutes past twelve, when the accused were successively called upon to state their names and occupations, which they did in voices betraying some emotion. After the Greffier had read the indictment, to which the defendants listened very attentively, the calling of the witnesses for the prosecution commenced.

M. Danet, counsel for M. Sans Leroy, asked the presiding judge why a certain list, extracted from Arton's papers, had not been placed at his disposal. The list in question had been mentioned during the preliminary examination of his client by the magistrate, who had stated that the paper had been seized at the house of a person named Deschamps. Counsel went on to urge that the judge should, in virtue of the discretionary power vested in him, order the magistrate to hand over to him the deposition of Deschamps and the list given to the latter by Arton, and that he should summon Deschamps as a witness. After a few words from the Public Prosecutor the judge assented to M. Danet's application, and orders were given accordingly.

**EXAMINATION OF M. DE LESSEPS.**

M. Pilet Desjardins, the presiding judge, then proceeded to examine M. Charles de Lesseps.

He commenced by asking the accused whether he had had the management of the business connected with the advertisements and syndicates of guarantee.

M. Charles de Lesseps replied: "I was employed by my father."

The Judge: "Who first had the idea of piercing the Isthmus of Panama?"

M. Charles de Lesseps: "My father. And I am proud to say that I was deeply gratified at being able to be of use to my father in his work. I was never anything but an official in charge of the daily routine work."

The Judge: "You managed the business?"

of procedure was largely encouraged."

The Judge: "Leave the case to the jury. (Prolonged uproar.)"

M. BAIHAUT'S DEFENCE.

The Judge then proceeded to examine M. Bihaut, who was having paid Herz, justification, the sum of 600,000 francs, the money which belonged to the next referred to the payments and asked how M. de Lesseps was

M. Charles de Lesseps replied: "I was a friend of the Minister who went to M. Fontane and said that he was prepared to introduce a Lotte required a certain sum to defray advertisements required to support the fact, initiated by the Government."

The Advocate-General: "The fact, which I cannot allow. Give me a more definite statement."

M. Charles de Lesseps: "The man who went to M. Fontane was not from the Government, I know nothing to do with him. For that I should shortly be asked to resign, and that, if an arrangement was concluded with the gentle mediator, the Minister himself would be the introduction of the Bill. Lesseps went on to say that he was received with the declaration led to expect, namely, that the favour of the introduction of the Bill Lesseps added that, on returning to M. Fontane: "Send for this man. The Judge: "You remember the order?"

M. Charles de Lesseps: "I had this gentleman was Blondin. He demanded 375,000 francs were paid to him."

The Judge: "Then the fact of the introduction of the Bill."

M. Charles de Lesseps retorted and I believe it will be difficult to Bihaut told me that he was charged to study the question, and that the Bill depended entirely upon there was no room for hesitation."

At this point the Court adjourned.

**THE ROLE OF REINACH.**

On the resumption of proceedings, M. Charles de Lesseps was interrogated M. Charles de Lesseps relations with Baron de Reinach, had paid him money."

M. Charles de Lesseps: "In order to impose the issue. Moreover, I imposed their demands upon one of those. He boasted of his share of two millions in the case. I had to raise that figure. He demanded ten or twelve. He said demanded by Cornelius Herz, influence, and who might make from him. I refused. He insisted, a lost man."

MM. DE FREYCINET AND C.

Meanwhile one day an Ordinance that de Freycinet wished to on July 12th. In the interval between the Bill and the issue of the law, Freycinet, who declared that he was in his Ministerial capacity but guardians of the Republican principle, question of a suit being brought against Reinach. That would be annoying can settle the matter. I replied was one of the pressure exercised upon de Reinach, who had been an business together and wished to remain with me not my own."

The Judge: "Then you spoke Freycinet?"—M. Charles de Lesseps: "I say."

The Judge: "And supposing M. Charles de Lesseps puts it?"—M. Charles de Lesseps: "It, but that will be no proof that the truth. In consequence of my cinet I gave not two millions but





A special meeting of the Sandgate Local Board, under the presidency of General Sir Charles Keyes, was held yesterday. Mr. Baldwin Latham, C.E., stated that the chief cause of the landslip had been probably the scouring action of the sea on the beach. He did not think it would be a very serious matter to prevent a further extension of the slip.

THE SUBSIDENCE AT SANDGATE: PLAN OF THE SEA FRONT AND ENDANGERED QUARTERS  
OF THE TOWN.

as at Sandgate. In each case the strata dip towards the sea. The nature of the Atherfield clay, known locally as "clyte," is to freely absorb water, and it then becomes of a soapy character, which makes it exceptionally treacherous. The Weald clay is blue and comparatively dense, and not much influenced except when exposed to air. The probability is that, as the Hythe beds of rock at Sandgate are exposed on the foreshore, and immediately below them is the inclined soft bed of clyte, charged abnormally with water from the recent continuous rains, the superincumbent weight of the lower part of the cliff upon the yielding wet clyte has caused the present general subsidence of the cliff, and consequent upheaval of the rocks and beach below high-water mark. Doubtless, the low spring tides have aided

this movement, owing to the weight of water on the sea bed being reduced, and until the greensand beds settle down on to the blue clay of the Wealden strata further disturbances are extremely probable. The condition of the surface at Sandgate resembles by its configuration what has evidently taken place from time to time in many other parts of this district."

THE Royal yacht Osborne, with the Princess of Wales, the Princesses Victoria and Maud of Wales, and the Duke of York on board, arrived at Spezia at four o'clock yesterday afternoon. The Italian Admiral and the head of the naval arsenal proceeded on board the Osborne to pay their respects to their Royal Highnesses.

(FROM LLOYD'S.)

ADEN, March 9.—Siam, from Bombay, arrived.  
AMSTERDAM, March 10.—Umh city, from London, arrived.  
ANTWERP, March 9.—Adour, from Australia, arrived.  
BOSTON, March 8.—Ferutian, from Glasgow, left.  
BRKMMHAYEN (by tel.).—Europa, from Calcutta, arrived.  
BRINDISI, March 9.—Hydaspes, from Alexandria, arrived.  
BROW HARB, March 10.—Ottoman, Boston for Liverpool, passed.  
COLOMBO, March 9.—Cuzco, from Sydney, left for London.  
DARTMOUTH, March 10.—Denderah, from Valparaiso, arrived and proceeded for Hamburg.  
GIBALTAR, March 9.—Kosetta, from Calcutta, left for Plymouth.  
GLASGOW, March 9.—Circassia, for New York, left.  
GRAND CANARY, March 9.—Oil Rivers, from Liverpool, arrived.  
HAGUE, March 9.—West Africa, left for Hamburg.  
HALIFAX, March 9.—Assyrian, from Clyde, arrived.  
HAVRE, March 10.—Tiverton, from Savannah, Uruguay, from Buenos Ayres, arrived.  
KINSTON, March 8.—Louisianian, for Vera Cruz, left.  
LAS PALMAS, March 10.—Echua, from London for Fremantle, &c., arrived.  
LIVERPOOL, March 10.—Britannic, from New York, arrived; Scholar, for Pernambuco, and Clan Macintyre, for Cape Town, left.  
MARSEILLES, March 9.—Persia, Bombay for Liverpool, left.  
MIDDELBURG (by tel.).—Habsburg, from Bremen, and Danubius, from London, arrived.  
MONTA VIEJO, March 9.—Lusitania, for Liverpool, left.  
MOSSEL BAY, March 10.—Warrnambool, from London, arrived.  
MOVILLE, March 10.—Circassia, for New York, and Saradinian, for Halifax, left.  
NATAL, March 10.—Eoslin Castle, from London and Cape

NEW YORK, March 9.—Norwegian cable)—Weimar, from Bremen, 4 days arrived.

OLD HEAD OF KENSAL, March 9.—New Orleans, passed.

PHILADELPHIA (by cable)—Mendocino, March 7.—Nestorin, for Glasgow, arrived.

PORTSMOUTH, March 10.—Catalpa arrived and proceeded, March 9.—St. Vincent, March 9.—Zephyr, and proceeded for Liverpool.

SOUTHAMPTON, March 10.—Thames, Brazil, arrived.

SUEZ CANAL, March 10.—Dispart, March 9.—Omdur, from London, 4 days, Calcutta for London, arrived at Shanghai, arrived at Port Said, Suez for Marseilles and Portsmouth, passed Suez with the mail for Adelaide.

SYRACUSE, March 9.—Garonne, &c., arrived.

TEKURUPPE, March 10.—Umbilo proceeded for Natal.

USHANT, March 10.—Clan MacDonnell, for London, passed; Kangatira, passed.

# THE AMERICAN

(THROUGH REALTY)

New York, Friday.—On the St. Paul was largely professional. Coal attacked and general electric stock five points on report a few further gains in the dividend from 8 to 6 per cent falling 1 to 2. Railway stocks were the break in industrials. Trade the action of the Government at Washington uncertain conditions compels effluence of the less amounted, \$10,000,000, 700,000 shares. Money former rate in the rate to Chicago bank a small note estimated that small notes to iron gold, it from the West, nts of gold fol

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**SUBSCRIBERS to the Daily Graphic**  
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 table to E. J. Mansfield, to who  
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know the story of the man who, at a dinner courteously inquired of a fellow guest, "Excuse me, sir, but are you the waiter?" and received the equally courteous answer, "No, sir, I am not. Are you?" Yet, though anecdotes of the sort have circulated for many decades, it is only quite recently that a simple and effective means of distinguishing the guest from the waiter otherwise than by the greater distinction of his bearing has been invented and patented. It consists of a handsome gilt casing which can in a moment be drawn over the ordinary buttons of the waiter's coat, and so transforms the simple, homely swallow-tail into a gorgeous and resplendent uniform. The invention is due to the suggestion of a Member of Parliament, who lately shook hands with a waiter at a public banquet under the mistaken belief that he was a scion of a county family.

Whether the elaborate and often beautiful sale catalogues which find their way to us from the Continent repay the cost of production is a matter, perhaps, about which it is ungenerous to inquire. One wonders occasionally, though, why it is that so seldom is anything seen at home in any way to approach them. The latest to reach us is a catalogue of the sale at Vienna of the pictures of that brilliant Viennese artist and Rector of the Royal Academy of Vienna, Leopold C. Müller. Those who do not know the artist's work—and these may be many—should certainly not miss an opportunity of looking over the very beautiful reproductions which the catalogue holds, particularly noticeable being the fine series of Egyptian subjects painted during the artist's long residence at Cairo. To make the volume more complete, George Ebers, a friend of Müller, prefaces the list with a very interesting and appreciative biography.

It is rather remarkable that no serious attempt has hitherto been made to deal systematically with the origin and early growth of the various forms of decorative art. Valuable information on individual aspects of the subject is to be found in the writings of several archaeologists, but very little has been said as to the general laws by which the evolution of the art of design has been controlled. Yet the problem is one of fascinating interest, and must necessarily hold an important place in any complete history of the efforts of the human race to express and to gratify its feeling for beauty. An excellent little book on the subject by Mr. Henry Balfour, curator of the Pitt-Rivers ethnographical collection at Oxford, has just been published, and ought to do much to stimulate interest in this class of inquiries. It is called "The Evolution of Decorative Art," and presents in a lucid and attractive style many suggestive ideas.

Mr. Balfour devotes attention mainly to the arts of existing savage races, and shows with admirable skill some of the stages through which these have passed.

### THE SANDGATE DISASTER.

TO THE EDITOR OF THE DAILY GRAPHIC.

SIR,—The appeal to the public for assistance for the sufferers from the recent landslip, inserted in your columns last Monday, having met with such a liberal and prompt response, we have found it impossible properly to acknowledge the various sums received from every part of the kingdom, and we can only in this general manner assure all contributors of the sincere gratitude of those collecting as well as of those who will ultimately benefit by the fund. We trust that the flow of subscriptions will not be in any way checked, as the amount already in hand (about £5,000) will go but a short distance towards alleviating the distress which has been occasioned by the disaster.

Thanking you for your courtesy in the matter, we are, Sir, yours faithfully,

C. P. KEYES, General,  
Chairman Sandgate Local Board.  
H. RUSSELL WAKEFIELD,  
Vicar of Sandgate.

With reference to an appeal for funds on behalf of the Homestead, Sandgate, General Sir Charles P. Keyes, who opened the institution, and who is Chairman of the Local Board, has brought to our knowledge some facts which seem to render it desirable that no response should be made to the appeal without careful inquiry.

Mr. Mark H. Judge writes from Castle House, Sandgate:—"I have just received an important letter giving particulars of a subsidence at another watering place some years ago, caused by explosions under circumstances similar to those which it is alleged contributed to our disaster here. I shall be glad if you will allow me to appeal to any of your readers who may know of any like occurrence to communicate with me."

### MEMORANDA FOR TO-DAY.

Sun rises 6.20, sets 5.59.  
Moon's age at noon, 24 days 20 hours.  
The Prince of Wales holds a Levée, St. James's Palace, 2.  
Twenty-fourth anniversary meeting of the Tower Hamlets Mission at the Great Assembly Hall, Mile End Road, Mr. F. N. Charrington presiding, 8.  
Unionist meeting at the Bermondsey Town Hall, 8.—Speeches by Mr. C. Macdonald, M.P., Mr. J. A. Rentoul, M.P., and Mr. G. W. Wolff, M.P.  
Opening of the Library at the Borough Polytechnic, 8.30.  
Meeting of the Library Association at Toynbee Hall, 8.  
Kensington Rowing Club Smoking Concert, St. James's Hall, 8.  
Final Contests for the Amateur Billiard Championship, at 16, Soho Square, 3.  
Royal Institute of British Architects—Election of Gold Medallist and business meeting, 8.  
Professor W. C. Roberts-Austen on "Alloys," Society of Arts, 8.  
RACING.—Windsor.  
COURSING.—Haydock Park.  
FOOTBALL.—At Stoke-on-Trent, England v. Wales.

### EASTER AND THE VOLUNTEERS.

#### THE MOUNTED INFANTRY AND CYCLISTS' PREPARATIONS.

In consequence of the important part which the sections of mounted infantry and cyclists of the metropolitan volunteer corps will play in the nearly approaching Easter volunteer mobilisations, Lord Methuen has approved of all the sections of these troops in the Home District being assembled at Wimbledon next Saturday for a combined tactical exercise which will be directed by Colonel Hutton, A.D.C., lately in command of the regular mounted infantry regiment at Aldershot, and who was at the head of troops of the same kind during the Nile Expedition. The few marching columns of infantry corps which are to be started early in the week before Good Friday promise to be of good strength in proportion to the regiments which supply them, and the best are to be formed by the Queen's Westminster, the Artists, and the London Scottish. The column of the latter expect to be encountered on the Thursday, between Polegate and Eastbourne, by a column of Sussex Volunteers, and the corps from London will have to fight its way to its quarters in the Pavilion and other buildings in Devonshire Park. The column of the Queen's is to leave Victoria on the Wednesday morning for Hayward's Heath, whence it will march to Lewes, and, halting at the Town Hall for the night, arrive in Eastbourne on Thursday evening. The Artists will start from London a day earlier than the Queen's, and have two night halts en route, but the roads to be followed and the halting places have not yet been announced. The London Medical Staff Corps will not join any of the infantry mobilisations, but a strong body of the men will spend Easter at the Royal Victoria Hospital at Netley and receive instruction in the duties they would have to perform at a base hospital. The London and Brighton Railway, which will convey the regiments of the South London and Surrey Brigades to Eastbourne and Brighton, have fixed their charges at 7s. for officers and 3s. 6d. for men from Thursday, the 30th inst., till Tuesday, the 4th prox.; for those who join their corps on Easter Monday only and return the same day the rates are to be 5s. and 2s. 6d. The blankets, cooking apparatus, etc., to be used by the troops at Eastbourne and Brighton will be supplied from the Government stores at Dover, which will also have to equip the North London Brigade at Canterbury; while the requirements for the East London Brigade will be met on the spot from the stores at Chatham. In the manoeuvres near the latter place the volunteers will be joined by strong battalions of the Royal Engineers and Royal Marines and by the 2nd battalion Leicestershire Regiment. The Honourable Artillery Company's Infantry will be attached to the last named corps. On Saturday the majority of the London regiments were at drill in the parks or at Wimbledon, in preparation for Easter; but several corps are still delayed in their spring training by the prolonged detention of their arms for the periodical examination at the Small Arms Factory.

## PARENT COMPANY. ISSUE FOR WORKING CAPITAL.

Transvaal as a Gold Producing Country has been proved by the Enormous Returns of Gold which have and are being mined. The gold was about £6,000,000. In 1892 the product of gold from one district of the Transvaal alone was about £1,000,000. Mr. Hamilton Smith, speaking of that District, foreshadows a future yield of Sixty Million Ounces of Gold, having a money value of about £1,000,000 and this on an average yield of only 12½ dwts. per ton.—See Times, 17th Jan., 1893.  
The New Year's Reef, is reported to be a true fissure vein, and an Assay of Ore from this Reef has yielded upwards of Thirteen ounces of Gold per ton.—See Report.

## RP GOLD MINING COMPANY, Ltd.

(TRANSVAAL MYNPACT.)

Incorporated under the Companies Acts, 1862 to 1890.



## THE SANDGATE DISASTER.

A meeting of property owners was held yesterday at Sandgate in connection with the recent land subsidence. The Rev. H. Russell Wakefield presided, and Colonel Lee (commanding the Royal Engineers at Shorncliffe) attended on behalf of the War Office. The Chairman stated that the object of the meeting was to confer with property owners concerning what they proposed to do with regard to the reclamation of the damaged property. He pointed out that Mr. Latham recommended an elaborate scheme of drainage, the cost of which would be very considerable, and they wished to know how that cost was to be met.—Colonel Lee stated that the War Office were in no way interested, as the subsidence had taken place below the border line of their property.—Mr. J. H. Duboulay said he would not agree to any scheme until the cause of the subsidence had been explained.—Mr. Pledge spoke in favour of a provisional order being obtained in order that the cost of repairing the damage might be met by a rate on the whole or a part of the Local Board district. He further stated that through the subsidence he had lost a terrace of houses which had brought him a rental of £390 a year.—The Chairman said it was very clear that whatever was done would have to be by a rate, but the question was whether it should be contributed to by the whole district, or by the affected area only.—It was decided to adjourn until Mr. Latham, the engineer, had made his official report.

There is very little alteration in the appearance of the affected property at Sandgate, but it is evident that the subsidence is still going on, as the coastguards point out several additional fissures and cracks in their cottages on the sea front. In view of another subsidence, which is feared, every effort is being made to fill up all fissures as quickly as possible.

With reference to a paragraph which appeared in yesterday's *Daily Graphic*, Mr. John James Jones states that the repairs necessary to the Homestead at Sandgate will fall upon the landlord, and that no appeal for funds has been made by the directors of the institution.

## BUILDING TRADES' EXHIBITION.

The Building Trades' Exhibition, which was formally opened on Saturday, at the Agricultural Hall, Islington, was visited yesterday by large numbers of people, and the band of the Victoria and St. George's Rifles enlivened the proceedings. There are a good many exhibits of a nature interesting, not only to architects and builders, but also to the general public. There are door appliances (including a mechanical substitute for a porter), windows which open on hinges as well as by means of sash-cords, telescope ladders, portable scaffolding which house-painters and decorators will find useful, various pavements suitable for the outside as well as the inside of houses, patent wood floorings, cements, bricks, paints, &c. The visitor will also find exhibits which have a more distant connection with the building trades, such as gem calculators, fire-extinguishing apparatus, wood-carving machinery, waggonttes, gigs, and other vehicles, lifts, fireplaces, kitchen ranges, greenhouses and other garden buildings, overmantels, and patent tobacco pipes.

## IMPERIAL PARLIAMENT.

### HOUSE OF LORDS.

The Lord Chancellor took his seat on the Woolsack at a quarter-past four o'clock.

#### IRISH REPRESENTATIVE

Lord Rathdonnell took the oaths and was elected as an Irish representative peer.

#### TEMPERANCE LEGISLATION IN

The Earl of WEMYSS asked Her Majesty if they would take steps to before Parliament reliable information present working of the "liquor laws" in the United States, in continuation already presented to Parliament. In important discussions which might take place in the United States, in continuation of the Local Veto, it was desirable that the be furnished with full and complete information with respect to the working of against the liquor traffic in Canada and the United States. The noble lord said that on a motion he had called attention to an address of Professor Goldwin Smith, in which he discussed the operation of the prohibitive laws in Canada and the United States. He stated that these laws had been found to be recommended the Parliament of this country not to embark on this kind of legislation without first obtaining full information on the subject. He (Lord Wemyss) had then obtained reports from the United States and Canada, and he would now move for reports in continuation of those which had then been laid on the table.

The Earl of ROSEBURY said that the Foreign Office would obtain reports on this subject from our Legation in the United States, and the Colonial Office would obtain similar reports from Canada and Australia.

The motion was then agreed to.

#### EARL SPENCER'S LORD-LIEUTENANCY.

Lord ASHBORNE asked the First Lord of the Admiralty under what authority or power he was acting when (as he stated on March 3rd last), during his tenure of office as Lord-Lieutenant, he over-ruled the objections of the military authorities and broke up regiments into divisions, to be sent into parts of Ireland when the peace of a district was threatened.

Earl SPENCER said that he had not broken up regiments in the manner referred to. What had more than once happened was that the military authorities had desired to move detachments in a manner from which he dissented, but he could recollect no case in which he had to use his power as Lord-Lieutenant to over-rule the action of the military authorities. They invariably did what he wished in regard to these matters.

Lord ASHBORNE said that he would renew the question on a future occasion, as he desired fuller and more accurate information.

#### BILLS PASSED.

The Archdeaconry of Cornwall Bill and the Coinage (No. 2) Bill were read a third time and passed. The House adjourned at a quarter to five o'clock.

## HOUSE OF COMMONS.

The Speaker took the chair at three o'clock.

### THE LABOUR CORRESPONDENT.

Replying to questions from Colonel Bouverie, the Speaker said that the Labour Correspondent was not a member of the House.

Mr. MUNDELLA said that the provisions of the Labour Department were small annual fee; the rules of the periodical Service would not apply to them; they were to take part in local political matters appointments had been wholly unimportant considerations. He was informed that the Labour Correspondent was a Conservative, and that all shades of opinion were represented among these correspondents.

#### FOREIGN CIGARETTES.

Replying to Mr. Willox,

Sir W. HARCOURT said that the importation of foreign manufactured cigarettes was prohibited under section 1 of the Customs Consolidation Act, 1876, and the Manufacture of Tobacco Act, 1863.

#### THE MODE OF TAKING THE OATH.

Mr. ASQUITH, in answer to Dr. Farquhar, said that by an unfortunate omission the Oath Act, 1888 did not define in a formal manner which the oath was administered in Scotland was possible some coroners in England were acquainted with the Scotch custom of taking the oath. He was about to issue a circular on the necessary information.

#### THE SALE OF REVOLVERS.

Replying to Sir F. Milner,

Mr. ASQUITH said the question of placing the sale of revolvers had been under serious consideration, and he was collecting information in the hope that some legislation might be found to be practicable. (Heard.)

#### DOCKYARD LABOUR CONDITIONS.

In answer to Sir J. Goss,

Mr. CAMPBELL-BANNERMAN said that the facts were fully ascertained action in accordance with the principle adopted by the House on the resolution with reference to naval dockyard labour would be taken in each public department.

#### PARCEL POSTAGE.

Mr. A. MORLEY informed Mr. J. W. that it was decided by the late Government to permit parcels, circulars, and book post to be addressed gratis. He was not prepared to recommend a change in the present practice.

#### IRISH ILLITERATE VOTERS.

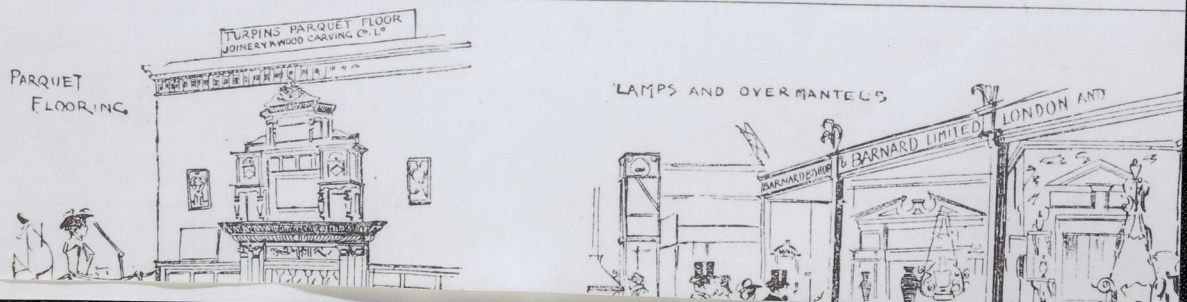
Mr. J. MORLEY, in reply to Mr. R. said he could not promise to institute a special inquiry into the Irish voters who voted at the under the illiterate clauses of the Ballot Act.

Mr. WEBSTER said he would take an opportunity of calling attention to the matter.

#### EVICTED TENANTS' COMMISSION.

Mr. BARTLEY asked the Chief Secretary on what day the order was given to print the report of the Evicted Tenants Commission for distribution to members.

Mr. MORLEY said the report was printed on Thursday. It was sent in a final state to the Dublin, who received telegraphic information.





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WORKING-CLASS HOUSES.

The Council discussed for a long period a report of the Public Health and Housing Committee on the question of re-housing the working classes on the spaces cleared by the Council under the Housing of the Working Classes Act. The Committee recommended that the rents to be charged for dwellings erected by the Council shall not exceed those ruling in the neighbourhood; and shall be so fixed as to provide a net return of not less than three per cent (after allowing for a sinking fund for re-building and all outgoings) upon the value of the land (subject to the obligation to erect dwellings upon it) plus the cost of building with ordinary foundations; and that all such dwellings shall be so designed that the cost of erection may not exceed a sum which will enable the Council to carry out the foregoing conditions. Eventually the debate was adjourned.

8. A motion declaring the sympathy of the meeting with the work, and inviting the hearty co-operation and support of all past, present, and future Trinity men was unanimously passed.—The meeting closed with the usual votes of thanks, that to the Duke of Devonshire, for the use of the house, being moved by Chief Justice Denman.

There are still slight evidences of the continuance of the landslip at Sandgate, but it is hoped by carrying out the work of filling up the fissures in the ground, upon which private people as well as the Board's employes are now engaged, to be able to arrest any further serious slipping. Yesterday a portion of the enclosure wall at the Coastguard station was pulled down. Spring House, which has attracted so much attention, still stands, although in a condition bordering on collapse. Trade is quite at a standstill. A very large meeting in sympathy with the sufferers was held last night at the Exhibition Palace, Folkestone, presided over by the Mayor, at which a performance was given by the band of the Life Guards. Arrangements are also being made, with the sanction and under the patronage of Lord William Seymour, for the gymnastic staff of the South Eastern District to give a grand assault of arms on behalf of the Relief Fund.

Mr. A. MORLEY gave the number of Bank accounts closed in Ireland during years up to the present month. In 1890, 2,200, in 1892 2,280, and in 1893 2,300, represented a percentage of the total accounts of 1.10 in 1891, of 1.07 in 1892, and 1.27 in 1893. In the same periods new accounts were opened in Ireland to the number of 3,472 in 1891, 3,472 in 1892, and 3,472 in 1893.

Replying to Mr. F. Stearns on the paper relating to the Councils Bill, and to the question whether the second reading would be taken before the

2-C-11



the same number of guns, or stern, as against the other, as illustrated in Fig. 1. So the advantage of the two arrangements is protection and resulting safety by each—an all-important consideration in an ironclad, of course—namely, two guns side by side on a slightly larger barbette tower than one, and therefore appear so far that they compare favourably with the single, provided additional protection is given to other parts of the ship. This will be seen by Figs. 3 and 4, which manage with a considerably smaller space, in proportion to the length of the thinly-plated box or hull, than the captain of the gun seems to be a more or less vulnerable target to

an enemy's fire. The barbette shown in Fig. 4 is, however, not so large in area as it appears, as it is pear-shaped, and the section is on its longest diameter. Lastly, with regard to the chances of disablement by fire, not in reference to the actual armour protection but as affected by the distribution of the four guns, it must be allowed that a large shell bursting in the bow before a "double-barrelled" barbette would probably put both guns out of action, reducing the fighting power of the ship by one-half and stopping all fire ahead; whereas with guns distributed as in Fig. 2 it would take three shells to deprive the ship of all her means of offence in that direction. The same argument, of course, applies also to stern fire. Much more might be said, but this is a broad outline of the case for both sides.

MICHAEL SPILLAN was fined £100 at Cardiff, yesterday, for keeping a shebeen. The defendant has been twice previously fined a similar amount.

## THE SANDGATE DISASTER.

The Relief Committee held its first sitting yesterday, when an executive committee was appointed to administer relief to the most urgent cases. During the past week many sad cases have come to the knowledge of the committee, and it is hoped that it will be possible to give such help to these as will enable them to tide over the present distress. A member of the Local Board, who has been investigating many of the worst cases, stated that quite a considerable proportion of the inhabitants had invested their savings in the purchase of their houses, through the destruction of which they had lost their all. He suggested that rather than induce these people to seek homes elsewhere in the neighbourhood small sums be advanced to them in order that they may immediately commence rebuilding and repair.

ing their property. It was decided to act upon this suggestion, and the necessary relief will at once be afforded to the most needy sufferers. The relief fund is gradually increasing, among recent subscribers being the Archbishop of Canterbury £50, Earl Stanhope £25, Alderman Sherwood, £10. The Mayor of Folkestone's fund amounts to about £900, and he has received a letter from a gentleman at Monte Carlo offering to organise a fund for the relief of the sufferers among the visitors at that place. Several lectures and entertainments are being given at Folkestone and Sandgate in aid of the relief fund.

## SALES BY AUCTION.—To-morrow.

PROTHIERE AND MORRIS.—At 67 and 68, Cheapside, E.C.—Carnations, Gladioli, &c.—at 12.  
SEXTON AND SON.—At Central Repository, Holborn—Horses—at 11.

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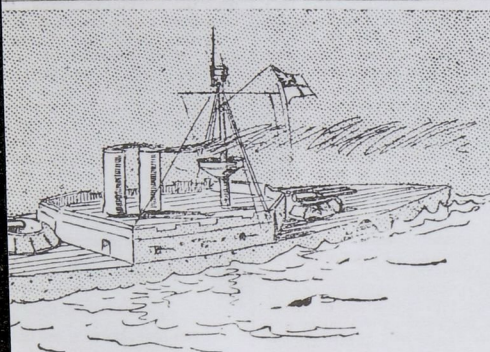


Fig. 1.—British Battleship, showing Heavy Guns mounted in Pairs.

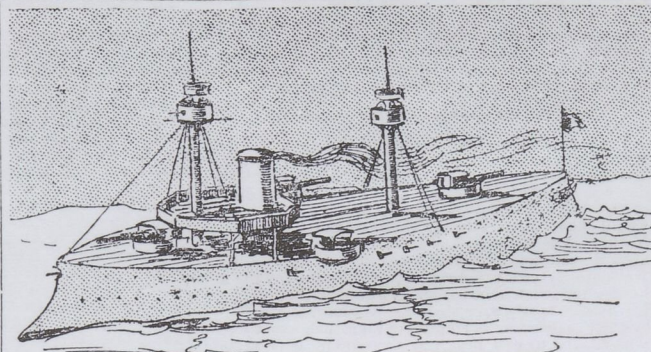


Fig. 2.—Typical French Battleship showing Heavy Guns mounted singly.

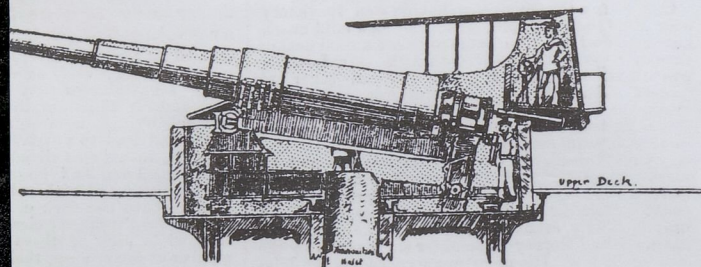


Fig. 3.—32-centimetre Canet Gun, mounted on Barbette, on board a French Battleship.

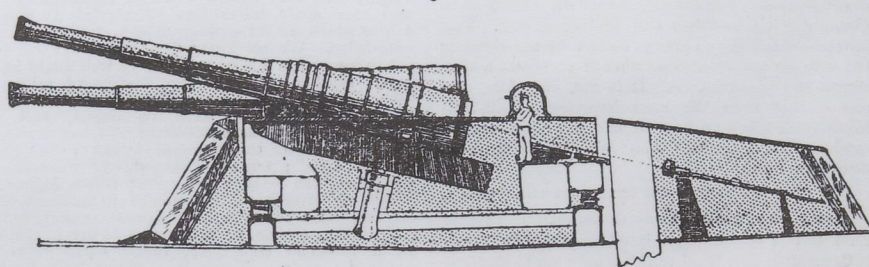


Fig. 4.—67-ton Guns, mounted in pairs, on Barbette, on board a British Battleship.



asked him two or three times, but I got rid of him finally while he was in the dock. He came in and asked admission.



from the accused are charged with having defrauded of £2,000.

Gardiner, "the Countess" called on her and said that she regretted having introduced her to Griffiths, but believed at the time that he was a strictly honourable man. She said that she had received letters since saying that he was a villain, and warning her against him. She (Gardiner) said that she was bringing an action against him for commission on £5,000 in connection with her introduction of witness to him.

Mr. Newton: You believed all the statements she made when she first called on you as to her sister being a Russian Countess, &c.?

The Witness: Yes, I believed all the statements made to me, otherwise I would never have parted with my money. Had I known the true contents of the deed of partnership with Griffiths I would never have signed it.

Cross-examined by Mr. Dutton for Gardiner, prosecutrix said up till February this year she had no charge to make against her except with regard to a debt of £30 odd for board and lodging, and money laid out on her account. Mrs. Gardiner threatened to bring an action for slander against her.

Mr. Dutton: You don't say to-day that Mrs. Gardiner has had any share of your £2,000?

The Witness: I don't accuse her, as I know nothing as to where it is gone.

Mr. Dutton: When she first came to you at Albertgate did you ask her to stay with you a month or so as a friend?

The Prosecutrix (with indignation): What! A perfect stranger, with a lady's maid and a pug dog? (Laughter.) Never! She was only supposed to stay on till her sister came.

Mr. Dutton asked with respect to some wearing apparel, which prosecutrix paid £4 for on delivery for Mrs. Gardiner, whether she did not part with the money to enable "the Countess" on the following Sunday to accompany her to the Church Parade in the park?

Prosecutrix: Church Parade was never mentioned.

Mr. Dutton: Do you know that this lady has been married twice—firstly to the Marquis de Monsanti?

Witness: I never heard of it. She said that her sister was an illustrious personage—either a duchess or princess. (Laughter.)

Cross-examined by Mr. Biron: In 1874 she separated from her husband. Her trustees had managed her affairs since her father's death. She was quite unacquainted with business. When Griffiths visited Gardiner at his house she referred to him as her manager. In consequence of this she wrote to the Duchess back marked "Unknown."

rdiner.

Griffiths.

Lynn.



The Prisoners in the Dock.

CONJURER, AND STOCKBROKER: SKETCHES AT THE ADJOURNED HEARING OF THE CHARGE OF CONSPIRACY AT WESTMINSTER POLICE COURT YESTERDAY.

of the Regular troops of the present year, was not favoured by the most suitable weather, for there were frequent showers, attended by a chilly wind which blew keenly over the exposed high lands upon which the forces were engaged. All the young Volunteers had arrived at their appointed detraining stations eastward of the camp by eleven o'clock, and were formed into a brigade of three battalions, under Colonel Laye, of the Cameronians, the battalions consisting of the Malvern, Cheltenham, Clifton, Oxford, Marlborough, Wellington, and Bradfield companies, under Major Thorold, of the Royal Welsh Fusiliers; the Harrow, Rugby, Berkhamsted, Highgate, Dulwich, and Epsom companies, under Major Crabbe, of the Grenadiers; and the Eton, Charterhouse, Winchester, and Haileybury companies, under Major Donaldson, of the Eton Corps. This brigade formed the advanced portion of a force moving from the north, partly by road and partly by railway, against a column of an invading army, which, having crossed the Hog's Back from the south, had for its immediate purpose the destruction of the railway junction near Frimley Green. The School Brigade, whose members were all well turned out, though the varying uniforms gave the battalions a motley appearance, was joined with a brigade of Regular infantry, under Major-General North Creclock; while the invaders consisted entirely of Regular troops, being the Aldershot 2nd Infantry Brigade, under Major-General Utterson. Each side was aided by Regular cavalry and artillery, and the manoeuvres, in which a very large share of the work fell to the Volunteers, extended over the northern portion of the Fox Hills, and were closely followed by Sir Evelyn Wood, who acted as chief umpire. Throughout the lads behaved well, showing creditable steadiness, and moving promptly over the often very difficult ground. Though the weather was uncertain throughout, a considerable number of spectators witnessed the operations, which ended with a defeat of the troops past the General and his staff. The Volunteers did not leave Aldershot on their homeward journey till late in the afternoon.

## THE SANDGATE DISASTER.

The Sandgate Relief Committee yesterday received a cheque for £25 from the Queen, together with a letter expressing sympathy with the sufferers. Her Majesty adds that she is unable to become a patron of the Fund. A very heavy wind prevailed at Sandgate yesterday, and fears are entertained that Spring House will fall altogether should the gale continue. It is considered fortunate that most of the fissures have been filled up, otherwise the probability is that the heavy rains of yesterday would have penetrated to the level of the gault and so contributed to another subsidence.

Mr. C. P. VILLIERS, M.P., the "Father of the House of Commons," who has been in poor health for a considerable time past, has considerably improved within the past week, and the right hon. gentleman hopes to be able to resume his Parliamentary duties in the course of the next few days.

At Warwick Assizes, yesterday, John Glaze, champion middle-weight boxer of the Midlands, and John Adrian were sentenced to three years' penal servitude for a brutal assault upon a woman at Aston, Birmingham. It was absolutely necessary, his lordship said, to stop these attacks upon women. At the same Assizes, Henry Arthur Smith, master painter, of Coventry, was sentenced to ten years' penal servitude for attempting to shoot his late partner, Mr. George Jabet, against whom he harboured a spirit of revenge.

THE STROLLING PLAYERS.—The eleventh season of the Strolling Players' Amateur Orchestral Society was opened on Tuesday night with a smoking concert at St. Andrew's Hall. The Duke of Teck, one of the society's vice-presidents, occupied the chair. The Strolling Players have on many occasions brought out the works of young native composers, and have introduced the works into England of several well-known foreign composers. Although no important compositions were produced on Tuesday, several notable little pieces were performed for the first time. Of these, perhaps the most successful was a new walse, "Enone," by Norfolk Megone, the founder and organiser of the Strolling Players, who is also the orchestra's conductor. This new piece was, by request of the Duke, played a second time. A light overture by Mr. A. E. Wight, and a romance for the orchestra by Mr. Albert Fox, were also novelties which met with a good reception.

2-6-13



# AT ST. MARGARET'S.

Saturday Mr. Balfour unveiled the stained glass window which has been placed in St. Margaret's Church, Westminster, in memory of the late Mr. W. H. Smith. The funds for the preparation of the memorial were subscribed by adherents of both parties in the House of Commons, and all shades of political opinion were represented among the members of Parliament present at the ceremony on Saturday afternoon. It would be hard to conceive a more satisfactory indication of the fact that the mutual antagonism of parties is by no means the only important factor in the political life of Great Britain. However bitterly they may attack each other in the heat of debate, they invariably do justice, sooner or later, to opponents who give evidence of high intellectual or moral qualities. Mr. Smith was not, of course, a man of brilliant genius, but there could be no mistake as to his devotion to duty, or as to his patience, modesty, courtesy, and good sense. Every one of these qualities was conspicuous during the period of his leadership of the House of Commons, and many a time they enabled him to achieve results which were of high value both for his party and for the country. A statesman of so solid and upright a character could not fail to command universal respect, or to secure for himself an honourable place in the political history of the Victorian age.

## TARGET PRACTICE SEAWARDS.

The report of the Inter-Departmental Committee which was appointed to inquire into the system under which artillery target practice seawards is carried out by the Navy and Army is an interesting and satisfactory document, not only because it effectually disposes of all the arguments of those narrow-minded persons who have professed to be unable to understand why target practice in the immediate neighbourhood of our great ports need be carried out at all, but also because it offers some very practical suggestions which, if adopted, will do away with nearly all the dangers and inconveniences attendant upon the firing, which is shown to be absolutely necessary. The most important of these suggestions are that tugs shall be provided, and that officers in charge of target practice shall be invested with power to clear the ranges by means of such tugs; that for target practice from guns afloat vessels shall be provided of speed sufficient to enable them, within a reasonable time, to proceed to a considerable distance to sea and to return; and that favourite fishing grounds shall not, if possible, be fired over. If these conditions be observed we ought to hear no more complaints on the subject.

and that is that the people of Belfast, who are arranging for the great demonstration on April 4th, have been instructed not to alter the date, because Lord Salisbury will probably be well enough to attend. Lord Salisbury's illness has called forth the greatest sympathy, and there were about two hundred inquirers at Arlington Street on Saturday. The Queen sent a special messenger, and so also did the Prince of Wales and Princess Christian, and among the others who made inquiries were Mr. Gladstone, Sir William Harcourt, and Lord Rosebery. Yesterday, again, numerous inquiries were made. At a late hour in the evening Lord Salisbury was reported to be going on well. There did not appear to be any fear of complications, and the temperature was certainly lower than on Friday morning last.

## THE DISABLED ATLANTIC LINER.

A Reuter's telegram from Halifax states that the Furness Line steamer Madura, which has arrived there, reports having spoken the Dominion Line steamer Sarnia, which was sighted by the steamer American on the 11th inst., with her shaft broken. The Madura met the disabled vessel at nine o'clock on the night of Thursday, the 16th inst., in lat. 45 deg. 35 min. N., long. 56 deg. 32 min. W., when she was 300 miles N. by E. of Halifax on the south-west edge of the St. Pierre Bank. The captain of the Sarnia stated that his after crank-shaft was broken, but he was attempting to effect repairs. He asked the Madura to stand by during the night, which she did. Next morning the Sarnia refused assistance, however, and the Furness Line accordingly proceeded. Two hours later the Madura ran into ice, and her captain thinks that the Sarnia is in a dangerous position unless she succeeds in effecting repairs. The Sarnia had drifted 230 miles to the north-east since she was passed by the American.

PRINCESS KAUULANI OF HAWAII left Washington on Saturday. She will sail from New York on board the White Star Line steamer Majestic on Wednesday for England.

It is understood, says a Reuter's telegram from Calcutta, that in his financial statement to the Legislative Council Sir D. Barbour will announce that a loan, probably amounting to three crores of rupees, will be raised in India. The Council bills to be drawn by the Secretary of State for India in the financial year 1893-1894 will amount to £18,700,000.

PRINCESS CHRISTIAN and Princess Victoria, her daughter, have greatly improved in health during the last few days, but owing to the cold wind have not been allowed to leave Buckingham Palace. Prince Christian joined them yesterday from Windsor, and it is hoped that the patients will be able to move to Cumberland Lodge, Windsor Park, on an early day this week.

RECONSTRUCTION OF THE SERBIAN CABINET.—The Servian Cabinet is about to be reconstructed, as its members have found it impossible to work in harmony. It may be regarded as certain that MM. Alkovic and Gwozdics, Ministers of Public Works and Commerce respectively, will retire, and General Bogitchevics, Minister of War, will probably also send in his resignation.—Reuter.

THE WRECK OF THE UTOPIA.—The memorial wreath in connection with the wreck of the Anchor Line steamer Utopia, presented by the Italian Government in recognition of the great services rendered on that occasion by the officers and men of the Channel Squadron, and in memory of the two seamen of H.M.S. Immortalité who were drowned in attempting to save some Italian emigrants, will be placed in position at the new mole in Gibraltar to-day. The occasion will be one of great ceremony.—Reuter.

THE SANDGATE DISASTER.—For the administration of the relief fund raised in connection with the Sandgate landslips, the committee on Saturday appointed an executive committee, consisting of a number of representative gentlemen, among whom are Sir Charles Keyes (Chairman of the Sandgate Local Board), the Mayor of Folkestone (Mr. Banks), the Mayor of Hythe, and the Rev. Russell Wakefield (Vicar of Sandgate). The slip shows no signs of extending, but continues to attract large numbers of visitors. The relief fund amounts to about £6,000.

Wales, Prince Christian, Prince and Princess Henry of Battenberg, and the Marquess of Lorne subsequently proceeded at nine o'clock from the private apartments to the Waterloo Chamber, where they were playing the National Anthem as the Royal party took their seats upon the dais, where the first of the audience had already assembled. Among the company were Lord and Lady Tennyson, General Henry Ponsonby and Miss Ponsonby, Major-General Sir John Cowell and Lady Cowell, Sir Fleetwood Edwards, Lady Churchill, Lady Sophia Mnamara, Lord Acton, Colonel the Hon. J. Byng, Colonel the Hon. W. Carington, Colonel Seckendorff, Countess Bruhl, Baron Reiss, Dr. Reid, Captain Walter Campbell and Mrs. Campbell, Lieut.-Colonel Collins, Major and Mrs. Legge, the Hon. E. Paget, the Hon. M. Hug-Canon Dalton, Canon Gee, the officers of the Battalion Grenadier Guards and 1st Dragoon Guards, and others. The programme was printed in black and gold upon delicate tinted paper, the title-page was adorned with an imperial crown, the monogram "V.R.I." The Queen and the family repeatedly applauded the actors and actresses during the progress of the play, which lasted nearly midnight.

At the close of the performance the Queen desired to pay the performers the honour of a recall, and pressed a wish for the curtain to be raised. A little delay unfortunately ensued owing to the difficulty of communication with the stage, and a clapping of hands from the audience general had caused the curtain to again be drawn up, actors were found to have quitted the stage. The Queen, on returning from the Waterloo Chamber, the corridor, sent for Mr. Irving and Miss F. Terry, and congratulated them upon the success of the entertainment, with which Her Majesty expressed herself greatly pleased. Miss Genevieve Ward also had the honour of being presented to the Majesties. The Queen's visitors supped in the dining-room, and refreshments were also served to performers.

Mr. Irving and his company left Windsor half-past one by special train for the metropolis. Only remains to be added that the performance highly successful in every way, and that especial mention should be made of the excellence of scenery, which was an exact reproduction of used at the Lyceum, but adapted to the size of the Castle stage. A flash-light photograph of the scene—the tragedy in the Cathedral—was taken as a souvenir after the performance.

QUEEN NATHALIE OF SERBIA arrived at Marseilles Saturday from Biarritz. Her Majesty, accompanied by a lady in waiting, visited some sights of the city, among others the Church of Notre Dame de la Garde, and subsequently embarked for Constantinople on board the Messageries Maritimes Company's steamer Alpha.

A RECORD RUN TO THE CAPE.—The Union Steamship Company's steamer Scot, which left Southampton at 4.55 p.m. on Saturday, the 4th, arrived at Cape Town at 1.35 p.m. yesterday. The passage took fourteen days eleven hours net steaming time, giving an average speed of 17.2 knots an hour. This is the fastest outward passage in the Cape Service on record, the Scot having now beaten the previous fastest run by eight hours.

ACCIDENT TO A ROYAL TRAIN.—The train carrying the King and Queen of Portugal and members of the Cabinet to Caldas de Rainha, for the inauguration of a new hospital at that place yesterday, ran off the line near the station of Camp. The Royal saloon and several other carriages dashed together with considerable violence but no one was injured, and, on the arrival of a relief train, the Majesties and the Ministers were conveyed to their destination.—Reuter.

MR. BOLTON AND THE VETO BILL.—Mr. T. H. Bolton, the Liberal Member for Pauras, has declined to support the Government. Mr. Bolton has declared his attitude and has repeated his declaration to the Whips that he cannot support the measure, although he can Bill, is not prepared to do so, he will adopt on a division.

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TECHAPEL.

ON CRITICISM.

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ony, yesterday afternoon, in  
ayor, there were present Mr.  
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and Mrs. Barnett, the Chief  
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INGTON.—The remains of  
"Baird arrived at New York  
Orleans. They will be con-  
e White Star Line steamer  
-day.—Reuter.

LORD SALISBURY.

Early yesterday morning inquirers in Arlington Street were informed that Lord Salisbury was "no worse," a pronouncement which gave rise to various false impressions as to the progress of the patient. Later in the morning, however, at eleven o'clock, and after Dr. Douglas Powell had made his call, the Marchioness of Salisbury was able to give a more encouraging report. The doctor, she said, was satisfied at Lord Salisbury's condition; in fact, his lordship was going on very well. This satisfactory statement soon allayed the somewhat dismal rumours to which the earlier bulletin had given rise. Another satisfactory sign was that Dr. Douglas Powell did not consider the circumstances of the case sufficiently serious to warrant him in writing an official bulletin. Lord Salisbury remains in bed, and some days must elapse before he can venture outdoors. When possible, he will go away for a short rest; and he is determined to do his best to fulfil his engagement in Belfast. Offers have been made to him to adjourn the Belfast fixture, but his lordship steadfastly refuses this concession. Inquiries made at various intervals during the day showed that his lordship made steady progress, and that in the afternoon he was able to sit up for a couple of hours.

SENTENCE ON MR. DE COBAIN.

At the Antrim Assizes at Belfast, yesterday, before Mr. Justice Johnston, Mr. De Cobain, ex-M.P. for East Belfast, was brought up for trial. Evidence in support of the charges having been given the case for the Crown closed, and Mr. O'Shaughnessy, Q.C., addressed the jury for the defence. He said the charge against his client was the outcome of a conspiracy. Mr. De Cobain had also made himself objectionable to the local caucus when he fought and defeated its nominee in a Parliamentary contest in one of the divisions of the city, and he had incurred the enmity of the police force by the charges he had boldly made against that body. His client had left the country to recruit his health, which had at that time broken down, but as soon as he had recovered he returned to meet his accusers. The prisoner was found guilty, and was sentenced to twelve months' imprisonment with such hard labour as his health would permit him to perform.

THE SANDGATE DISASTER.

LETTER FROM THE TRINITY BOARD.

The Secretary of the Trinity Board has written to Mr. Mark H. Judge, under date of March 18th, as follows:—

Sir,—I am directed by the Board to acknowledge the receipt of your letter, dated 7th inst., transmitting, as chairman of a public meeting, held at Sandgate on the previous day, a copy of a resolution unanimously passed, by which it appears to be assumed that the sad catastrophe which has befallen the town of Sandgate is attributable to "the dynamite explosions in connection with the blowing up of the Calypso and the Benvenue," and which expresses the opinion "that it is the duty of the Government to see that the loss

which has fallen upon the town should be made good either by the Trinity Board or by the Government itself."

In reply I am to state, for the information of the public meeting to which you propose to submit this communication, that while the Board deplore the calamity which has fallen upon the town of Sandgate, and deeply sympathise with its sufferers, they must insist that they only carried out a public duty imposed on them by an Act of Parliament in effecting the removal of the wrecks referred to, while in the case of the Benvenue final action was not taken until the Board had assured themselves by consulting experts that no damage would be done to property in the neighbourhood; that the operations were conducted with due regard to the security of such property, exceptionally small charges only being used upon the Benvenue, and that there is no reason to suppose, much less is there any proof produced, that the landslip which occurred on the 4th inst., while the last charges were fired at the Benvenue on the 7th and 19th December last, and the Calypso was dispersed in May, 1891, is attributable to other than natural causes.—I am, Sir, your obedient servant,  
CHAS. A. KENT.

THE DUCHESS OF TECK AT THE EAST-END.

The Duchess of Teck received a hearty welcome in Bethnal Green yesterday, on the occasion of her visit to St. Margaret's House, Victoria Park Square, in order to declare it open as the new centre of the ladies' work carried on in connection with the Oxford Mission. The men who allied themselves to this Mission found that there was a great scope for social and educational labour among the women and girls of this district, if ladies of talent and leisure would devote themselves to it, and in 1889 this women's branch was formed. At the outset it allied itself with the Cheltenham Ladies' College Guild, the two sections agreeing to live together at Mayfield House, but this, last spring, became insufficient to accommodate the willing helpers, and the Oxford committee then felt themselves justified in starting their own independent ladies' settlement. Temporary premises were secured near St. Bartholomew's Church until the opportunity for securing these permanent and suitable headquarters presented itself. They will provide rooms for nine ladies, who will be under the superintendence of Miss Harington, and they have two large rooms at the back which will be most useful for mothers' meetings, girls' social evenings, or gymnastic exercises.

On arrival, the Duchess was received by the president, the Hon. Mrs. John Talbot, the vice-presidents, the Hon. Mrs. Egerton and the Hon. Mrs. Lyttleton Gell, and Lady Idina Brassey, the hon. secretary. Among those present to meet her Royal Highness were Mrs. Gladstone, Lady Frederick Cavendish, Lady Edward Cavendish, Lady Knutsford, Lady Brassey, Lady Hobart Hampden, the Hon. Mrs. Peck, and the Hon. Misses Vernon. After a service conducted by the Bishop of Bedford, the Duchess formally declared the building open.

THE OVERDUE STEAMER NARONIC.—A telegram from Lloyd's agent at Lisbon, March 20th, states:—The steamer Vega, of Lisbon, bound from New York via Azores, sailed on the 13th March from Fayal, brings no news of the Naronic.

ASSOCIATION OF COMMERCE.

PRESIDENTIAL.

Yesterday the 33rd annual session of the Association of Chambers of Commerce of the Kingdom was commenced at the Hotel Metropole, who presided, in his opening address, the association on their present seventy-nine constituent total reached in the history only one or two chambers them. There was no communication. The inaction was caused by and was due to the right of veto Bills after saying "I object." The in modernising Parliament and in investing the with greater powers of done the formation of a House of Commons to be was desirable. Sir A. H. with a number of subjects occupied the attention of urged the extension of the and suggesting that trade so as to better adopt their day.

Mr. Mundella, M.P. (the Trade), who was heartily praised of the president's address, a great mistake that at a great agricultural depression should have attempted to 1888, and have raised the action had done much to of the commercial community say that the change that he during the last fortnight (Cheers.) Parliament had mined to deal with this question doubt as to the result—afterwards considered.—O Morley, the association de meeting at Plymouth.

MEMORANDA.

Sun rises 6.0, sets 6.14.  
Moon's age at noon, 4 days 7 h.  
Oxford and Cambridge Boat Race.  
Royal Botanic Society's First National Sea Fisheries Conference.  
Fishmongers' Hall, 11.30 (and to Hospital's Association, General Hospital, 8.  
Free Land League—Annual 8.15.  
Deputation of M.P.'s to the 11th of Magistrates, House of 1 Goldsmiths and Silversmiths' on View at 112, Regent Street.  
Unionist Demonstration at the Opening of the Bath Cat Show.  
Mr. P. E. Nurey on "The White Lead," Society of Arts, 8.  
Conference re the Local Veterinary RACING.—Lincoln.

SALISBURY'S





LATHAM  
REPORT.

31.



# LATHAM REPORT.

31.

Westminster Chambers  
13 Piccadilly Street S.W.  
London  
April 1893

To the Sandgate Local Board of Health

Gentlemen

I have to report to you that I have after completing the surveys of the district prepared the necessary Plans for the purposes of the drainage of the land which has recently occurred.

Before however going into the question of the means which I propose should be adopted for the drainage of the slip it would be desirable that I should draw your attention to the peculiarities of your district. It is well known that Sandgate is located on certain beds of the lower green sand formation and from this fact the strata most prominent at Sandgate is known to Geologists as the Sandgate beds.

The Gault overlying the lower green sand is developed to the East of Folkestone and immediately under the Gault the beds of the lower green sand are formed; the uppermost of these beds which are prominent at Folkestone is called the Folkestone or Bed.

These Folkestone beds are found on the high ground above Sandgate and consist of light coloured sand enclosing beds of silicious limestone and chert.

Immediately below the Folkestone

beds the beds known as the Sandgate beds from their development in the Sandgate district are found and consist of dark clayey sand and clay the colour approaching a Blue or Green colour as the clay or sand predominates.

In the Sandgate formation beds of clay a foot or two thick alternate with beds of clayey sand. The clayey character of some parts of these beds is proved by the line of springs marking their junction with the sands above. The water is thrown out at the junction of the Sandgate with the overlying Folkestone Beds. These Sandgate beds are supposed to be about 80 feet thick at Sandgate and by reason of their nature form a treacherous soil. Much of the sand of these beds is so fine that when water enters it the material itself is carried away and many of the depressions causing the Valley lines on the present slip are due to the undermining action of water carrying away sand.

Below the Sandgate Beds are found what are known as the Hythe Beds from the fact that they are strongly developed at Hythe to the West of Sandgate and consist of interstratification of limestone and sand. The limestone is of a peculiar grey blue colour and is locally known as "rag". These beds have a thickness in this district of about 60 feet and they rest on the Atherfield clay which is to be seen at times at low water at Sandgate; and it will be noted that on the

sea shore for the entire length of the slip the rag is shown by the rocks visible at or about low water mark and that these rocks have been very much disturbed by the recent slip. The nature of the dip of the strata being to the East and inland is by no means unfavourable to the stability of the ground at Sandgate except of course that near a steep escarpment such as are formed by the Cliffs at Sandgate there is always more or less a tendency for these beds to be deflected from their proper natural dip often in an opposite direction and the face of the Cliff is more or less covered with debris the natural effect of the weathering of the various strata, and there is also abundant evidence that landslips more or less have occurred from time to time on the face of this Cliff especially in the region of the Sandgate Beds, but no slip has ever taken place of such a formidable character as that which occurred in this district on the evening of the 14<sup>th</sup> March last.

The physical outline of this district is such that immediately over the Eastern boundary of the slip the ground rises very abruptly and from the level of the low water to the top of the hill the inclination is not less than one natural to four and a half horizontal and the lower portions of the hill have even a more abrupt ascent than this. The slip which has occurred is nothing

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more than ordinarily occurs in strata exposed to a more abrupt angle than its angle of natural repose.

It is not all improbable that the strata may have been disturbed by the explosion in connection with the destruction of the wreck of the *Shames Bonanza* for a considerable weakening of the strata had evidently taken place for some time previous to the slip rendering the ground more porous and as a natural consequence water has escaped from the beds above the slip and through the beds which have slipped for it was observed on the grounds at Encombe that certain lands which had always been previously very wet in winter had during the last winter for the first time become dry indicating thereby that in a wet winter such as we have passed through the waters were making a way for themselves by some underground passages showing that there had been a weakening of the strata by the opening of these channels. I also received evidence which showed how susceptible the ground at Sandgate was to be affected by the vibration caused by an explosion for it appears that at the time of the wreck of the *Calypso* was blown up the ground above part of Sandgate was so disturbed that a Fish pond in Encombe grounds was drained of its water and a considerable hole appeared in the bottom through which

also the fish escaped. This pond is near to the point of weakness where slips & ordinarily have occurred in the ground at Encombe and is contiguous to the present slip.

In the early part of the present year we had extremely severe weather alternating with wet and frost, conditions which are likely to lead to the disturbance of exposed strata, and upon this state of things with the ground fully saturated in the month of February we had one of the largest amounts of water that has ever percolated in a single month adding to the weight of the strata, the strata was in a position by reason of the escape of subsoil waters in the beds particularly liable to slip, and this increased weight due to the saturation and the probability that owing to the washing away of the support below the line of low water accompanied by a very low tide at the time the slip occurred are quite sufficient to account for all that has taken place.

The slip having taken place the bed of the sea at the toe of the slip has been moved and ploughed up by the momentum of the moving mass of earth that has slipped and consequently now forms a barrier at the foot of the slip thus affording an abutment which will prevent for some time the further movement of the slip. Precautions should be taken to see

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that the natural abutment that has been formed is not removed by the action of the sea and that the slip itself should be drained to as great a depth as it can conveniently be drained so as to render it as light as possible and also prevent the movement of water through the strata so as to avoid the action of the escaping water carrying away the strata with it.

Upon the accompanying Plan I have shown the outline and extent to which the slip has occurred in a northerly direction and just outside the limit of this line I propose to construct a deep drain for the purpose of intercepting the waters passing from the various strata above into the slip and from this deep drain which falls in various directions to Valley lines which intersect the slip. There are five lateral drains which would discharge the water direct into the sea. The accompanying sections show the direction in which each portion of the intercepting drains will fall.

The total area of the slip down to the sea wall is not more than 28 acres in extent therefore the means required for its drainage are not very considerable; but in order to avoid the contingency arising from the drainage of such a soil to which I have before referred consisting partly of very fine

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sand I intend that the whole of the trenches for the drains shall be filled under and above the proposed drain with coarse sea sand as experience has shown that there is no other mode of keeping back fine sand except through the instrumentality of coarse sand.

The pipes used for under drainage will be socket pipes jointed with a material which will admit water but exclude the coarse sand by which they will be surrounded. On the top of the coarse sand the trench will be filled for not less than about a foot in depth with shingle.

The lower end of the lateral pipes communicating with the sea will be constructed of iron and just below the point of high tide level a manhole is to be constructed or each of the lateral drains with a tide or tankard valve on the outlet into the manhole.

Of course it will be desirable as far as possible to remove all surface water by means of properly constructed gulleys and surface water drains. I believe gulleys and surface water drains are already in existence especially in the grounds at Encombe; and additional gulleys and surface water drains may have to be provided.

It is not desirable that this surface water should be turned into the subsoil water drains; but there appears to be

an extensive system of surface water drains within the limits of Encombe which in my judgment ought to be restored, and all surface water which can be got rid of should be conveyed by means of these drains to the sea.

I have included in the Estimate a sum of £200 for the purpose of perfecting this system of gulleys and surface water drains; but I should point out that it is undesirable that the subsoil drains should be used for conveying surface water, and it is desirable that as far as possible all sewage should be kept distinct from either surface or subsoil water drains.

At present I understand that both surface water and sewage is conveyed by the Encombe drains but in future only surface water should be conveyed by these drains direct to the sea and proper drains should be provided for the disposal of the sewage which should be connected with the sewers of the district.

It is desirable as far as possible that all the existing cracks and crevices which have been caused by the slip should be substantially filled in and the surface over them slightly raised so as to avoid getting any surface water direct into the body of the slip. This filling in must be done with care and discretion so as not to impede the flow of water over the surface or allow it to lie in proximity to

the crevices. The surplus soil from the trenches can be used with advantage for the purpose of filling in the crevices and filling up any particularly low place.

In many places in which an abrupt escarpment has been left by the slip of course it would be desirable that these escarpments should be reduced to such an angle that they can be brought within the natural angle of repose of the strata or otherwise subsidiary slips would be liable to take place from time to time especially when wet weather again sets in. It will also be necessary in certain properties to construct dry drains where the ground is at a considerable declivity so as far as possible to increase the stability of the ground in question. I have only included a small sum in the Estimate to meet the contingency as to the surface alterations which may be necessary.

I am not aware in what way it is proposed to raise the money, whether from the moneys already subscribed or whether it is intended to raise a loan for the purpose. The total amount of the expenditure required as shown by the accompanying Estimate is £1750. If this sum was borrowed at  $3\frac{1}{2}$  per cent interest for repayment in 30 years an annual sum of £95.3.0 would be required to pay interest and principal if borrowed for 40 years the sum of



£81. 10. 11 would be required, if for 50 years the sum of £14. 12. 2 and if for 60 years an annual outlay of £10. 3. 1. It is desirable if you have to borrow the money that you should have the term for repayment extended for as long a period as possible so as to avoid any heavy taxation on the district.

If there is any further information required by your Board or any further explanation necessary I shall be happy to supply you with it.

I am, Gentlemen  
Your Obedient Servant  
Baldwin Latham  
M. Inst. C. E. F. G. S. &c.



*Specification*  
for  
*Land Drainage Works at*  
*Sandgate*  
for the  
*Sandgate Local Board*  
(the Urban Sanitary Authority)

Baldwin Latham, M. Inst. C.E.  
Engineer.  
May 1893

*Specification required to be observed in the execution of a scheme of Land Drainage proposed to be carried out by the Sandgate Local Board (The Urban Sanitary Authority) in conjunction with Councils specially affected for the purpose of securing the site of the recent Landslip at Sandgate from further subsidence and for protecting the foundations of the houses in the affected area.*

Baldwin Latham, M. Inst. C.E.  
Engineer for the Works.  
13 Victoria Street,  
Westminster.

May 1893.

1. This Specification and the plan, section and detailed drawings referred to herein shall be considered the data upon which the Contract is based.

2. All the dimensions given in this Specification or figured in the drawings apply to the Works when complete.

3. The Contractor shall provide such steam or other Engines, Machinery, Pumps, horses, carts, tools, implements, scaffolding, timber, deals and boards for shoring, coffer dams, shuttling or other purposes that may be required for successfully carrying out the works without interruption or delay. The timber, deals, boards used in shoring, coffer dams, shuttling, cutting

or other permanent or temporary purposes will not be paid for as an extra but shall form part of the Contract.

4. The Contractor shall provide all the materials and labour required to execute and complete the whole of the works in accordance with this Specification and the drawings referred to and he shall pay or provide for all cartage or cartage of the materials and for disposing of any surplus soil or other materials required for reuse in the works.

5. The whole of the materials used in the works shall be of the best quality and description of their several sorts and they shall be built or put together in the best most workmanlike & substantial manner to the entire satisfaction of the Engineer or his deputy, the Resident Engineer or Clerk of Works or any Inspector of Works appointed by the Engineer or the Urban Sanitary Authority.

6. The Engineer, Resident Engineer, Clerk of Works or Inspectors of Works shall have full power and authority to reject any materials brought upon the works which in his opinion are unsound or unfit for the works or to cause any such work which may have been improperly or imperfectly executed or that may have been damaged during the progress of the works to be taken up or removed and reconstructed or replaced at the





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In case of  
Bankruptcy  
of Contractor

Contractors expense and if in any case the Contractor refuses or neglects to take up or remove any work or materials that may have been condemned by the Engineer, Clerk of Works, or Inspector of Works or in case the Contractor shall not proceed with all proper diligence and energy with his contract to the satisfaction of the Engineer or if the Contractor stops or suspends the works without the order of the Engineer or if the Contractor whether in England or elsewhere at any time during the continuance of the Contract be declared Bankrupt or execute an assignment in Bankruptcy or for the benefit of his creditors or make a composition with his creditors or any arrangement of his affairs by liquidation or become insolvent or fail in business or give any Bill of Sale or make any other sale or disposition of his estate or effects for the benefit of his creditors or any of them then the Engineer shall have full power and authority after the lapse of three days notice given in writing to the Contractor or his surties or left at their reputed residences to suspend the further execution of the works by the Contractor and to take the whole or any part of the Contract out of the Contractors hands & to employ any other Contractor Contractors or workmen to perform the whole or any part of the Contract or to furnish the proper quantity & quality

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of materials for the same. In case of any work or dangerous place being left by the Contractor the Engineer or the Resident Engineer or Clerk of the Works shall have full power to enter on the works for the restoration or completion of the same without notice and the cost shall be borne by the Contractor or his surties. In case of the Works being taken either wholly or in part out of the Contractors hands the costs incurred by the Urban Sanitary Authority or the Engineer in prosecuting the works or in providing materials together with the cost of reparation of the works or property damaged during the progress of the works and the remuneration charges and expenses of the Engineer which may be incurred by reason of the neglect or default of the Contractor shall be deducted from any money in hand or from moneys receivable from the sale of any materials stock machinery or plant and in case their resources are not sufficient by the payment of the Contractor or his surties or the amount shall be recoverable from them and the Urban Sanitary Authority or the Engineer shall have full power at any time to dispose of in the way he may deem the best any plant stock machinery horses carts implements or tackle for the purpose of recovering any loss or in payment of any fines penalties damages expenses or charges whatsoever to which the Contractor may be or become liable under his Contract.

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7  
Non-Execution  
of Works

The Engineer shall have full power and authority to order the non-execution of any part or parts of the works as contracted for, and the value of the same shall be ascertained and deducted from the Contract by the Engineer in accordance with the Schedule of Prices affixed by the Contractor to the quantities herein referred to. Any loss the Contractor may sustain by reason of the non-execution of any part of the Contract shall be determined by the Engineer provided that no compensation shall become due to the Contractor in case the non-execution of any work is due to the works being taken in the whole or part out of his hands for any default on his part.

8  
Suspension  
of Works

The Engineer shall have full power to suspend the work or any part thereof at any period but on resuming operations the time of such suspension shall be allowed to the Contractor even and above the time specified for the completion of the Contract but in case the Contract or any part thereof is or is not resumed the Engineer shall value the amount of work executed or materials provided and the Award of the Engineer for the work executed or for any damage or loss the Contractor may sustain from the inconvenience of the stoppage shall be final and binding upon all parties concerned in the Contract.

9  
Interruption  
weather

The Contractor shall not execute any brick or concrete work during frosty or inclement weather and the time that the works are suspended on this account will not be allowed to the Contractor, and the Contractor must take this condition of the Contract into

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consideration and provide for the punctual completion of the works accordingly

10 *Additions or Deductions* The Engineer shall have full power and authority to add to, deduct from, and alter the work, or any part or parts thereof described in this Specification and shown on the drawings and no addition to, deduction from or alteration of the works in any respect shall invalidate the Contract but all such additions or alterations shall be added to or deducted from the amount of the Contract as the case may be after being valued by the Engineer. The Contractor under the provisions of this clause may be required to execute at the same price as the other work any additional lengths of sewer or drain within or without the district of the Urban Sanitary Authority beyond those shown on the drawing but not exceeding in the whole half a mile in length, and any extra work shall be completed at the same time as the rest of the Contract and the Contractor must make provision accordingly.

11 *Extra Works* No extra works shall be executed by the Contractor without a written order from the Resident Engineer or Clerk of Works but which must be countersigned by the Engineer. In all cases where extra works are hidden from view when executed they shall be measured by the Resident Engineer or Clerk of Works at the time of execution and no allowance will be afterwards made by the Engineer to the Contractor for extra works not so measured and certified at the time of execution.

12 *Instructions* The Engineer shall have full power to issue such instructions as to the mode of proceeding or carrying out the Works as he may deem necessary for the guidance of the Contractor, and the Contractor shall be bound by such instructions of the Engineer or of any person authorised by the Engineer to give instructions.

13 *Maintenance of Works* The Contractor shall at his own cost keep the whole of the Works during their progress in good condition and repair and he shall restore and make good any damage they may sustain from any cause so that at the termination of the Contract the Works may be perfect and complete. He shall also at his own cost maintain all the singular and several works in a state of perfect repair order and condition for a period of twenty seven weeks dating from their completion as certified by the Engineer. The Contractor shall also keep the drains constructed by him cleared when required during their progress or maintenance.

14 *Watching & Lighting* The Contractor shall properly & securely watch, light, fence or otherwise protect every excavation or open cutting or shaft for a manhole and every place occupied, interfered with or disturbed for the works as also all engines, machinery and plant and every deposit of earth or materials so as to protect the public and cattle from accident or danger.

15 *Liability of Contractor for accidents* If any accident should occur to any person or persons cattle or property in carrying out the Works under the provisions of this Specification

the Contractor shall be liable for all cost, charges, and damages in respect thereof and he shall compensate the Urban Sanitary Authority to the full amount of any costs, charges and damages they may have incurred by reason of any such accident and such amount shall be deducted from any moneys that may be or become due to the Contractor or shall be paid by the Contractor or his Sureties or shall be recovered from them. The Contractor shall pay the cost of restoring all gas & water mains telegraph or telephone wires, houses, buildings, fences and roads or other works which may be damaged during the progress of the works and shall pay all charges and costs that may arise from any damage caused by injury to such Works and in case the Contractor does not settle all and every compensation for damages or restore the damage arising from the prosecution of the works or take measures to restore the damage done then the Engineer or any person appointed by the Urban Sanitary Authority may settle all claims or restore any damage done and the cost shall be deducted from any moneys that may be due or become due to the Contractor or his Sureties. Provided always that if the Contractor intimates that he disputes the claim and gives notice in writing to the Urban Sanitary Authority to that effect and that he desires the matter in dispute to proceed to settlement as by law directed. Then the Engineer shall have power to order the retention of any moneys belonging to the Contractor which may be used to meet such claims and costs and the money shall

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be retained until all claims and costs are settled and if such money so retained is insufficient to meet claims and costs, the Contractor shall pay what may be required to satisfy all such claims and costs.

Quantities  
Schedule of prices  
90

16 The Quantities of the several works have been taken out from the Drawings and this Specification by Messrs. Rownden & Barber of 30, Bishopsgate Street, Without, E.C. A copy of such Quantities will be furnished to the Contractor and shall be filled in by him with the prices upon which his Contract is based, and it shall form the Schedule of Prices under this Contract. This copy of the Quantities so filled in shall accompany the Tender and all extra, reduced or omitted Works shall be valued by the Engineer at the prices stated therein. The Contractor shall pay out of the first instalment he receives on account of his Contract the Surveyors fees for taking out and computing the Quantities, the cost of printing this Specification and Schedule of Prices and Quantities, and if the Contractor fails to pay the Quantity Surveyors out of the first instalment the Engineer shall have power to withhold any Certificate until the amount is paid, or may grant the Quantity Surveyors a Certificate which shall be paid by the Urban Sanitary Authority and the amount so certified shall be at any time deducted from the amount of the Contract or shall be paid by the Contractor or his Surveys. The Contractor shall make at his own cost

a copy of the Drawings for his own use during the progress of the Works and shall enter upon them from time to time the position of every junction, inserted and additional drains constructed or any old drain or sewer met with during the progress of the Works and such plans shall be accessible to the Engineer, Resident Engineer or Clerk of the Works for the purpose of taking off the information, and on the completion of the Works, such plans or complete copies of the same shall be handed over by the Contractor to the Engineer for the future use of the Urban Sanitary Authority.

Temporary Offices

17 The Contractor shall supply as may be required a moveable wooden Office for the use of the Resident Engineer or Clerk of the Works or of any Inspector. Such Office shall have a boarded floor, be properly ventilated and painted and provided with drawing desk and boards, two chairs or stools and a stove if required.

The Office shall not be less than 9 feet by 7 feet inside and 8 feet high. The Contractor shall move the said Office from place to place, kept clean and in good condition and provide such fuel as may be required. At the completion of the Works the said Office shall remain the property of the Contractor. He shall also supply as part of the Contract all the necessary pegs or stakes and labour that may be required by the Engineer, Resident Engineer, Clerk of the Works or Inspector in setting out or measuring up the works and he shall check or cause to be checked all bills of works as he will be held responsible for any

Materials property  
of Urban Sanitary  
Authority

18 All materials, steam engines, machinery, implements, tackle, horses, carts, barrows, lumber for shoring and shuffling, tools etc. brought by the Contractor on to the Works or for the purpose of the Works on to any lands adjacent thereto, or into or on any public or private building or premises whatsoever within or without the district of the Urban Sanitary Authority for the purpose of the Works shall be deemed the property of the Urban Sanitary Authority and shall not be removed during the progress of the Works without the written order of the Engineer and in case of the suspension of the Works by the Engineer for any act or default of the Contractor or of the Works being taken out of the

error and will have to make good any works that are out of level and which in the opinion of the Engineer are not carried out in accordance with plans, section, or this Specification. The Contractor or his representative shall be required to be present when the Works are measured up and the account of the value of the Works determined by the Resident Engineer or Clerk of Works from time to time and if there is any dispute as to the measurements, the matter without delay shall be submitted to the Engineer for his decision. In the absence of any complaint it shall be considered that the Contractor concurs in the correctness of these measurements and accounts submitted, but nothing in this clause shall prevent the Engineer at any time re-measuring any portion or all the work executed and, in case of ever adjusting the liability.



Contractors hands the same shall be subject to be used as shall be ordered by the Engineer in and about the completion of the said Works and if at any time it appears to the Engineer that there is or will be any loss incurred by the Urban Sanitary Authority or the Engineer by reason of any costs charges and expenses in completing the Contract, the plants or materials or other matters and things may be valued sold or otherwise disposed of by the Urban Sanitary Authority or the Engineer to meet such costs charges losses and expenses. Neither the Urban Sanitary Authority nor the Engineer will be liable for any loss or waste of materials or plants which may arise while in their custody but the loss or waste shall fall upon and be sustained by the Contractor.

19  
Notice of entering  
on lands

The Contractor shall give all requisite notices to the Surveyor of the Roads before proceeding to break up any road as also all persons likely to be affected by the Works. He shall also from time to time intimate to the Resident Engineer or Clerk of the Works or other person deputed to receive such notice subject to the Conditions of the Contract the several properties he is desirous of entering upon for the purpose of carrying out the Works and shall ascertain the names of the owners or occupiers and communicate the information in order that the proper legal notice may be given to the owners and occupiers of the property affected and he shall not proceed with any works until the expiration of the legal notice so given.

20  
Cement

The Cement used in the Works shall be fresh burnt but not too finely ground. Portland Cement weighing not less than 116 lbs per shaked bucket when filled from a hopper having a fall of not more than one foot and shall be capable when mixed with water and set in a proper mould and after seven days immersion in water of bearing a tensile strain of 350 lbs to the square inch when tested on a section of 2 in square inches area. It shall be ground sufficiently fine to pass through a sieve having 2500 meshes to the square inch and not leave more than 10 per cent residuum on the sieve.

The Contractor shall provide in his Contract for a proper and approved machine moulds and other apparatus necessary to test the cement and all requisite labour and materials for testing the cement and such apparatus shall be provided before any part of the work is undertaken and shall remain the property of the Contractor on the completion of the works. Any matter in dispute in reference to the quality of the cement may be referred by the Engineer to some expert determined by him and the cost of such reference shall be paid by the Contractor.

21  
Sand & Water

All sand used in mixing with the cement shall be clean sharp and pitiless sand, free from clay, organic or saline matter and it shall be washed by the Contractor before it is used, should the Engineer or Resident Engineer or Clerk of the works order the same to be done.

22  
Concrete

The Contractor shall provide clean water for use on the works and on no account shall any sewage, sea or impure water be used for mixing with the cement. The Contractor will be permitted to draw water from the Urban Sanitary Authority water mains at certain points provided it cannot otherwise be procured and he will be required to convey such water to the Works or to provide other clean water for the purpose.

All concrete used upon works shall be properly gauged, the stone sand and cement being separately mixed. The stones for the concrete round the sewers drains or manholes shall all be broken to pass through a sieve with one inch meshes. All the stone shall be freed free of sand and washed if requisite.

The aggregate shall be brought together on a platform. The concrete for the sewers drains and manholes shall be mixed in the proportion of five measures of stone and one measure of cement the stone and sand being added together in proportion so that the sand shall completely fill the interstices between the stones. All sand used if required shall be washed. All the materials forming the concrete shall be well incorporated on a platform provided before mixing with water and clean water shall be used for mixing, as little water as practicable being



used, but sufficient water shall be used to make the materials plastic. The concrete in all cases shall be carefully lowered or placed in position, and it shall not on any account be shot into the work from any elevation; and when in the work the Contractor shall well compact the same so as to insure its being solid and uniform throughout. All concrete work below the ground shall be set before the ground is filled in.

Mortar

23. The mortar used in the construction of manholes and all Works under the ground line shall be executed in Portland Cement composed of two parts of clean sharp sand and one part of best Portland cement thoroughly mixed with clean water.

The mortar is to be conveyed fresh to the Works as required for use. No mortar after it has set or commenced to set shall be mixed for use.

Bricks

24. The bricks used in construction of the manholes and shafts shall be equal in quality to the High Broom sample brick deposited in the Office of the Engineer. If the Contractor is desirous of using any other bricks than those specified in any part of the works he shall at the time of tendering state the description of brick he proposes to use, and shall submit when requested a sample of the same. No bricks shall be used in the sewer or drains which shall absorb

more than 12 per cent by weight of water after being perfectly dried and then boiled for twenty minutes and subsequently allowed to cool in water. All bricks used in any part of the Works shall be sound and well burnt and shall be guaranteed by the Contractor to remain sound in any weather. - All bricks shall be well wetted before use and shall be soundly bedded in the work.

The cross joints shall be solidly flushed up the whole thickness of the work. The joints in the Brickwork shall in no case exceed  $\frac{1}{4}$  of an inch in thickness and shall be struck smooth and flush on the face. All brickwork in connection with the sewers & drains shall be made absolutely watertight.

The Contractor shall take efficient steps for protecting any exposed brickwork which has not completely set in time of frost or inclement weather.

All brick arches under 3 feet diameter shall be constructed in radiating bricks.

Prestock Chambers

25. The Contractor shall construct the manholes of brick and concrete as shown on the drawings. The Contractor shall also provide and build in the work the side or Tankard valves to be fixed in these manholes, all the valves shall be subject to the approval of the Engineer.

Excavating

26. The Contractor shall excavate the ground for constructing the sewers, drains & manholes to the depths & inclinations shown on the drawings.

In excavating the trench for any sewer, drain or other work the materials taken therefrom shall not unless unavoidably necessary be so disposed at any place as to block up any public carriage or footway and in case of reason which the traffic cannot be conveniently diverted the Contractor shall be required to remove the materials excavated so as not to impede locomotion and to bring them to the surface when the trench is required to be refilled.

Sewers to have true grade

The bottom of every trench for sewers or drains shall have a true grade from point to point throughout as shown on the plans.

In case of any loose, soft or bad ground being met with the Contractor shall execute the same to a solid foundation and will fill up the excavation to the level of a sewer or drain with concrete or as may be otherwise directed. - For extra excavation arising from bad ground the Contractor

Bad ground

will be paid extra but if he excavates in good ground below the proper level required for the sewers and drains he shall fill up the part excavated in or with concrete at his own cost. In all cases the trenches for the sewers or drains shall be open cut. In excavating any

Surface materials

trench the materials forming the surface of any road, footpath, garden or field shall be kept separate and preserved in use at the surface when the trench is filled up. Before any road material is re-used it shall be carefully sifted and when the trenches are refilled to the roads and surfaces shall be restored.



Refilling  
trenches

Trenches  
rammed

to the satisfaction of the Surveyor of Highways or the Owner of the property traversed. The Contractor shall also preserve the turf of any meadow traversed by the sewer and replace it when the trenches are filled. The Contractor shall not cut or break down any live fence in the line of the proposed Works but shall turn under the same. The Contractor shall fill in the bottom of trenches intended to receive earthenware drain pipes with coarse sea sand equal to the specimen to be seen in the Engineer's Office that has been procured from Shoreham Harbour to the extent shown on the cross sections and when the pipes have been laid and jointed he shall fill the trench over the pipes with similar coarse sea sand and on the top of this sea sand he shall fill the trench with shingle or stone of a quality to be approved of by the Engineer to the depth indicated by the cross sections and on the top of the shingle the Contractor shall refill the trenches with materials taken therefrom except in the case of soft clay, peat, mud or other soft material which shall not be returned to the trenches but a selection of the best materials shall be used to refill all the trenches. In refilling the trenches the utmost care shall be exercised so as not to disturb, break or damage the pipes or drains. The ground as it is being filled into the trenches shall be well rammed until it is completely consolidated and water may be used in addition at the discretion of the Contractor to aid in the consolidation of the trenches. Very great care must be exercised by the Contractor to see that no damage is done to the Sewer or

Surplus  
Material

drains during the process of consolidation. The Contractor shall provide the necessary shed for any surplus material not required to be used on the Works. As every trench is refilled the surplus earth arising from the Works shall be at once removed and the surface properly restored or made good. In case of any gravel or sand or other materials taken from any sewer trench on private property the Contractor must understand that such material or surplus material belongs to the Owner of the property and must be dealt with as such Owner desires except that the Contractor shall not be expected to remove such surplus for such Owner to a greater distance than 200 yards from the site. The Contractor will be required to use the surplus material as far as required in filling in any cracks, crevices, or openings, caused by the slip and all such filling in shall be effectually consolidated and the surface restored to its true level and every precaution taken to prevent the entrance of surface or rain water entering any crevice or crack.

Subsidence

27

The Contractor shall provide all materials and labour for making good all settlements and keeping in repair the surface of any road footway garden or field or any cracks or crevices filled up by him during the whole period the works are in his hands & in case he neglects or refuses to make good any settlements in any street road pavement or field whether public or private the Surveyor of the Roads of the District may at once execute the necessary repairs and works

Pumping

28

The Contractor shall provide & perform as part of the Contract all pumping for removing of water that may be required in executing the works and in maintaining the works and drains free from water during their execution.

Timber left  
in trenches

29

The Contractor will be required as part of the Contract to securely timber every trench or other opening and shall provide for all timber planks deals & joisting boards that may be required for shoring and shutting any house or building adjacent to the Works and all timber &c shall be sound and sufficient for the purpose described. All timber shall be carefully removed as the trenches are in, but the Contractor shall leave in every trench any timber &c that may be ordered by the Engineer or Resident Engineer or Clerk of the Works or that may be necessary to secure the safety of any houses buildings or premises gas or water mains or other works

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and the Contractor shall include in his Tender a sufficient sum to cover every liability for timber that shall be left in the trenches or works under any conditions and no greater sum shall be allowed to the Contractor for the timber left in either by order of the Engineer Resident Engineer or on his own account to cover the liability for damages that may arise to houses buildings or property by reason of any settlement in any trench or other work and the Contractor shall securely timber all trenches and other work requiring it so as to protect the same from damage by settlements and to afford protection to the workmen employed in the construction of the works.

30. All the stoneware or fireclay socket  
dimensions of pipes used in the Works may be country  
made pipes of a quality equal to the sample  
pipes manufactured by Messrs. Toulton & Co. and  
deposited in the Office of the Engineer.  
No pipe inferior to this sample will be  
permitted to be used: all pipes shall be  
perfectly straight and truly cylindrical, well  
glazed inside and outside free from cracks  
and flaws and perfectly burnt. Those not  
perfectly straight and truly cylindrical  
will and uniformly glazed free from cracks  
and flaws and perfectly burnt the Engineer  
Resident Engineer or Inspector shall reject  
and the Contractor shall supply other pipes  
in their place. The earthenware  
sewer or drain pipes shall all be jointed by  
forcing into the sockets spun yarn until

cast iron  
pipes

31. The Contractor shall provide all the  
necessary to cast iron pipes forming the  
culverts into the sea as shown on the Plans and  
Sections or that may be ordered by the Engineer.  
All the pipes and casings shall be of the  
best quality and free from defects. The socket  
or flange pipes shall have a thickness of half  
an inch shall be 9 feet long in the work  
and have a depth of socket of  $2\frac{1}{2}$  inches with a  
thickness of joint not exceeding  $\frac{1}{2}$  inch.  
The Contractor shall guarantee all iron pipes  
and if any iron pipes through any defect  
become fractured in the work or in transit  
to the works or afterwards the Contractor  
shall supply other pipes in the place of the  
defective pipes. All the special pipes shall  
be provided by the Contractor and they shall  
have the same thickness as the straight pipes.  
The metal to be used shall be free from  
corrosion or other inferior iron and shall be  
strong, tough and close grained and the  
pipes when cast shall be free from scoria  
air-holes or other imperfections of casting.  
All pipes shall be truly cylindrical & the  
spigot end of every pipe shall  
fit into the socket leaving only the  
thickness of joint specified which  
thickness is the maximum size.  
The spigot end of each pipe shall be  
furnished with a projecting fillet which  
shall fit into the socket leaving not

along iron  
pipes

along iron  
pipes

more than an eighth of an inch clearance all  
round the pipe. The whole of the iron pipe  
shall be well cleansed before leaving the  
Contractor's works and shall be coated when  
hot with Dr. Angus Smith's composition.  
The Contractor shall provide all lead and  
tools required for jointing the pipes as may  
be required. The whole of the iron socket  
pipes shall be jointed by first having forced  
into the socket until it is half full cold  
red lead and afterwards the joints shall  
be run full of molten lead and shall be  
properly caulked. The Contractor shall  
supply and fix all the special casing  
for the culverts together with the flange  
pipes. The Contractor will be required  
to provide and fix all bolts for bolting up  
any flanged pipes that are required  
together with any flanged pipes which  
for their size shall have the same thickness  
as specified for socket pipes. The Contractor  
shall supply all bolts and spikes for  
securing the culverts to the timber piling  
shown on the detail drawings.

Manholes 32

The Contractor shall build all the  
manholes shafts where shown on the plans  
and sections or where directed by the Engineer  
Resident Engineer or Clerk of the Works  
in accordance with the detailed  
drawings. The floor of all the manholes  
except otherwise specified shall be constructed  
of concrete rendered in cement with proper  
channels formed across them and cast  
iron foot ladders built in the structure.



Installing  
Manhole  
Covers

The Contractor shall provide and fix all the cast iron manhole covers made to left out as shown on the Drawings all of which shall be 20 inches clear diameter having circular close covers of a pattern to be approved by the Engineer.

Control over  
workmen

33. The Contractor shall not allow his men to trespass more than is absolutely necessary on the property of any Owner or occupier through which sewers may be carried.

34. The Contractor shall supply the Oak piles 6x6 and oak cross beams and stout 6x3, the cross bearers and struts to be securely bolted to the piles for the purpose of supporting the iron outfall pipes and he shall drive the piles to a solid foundation.

Sureties and  
Contract

35. The Contractor shall enter into a Contract under seal for the perfect and complete performance of the herein specified works and he shall provide two responsible sureties to be severally bound with himself in a bond of Three hundred pounds (£300) for the due performance of the said works and for the payment of any penalties or expenses to which he may become liable under the Contract.

Default of  
Contractor  
or Sureties

36. In case the works are taken out of the Contractor's hands by reason of his making default in any of the conditions of this Specification the Engineer shall have full power to call upon the

sureties to carry out the Works in which case the sureties shall be subject to the same conditions obligations and penalties as stipulated for the Contractor and in case the sureties fail or neglect within the time specified in the order of the Engineer to proceed with the Works it shall be deemed a breach of Contract and render them liable to the forfeiture of the amount of their bond.

Payment of  
Contractor

37. The Contractor shall receive payment on account of his Contract in monthly instalments on the Certificate of the Engineer for the Works Mr Baldwin Latham at the rate of Ninety (£90) per cent on the value of the Works completed each month, one moiety of the balance in hand shall be paid at the completion of the works and the remaining moiety six months after the date of the completion of the whole of the works provided the Engineer then certifies the whole of the works are in perfect order and condition and that all liabilities of the Contractor under his Contract have been satisfied. The whole of the payments shall however be subject to any charges or deductions to which the Contractor may be liable under the Contract and may at any period be deducted from the monies due to the Contractor and when these are insufficient to meet the liability then they shall be paid by the sureties to the extent of their liability.

Strikes

38. The Contractor shall not become liable to the penalties imposed by this Specification for not completing the works in the specified time if the sole cause of delay arises from strikes among the workmen employed by the Contractor shall not be released from such penalties unless the Engineer certifies that the sole cause of delay is due to such strikes and that it cannot be terminated in a reasonable manner.

Penalty  
for completion

39. The Contractor shall undertake that the whole of the Works shall be completed and in efficient working order within a period of three months dating from the signing of the Contract. Should the Contractor fail to execute the Works included in his Contract together with any extra works that may arise during the progress of the Works within the specified time he shall forfeit the sum of Two hundred pounds and for the amount of liquidated damages agreed between the parties and the Contractor shall in the event of the Works not being completed within the Contract time pay either to the Urban Sanitary Authority or to the Engineer every month the Salary of the Resident Engineer or Clerk of the Works and Inspector of Works for all the time their services may be required after the date for completion of the Contract and shall continue to pay until all the works are completed.

Payment of  
Resident Engineer's  
Inspector's Wages  
by Contractor on  
failing to complete  
Contract



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Disputes.

40

If any dispute or difference of opinion should arise during the progress or after the execution of these Works respecting the true intent and meaning of any part of this Specification or of the drawings referred to herein the case shall be submitted to Mr. Baldwin Latham the Engineer for the Works who shall be the sole Referee and Arbitrator and his award shall be final and binding at law and in equity upon all parties concerned and shall not be set aside by reason of any technical or legal defects therein nor on account of any informality omission or error of proceeding connected with the same and for finally concluding and binding all parties in the matter aforesaid this submission to reference may be made a rule of any Division of Her Majesty's High Court of Justice on the application and at the instance of the Urban Sanitary Authority or the Contractor respectively as the case may be and the costs attending any such reference shall be paid according to the order or award of the said Engineer.

Omissions.

41

Should there be anything omitted from this Specification or from the drawings referred to herein which is usually considered necessary for the execution and completion of works of this class and description the Engineer shall order and the Contractor shall execute whatever the Engineer may deem to be wanting in respect thereof and the

27

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Fees and charges.

42

Contractor shall not obtain any advantage from such omissions nor be paid anything on account thereof without the Engineer's Certificate.

The Contractor shall pay all fees and charges of the Railway, Water, Gas or Tramway Companies or the Post Office Telephone Authority Electric Light Company for any damage done in crossing any of their works or for work necessary to be performed in consequence of the interference with their works except compensation, rights of easement for construction of sewers or drains or other work on the property.

Extra Work.

43

If work of a greater length or quantity is executed by the Contractor than set forth in the Quantities he shall be paid extra and if the work is less than given in the Quantities the value thereof shall be deducted pro rata from the amount of the Contract. In all cases the prices given in the Quantities will be the guide to the Engineer in settling additions or deductions.

Provision for Extra Works.

44

The Contractor shall include in his Contract the sum of two hundred pounds (£200) for the purpose of paying the cost of surface works, drainage works, or of any extra works and if work of this value is not executed it shall be deducted in whole or in part from the Contract and in addition to the priced Schedule of the Bill of Quantities or Schedule of Prices shall be supplied and

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filled in by the Contractor to cover the cost of all works necessary for the surface drainage of the District or other work and all work executed shall be valued by this Schedule and the priced Bill of Quantities.

45. In measuring any work the depth shall be ascertained by means of measurements at intervals of 50 feet apart and the means of two such measurements shall be the depth of the length in question. All depths that are not equal to or are less than 6 inches beyond the number of feet in depth shall not be counted and depths that exceed or equal 6 inches beyond the actual number of feet in depth shall be called one foot deeper. The depth in all cases shall be the distance from the surface to the level of the invert of the sewer.

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# LATHAM-BILL OF QUANTITIES AND FORM OF TENDER.

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1893

## Land Drainage Works at Sandgate

For the Sandgate Local Board.  
(the Urban Sanitary Authority)

in conjunction with Owners specially affected for the purpose of securing the site of the recent Landslip at Sandgate from further subsidence and for protecting the foundations of the houses in the affected area.

## Bill of Quantities

## and Form of Tender

Baldwin Latham, M Inst C.E.  
Engineer.  
May 1893

96/32

## Land Drainage Works at Sandgate.

### Estimate

For the Construction of a scheme of Land Drainage for the Sandgate Local Board (the Urban Sanitary Authority) in conjunction with Owners specially affected for the purpose of securing the site of the recent Landslip at Sandgate from further subsidence and for protecting the foundations of the houses in the affected area.

May 1893.

Baldwin Latham Esq. M Inst C.E.  
Engineer.

### Schedule

It to be filled in by the Contractor and sent in with Tender.

		L	s	d
Timber left in trenches	per foot cube	2	6	
9 1/2" Deals left in trenches	" " run		5	
Plating boards	" " sup		3	
Puddled clay in dams &c.	per yard cube	6	-	
Driving headings for sewers	" " "	4	6	
Including all shoring	" " "			
strutting & pumping	" " "			
Brickwork in Portland	" " "	1	7	
Cement in walls	" " "			
including all facing	" " "			
and pointing	" " "			
Do do in	" " "	1	9	
culverts	" " "			
Short gullies with connection to	" " "	11	7	10 1/2
sewers & man & iron covers	each			
(as detail 2 on page 30 & 31)				

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### Tender

(Not to be detached from the Bill of Quantities)

## Land Drainage Works at Sandgate.

To The Sandgate Local Board  
(the Urban Sanitary Authority.)

Gentlemen: I hereby agree to execute and perform the several Works required in the Construction of Drainage Works at Sandgate in accordance with the Specification and Schedule and the Drawings prepared by your Engineer for the sum of Three Hundred and Sixty Pounds in a

Eighty Three Pounds (£348.0.0)  
I further agree to execute any other Works that may be required and abide by any deductions that may be made from the amount of my Contract for Works not executed at the rate of the several prices.

I have affixed for the Plans in the accompanying priced Bill of Quantities.

In the event of my Tender being accepted I will furnish you with the names of two or more responsible persons who will be willing to be bound as sureties for me for the due performance of the Contract.

I am, Gentlemen,  
Your obedient Servant,  
Name Peter Peters  
Address 6 West St, Northam

Dated June 3<sup>rd</sup> 1893

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Estimate

For the Construction of a scheme of Land Drainage, at Sandgate for the Sandgate Local Board (the Urban Sanitary Authority) in conjunction with owners specially affected for the purpose of securing the site of the recent Landslip at Sandgate from further subsidence & for protecting the foundations of the houses in the affected area.

May 1893  
Baldwin Latham M. Inst. C. E.,  
Engineer.

Extracts from Specification and Conditions of Contract

The Contractor is referred to the Specification for the more detailed clauses, the following being extracts only. L & d

- 1. As to data of Contract
- 2. As to dimensions
- 3. Contractor to provide all engines, pumps, tools &c.
- 4. Contractor to provide all materials, labor and cartage &c.
- 5. Materials to be of the best quality and description of their several kinds &c.
- 6. As to execution of work and materials, pulling down & rebuilding work improperly constructed
- As to Bankruptcy of Contractor & power to take work out of Contractors hands
- Contractors liability for accidents & for all costs & charges in respect of same

Continued L

Continued L

- 7. As to non-execution of works
- 8. Power of Engineer to suspend works and allowance of time for same
- 9. No work to be executed during inclement weather but no allowance will be made for same in the completion of Contract
- 10. Power of Engineer to vary the works any additional length of sewer not exceeding half a mile to be executed without any extension of the time of completion
- 11. No Extra Works to be executed without first obtaining a written order to be measured at time of execution or they will not be allowed for
- 12. Power of Engineer to issue instructions as to mode of carrying out work
- 13. Contractor to maintain works during execution & for a period of twenty seven weeks after certified completion, & to keep the drains cleansed when required
- 14. Contractor to properly & securely watch light and face or otherwise protect excavations or open cuttings &c.
- 15. Contractor to be liable for all accidents, to persons, cattle, or property & restore Gas & Water mains telegraph or telephone wires Houses Buildings, Fences

Continued L

Continued L

and heads or other works which may be damaged during the progress of the Works & for all costs and charges in connection with the same  
Power of Urban Sanitary Authority to rectify or pay compensation for damages & to pay for same out of moneys due to the Contractor

- 16. As to Bill of Quantities copy of same to be filled in in detail to form a Schedule of Prices and to be delivered with the Tender
- As to payment of the Surveyor for the Bills of Quantities &c.
- Contractor to make his own copy of drawings, & shall note upon them the position & depth of every junction inserted, and additional drains constructed or any old drains and sewer met with during the progress of the works such record to be handed over to the Engineer on completion

- 17. Contractor shall supply as may be required a movable wooden office not less than 9 ft by 7 ft by 8 ft high in clear for the use of the Resident Engineer or Clerk of the Works with standard floor drawing desk & boards 2 chairs or stools & have general hall attendance & this is to remove same from place to place when desired & when away same at completion

Continued L



- Continued
- 17 Contractor to supply all pegs stakes & labor in setting out or measuring up the works and shall be responsible for the accuracy of all levels & measurements &c
- Contractor to be responsible for any deviation from the Plans and Specifications
- Contractor or his representative to be present at all measurements
- All disputes shall be settled by the Engineer
- 18 All materials &c to become the property of the Urban Sanitary Authority during the execution of the works
- 19 Contractor to give all necessary Notices to Surveyor of the Roads and to all other persons likely to be affected by the Works and pay all charges in connection with same
- 20 Contractor to restore, renew or make good all settlements and keep in repair any road footway garden or field during the whole period the works are in his hands (as to new materials for all restoration of fence walls floor or pavings &c &c)

Continued L. 22

- Continued L. 220
- 28 Contractor to provide all pumping lating or removal of water that may be required in executing the works (This to be included in the price of the excavations)
- 29 Contractor to provide to securely shore & shut every trench &c, also to shore up any house building or premises adjacent to the works & for securing gas, water or other mains &c &c
- Contractor to leave in the trenches or works any timber shutting &c if directed or necessary & he must allow for all cost of same as extra money will be allowed to him for any timbers so ordered to be left in
- The whole of the trenches &c are to be securely timbered so as to protect the work from damage and to afford protection to the workmen employed on the works
- 33 Contractor not to allow his men to trespass more than is absolutely necessary on private property & Contractor to enter into a Contract under Seal with two Surveys in a bond of Three hundred pounds (£300) for the due performance of the Contract & for the payment of penalties or damages

Continued L. 222

- Continued
- 34 As to default of Contractor or his Surveys to carry out the works and power of Engineer to proceed with same
- 35 As to payment at the rate of monthly (£90) per cent on the amount of the works executed each month
- 36 As to strikes
- 37 Time for completion 3 months starting from signing of Contract under a penalty of Two hundred pounds. In addition he shall pay every month the wages of the Resident Engineer or Clerk of the Works and Inspectors of Works for all the time their services may be required after the date of completion &c &c
- As to disputes &c to be settled by the Engineer
- As to Commissions from the Specification or Drawing & as to same being executed without any extra cost or charge being allowed
- As to pay for charges of the Telephone Authority to be paid for any damage done by any of their works &c

Continued L. 225



Continued L<sup>o</sup> 325

143 As to execution of a greater or less length of Works than set forth in the quantities as to prices for same.

144 Provide the sum of two hundred pounds for surface Work. Drainage or other additional Works to be used as directed or deducted from amount of contract.

145 As to mode of measurements

Provide clean water for the Works see Clause 21.

Clear and cut away all superfluous earth and rubbish.

### Description of Materials

The cement to be fresh burnt (but not hot) finely ground Portland cement weighing not less than 110 lbs per shifted bushel & as specified in Clause 20.

The Contractor to provide a proper machine, molds & other apparatus for testing the cement as specified in Clause 20.

sand to be clean sharp & silicious and free from clay, organic or fine matter and to be well washed being used as specified.

Continued L<sup>o</sup> 335Continued L<sup>o</sup> 335

The water to be clean as Clause 21.  
The concrete to be as specified parts by measure of broken and sand to 1 part of Portland Cement Clause 22.

The cement mortar to be two parts clean sharp sand to one part of Portland Cement as specified in Clause 23.

The bricks to be equal in quality to the High Broom sample deposited in the Office of the Engineer & out of the desire to use any other description of bricks he shall state same at the time of tendering but they shall be subjected to the test specified in Clause 24.

All bricks shall be well wetted before being used & shall be soundly bedded in the work. The cross joints shall be solidly flushed up the whole thickness of the work. The joints in the brickwork shall in no case exceed  $\frac{1}{4}$  of an inch in thickness and shall be struck smooth and flush on the face. All brickwork in connection with the sewers and drains shall be made absolutely water-tight. All exposed brickwork to be protected from frost &c.

Continued L<sup>o</sup> 335

The stoneware or firing pipes used in the Works may be country made pipes of a quality equal to the sample pipe manufactured by Messrs. Lenthall & Co. and deposited in the Office of the Engineer. No pipe inferior to this sample will be permitted to be used. All pipes shall be perfectly straight and truly cylindrical, salt glazed inside and outside, free from cracks and flaws & perfectly burnt as Clause 30. The earthenware sewer or drain pipes shall all be jointed by forcing into the socket spun yarn until the socket is filled so as to effectually prevent the entrance of mud into the drain, but to admit water.

All the pipes and castings shall be of the best quality and free from defects &c. as Clause 31.

The 6" socket or flange pipes shall have a thickness of  $\frac{1}{2}$ " shall be 9 ft long in the work and have a depth of socket of  $2\frac{1}{2}$ " with a thickness of joint not exceeding  $\frac{1}{4}$ ".

The special pipes shall be provided by the Contractor & they shall have the same thickness as the straight pipes. The metal to be used shall be free from rust or inferior iron shall be strong.

Continued L<sup>o</sup> 335



tough and close grained  
pipes when cast shall be  
seal air holes or other  
of castings. All pipes shall  
cylindrical and the spigot end  
every pipe shall fit into the socket  
leaving only the thickness of joint  
specified which thickness is the  
maximum size. The spigot end  
of each pipe shall be furnished  
with a projecting fillet which  
shall fit into the socket leaving  
not more than 3/4 inch clearance  
all round. The contractor shall  
provide all lead and tools required  
for joining the pipes. The whole  
of the iron socket pipes shall be  
jointed by first having forced into  
the socket until it is half full cold  
rod lead and afterwards the joint  
shall be run full of molten lead  
and shall be properly caulked.

### Excavations &

The materials taken out of the trenches &  
shall not unless unavoidably necessary  
be deposited at any time so as to block  
up any public carriage or footway  
& as clause 26

Continued

Continued L 535

In case any loose soft or bad ground is  
met with the contractor shall excavate  
the same to a solid foundation & shall  
fill up the excavation to the level of the  
sewer or drain with concrete or as may  
be otherwise directed, which shall be  
paid for as an extra but if the contractor  
excavates in good ground below the  
proper level required for the sewers  
& he shall fill up the excavation  
with concrete at his own cost.  
All trenches are to be open cut.  
The contractor shall not cut or break  
down any live fence in the line of  
the proposed works, but shall tunnel  
under the same.

The width at which the excavations  
have been calculated is expressed  
in the Quantities in order that the  
contractor may use his own  
practical knowledge as to the  
sufficiency or otherwise of same  
and that he may add to  
or deduct from same as he  
may think necessary no allowance  
shall be made hereafter on  
this account. The contractor  
shall allow for returning filling  
of ground excavated as he  
provides for.

Continued L 535

In filling the trenches no refuse  
or other soft material shall be  
deposited in the trenches but a selection of  
materials shall be used to refill the  
trenches as clause 26.

- in 36 of Excavation for pipe sewer including  
throwing out & all timbering  
& pumping and notching  
ground for sockets (calculated  
at 3 ft wide and average  
6 ft deep) for length between  
outfall a manhole in Explanade
- 91 of Ditto average 9.0' deep  
between last to manhole A
  - 10 . Ditto average 6 feet deep  
between outfall b & manhole  
in Explanade.
  - 153 . Ditto average 10 ft deep  
between last and manhole  
B and northwards of same.
  - 61 . Ditto average 6.6' deep  
between outfall c and  
manhole in Explanade
  - 122 . Ditto average 8.0' deep  
between last and manhole  
C.
  - 36 . Ditto average 5.1' deep between  
outfall d and manhole in  
Explanade
  - 100 . Ditto average 8.6' deep between  
last and manhole D

filled up

Continued B 535



33/6

Yards  
Cuts

1889 Brought up

Continued L 535

72	in 27	of excavation for pipe sewer average 8 ft deep for branch between d and D
210	84	Ditto average 7' 6" deep for sewer between outfall a and manhole in Esplanade
258	91	Ditto average 9' 6" deep between last and manhole E
373	122	Ditto average 9' 0" deep for sewer along slide from manhole A towards B
500	167	Ditto average 9' 0" deep between A and B
116	41	Ditto average 8' 6" deep from last up to B
165	58	Ditto average 8' 6" deep from B towards C
318	106	Ditto average 9' 0" deep up to C
409	129	Ditto " 9' 6" deep from C to D
276	92	Ditto " 9' 0" deep from D towards E
755	238	Ditto " 9' 6" deep centre between D & E
264	88	Ditto " 9' 0" deep up to E
165	58	Ditto " 8' 6" deep from E eastwards
180	60	Ditto " 9' 0" deep on 1 <sup>st</sup> branch between D & E on slide sewer
210	70	Ditto " 9' 0" deep 2 <sup>nd</sup> branch do
476	150	Ditto " 9' 6" deep for valley sewer commencing from D
316	100	Ditto " 9' 6" deep do centre part
12	Carried up	

Continued L 535

97/10

Continued

Yards  
Cuts

1932 Brought up

Continued

72	in 28	of excavation for pipe sewer as last average 8' 6" deep for valley sewer up to junction near E
164	58	Ditto average 8' 6" deep for branch in valley sewer
7192	Total	Cuts yards of Excavation

Filling in Surplus &c

In filling in the utmost care shall be exercised so as not to disturb break or damage the pipes or drains. The ground as it is being filled into the trenches shall be well rammed until it is completely consolidated and water may be used at the discretion of the Contractor to aid in the consolidation of the trenches. Very great care must be exercised by the Contractor to see that no damage is done to the sewer or drains during the process of consolidation. The Contractor shall provide the necessary shocks for any surplus material not required to be used on the works. No surplus trench is refilled the surplus earth arising from the works shall be at once removed and the surface properly restored

Continued L 1259 4

97/11

33/6

Continued L 1259 4

and made good. In the case of any gravel or sand or other material taken from any trench in private property, the Contractor must understand that such material or surplus material belongs to the Owner of the property and must be dealt with as such Owner desires, except that the Contractor shall not be expected to remove such surplus for such Owner to a greater distance than 200 yards. The Contractor will be required to use the surplus materials as far as necessary in filling in any cracks crevices or openings caused by the steps and all such filling in shall be effectually consolidated the surface restored to its new level and every precaution taken to prevent the return of surface or sewer water entering any crevices or cracks.

Yards	
110	Cuts Returning earth & filling into trenches & well ramming and consolidating same as clause 24 for length between outfall a and manhole in Esplanade
212	Do for d between last and manhole A
118	Do for d between outfall a and manhole in Esplanade
410	Do for d between last and manhole B & North of same

Continued L 1259 4

97/12







Yards feet in' Continued L 2115 7 6

32	—	Cake Coarse Sea Sand filled in under and around pipe sewer between manhole in Esplanade and manhole A.	
53	—	Ditto between d <sup>o</sup> and manhole B and North of same	
43	—	Ditto between d <sup>o</sup> and manhole C.	
36	—	Ditto between d <sup>o</sup> and manhole D.	
6	—	Ditto branch between d and D.	
32	—	Ditto between manhole in Esplanade and manhole E.	
32	—	Ditto for sewer along slide from manhole A towards B.	
36	—	Ditto ditto in centre between A and B.	
11	—	Ditto ditto between last and D.	
12	—	Ditto ditto from B towards C.	
23	—	Ditto ditto up to C.	
24	—	Ditto ditto from C to D.	
24	—	Ditto ditto from D towards E.	
91	—	Ditto ditto centre between D & E.	
26	—	Ditto ditto up to E.	
15	—	Ditto ditto from E Eastwards.	
43	—	Ditto 1 <sup>st</sup> branch between D and E on slide sewer.	
45	—	Ditto 2 <sup>nd</sup> branch ditto.	
40	—	Ditto valley sewer commencing from D.	
21	—	Ditto ditto centre part.	
7	—	Ditto ditto up to junction near B.	
12	—	Ditto branch on valley sewer.	403 9 3

Total Cake Yards of Sea Sand 61 2/3 Continued L 2116 16 9

97/16

Yards feet in' Continued L 2116 16 9

25	—	Cake Shingle filled in and levelled over the Sea Sand for line of pipe sewer between manhole in Esplanade and manhole A.	
43	—	Ditto between d <sup>o</sup> and manhole B and North of same	
34	—	Ditto between d <sup>o</sup> and manhole C.	
28	—	Ditto between d <sup>o</sup> and manhole D.	
5	—	Ditto branch between d and D.	
25	—	Ditto between manhole in Esplanade and manhole E.	
37	—	Ditto for sewer along slide from manhole A towards B.	
51	—	Ditto ditto in centre between A & D.	
43	—	Ditto ditto from last to D.	
18	—	Ditto ditto from B towards C.	
32	—	Ditto ditto up to C.	
40	—	Ditto ditto C to D.	
28	—	Ditto ditto from D towards E.	
73	—	Ditto ditto centre between D & E.	
27	—	Ditto ditto up to E.	
48	—	Ditto ditto from E Eastwards.	
21	—	Ditto 1 <sup>st</sup> branch between D & E on slide sewer.	
21	—	Ditto 2 <sup>nd</sup> branch ditto.	
46	—	Ditto valley sewer commencing from D.	
31	—	Ditto ditto centre part.	
7	—	Ditto ditto up to junction near B.	
18	—	Ditto branch on valley sewer.	876 16 9

Total Cake Yards 61 2/3 Continued L 2116 35

97/17

Continued L 2116 35

1	—	then setting aside surplus material relaying after excavation 2 ft wide in beach and making good to the satisfaction of the Surveyor of Highways Local Authorities or Owner of the property traversed as Clause 26 for length of sewer between outfall d & manhole in Esplanade.	
1	—	Ditto of footpath and road d <sup>o</sup> and d <sup>o</sup> .	1
3	—	Ditto of road between last and manhole E & F.	12 6
1	—	Ditto of fields or gardens between d <sup>o</sup> and d <sup>o</sup> .	4 16
12	—	Ditto of beach between outfall b & manhole in Esplanade.	5 2
3	—	Ditto of road d <sup>o</sup> & d <sup>o</sup> .	6
63	—	Ditto of ditto between last & manhole B & North of same.	15 6
53	—	Ditto of beach between out fall c & manhole in Esplanade.	5 6
8	—	Ditto of road between d <sup>o</sup> & d <sup>o</sup> .	16
122	—	Ditto of d <sup>o</sup> between last and manhole C.	12 4
49	—	Ditto of beach between outfall d & manhole in Esplanade.	4 18
7	—	Ditto of road between d <sup>o</sup> & d <sup>o</sup> .	14
40	—	Ditto of d <sup>o</sup> between last & manhole D.	10
10	—	Ditto of d <sup>o</sup> branch between d and D.	1
17	—	Ditto of gardens between d <sup>o</sup> & d <sup>o</sup> .	1 12

Continued L 2116 5 11

97/18



Yards		Continued L 2582 5 11	
148	Run along side surface material		
	of beach and making good		
	after excavation for pipe	2 1/2	4 16
	sewer as laid between outfall		
	& manhole in Esplanade		
36	Ditto Road to d°		3 12
75	Ditto d° between manhole		
	in Esplanade and manhole E	7 1/2	16
13	Ditto gardens d°		1 6
122	Ditto field & along slide		
	from manhole A towards B	1 1/2	9 3
147	Ditto d° in centre between	1 1/2	12 10 6
	A & D		
22	Ditto d° from last up to B		1 13
19	Ditto Road ditto	2 1/2	1 13
55	Ditto Field to ditto	1 1/2	2 15
3	Ditto Road ditto	1 1/2	6
103	Ditto Road up to C	1 1/2	5 3
3	Ditto Road ditto	1 1/2	6
3	Ditto d° C to D		6
126	Ditto Fields 2° ditto	1 1/2	6 6
92	Ditto d° from D towards E		4 12
238	Ditto d° centre between D & E		11 12
53	Ditto d° up to E		4 4
53	Ditto d° from E towards		2 15
60	Ditto d° branch between D & E		3
70	Ditto d° 2nd branch d°		3 12
150	Ditto valley sewer commencing from D		7 12
100	Ditto d° centre part		5
28	Ditto d° up to junction near B		1 3
53	Ditto branch on valley		2 15
	sewer		

Continued L 2665 2 5

97/19

Yards		Continued L 2665 2 5	
1	1 Tunneling under fence & dwarf		
	walls for 6" iron pipe and		
	making good after for length	4	
	of sewer between outfall &		
	manhole in Esplanade		
1	Ditto under d° between		
	last and manhole A	4	
3	Ditto under fence walls		
	branch between d & D	12	
1	Ditto d° between		
	outfall & manhole in	5	
	Esplanade		
1	Ditto under East Guard		
	Station including shoring &	15	
	strutting between outfall &		
	manhole in Esplanade		
1	Ditto under House and		
	Garden at back of ditto	25	
	& ditto ditto		
1	Ditto under House in Cell		
	Street between manhole in	25	
	Esplanade & manhole E		
1	Ditto under House at		
	back of Cell Street for slide	25	
	low D to E		
91	Run 6" Glazed earthenware socketed		
	pipe as clause 30 and		
	laying in sand and pointed		
	by having spun yarn	1 1/2	6 16 6
	driven into the sockets		
	until the socket is filled		

Continued L 2786 13 11

97/20

Yards feet in		Continued L 2786 13 11	
	so as to effectually prevent		
	the entrance of sand into		
	the sewers, but to admit		
	water between manhole in		
	Esplanade & manhole A		
141	Run 6" Ditto d° between d°	1 1/2	12 6 8
	manhole B		
12	4 Ditto d° north of	1 1/2	15
	manhole B		
122	6 Ditto d° between manhole		
	in Esplanade and	1 1/2	10 13 6
	manhole C		
100	6 Ditto d° between d°		
	and manhole D	8	15
27	3 Ditto d° for Branch		
	between d and D	7	1 7
91	6 Ditto d° between man		
	hole in Esplanade and	1 1/2	7 13 3
	manhole E		
122	4 Ditto along slide starting	1 1/2	7 12 6
	from A towards B		
167	3 Ditto d° between A & B	1	8 7
111	4 Ditto d° up to B	1 1/2	2 11 3
53	3 Ditto d° from B		
	towards C	1	2 13
106	15 Ditto d° up to C	1 1/2	6 12 6
129	3 Ditto d° C to D	1	6 9
92	4 Ditto d° from D		
	towards E	1 1/2	5 15
238	3 Ditto d° centre between		
	D & E	1 1/2	11 12
88	15 Ditto d° up to E	1 1/2	5 16
53	4 Ditto d° from E	1 1/2	3 12 6
	towards		

Continued L 2890 7 1

97/21



33/10

Continued L 2976 11		
10	Run 3' Earthenware pipe sewer bedded in sand for 1 <sup>st</sup> branch between D & E on slide pier	2 5
11	3' Ditto for 2 <sup>nd</sup> branch on do	2 12 6
12	14' Ditto for valley sewer starting from D	6 17 6
13	3' Ditto ditto centre part	3 15
14	14' Ditto ditto up to junction near E	1 5 8
15	3' Ditto branch on valley sewer	2 3 6
N <sup>o</sup> 1 Earthenware down to 4' pipe to from steps end to length of drain north of Manhole B		
1	Ditto to 3' pipe on branch between and D	9
1	Ditto to 4' pipe in sewer eastwards of Manhole E	9
1	Ditto to 3' pipe for 1 <sup>st</sup> branch on slide line D to E	6
1	Ditto to 3' pipe for 2 <sup>nd</sup> do do	6
1	Ditto to 3' pipe for branch on valley sewer	6
1	Junction on 6' earthenware pipe main to D for 3' branch	2
1	Ditto on 4' for 3' for 1 <sup>st</sup> branch on slide sewer D to E	1 6
1	Ditto on 3' for 3' for 2 <sup>nd</sup> do	1 6
1	Ditto on 4' for 4' between D & E for valley sewer	1 6
1	Ditto on 3' for 3' branch on valley sewer	1 6
2	Each to lands on 6' pipe in sewer between manhole in Esplanade & Manhole E	11

Continued L 2976 11 10

25

97/22

Continued L 2976 11 10

N <sup>o</sup> 1	Cutting through sea wall for 6' even pipe and make good after between outfall a & manhole in Esplanade	1 10
1	Ditto do between b & d	1 10
1	Ditto do c & d	1 10
1	Ditto do d & e	1 10
1	Ditto do e & f	1 10
1	End of even pipe built into side of manhole a in Esplanade	5
1	Ditto do into manhole b do	5
1	Ditto do c do	5
1	Ditto do d do	5
1	Ditto do e do	5
2	Ditto of earthenware pipe into side of manhole A	10
4	Ditto of do to manhole B	1
3	Ditto of do to manhole C	15
11	Ditto of do to manhole D	1
3	Ditto of do to manhole E	15
1	Manhole on cross section a A in Esplanade 9' deep below road level to running line of water as details X & Y at end of Bell	13 10 6
1	Ditto A 8' deep in field as details X & Y	12 7 0
1	Ditto between b & B in Esplanade 8' deep as ditto	12 7 5
1	Ditto B 12' deep as ditto	15 9 7

Continued L 2976 11 2

26

97/23

33/10

Continued L 2976 11 2

N <sup>o</sup> 1	Manholes between c & C in Esplanade 8' deep as details X & Y at end of Bell	12 7
1	Ditto C 8' 3" deep as ditto	12 16
1	Ditto between d & D in Esplanade 7' 9" deep as ditto	12
1	Ditto D 9' 3" deep as ditto	13 10 5
1	Ditto between e & E in Esplanade 6' 6" deep as detail X	11 3 5
1	Ditto E 15' 6" deep as details X & Y	25 1 8
Total		
17	Cake pipes measured net	
17	Ditto at Outfall a	
15	Ditto at Outfall b	
15	Ditto at Outfall c	
17	Ditto at Outfall d	
51	Total Cube Feet	51 20 5

N <sup>o</sup> 6	6' x 4' Oak cross pieces 1' 6" long and fitting and bolting to top of piles at Outfall a	
6	Ditto at Outfall b	
6	Ditto at Outfall c	
6	Ditto at Outfall d	
6	Ditto at Outfall e	
30	Total N <sup>o</sup> of Cross pieces	26 3 15

Continued L 2957 4 8

27

97/24



Continued L 3057 4 2

N<sup>o</sup> 60 Bolt holes through 4" x 6" Oak  
rails & posts at Cuffall a.

60 Ditto d<sup>o</sup> at Cuffall b.

60 Ditto d<sup>o</sup> at Cuffall c.

60 Ditto d<sup>o</sup> at Cuffall d.

60 Ditto d<sup>o</sup> at Cuffall e.

300 Total N<sup>o</sup> of Bolt holes 6 7 10.

N<sup>o</sup> 6 Ringing, shoeing and driving  
piles to an average depth  
of 9 feet including allowance  
for use and waste of rings  
at Cuffall a.

6 Ditto d<sup>o</sup> at Cuffall b.

6 Ditto d<sup>o</sup> at Cuffall c.

6 Ditto d<sup>o</sup> at Cuffall d.

6 Ditto d<sup>o</sup> at Cuffall e.

30 Total N<sup>o</sup> 153.

N<sup>o</sup> 6 Cutting off tops of 6" x 6" Oak  
piles to a line at Cuffall a.  
(Note: 1 foot in length of  
pile allowed for waste).

6 Ditto d<sup>o</sup> at Cuffall b.

6 Ditto d<sup>o</sup> at Cuffall c.

6 Ditto d<sup>o</sup> at Cuffall d.

6 Ditto d<sup>o</sup> at Cuffall e.

30 Total N<sup>o</sup> of tops cut off 7 2 5.

Continued L 3246 19 2

97/25

Iron pipes.

The cast iron pipes and pointing to  
be as Clause 31.  
Contractor to guarantee all iron pipes  
and should they through any  
defect become fractured in the  
work or in transit to the  
works or afterwards the  
Contractor shall supply other  
pipes in the place of the  
defective ones as clause 31.  
All special pipes shall be provided  
by the Contractor and they  
shall have the same thickness  
as the straight pipes as clause 31.

lbs qrs lbs

46 2 - In 6" Diameter cast iron spigot  
and socket pipes including  
pattern and coating  
with P. Angus Smith's  
composition between outfall  
a & manhole in Esplanade.

49 2 - Ditto ditto between outfall  
b & d.

52 1 11 4 Ditto ditto between  
c & d.

46 2 - Ditto ditto between  
d & e.

72 2 21 Ditto ditto between  
e & f.

269 2 7 Total weight of 6" pipes

Continued L 3246 19 2

Continued L 3402 13 2

97/26

lbs qrs lbs

11 3 - If cast iron in 6" diameter short  
and curved spigot and  
socket pipes including  
patterns and coating same  
with P. Angus Smith's  
composition from outfall a  
to manhole in Esplanade.

5 2 11 4 Ditto in ditto from outfall b  
to do.

3 3 11 4 Ditto in ditto from outfall c  
to do.

5 11 4 Ditto in ditto from outfall d  
to do.

5 3 7 7 Ditto in ditto from outfall e  
to do.

25 0 21 Total weight of short & curved pipes 217 22.

3 7 - If Ditto in 6" d<sup>o</sup> with socket at one end  
& flange the other & d<sup>o</sup> at outfall a.

3 7 - Ditto in ditto at outfall b.

3 7 - Ditto in ditto at outfall c.

3 7 - Ditto in ditto at outfall d.

3 7 - Ditto in ditto at outfall e.

15 1 7 Total weight of flanged pipes 219 11 9.

finds

56 - Run Laying only 6" iron pipe  
between outfall a & manhole  
in Esplanade.

66 - Ditto d<sup>o</sup> between outfall b & ditto.

61 - Ditto d<sup>o</sup> between outfall c & ditto.

56 - Ditto d<sup>o</sup> between outfall d & ditto.

511 - Ditto d<sup>o</sup> between outfall e & ditto.

317 Total length. 217 15 17.

Continued L 3402 13 2

97/27



3/12

33/12

Continued £3457 19 8

- N 18 Joints of 6" iron pipes loaded and set up as Clause 31 between outfall a and manhole in Esplanade
- 19 F. of d. between outfall b & d
- 20 F. of d. between outfall c & d
- 18 F. of d. between outfall a & d
- 27 F. of d. between outfall c & d
- 42 Total Number of loaded joints. 25 10

- N 6 Tilt shoes with cast iron points 2 1/2 x 2 1/2" extreme with 4 wet iron straps 9 x 1 1/2" to same each secured strap to cast iron points with one screw or rivet & fixed to cast piles with 7 including 4 counterbore screws to each strap at outfall a
- 6 Ditto at outfall b
- 6 Ditto at outfall c
- 6 Ditto at outfall d
- 6 Ditto at outfall e
- 30 Total Number of Tilt shoes 12 8

- N 12 Bolt holes drilled through cast iron pipes at outfall a
- 12 Ditto at outfall b
- 12 Ditto at outfall c
- 12 Ditto at outfall d
- 12 Ditto at outfall e
- 60 Total Number of bolt holes 2 8

Continued £3493 14 8

97/28

Ck qrs lbs Continued £3493 14 8

Of Wrot Iron in short secured bolts and fixing at outfall a			
3 0	.	Ditto	at outfall b.
3 0	.	Ditto	at outfall c.
3 0	.	Ditto	at outfall d.
3 0	.	Ditto	at outfall e.
3 3 0	Total weight of secured bolts.		

N 1 Approved Tankard value for 6" pipe with frame and short lengths of socket pipe in one piece and building into side of manhole in Esplanade on a cross section.

- 1 Ditto ditto to manhole in d. between b & B.
- 1 Ditto ditto to manhole in d. between c & c.
- 1 Ditto ditto to manhole in d. between d & D.
- 1 Ditto ditto to manhole in d. between e & E.
- 5 Total Number of Tankard valves 17 10

Allow to dress down the escarpments } 10

Allow to repair all roads damaged by the land slip. } 30

Continued £3556 5 11

97/29

Continued £3556 5 11

Allow to fill in cracks & with some of the materials from the trench surplus and for loading down same to make all solid & leave all perfect.

£35 5 11

- Add Surveyor's charge 2 per cent on above amount } 71 10
- Add costs of Printing Quantities & Schedule F. } 35 3
- The above to be paid out of the first instalment received by the Contractor

Amount carried to Term of Tender £352 18 11

Charles T. Baker

30, Bishopsgate Street, Without London E.C.

97/30



Details

Detail X being for one square manhole  
6' 6" deep below ground to water  
running line

Yards feet		L. s. d.
8 <sup>1</sup> / <sub>2</sub>	Excavation 8' 6" deep & throwing out including all shuffling & pumping	17 3
1 <sup>1</sup> / <sub>2</sub>	Returning filling in & ramming	1
6 <sup>1</sup> / <sub>2</sub>	Sorting surplus material to spoil	13
	N <sup>o</sup> 1 Making good, sanding round manhole cover	2 6
1 <sup>1</sup> / <sub>2</sub>	like Cement concrete as described in bottom with channel formed in same	1 8
1 <sup>1</sup> / <sub>2</sub>	Ditto filled in at back of walls	1 5
10	Sup. Boarding up d <sup>o</sup> to form Channel	1 8
2 <sup>1</sup> / <sub>2</sub>	like Brickwork in cement in walls & pointing fair	2 13 6
5 <sup>1</sup> / <sub>2</sub>	D <sup>o</sup> in well bricks in cement in arch	5
5	Sup. Cleaning off & pointing soffits of arch after removal of centre	1
1 <sup>1</sup> / <sub>2</sub>	Cement rendering on cover including arrises &	6
5	Some circular concrete to arch	2 6
	N <sup>o</sup> 1 Cast iron foothold cross weighing 5 <sup>1</sup> / <sub>2</sub> cts each & building into sides of manholes & painting	12
	1 Cast Iron Manhole Cover & flanged frame 20" clear diameter, made to fit and having circular close cover of a pattern to be approved of by the Engineer & setting & painting	2 10

Amount of One square Manhole 6' 6" deep £ 11 3 5

Detail Y being for One foot  
additional in depth of Manhole

Yards feet		L. s. d.
1	like Excavation & as before	2
5 <sup>1</sup> / <sub>2</sub>	Filling in & ramming	6
3	Surplus material carted to spoil	3
3	Brickwork in cement in walls & pointing as before	9 6
	N <sup>o</sup> 1 Cast iron foothold iron and building in and painting as before	3
	Cost of One foot additional depth of Manhole	£ 15 8

Detail Z being for N<sup>o</sup> 1 Street  
Gully with connection up to  
Main Sewer (for Schedule)

Yards feet		L. s. d.
14	like Excavation for pipe trench average 6 feet deep & as before	1 11
9 <sup>1</sup> / <sub>2</sub>	Filling in & ramming as before	6 3
4 <sup>1</sup> / <sub>2</sub>	Surplus carted to spoil as before	9 6
2 <sup>1</sup> / <sub>2</sub>	Coarse sea sand filled in under & around pipe as before	1 13 1 <sup>1</sup> / <sub>2</sub>
2	Shingle over ditto as before	1 4
7	Run & make good road after excavation as before	14
	N <sup>o</sup> 1 D <sup>o</sup> road or channel round grating	2 6

Continued £ 6 47

Yards feet  
7

	Continued £	
Run 6' Earthenware pipe & laying as before	12 6	
N <sup>o</sup> 1 Junction on Main Sewer for d <sup>o</sup>	5	
1 Double glazed earthenware Street gully 18" diameter & 4 feet deep in clear N <sup>o</sup> 21 in Catalogue net p. c. 30 <sup>1</sup> / <sub>2</sub> bedding in & including Portland cement concrete and making good end of drain pipe up to same and digging complete	2 3	
1 4' Perforated Stone Cover 2' 6" x 2' 6"	10	
1 Cast iron heavy gully grating 1' 2" x 1' 2" in clear and flanged frame 1' 11" x 1' 11" x 8" high over all & setting	1 17	

Amount for N<sup>o</sup> 1 Street Gully  
& connection with Sewer  
Carried to Schedule £ 11 7



Original in Files.  
Ref. Liby.

SANDGATE SECURE.

The first anniversary of the disastrous landslip at charming little Sandgate found the place rendered as secure as the "eternal hills," although, by the way, geology demonstrates that the hills are very far from eternal. Thanks to the ready monetary help given from all parts of the Kingdom, the energy of its Local Board, and other leading inhabitants, and the skill of the distinguished engineer called in, all fear of another such misfortune occurring seems to be for ever removed. This has been effected by a drainage work extending parallel to the backs of the houses for three-quarters-of-a-mile, from the Coastguard Station to the War Department property. The pipes are laid at depths varying from 9ft. to 25ft., and the joints being laid in shingle and sea sand, the water percolates into the pipes, and is carried off to sea by fire lateral conduct pipes.

The Executive Committee of the Relief Fund have issued an elaborate statement, setting forth the work done and the principles which have guided them in carrying out their duties. The total amount subscribed was £8,658 15s. 10d. The grants made on houses amounted to £3,036 4s. 5d.; land drainage, £2,450; personal relief, £1,541. A balance of £1,267 6s. 1d. remained in hand.

THANKSGIVING SERVICE.

In connection with the completion of the work a thanksgiving service was held at St. Paul's Church, Sandgate, on Sunday. The Local Board, the Freemasons, Firemen, Volunteers, Coastguards, and detachments of Military attended. The congregation was a crowded one and the service very impressive. Nonconformists as well Churchmen taking part in it, and the Rev. A. J. Palmer (Congregationalist) assisting. The sermon was preached by the vicar, the Rev. Russell Wakefield.

MEETING OF THE GENERAL COMMITTEE.

A meeting of the General Committee of the Landslip Relief Fund was held on Monday afternoon, the Vicar, in the unavoidable absence of General Sir C. P. Keyes, G.C.B., presiding. The Executive Committee presented their report and balance sheet, which were approved and adopted. As regards the balance, £1,267, Mr. HUNTLEY proposed the following resolution:—"That a sum of money, the amount to be left to the decision of the Executive Committee, be devoted to the purposes of the Local Board in order to defray some part of the cost of public repairs consequent upon damage done by the landslip."—Mr. KENNETT seconded the resolution.—Dr. ALSTON strongly condemned the resolution, and in the course of his remarks said that he was surprised that a body of gentlemen like the members of the Board should discuss the matter at their meetings and propose the misappropriation of charitable funds for their own personal interests.—The VICAR at once rose, and tendered his resignation both on the general and executive committees. He could not, he said, as Chairman of the Local Board sit there and hear such an accusation made against a body of gentlemen who gave up their time and did their best for the good of the town.—Subsequently Dr. Alston withdrew his remarks, and shortly after left the room.—Mr. Huntley's resolution was then carried unanimously.

DINNER IN CELEBRATION.

In order to promote the confidence of the public in the future stability of the town, and to advance its prosperity by attracting notice to it, a public dinner was arranged at the Drill Hall on Monday evening. The catering was excellently carried out by Mr. Ackerman, of the Royal Norfolk Hotel. The chair was occupied by the Vicar of Sandgate and Chairman of the Local Board (the Rev. Russell Wakefield), who was supported by the Mayor of Hythe, Colonel Fynmore, and Dr. Chubb. The company included Councillor D. Baker, Mr. C. W. Haines (representing Mr. Minter, solicitor to the executive committee), Mr. T. Martin, Lieut. Alston, Mr. G. W. S. Wilks (deputy town clerk of Hythe), Dr. Perry, Dr. Wakefield, Messrs. Shawe, A. Crane, Woollett, H. Simons, A. Sellon, Darnley, Ross, W. Jenner, Onslow, Huntley, Prior, E. Kennett, E. H. Keeler, Sillibourne, Martingell, Sillibourne, Councillor Day (Hythe), Ludlow, F. Franklin (Romney), McLachlan, C. Kutsel, J. Coombes, W. H. Jacob, W. B. Kennett (vice-chairman), and Rev. C. de P. Gliddon, etc.

The loyal toasts having been duly honoured, Mr. G. S. WILKS proposed that of the Clergy and Ministers of other denominations, remarking that the kindly feeling which exists between Church of England and Nonconformist ministers in Sandgate had helped forward to a great extent the well-being of the inhabitants.—The CHAIRMAN, in reply, spoke with satisfaction of the good feeling that prompted the Rev. Mr. Palmer (Congregational) to take part in the service at Sandgate Church last Sunday. In his opinion the great curse of religion in past days had been the want of unity among those working for Christ. (hear)

Mr. CONDY having proposed the naval and military toast, Captain Wilks, in responding, said that what the navy wanted was not so much an increase in the number of ships as such an increase in the pay as would induce men to man them. Lieut. ALSTON also responded.

The CHAIRMAN said he had reserved the proposing of the next toast for himself. It was the health of the borough member. Sir E. Watkin was amongst the very first to send them a liberal contribution after the occurrence of the disaster, and Sir Edward had been in constant communication with him ever since as to how the place was

getting on. (cheers)—Amid the applause of the audience the Chairman forwarded a telegram of good will and sympathy to Sir Edward Watkin.

Mr. MARTIN gave "Prosperity to Sandgate," humourously speaking of himself as "a bird of passage," as his name implied.

The CHAIRMAN commenced the speech of the evening by reading letters and telegrams from gentlemen who wished to have been present but were unable to attend. Among these were the Recorder of Folkestone, Mr. Mudford of the Standard, the Mayor of Folkestone, Alderman Banks, and the Chairman of the Relief Fund, Sir Charles Keyes, whose medical attendant had absolutely forbidden him to come. With regard to the prosperity of Sandgate, the town could not claim at the present moment to be distinctly prosperous. It was true that immediately after the landslip the kindness of the nation, which was enormous, did enable them (the Committee) to help people immediately; and before they could feel any severe pinch afterwards there came a very good season. But although good it was only part of a season, and there were still fifty houses which had not been occupied since the landslip. If they reckoned 250 occupants for those houses, which was a very small number considering their size, it made a very serious deduction from the trade of a small place of about 2,000 persons. Another reason why Sandgate had not prospered was that in consequence of changes on the Camp there had been no cavalry regiment at Shorncliffe till the last two or three weeks. They might take it from him as a positive fact that in Sandgate at the present time among some of those who ordinarily were fairly prosperous people there was very great difficulty in getting along until brighter days should come. But the place might have been infinitely worse off. (hear) The rev. gentleman spoke thankfully of the services rendered by the members of the Local Board, and by the Press at the time of the disaster. The most wide circulation was given to their difficulties, and the generous heart of the English nation responded most liberally. Hardly ever had there been such a response from the country to any appeal of a public kind where there was no loss of life. (cheers) The members of the Local Board, who met with him that Sunday afternoon after the slip, would admit that they never dreamed that £3,500 would be received as the result of the letters they then wrote at his dictation. (cheers) They all ought to be very thankful indeed for that response. The Committee consulted the Local Government Board, and eventually they got into the hands of a very distinguished engineer, Mr. Baldwin Latham. That gentleman had to prepare a scheme that was not to be very expensive. The work had been done for a couple of thousand pounds, and he held in his hands a letter from Mr. Baldwin Latham, showing what he thought of the work.—The Chairman read the letter, which was to the effect that "the works had been much more satisfactory than the writer anticipated, as he was able to get rid of the whole of the water without disturbing any of the strata. It should be noted that the water flowing from these works is of extremely pure character; free from sand. The quantity flowing has been comparatively uniform, and amounted to about thirty thousand gallons per day distributed over all the drains. This showed that the drains are ample in capacity for dealing with quantities enormously in excess of those which have as yet entered the drains. The works themselves had been carried out at comparatively small cost having regard to the extent and the nature of the work performed."—That letter was adverse to all the remarks of those who took a pessimistic view of the matter. (hear, hear) In some further remarks the rev. gentleman said he did not mean to say that the difficulties of Sandgate were at an end. They had still a great deal of work due to the landslip. Every ratepayer of Sandgate was a sufferer by that disaster through the damage it did to public property; and he was not prepared to say that the Local Board would be able to keep the rates down much longer. What the place wanted was some right down good tenants to take those empty houses on the sea front. (cheers and laughter) The reports of the Medical Officer showed that Sandgate was an uncommonly healthy place, and the Local Board meant to keep it so by strict attention to sanitation. That being so they wanted the people of England now to know that Sandgate was absolutely safe. (loud applause)

Dr. CHUBB next proposed "The Landslip Relief Committee," and alluded to their untiring work during the past year, especially that of Mr. Scott (Mayor of Hythe) and Mr. D. Baker, who examined and gave a report of all the houses damaged by the landslip.—Both gentlemen responded.

Lieut. Col. FYNMORE proposed "The visitors," which was responded to by Rev. C. DE P. GLIDDON, Mr. G. S. WILKS, and Mons. KUSSEL (of Boulogne).

Other toasts were "The Press," "The ladies," and "The host," proposed respectively by Mr. HAINES, Mr. STILGOE, and the CHAIRMAN, and responded to by Mr. CONDY, Mr. HUNTLEY, and Mr. ACKERMAN.

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# The Builder.

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### The Disaster at Sandgate.



THE terrible disaster which has almost reduced the little town of Sandgate to ruins is closely connected with the subject of "foundations," and we need, therefore, make no apology for instituting an inquiry into the matter. Newspaper "science," like newspaper "architecture," is generally very inaccurate, and the errors of the calamity, as given by the daily press, form no exception to the rule, as will be seen in the sequel.

It was reported that on Saturday evening a great subsidence of land took place, whereby the majority of the buildings in the town were more or less damaged, and the gas and water mains were disturbed. Houses had slipped away from each other, leaving gaping sections between, whilst the walls of other edifices bulged out, and were on the verge of toppling down; great rifts appeared in the walls and in the ground at every turn. One of the groyne on the shore had broken up, and along the fore-reef, not far from low-water mark, there was a distinct upheaval of the sea-bed. During a single tide a ridge about four to five feet in height was formed. The area affected extends for about half a mile from east to west, and about five hundred yards inland from the sea line, where the ground rises regularly until it reaches the plain upon which Shorncliffe Camp stands. The most marked effects of the subsidence were manifested in the grounds attached to the mansion known as "Encombe." There, the formation caused by the earth movements on Saturday was augmented (as in other places) by the disturbances which took place on Sunday and succeeding days. Immense cracks and chasms appeared in the grounds in every direction, and the drive up to the house was cut up into a series of steps.

Altogether about one hundred houses were wrecked or damaged in the town: Truly a terrible disaster, and in which the inhabitants have our entire sympathy.

But it is remarkable that so simple a phenomenon should be so woefully misinterpreted. Thus we read in the *Standard* of Monday last, that a general impression prevails in the neighbourhood that the calamity has to some extent been brought about by the explosions caused in blowing up the *Benvenue* last year, and before that of the steam-ship *Calypto*, both of which vessels were wrecked just off shore; and as substantiating this "theory" it is said that some of the damage is where the vibrations caused by the explosions were most felt. A public notoriety writing to the same and other papers also connects the disaster with the blowing up of the first-mentioned vessel, and says that the ruin "has been caused, not by any mysterious natural disturbance, but by the foolhardiness of a Government department," and he trusts that the authorities will "be made responsible for the damage that has resulted therefrom"—a species of writing puerile in the extreme. But he may be excused for uttering such nonsense on the grounds of undue excitement, seeing that his own house was involved in the general ruin. A public meeting, however, has been held in the town, when resolutions were passed endorsing these foolish sentiments.

Another account by the same paper's own correspondent as to the probable cause of the calamity is, if anything, rather worse than the preceding, because it savours of a smattering of the truth, and being clothed in a semblance of scientific language, is all the more misleading. "Sandgate," says the correspondent, "is built upon the Greensand, which rests upon the blue Gault. The same geological characteristics are present throughout the district." This will be news to geologists—we have always been under the impression that the Gault was situated at a higher level in the geological scale than the particular bed of the Lower Greensand upon the talus of which the pleasant town of Sandgate is built. Perhaps the writer had

his mind's eye on the Upper Greensand and the Gault at the Warren, Folkestone—at which latter place considerable landslips have recently occurred. The remark that the Greensand at Sandgate "on being surcharged with water becomes of the nature of quicksand; hence its liability to slip or subside," although somewhat involved, is substantially correct.

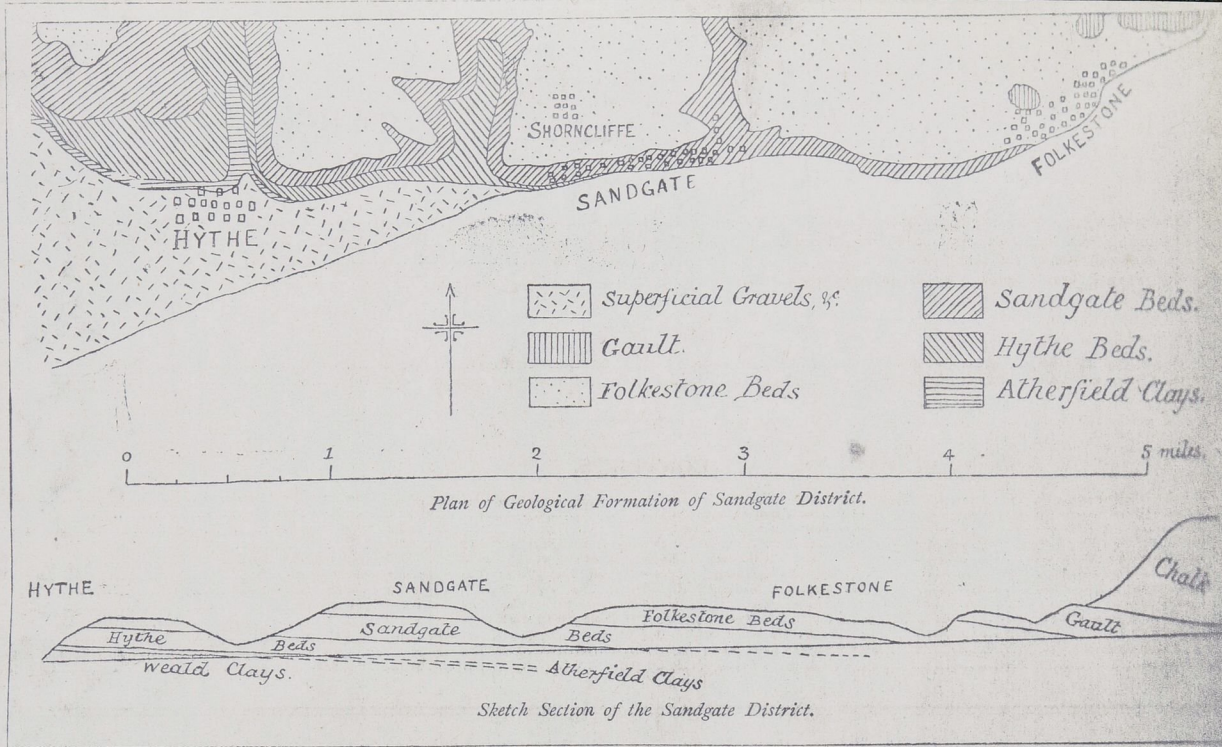
A geological consideration of the scene of the disturbance tends to throw material light on the subject, and in offering the following observations, we would direct the reader's attention first of all, to the accompanying sketch map (based on the Government Geological Survey) and section. As will be seen, the following geological divisions, in descending order, are present in the area:—

- Lower Greensand
1. Gault (at Folkestone).
  2. Folkestone beds.
  3. Sandgate beds.
  4. Hythe beds.
  5. Atherfield Clays.
  6. Weald Clays. (Crops out near Hythe, not shown on map.)

1. *Gault*.—This formation is composed mainly of a fine blue clay, and from its treacherous nature is known generally as the "blue slipper." It does not affect our present inquiry, being found on the Lees at Folkestone, and more to the eastward. It is well developed at the Warren, where nearly the whole of the cliff is made of it.

2. *Folkestone Beds*.—These consist of light-coloured, false-bedded sands, sometimes very coarse, with irregular layers of concretionary siliceous limestone. They are well-developed in the cliffs to the east and west of Folkestone, and rise gradually in the cliff going west of the town towards Sandgate. At the latter place they form the upper portion of the cliffs, which, as before stated, are here some distance inland from the sea-shore. Speaking in general terms, the base of the cliff on the Lower Sandgate road, between Folkestone and Sandgate, is occupied by a small undercliff, formed by the slipping of the sands above the more argillaceous beds beneath, and springs are frequently thrown out along the line of junc-





tion between the sand and the clay. It will be observed that Shorncliffe camp stands on the Folkestone beds.

3. *Sandgate Beds*.—This formation is characteristic of the place. It may be described as a series of dark clayey sands and clays, the dark colour being mainly due to the presence of the mineral glauconite. Exposures in the vicinity indicate that beds of clay a foot or two in thickness alternate with thin beds of clayey sand, and that the formation is of a wet nature. A great portion of Sandgate is built on the slopes and low ground of this formation, which is practically a wide talus extending from the inland cliffs to the shore. A portion of the talus might be formed of fallen Folkestone beds, but of this we have no evidence. The lower western part of the town is partially erected on the

4. *Hythe Beds*.—These are well developed, as the name indicates, in the vicinity of the neighbouring town of Hythe, and consist of thin alternating beds of limestone (Kentish Rag) and sand, rather argillaceous in character. The formation has been traced from Hythe to Sandgate, and was visible at that part of the town opposite Shorncliffe. It passes underneath Sandgate, but at such little depth that it has been reached in shallow diggings along the main road running parallel with the sea, and can be seen further eastward towards Folkestone at low water.

5. *Atherfield Clays*.—This formation, to which particular attention may be drawn, is seen at the lowest tides opposite Shorncliffe Battery, nearly in front of the Beach Rocks Convalescent Home, and also extends under the town. Lithologically it may be described as a mass of fine silty clay. It is noteworthy that strong springs are generally thrown out at its junction with the Hythe beds above, and the surface of the clay is so slippery that, in the inland cliffs near Hythe, the ragstone of the last-mentioned formation has fallen away, covering up the clay. The Atherfield clay freely absorbs water, and then becomes very treacherous.

6. *Weald Clays*.—These stiff clays can also be seen under the Atherfield clays, opposite Shorncliffe Battery, at the lowest tides, and they extend under Sandgate.

The whole of the beds in the area under consideration, from the Gault to the Weald clays inclusive, dip slightly to the N.E., though in places they are almost horizontal. The amount of inclination at Sandgate must

be very little, though the survey map indicates a dip inland.

Recapitulating, we find that the town is partially built on a talus, or undercliff of broad extent composed of a mixture of alternating sands and clays of a treacherous nature, holding, in wet seasons, a considerable quantity of water; and that this, which is very thin, rests on a formation of bands of limestone and clayey sand, upon which a portion of the town to the westward is also built.

But the fundamental point is that the town and the two formations upon which it stands are resting on a slippery clay (the Atherfield), and that a species of lubrication is formed by the channels of underground water between that clay and the beds above. Our opinion, then, is that the disaster at Sandgate is merely a landslip, caused, primarily, by the slipping of the Hythe and broken-up Sandgate beds over the Atherfield clays. The effect of the slip has been materially aggravated by the treacherous nature of the Sandgate beds, which, immediately the landslip began, commenced to break up, and thus formed the cracks and fissures in the ground alluded to. It is highly probable that the greatest part of the mischief done has been caused by this independent movement of the Sandgate beds. There can be little doubt also that the initial movement was brought about, not only by the breaking away of the beds along the points of junction between the Hythe and Atherfield formations, due to the wearing action of the underground channels of water alluded to, but by the scouring of the wind and tides, which at that point is very strong. This action of the sea has cleared the fore-shore of much of its protecting gravel and shingle, in spite of the groynes which have been constructed to arrest it, and the denudation of the beds generally.

On Tuesday last, Mr. Walton, Local Government Inspector, held an inquiry in Sandgate, and he arrived at the conclusion that it was necessary to have proper surface water and storm drains constructed for the purpose of carrying off the subsoil water. The sea-wall should also be provided with more weep-holes. If these works were carried out under the direction of an expert, he believed that no more damage would ensue. There can be no doubt that this would minimise the effects of any future slip, but for our own part we fear, from the geological

structure of the ground, that it will never again be safe to build upon the site of the disaster.

#### RECENT WORK AT SILCHESTER.

It will be within the memory of many of our readers that in the early part of 1890, a systematic effort was made by the Society of Antiquaries to complete the exploration of the Roman City of Silchester, Hants, begun by the late Rev. J. G. Joyce, F.S.A., many years before.

The scheme received the sanction of the Duke of Wellington, the owner of the site, and of Mr. Cooper, the tenant. An influential committee was formed, and, aided by public subscriptions, the work was begun, and carried on with great success through the period of the year during which the ground could be spared from agricultural use. The site, it may be remembered, consists of a deserted area, enclosed within massive walls which describe an irregular octagon about 2,700 ft. from west to east, by about 2,350 ft. from north to south. A farm house, the Rectory, and the Parish Church of Silchester are situated at the east end, these being the only buildings within the area. Beyond the rough core of the city walls no buildings were visible above ground. When the fields are grown with corn, distinct bands of different tint can be discerned in the colour of the crop, marking the positions of the streets, which crossed one another at right angles with great regularity. In nearly the centre some high mounds of excavated earth mark the position of the great Forum of the city, with its attendant basilica; and elsewhere are a few other indications of previous exploration: a series of baths, now greatly damaged by frost, several hypocausts of peculiar form, and the foundations of a manseried building, appearing at first sight to be of circular form, being well known to visitors. Nor must the temporarily wooden museum be overlooked, wherein are contained many of the articles found during the early excavations.

At the close of 1890 the results of the work completed up to then was reported to the Society of Antiquaries, followed by a public exhibition of the objects discovered. This took place again in 1892. The exhibition is now open to the public in the rooms of the Society of Antiquaries.



## LIGHT AND AIR AT THE INSTITUTE.

**T**HE discussion at the Institute on the report of the Science Standing Committee on the Law of Light and Air was somewhat wanting in grasp. That report suggested under its ninth head that no building erected after a certain fixed date shall acquire any rights of light. In other words, the committee recommend the abolition of the Law of Light. In its terms that recommendation applies to the whole country, but in the discussion at the Institute it appears to have been considered that it should only be applicable to London, and that the County Council should be asked to bring the proposal before Parliament. Such a limitation is as illogical as it is half-hearted. If it is right that this particular species of property should be abolished, it should be ended in every town in the country. There is absolutely no reason why the legal change should be confined to London. But we are bound to say that it is quite certain that such a measure would never pass through the Legislature unless it were based either on the Report of an influential Royal Commission, or on a general demand of sufficient force and volume to carry a Bill through Parliament. It is disappointing to find a body of able professional men debating the subject in an academic manner, and apparently blind to the great difficulties which are before them. For a great number of years the indefeasible right to light and air, after the lapse of a certain number of years, has been, so to speak, a legal property. An attempt to abolish it might be regarded as an invasion of the rights of property, and unjustifiable, except on strong grounds of public convenience. But at present the committee of the Institute has given no evidence of either a public demand or great public inconvenience resulting from the existing law. It is true, no doubt, that the law as it stands has prevented the erection of the very high buildings which are to be found in America. But there are large numbers of persons who consider that this result of the law is a beneficial one, and that if its abolition resulted in the multiplication of high buildings, it would be a public misfortune. We do not in any way desire to prejudice the question; we simply desire to make it clear that in asking that the easement of light should be abolished, the Institute is preparing for itself a difficult task, and must expect to encounter a very strenuous resistance. When we come to the other part of the report, upon which most of the discussion at the recent meeting of the Institute turned, we are again struck by its boldness. For the committee recommend that as regards disputes in relation to easements of light, the parties should be forced to go to arbitration; in other words, that there should be a compulsory system of arbitration. This has been hitherto unknown. When parties to a contract agree that disputes in relation to it should be settled by arbitration, there is a voluntary submission in the first place. But to declare that two persons, strangers to each other, who happen to disagree about their rights in regard to a particular property shall, whether they like it or not, submit their dispute to arbitration, is a suggestion which is without precedent. We by no means say that such a law would not be best for the persons concerned, but it is likely that the Legislature will ever say that persons are not to seek for redress before a legal tribunal if they wish? Therefore, we regard this proposal as one which it is almost useless to discuss, because we do not consider that it can ever receive the sanction of the Legislature. Looking, however, to the details of the report, we are struck by the fact that while compulsory arbitration is recommended, it would be neither expeditious nor cheap, which should be the chief advantage of arbitration. In the first place the tribunal is too large; in the second, as an appeal is allowed from it, there

would not be that finality which is one of the chief reasons why litigants should go before an arbitrator. As we read the report there is even a final appeal to the High Court of Justice, and once a case arrived there we should expect that it might go up to the House of Lords. Therefore, the report does not even promise finality and economy. But, as we have already said, there are two radical objections of a very practical kind to both branches of the report. To that in reference to the abolition of the easement, that it would be opposed to the whole current of English law for many years, and be regarded as an attack on property; and to that on arbitration, that it seeks to deprive persons, whether they like it or not, of their legal right to resort to a court of law, which is an inalienable though a costly privilege of the English citizen.

## NOTES.

**I**N another column we publish a letter signed by more than twenty Fellows of the Institute, protesting against the course proposed to be taken by the Council in suggesting that after a certain date every person desiring to be admitted a Fellow of the Institute shall have passed such examination or examinations as may from time to time be directed by the Institute. We must say that we are in entire sympathy with this protest. That candidates for admission as Fellows should give satisfactory evidence as to their executed works, and submit photographs or drawings of these for the information of the Institute, as proposed in the first resolution to be submitted to the special general meeting on Monday, is a proposal which is reasonable and practicable; and certainly we are entirely in favour of laying stress, more than has hitherto been the case, on the architectural gifts and acquirements of a candidate for Fellowship, and not electing any one merely because he is shown to be what may be called a "respectable practitioner." But the idea of instituting a formal examination for the election of a Fellow is absurd; it is introducing a practice which has never been heard of in any Society of this type before, and the passing of such a measure would be a fatal mistake, which would only tend to lower the dignity and standing of the Institute, and to keep the highest class of men out of it.

**T**HE anniversary of Schinkel's birthday (March 13) was celebrated with the usual ceremonies and banquet by the Berlin *Architekten-Verein*. The chief speaker of the evening on this occasion, however, for once refrained from giving his audience the usual memorial paper on some details of the great artist's life, preferring to substitute a highly instructive report on the development of Berlin during the last half century, *i.e.*, since Schinkel's death.\* Dr. Holrecht, the City Engineer, was the speaker who may claim the honour of having made the ceremony a more interesting one than usual, and we must congratulate him on the able way in which he treated his extensive theme in the fewest possible words. At the banquet the Government was represented by the Minister of Public Works and the Rector of the Royal Technical College, both of whom made some important remarks on local affairs.

**T**HE landslip at Sandgate does not seem to have increased much since the first few days of the disaster. According to the official report of Mr. Walton, Engineer to the Local Government Board, who was deputed to examine the area affected, the disturbance was felt along the foreshore for a length of about 2,800 ft., and it extended on to high ground for a short distance inland. Between high and low water marks there are

visible signs of a slight upheaval, a layer of blue clay being obtruded through the line of fracture, and fresh water was in some places issuing from the crack. The whole of the ground affected north of the main road appears to consist of a deposit of a former landslip, and the strata consist of fine loam, greensand, and layers of clay. In all, seventy-four houses have been injured, more or less, some beyond repair, and ninety-four houses have been vacated; the majority of them have little or no foundations. Referring to the probable cause of the disaster Mr. Walton states that the rainfall in February was abnormally copious, as much as 2.31 in. being recorded as having fallen in one week. During the last few months the water in the subsoil has behaved in an erratic manner, springs becoming dry, and so forth. On previous occasions there have been minor subsidences, and several houses were patched up. He arrived at the conclusion that the cause was due to the sudden release of impounded subsoil water. We do not find any evidence, however, that at the time of the disaster more water than usual burst forth from the ground, and we cannot say that the report of the inquiry is as full as could be desired. It is stated that the inquiry was held under very disadvantageous circumstances, as there were no recorded observations of the levels of the subsoil water, no sections of the cliff or of the foreshore, and no geological plan. With reference to the latter, we may remark that an expert should know where to put his hand upon an authoritative geological map of the district, so that is no excuse. We do not know what value the Local Government Board places upon a report drawn up in such a hurried fashion and on such inadequate data as the one under consideration, but for our own part we consider it is almost worthless.

**A** CASE of great interest to contractors and workmen engaged in the building trades has just been tried at Leeds before Mr. Justice Chitty and a special jury, and the result will undoubtedly supply food for thought for the officers of trade unions. It appears that the workmen in Hull have for some time objected, and with reason we think, to the system of sub-contracting which is in their opinion conducive to sweating and jerry-building. In order to stop the practice the members of three trade unions framed a rule, known as "Rule No. 1," and in June, 1892, they succeeded in getting it accepted and signed by the President and several representatives of the Master Builders' Society. Mr. Joseph Temperton, builder and merchant, of Hull, apparently broke this rule, and negotiations between him and the unionists failed to induce him to conform. Thereupon the unionists began an attempt to compel him, and in so doing they contravened the law. The attempt to compel Mr. Temperton was expressed in the following resolution, which was passed by a committee representing the three unions of bricklayers, plasterers, and labourers:—

"Resolved, that this committee advise the three societies to abstain from using any lime supplied by merchants who are supplying any builders who are working contrary to the joint working Rule No. 1, and, further, that they refrain from handling or fixing any artificial stone work made by any one who is working contrary to Rule No. 9."

In consequence of this resolution, builders who had ordered materials from Mr. Temperton were compelled to cancel their orders, as union men refused to fix the materials, and Mr. Temperton himself was unable to obtain supplies of lime, as the Hull merchants could not have dealings with him without offending the unions. Under the circumstances Mr. Temperton was constrained to bring an action against the president and secretary of each of the three trades unions for the purpose of recovering damages and of obtaining an injunction to restrain the unions from pursuing their system of boycotting him. The

\* Schinkel died on October 9, 1841.



# SANDGATE WEEKLY NEWS

18th March, 1893

## THE INSPECTOR'S REPORT.

The following report of Mr. Rienzi Walton to the Local Government Board was received and read:—

I have the honour to report in accordance with the Board's instruction, I proceeded on Monday last (March 6th) to Sandgate, for the purpose of investigating into the cause of the recent landslip at that place. I was met at the station by Sir Charles Keyes, Chairman of the Sandgate Local Board, and with him went direct to the office of the Local Board. After a short discussion, and an inspection of the plan of Sandgate, the meeting was adjourned until 12 o'clock, noon, on Tuesday. I then proceeded to inspect the scene of the recent landslip, and was occupied in that way until dark, and also from 9 o'clock a.m. till 12 o'clock on the following day; at which latter time I again met the members of the Board. From the evidence then offered, and from personal inspection, I gathered the following information. The first indication of the landslip occurred in the afternoon of Saturday, March 4th, about 5 p.m., and a further movement took place on the following day. The disturbed area is included within the boundaries of a roughly shaped segment, as shown on the accompanying plan: the chord of which measures about 2,800 feet. The arc of the segment intrudes into high land, and the chord line follows an irregular course along the foreshore between high and low water mark. Along the line there are visible signs of a slight upheaval, a layer of blue clay being obtruded through the line of structure. Fresh water was in some places running from the fracture at the time of my inspection. The whole of the area of the disturbance north of the main road appears to consist of the debris of a former landslip, which probably occurred many years ago, perhaps centuries. The strata consists of fine loam sand, green sand, and layers of clay. The maximum depth of subsidence is about 10 feet. The chief features and cracks are generally in a direct parallel to the curve of the segment. The movement appears to me to have been confined to subsidence, as I find no proof of a general lateral action. In some places the land has slipped, but in such cases the lateral motion has, I think, been due to the previous steep inclination of the surface. Seventy-four houses have been injured more or less, some beyond repair, and ninety-four houses in all have been vacated. The new sewerage works being outside the disturbed area, have not been injured in any way by the landslip, but an 18in. pipe laid from the Camp at Shorncliffe has been broken in several places, and its massive masonry outfall conduit has been raised and fractured by the upheaval of the foreshore. The old sea wall has been cracked through in places, but the new sea wall is uninjured. The water and gas pipes have been fractured, and are now under process of repair. The sewer from the Camp is also under repair. The pavements and kerb stones which have been displaced are being rapidly re-laid. Two sea groynes have been injured, and the Coastguard Station has suffered considerably. As a possible cause of the disaster, it was stated that for some period concluding last year, operations had been carried on for the removal of the s.s. Benvenue, which had stranded at a point about 600 yards seaward of the front of Wellington Terrace. It was said that the shocks from the explosion were

perceptible on shore. Most of the houses have little or no foundations. The rainfall for the month of February was said to be abnormally copious, and that as much as 2.31 in. is recorded as having fallen in one week of that month. No observations have been taken at any time as to the height of the subsoil water. It would appear from the evidence of several gentlemen that for some time past a variation in the disposition of subsoil water has been noticed, and as instances in support of this, it was stated that the foreshore in front of Wellington Terrace was formally liable to a general weep of fresh water, which for some months past has discontinued. Also that a walk in a private garden, which had been previously subject to springs, had recently become dry. This, I understood, occurred in land saturated at or near the level of the main road. Another instance is that of a large lawn, situated on high land, which had defied all attempts to keep it free from springs, until about a year ago, when it suddenly became dry and firm. A well, situated a little above the level of the main road, was pointed out to me, as one in which the water would not rise; but in which for the past few months the water had accumulated to a high level. It was also told me that from time to time subsidences of minor parts had occurred and I noticed that many houses had evidence of repaired and patched up cracks upon them. There appears to be some difference of opinion as to the foreshore. It was asserted that since the completion of the groynes, the aggregation of shingle on the shore had been most marked, whereas it was also said that the angle of the foreshore had increased very much recently, due, it was alleged, to the process of erosion, caused by the action of the sea. My enquiry was conducted under great disadvantages, as there were no recorded observation of the levels of the subsoil water, no sections of the cliff or of the foreshore, and no geological plan. Taking into consideration the limited time at my disposal, and the entire absence of any reliable data, it is quite impossible to form anything but conjectural conclusions as to the cause of the disaster. From what I saw, and from the evidence, it seems to me probable that the cause was due to the sudden release of impounded subsoil water. I noticed small streams of water in many places running into the fissures and the cracks, also surface depression upon which water could lodge. These conditions, I think, are favourable to further subsidence, and I am strongly of opinion that the earliest steps should be taken to prevent the accumulation of water on the high ground, by the construction of surface gullies or drains, by which it can be taken, by the most expeditious route to the sea. I expressed my opinion to the Local Board (as to the probable cause of the disaster) in terms as stated above, and I recommended them to procure the services of an experienced engineer, to advise them as to the steps to be taken in the general interest of the ratepayers, and as a temporary means I suggested the propriety of inducing those interested in the safety of the place, to make early arrangements for the passage of the subsoil water from the high land. I also expressed my opinion that probably the introduction of a proper system of surface and subsoil drainage would prevent further disaster.

I have the honour to be, Sir,  
Your most obedient servant,

RIENZI WALTON.

The Clerk was requested to write to the Local Government Board to the effect that the Board had acted on the suggestion of the Inspector, and had taken the necessary steps, and had employed an eminent engineer, and that they were now awaiting his report, but the Board would be glad of advice as to the best way of providing necessary funds for carrying out whatever scheme was suggested.

It was stated that Mr. Latham had sent down two assistants to make certain enquiry, and take levels.

(Believed full copy  
6.2.93)

97A/10

See Exe 51 "Laminations" 97A/12

55.  
1893

127/41

WALTON.



# Landslide That Wrecked 75 Houses At Sandgate

SIXTY-SIX years ago next Wednesday the great Sandgate landslide occurred, in which widespread damage was caused to property on both sides of the main thoroughfare.

There are only two residents living in Sandgate today who were rendered homeless on that terrible Saturday night of March 4th, 1893.

Seventy-five houses stretching from the Coastguard Station to the military hospital had to be vacated.

The two residents are Mr. Bricknell, who at that time lived at Sunnyside and now resides at Military Road, and Mr. Victor Foley, who lived in the Coastguard Station.

Mr. Foley describes the scenes and his own experiences as follows:

## FLOODING

The first indication of the alarming landslide was noticed by the falling of ceilings and the warping of floorboards, which jammed doors, and the flooding of the roads by the fracture of the water main.

People rushed from their houses in mortal terror, but worse was to come when about 7 p.m. houses began to lean, walls collapsed, paving stones buckled up, gas and water services were severed, the water in several places spurting up to a height of 50ft.

When nightfall had set in, volunteers were called for, and appeals for military help were answered by hundreds of soldiers from Shorncliffe Camp who, with their wagons, descended on this scene of destruction.

## SCENE OF CHAOS

Women and children in the affected area were housed in the safer parts of the town, while others sought shelter in Seabrook and Hythe.

The work of saving the furniture and effects of the sufferers from the crumbling houses went on all that night. When daylight broke on the Sunday morning the scene was indescribable.

Furniture, bedding and house utensils were stacked on the road all along the promenade and in front gardens, and military pickets were posted to safeguard the property.

Luckily, a few days previously the weather had turned fine after heavy winter rains.

A touch of humour crept in at times when one saw stalwart lifeguards emerging from houses carrying furniture and pots and pans to add to the piles already there.

## HOUSEMAID ALOFT

They did the job cheerfully and thoroughly, for one of them came down Prospect Road with bedding on one shoulder and the housemaid on the other, amid roars of laughter from the crowds of onlookers.

Sandgate schools were requisitioned and were stacked with furniture belonging to the Coastguards; the men and their



Mr. Birch's cottage, Brewer's Hill.

beautiful estate, owned at that time by Miss Reilly.

Minor slips had occurred in these grounds previously, in 1863, when the owner was Mr. Morris. One house had to be demolished. Great damage was done in the later slip; whole

Brewer's Hill was split in two. Sunnyside is next on the list, six houses here had to be abandoned. Large fissures appeared on the bank at the rear, with streams of water breaking the surface.

Gloster Terrace and the surrounding houses were badly damaged and all the occupiers had to leave. In front of this terrace a groyne on the fore-shore was buckled and smashed, indicating the tremendous force and travel of the slip seaward.

It was also noticed that at low tide several long ridges of clay had been forced up, and after several months formed another reef of rocks.

## NO ONE INJURED

All this havoc occurred in the space of 24 hours on a Spring day, with no injury to anyone.

Folkestone Corporation passed a resolution expressing sympathy with Sandgate inhabitants, and called on the Mayor to open a national subscription for the sufferers. This was agreed to, the Borough Member, Sir Edward Watkin, heading the list.

Now a word about the cause of the disaster. Two influential gentlemen in Sandgate called a public meeting and attributed this calamity to concussion each time a gun cotton charge was exploded during the blowing up of two ships sunk off Sandgate, the *Calypso* and *Benvenue*.

They held Trinity House or the Local Government Board



Spring House, with gaping crack in outer wall and displacement of ground floor rooms.

banks of earth fell leaving done later in 1893, whole banks of earth had fallen leaving large fissures many feet deep, trees were uprooted and a large summer house cap-sized and slid into the chasm.

The Coastguard Station, consisting of a block of sixteen houses, suffered the most damage, and I lived in the centre house, No. 8. Here the whole building broke in two, the western half moving several feet seaward, splitting the sea wall; in fact the whole length of the esplanade was strained out of shape.

## DEMOLISHED

Extensive damage was done to properties opposite the Coastguard Station. Spring House and Spring Cottage had to be demolished, while Mr. Ludlow's shop and bakery, recently built, was rendered uninhabitable.

Passing westwards to other properties we come to Prospect Road. Here, at the top of the road, were Tavenor's large greenhouses covering half an acre, now a complete heap of ruins. Falling trees had smashed the houses, the roots being wrenched out of the ground, and there were large fissures in all directions.

Lymington House, now Albert House, and the two adjoining houses had to be vacated. Prospect House was severely damaged. Castle House, now Rodney Court, together with West Lawn, received their share of destruction.

## LARGE FISSURE

Continuing westward, great damage occurred at Brewer's Hill. A large fissure 9ft. deep and 6ft. wide appeared above the Clarendon Inn, blocking the approach to the camp for several days.

Wellington Terrace, of ten houses, had considerable basement damage and all the occupiers had to leave.

Mr. Birch's stables at Queen's Mews received a knock-out blow and his residence on

responsible. But this did not work. Trinity House had expert engineers visit the scene and they fixed the cause on volumes of rain and Spring water shifting the top soil from the blue clay on which this part of Sandgate is built, and needing a drainage system.

## MOST EFFECTIVE

A drainage scheme, taking several months, was put into operation at once. It was begun in Encombe and carried through to Sunnyside. Six nine-inch discharge pipes were laid down each road, to low water mark and a constant stream of water flowed from them for years; they were most effective.

For want of attention, corrosion finally put them out of action altogether.

Today, one can see the stumps of these pipes lying under the sea wall along the esplanade, derelict and one mass of solid rust.

Surely this excellent drainage system should have been unearthed years ago, and new pipes laid to serve the purpose for which it was originally intended nearly 70 years ago.



Part of the ruined stables at Encombe.

families were afterwards given temporary quarters on Shorncliffe Camp.

The Coastguards, in naval uniform, presented a strange spectacle among the Army in the barracks. The men were made welcome, indeed they had a jolly good time during their stay.

The news of the calamity at Sandgate spread and people from all around the district crowded along the esplanade to witness what was then thought to be an earthquake.

## AT ENCOMBE

To survey the damage done one can begin at Encombe, the source of the trouble. Here is a

F.H. 28 59

3B

Folkestone

Herald

28/59



ED TO MR CHADD  
MR VORLEY

SANDGATE VISITORS LIST & WEEKLY NEWS.

(In Folkestone library)  
Original Notes in  
Landslip file

30/1

1893

- Mar. 11. p.3. Subsidence first felt in Chapel St. behind Spring Ho. Coastguard Station extensively damaged. Spring Ho. a complete wreck. It was a lodging house occupied by a widow Mrs. Kemp... held up by Spring Cottage... Spring Cottage badly injured but was built of wood. In Chapel St. worst damage at Barton Cottages. Encombe carriage drive dropped to a distance of several feet. Lodge had to be vacated. Clarendon Inn slightly cracked dropped several inches. Groyne opposite Littlebourne Lodge twisted.
- p.4. Meeting of Local Board on Sunday. Letter sent to Local Govt. Board requesting they send down an inspector.
- p.5. Local Govt. Inquiry. Mr. Rienzi Walton sent down on Monday. Enquiry began on Mon. & resumed on Tuesday. R. M. Jenner assistant Engineer to the Board said first shock felt about 5 o'clock Saturday evening at the back of Spring Ho. It was about low water. On the previous day ~~I noticed~~ a slight settlement in the Encombe grounds. There are about 70 houses injured by the subsidence & 94 vacated. Old sea wall... has no weep holes... New wall has weepholes.. I believe Undercliffe is drained.
- p.6. Public Meeting. Reference to earlier public meeting on Sept. 10th in protest against vibration caused in blowing up Ben Venue.
- p.7. Reassuring news. Mr. Bromley's report 44+ 24.

Mar. 18  
Sat.

Inspector's Report (Rienzi Walton) Slip started 5 p.m. Sat. 4 Mar. Reference to accompanying plan Chords of which measured 2,800 ft. (includes shore line?) Old Sea Wall cracked new Sea Wall uninjured. Coastguard Station suffered considerably. Details of variations in sub-soil water level, only able to form conjectional conclusions as to the cause of the disaster. Advise procure services of experienced engineer. Clerk to write L.G. Bd. Bd. had acted on Inspectors suggestion, & had employed an eminent engineer. The Sandgate Landslip. Queen declines to become patron of the Relief Fund but subs up £25. Fund now amounts to nearly £6,000. Local Bd. meets Owners. Co-operation of owners could not be expected as they would not (have?) unanimity amongst them but that the cost of drainage would have to come out of the rates.

Mar. 25. Paper on the Landslip at Sandgate. to be delivered by Mr. William Topley at the meeting of the London Geologist's Association. 7th prox. (i.e. Apr. 1893)

Nature. Article by J. F. Blake.

Apr. 1. The Landslip. Quotation from lasts week's "Builder" ... Considers Waltons report almost worthless.

Rev. J. D. Glennie's letter <sup>SLIPS</sup> Distinctly <sup>REMEMBER</sup> one in, I think, 1829 etc. etc.

(For P. 12 of Original Note file in "L" file)  
SEE Ex. 12.

Apr. 8. The Sandgate Landslip. Lathams letter re getting on with repairs

The Local Bd. election near foot.  
Let all doubts be set at rest as to how Shorncliffe Camp was drained



30/2

SANDGATE VISITORS LIST & WEEKLY NEWS.

1893.

Apr. 15.  
Sat.

TOPLEY'S PAPER TO

At a meeting of the Geologist's Ass. at the University College last week...wooden houses less damaged than brick ones.

Apr. 22

Sandgate Local Bd. of Health Annual meeting. General Purposes Committee. This Committee as here-to-fore will consist of the whole Bd. with duties to report on all matters of emergency not confided to other committees. This Committee will also take over the work of the recently appointed Landslip Committee.

Monthly meeting. Minutes of all meetings held on & since Feb. 15 read. Mr. Judge complained.

Reports of Officers. Mr. Jenner presented estimate for repair of damage done by Landslip to Sea wall, sewers, water mains, pavements etc., - total £716 - 4 - 8; also an estimate for the relaying of the whole of the pavement on the North side of the Street at a total cost of £1,142 - 16/-. Both estimates were referred to the General Purposes Committee.

New Rate. Rateable value lost to the town through the Landslip £2,000.

Miscellaneous. Mr. Jones called the attention of the Bd. to a nuisance arising from the discharging on the beach of the Brewers Hill Sewer, & it was agreed to call the attention of the Military Authorities to the matter.

The Sandgate Landslip by W. Topley F.R.S. At the end discussion of weight of shingle... "The want of support to the foreshore may possibly have had some effect in determining the exact time of the slip, when the ground became fully saturated, for the first important slip occurred at 7 p.m. on Sat Mar. 4th at low Spring Tides; the ground moved slightly during the night, & a second slip took place at low tide the next morning."

Apr-r 29.

Sandgate Local Bd. Extraordinary meeting. Baldwin Latham's Report.

Mr. Judge suggested that if they shortly appointed a Surveyor, Mr. Latham's further services would not be needed. The chairman & Mr. Jones drew attention to the state of Govt. ground below the Hospital; it was still very spongy.

All Bd members agreed Rd. Bd. be asked to contribute. Latham to be asked to (30/7/13) set out specifications.

May 27.  
Sat.

Public Authorities and Private Sanitation. Quotes the Times of Sat. May 20th 1893 on Sandgate's new Sanitary regulations. In the next column The Globe is quoted on the same subject. For full copy see Sep. full "Sandgate - Drains & Water Supply"

The Landslip - Quotation from "All the year round" Slip of 8.3.1801 between Folkestone & Sandgate 1/4 of mile from Folkestone. Goes on to describe recent slip at Sandgate. Letter - Russell's field to members of Rd. Bd. com. & urgent need for drain ex. fund. SEE 30/7/1. SANDGATE WEEKLY NEWS. (New time). STET.

June 10  
Sat.

Jun. 17

Sandgate Landslip relief Fund. Letter from M.H. Judge re payment of rates.

20th May

Extraordinary meeting L. Bd. Mon. P.M. (15th. Todd) at which Surveyor appointed

See TODD  
"Landslip Monument"  
Sandgate June 6/8  
p. 1 para 3 -  
"Brewers Hill Outfall."

4 disjunction of  
TODD's sel  
27/2/29/4/03  
18/10/3.



30/3

SANDGATE WEEKLEY NEWS.

1893

- Jun. 24. Sandgate Landslip Relief Fund. Dispute about amounts of compensation.
- July, 22. Sandgate Local Bd. of Health. The Surveyors Report. Damage to Chapel St. sewer.
- Aug. 5. p.6. Prince & Princess Battenburg at Undercliffe. Bands etc., programme at Encombe.
- Aug. 19 p.3. The New Surface drainage in accordance with Mr. Baldwin Latham's plan will be commenced in a few days. The work will be done by contract by Mr. Hill of Maidenhead, whose materials, implements have already arrived.
- p.4. Sandgate Local Bd. The new drainage works outlets. Letters from Lord Radnor & the Bd. of Trade. Chapel St. sewer. relaying completed.
- Sept 2 p.3. Mr. W. Fletcher Robinson Assoc. L. Inst. C.E. is the resident engineer for the new drainage works of the landslip which are being carried out from plans by Mr. Baldwin Latham. *But see 21/22 223-7. SWN mentioned Bowles as e/c construction. Bowles? Said he had assisted Latham with the survey. Stand. Ind. 26/27*
- Sept.23 p.4. Sandgate Local Bd. Application for reduction of Rating. "Mr. Tysson attended & made an application for a reduction of the rating of 1, Prospect Place. He was willing to pay half the rate". Told to apply to assessment Comm.
- Sept 30 p.5. The new Flushing Tank. Junction of High St. & Chapel St. West-uses the lower Honeywood Spring.
- Oct. 21 p.4. Sandgate Local Bd. Landslip Drainage. Payments by general Purposes Comm. for Landslip Drainage Works for Mr. Baldwin Latham's expenses.
- Dec. 23 p.4. Sandgate Local Bd. Wed. The Land drainage. £2,250 originally granted, extra called for. *X*

1894.

- Feb. 10 p.5. Landslip. Knight Bruce V. Judge.
- Feb. 17 p.3. The Landslip Drainage works at Sandgate. Works now practically completed. Usual details given.
- p.4. The Sandgate Land slip. Mr. Mark H. Judge & his Landlord. Various newspaper comments on the judgement. The Evening News... A tenant taking a house upon lease is ill advised if he omits to secure a provision against indemnity in the event of the foundations of the building running away. Landlords quoted by Westminster Gazette as suggesting some arrangement after judgement. Evening News says Tenant will probably have to rebuild the foundations if not the whole house.

- Mar 10. p.4. Sandgate Landslip Relief Fund. Mentions resolution of meeting of 19th May 1893 approving use of funds for drainage, Drainage now almost completed. No payment to Local Bd. in respect of damaged groynes etc. *X* *See also 27/3/94 & 20/7/1*

Ex 33/1 (2n 1893) -  
Form of Buckle  
by Rev. Parsons  
dated June 3rd 1893

Accounts of Relief Fund:-

Grants on houses	£3,036.
Land drainage	£2,450. <i>X</i>
Personal Relief	£1,541.
Bills & Expenses.	£361.
Jenner.	£2.
Balance	£1,267.
Total	£8,658.



30/4

SANDGATE WEEKLEY NEWS.

1894.

Mar. 10. p.7. Public Dinner. ~~xxxx~~

Letter from Latham after the completion of works.

Mayor of Hythe & Mr. Baker had difficult task in examining houses.

Ap-r. 14.p.4. Public Meeting at Sandgate. The Relief fund Balance.  
The Publicity Association.

Ma y 5. p.4. Sandgate Local Bd. V. Kent County Council - The Arbitration.

May 12 p.4 -do- -do- -do-

May 19. p.4. Sandgate Local Bd. An agreement with the War Office for the right of draining through the War Dept. land in connection with the new drainage works.

May 26 p.3. The Arbitration.

June 2 p.4. -do-

June 9 p.5. Funeral of the late Mr. Hugh Montgomery

Aug.25 p.5  
Col.2. Sandgate Local Bd. The West end of the Town. Admiralty not going to restore Coastguard Station but to rebuild it.

Sept.22 p.3. Sandgate Local Bd. Grant of £500 from Relief Fund for repairing public works injured in Landslip.

Nov. 17 p.4. First mention of U.D.C.

Dec. 22 p.3. Sandgate Local Bd. The last regular meeting of the Board held on Tuesday. 18/12/94

1895.

Jan.12 p.4. Sandgate U. D. C. First meeting.

Feb 2 p.3  
4&5. Rough meetings on Annexation Bill.

Mar.23 p.4. Sandgate Landslip Relief Fund. Final meeting General Committee of the Sandgate Landslip Relief Fund held at Gough Lecture Hall on Fri. 15th inst. "The system of land drainage which was designed & carried out by Mr. Baldwin Latham, M.I.C.E. continues to act efficiently, & is satisfactory not only to the engineers who carried out the work but to the Local Authority".

p.5. EXPENDITURE:-

	£	S	D
Grants to Sufferers	5286	14	5.
Grant to S'gate L.B. for drainage	2450-	0	0.
" " " Repair of Property	500	0	0.
Legal Expenses.	53	6	4.
Surveyor	88	1	6.
Timber for shoring houses	88	6	2.
Honorarium for Sec.	50	0	0.
Incidentals	58	6	0
	£8575	6	0.
Balance	166	13	9.
	£8741	19	9.

PTD



30/5

SANDGATE WEEKLY News.

1895,

Mar. 23 p.5.

~~EXPENDITURE~~ cont.

Receipts.

Jenners Bk.  
Int.  
N.P.  
Int

£	S	D.
6239	10	4
25	9	10
2427	10	5
49	9	2
<u>£8741</u>	<u>19</u>	<u>9</u>

DEDUCT INT.

25-9-10  
49-9-2

74 - 19 - .  
8667 - - -9  
(c/4. 128/2 - normal)



196

KM1 Extra

Kent's favourite free newspaper

LOCAL NEWS



Disbelief at the extent of the upheaval



The disaster became a best seller



Suddenly there was a hole instead of a garden

# Day when the earth caved in

ONE hundred years ago terrified Sandgate families thought the world was coming to an end.

by JANE BARLOW

On March 11 1893 alarmed people packed the streets screaming that there was an earthquake. Roads were crumbling, houses were sinking and century old trees were being uprooted.

Children were rushed to safe places while others desperately tried to save valuables and treasures from their crumbling homes.

Greenhouses lay in heaps of ruins and fallen trees which had been wrenched out of the soil lay across paths. Every now and then there was a loud rumbling and more screams as the earth shook.

The disaster was not an earthquake but a landslide. Ex-

perts said it was due to natural causes, mainly heavy rains.

They said it was also caused by the type of local sand. When it became surcharged with water it turned into a substance similar to quicksand.

This is why buildings and trees started to slip and sink.

One of the residents who was injured in the slip was a woman living in Wellington Terrace. She told the *Folkestone Express* that she felt a movement under her feet and was then thrown from one end of the kitchen to another.

Another resident also described his experience to the newspaper.

He said: "We heard a sound like the rushing of sand. I came and listened and saw the wall

move as though the cliffs behind were going right in."

Miraculously no-one was killed.

The area affected stretched for a mile from east to west and about 500 yards inland from the sea line.

The High Street suffered severely and most of the shops were ruined.

In the disaster 200 homes were wrecked and scores of families were made homeless.

They had to stay with friends or relatives in Folkestone and Hythe or set up temporary homes in schools and other public buildings.

● Part two will appear next week. Press cuttings and photographs of the landslip can be seen in the Heritage Room at Folkestone Library in Grace Hill.



Many houses were totally wrecked



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period. He ventured to say, as a scientific man, that he knew nothing in the whole records of scientific research more honourable to this country than those experiments which were being carried on at Rothamsted with such self-denying skill. The resolution was then put by the chairman, and carried unanimously. Sir John Evans moved:—"That, in the opinion of this meeting, the testimonial might advantageously take the form of—(1) a granite memorial, with a suitable inscription, to be erected at the head of the field where the experiments have taken place; (2) addresses to Sir John Lawes and Dr. Gilbert, accompanied (if funds permit) by a commemorative piece of plate." This was also carried, and it was unanimously resolved that the following should be requested to act as a committee for carrying the resolutions into effect:—The presidents of the Royal, Royal Agricultural, Linnean, and Chemical Societies, the Earl of Clarendon, Viscount Emlyn, Sir John Lubbock, Sir John Evans (hon. treasurer), and Mr. Ernest Clarke (hon. secretary), with power to add to their number. The Duke of Westminster moved a vote of thanks to the chairman, and the Prince of Wales said, in response, that nothing had given him greater pleasure and satisfaction than to take the chair on that occasion, and to testify, as an agriculturist, his own sense of gratitude for what Sir John Lawes had done for agriculture. Subscriptions to the fund may be sent to any member of the committee, to Sir John Evans, F.R.S., at Nash Mills, Hemel Hempstead, or to Mr. Ernest Clarke, at 12, Hanover Square, W.

LORD SALISBURY presided over a meeting held at Oxford last week, in aid of the building fund of the Radcliffe Infirmary. He delivered a most vigorous address, in the course of which he said that at Oxford the difficulty connected with medical education was the reverse of that felt in London. In London the practical opportunities of exercising medicine were abundant, and the only care, or the main care, which pressed upon those who had charge of education in that respect was lest the more scientific basis of that practice should be neglected or receive inadequate attention. At Oxford, on the contrary, they had abundant means of teaching the group of sciences which were the equipment of the physician. But, necessarily, unless they made a great effort to that end, they should not have the means of presenting those opportunities of practical inquiry which were essential to the formation of the professional ideal, and which in large populations necessarily occurred with so much greater frequency. This movement—for so he looked upon it—on the part of the rulers of the University, to draw somewhat closer to the science of medicine, was only part of a larger movement which had been going on for some time, which, if he might use the scientific language of the day, was part of the evolution of education in our time. He begged to assure the assembly that he had no traitorous views with respect to the study of Greek. In fact he was inclined to say that in recent controversies the advocates of the classical languages had been unduly frightened, and that there was not the slightest danger that the study of them would ever pass from the education of youth or the culture of men of intellect. The issue was not between science and languages, ancient or modern; the issue rather was between the science whose chief food was gathered from observation and the science whose chief food was gathered from reflection. This older science was slowly, very slowly, but still quite evidently, giving way to the sciences which relied upon observation. He always thought that the science of medicine had scarcely received among us all the tribute which it ought to receive among sciences which rest upon observation. It was a curious fact that the whole tendency of scientific thought appeared to be rapidly concentrating itself upon the fields in which medicine reigned supreme. Those infinitely minute beings which certainly for health or sickness deeply affected our existence, and which were so essential to us

that some able scientific men said that we consisted of nothing else, that we were not only a Republic, but were in a permanent state of civil war—these bacilli were attracting more and more the attention of the scientific intellect in Europe. It was dangerous to prophesy, but he did not think that any one who had watched the course of science would doubt that for the generation to come the investigation of these creatures, which had been revealed by new methods of research and by singularly patient labour, and upon which the lives of millions of human beings depended, would figure more largely in the scientific field than any other study. This was the special domain and privilege of medicine. He felt, therefore, that in commending this appeal to their consideration he was doing more than preaching a charity sermon. He was asking them to help that which contained the most brilliant promise for the intellectual future of science in a University by which science ought to be cultivated and where science ought to reign.

AFTER Lord Salisbury's address various resolutions were adopted, among which was one, moved by Prof. Dicey, to the effect that the Radcliffe Infirmary, being the chief hospital for Oxford and a large surrounding district, should be brought into a state of efficiency corresponding with the recent advances in hospital management. Another resolution, moved by the Master of University, expressed approval of the committee's scheme, consisting of the removal of the sick from the old building into more modern wards and the renovation of the old building.

ON Saturday and Sunday last much damage was done in Sandgate, near Folkestone, by remarkable disturbances of land. The first disturbance was felt on Saturday at 7.45 P.M., when a rocking motion was noticed. This soon stopped, but later disturbances were so alarming that many people took their furniture into the streets. According to a correspondent of the *Times*, houses "slipped away from each other, leaving gaping sections," while in other cases the walls bulged out, and great rifts appeared in the ground. In the area affected by the disturbances most, if not all, of the houses are out of line and show cracking. Many of the inhabitants have been brought to great distress by the calamity, and appeals to the public have been issued on their behalf. An inquiry into the cause of the disaster was held at Sandgate on Tuesday by Mr. Walton, Local Government Board Inspector. After hearing evidence the Inspector said that an official report would be sent to the Board. What he had seen led him to conclude that the catastrophe was due to the sudden release of impounded subsoil water, a thing which he believed was remediable by the institution of proper water drains. If that was attended to there was no reason to suppose that such a disaster would ever recur. The *strata* were full of water, which the recent abnormal rainfall had served to increase. That water being released had formed kinds of caverns. The remedies were proper storm drains and intercepting drains, with free outlets under the road to the sea.

THE death of Ludwig Lindenschmit, the well-known German archaeologist, is announced. He died at Mainz on February 14 in his eighty-fourth year. He was the director and one of the founders of the fine Central Romano-German Museum at Mainz, and one of the editors of the "*Archiv für Anthropologie*." Among his works are "*Die vaterländischen Altertümer der fürstlichen Hohenzollernschen Sammlungen*" and his "*Altertümer unserer heidnischen Vorzeit*." He began a "*Handbuch der deutschen Altertumskunde*," but completed only the volume relating to the Merovingian period. Lindenschmit was an enthusiastic advocate of the theory that the Aryan race is of European origin.

THE temperature during the past week has been generally very high for the season, the daily maxima frequently exceeding



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flushes from behind, the rate goes up to fifteen days. There is a very great difference in time and rate between Green and Red Nile. The rise is 45 ft. at Aswân, 38 at Thebes, and 25 at Cairo.

From the data obtained at the gauges named which have been kindly forwarded to me by Mr. Garstin, the U.S. of State of the Public Works Department of Egypt, I have ascertained that the average time taken by the flood to travel now between Thebes and Memphis is about nine days. Although the river bed is now higher than formerly, the land around Thebes, according to Budge, having been raised about nine feet in the last 1700 years, still the same elevation has taken place at Memphis, so that no difference in the velocity of the stream would be produced by this cause.

The great difficulty experienced in understanding the statements generally made concerning the Nile-rise arises from the fact that the maximum flood is as a rule registered in Cairo upwards of 40 days after the maximum of Aswân.

For the following account of how this is brought about I am indebted to the kindness of Col. Ross, R.E. :—

"The behaviour of the flood at the Aswân gauge is as follows: Between August 20 and 30 a good average gauge of 16 cubits is often reached, and between August 27 and September 3 there is often a drop of about 30 centimetres. The August rise is supposed to be mostly due to the Blue Nile and Atbara River. Between September 1 and 8 the irrigation officers generally look for a maximum flood-gauge of the year at Aswân. This is supposed to be the first flush of the White Nile. In the middle of September there are generally two small flushes, but the last twenty days of September are generally distinctly lower than that of the first week. The final flush of the Nile is seldom later than the 21st to 25th September.

"All this water does not merely go down the Nile; it floods the different basins. The opening of these basins begins from the south to the north. This operation is generally performed between the 20th September and the 22nd October. The great Central Egypt basins are not connected with the Nile for purposes of discharge into the river between Asyût and near Wasta, or a distance of 395-400 kilometres = 305 kil.

"The country in the middle or Central Egypt is broad, and thus there is an enormous quantity of water poured out of these basins into the lower reaches of the river about the 20th October, which seriously raises the Nile at Cairo, and in a good average year will bring the Cairo gauge (at Rodah) up to the maximum of the year on or about October 22, and hence it is that the guide books say the Nile is at its highest in the end of October.

"A gauge of 16½ cubits at Aswân while the basins are being filled does not give more than 21 cubits at Rodah (Cairo), but as the basins with a 16½ gauge will fill by the 10th September, it follows that a 16½ to 16 cubit gauge at Aswân will not give a constant Cairo gauge, as the great mass of water passes by the basins and reaches Cairo. Hence we have frequently the paradox of a steady or falling gauge at Aswân showing a steady rise at Cairo.

"If the gauge at Aswân keeps above 16 cubits to near the end of September, the basin-emptying is much retarded, as the emptying at each successive basin fills the Nile above the 16 cubit level; hence the lower halves of the chains of basins do not flow off, and thus when the great Middle Egypt basins are discharged, they do not raise the Nile so much as they do when the last half of September Nile is below 16 at Aswân.

"In years like 1887 and 1892, which differ from each other only in date of maximum gauge at Aswân, the river, having filled the basins in 15 to 20 days instead of in 25 to 30 days, comes down to Cairo in so largely increased a volume that a really dangerous gauge of 25 cubits at Cairo is maintained for over a fortnight (the

average October gauge in Cairo is about 23 cubits), and from September 10 to October 25 the river remains from 24 cubits to 25½ cubits, and the Middle Egypt basins discharge so slowly that the opening day is hardly traceable on the Cairo gauge.

"In the 1878 flood, which was the most disastrous flood possible, the river rose in the most abnormal fashion, and on October 3 attained 18 cubits at Aswân! This breached the Delta, and in addition so delayed the Upper Egypt basins emptying from the reason before given that the wheat was sown too late, and got badly scorched by the hot winds of March and April."

J. NORMAN LOCKYER.

### THE LANDSLIP AT SANDGATE.

THE causes of landslips are in general so well known and the localities which are liable to them so clearly defined on geological principles that when on Monday, March 6, the public were startled by the news of a landslide at Sandgate, the probability would be that geologists who knew the district would be by no means surprised, more particularly as the locality of the catastrophe is in the midst of a typical section shown in many of the textbooks, and the town itself gives its name to a subdivision of the Cretaceous rocks.

The event, however, does not appear to have been expected, and since it has happened conjectures as to its cause have been numerous; but the true explanation has been wanting.

The series of rocks which, in descending order, form the country about Sandgate are the Folkestone beds, the Sandgate beds, the Hythe beds, and the Atherfield clay. Amongst these it is natural to look in the first instance for the presence of clays, as the probable origin of a landslide, though very loose sands have also been known to give way. The Folkestone beds are for the most part sand and they are bound together by bands of grit. Moreover, they are above the affected area. The Hythe beds are likewise characterised by bands of hard limestone, separated by calcareous sands. There are left the Atherfield clay, whose nature is indicated by its name, and the Sandgate beds.

The most recent description of these is that of W. Topley, F.R.S., in the *Comptes Rendus* of the Congrès Géologique International, 1888, in which they are briefly characterised (p. 257) as "*Argiles vertes et sables*." The same writer's description of them in 1883 (quoted also by H. B. Woodward in 1887) is somewhat different, but in his "Geology of the Weald," 1875, they are said to consist of dark clayey sand and clay, the total thickness being given as 80 ft. In his more detailed description, however, Mr. F. G. H. Price divides these 80 ft. into four parts, the lowest 20 ft. being all "clayey beds" (Proc. Geol. Assoc., vol. iv. p. 554). In a still earlier account by Prof. Morris (*loc. cit.* vol. ii. p. 41) we have the following interesting statement:—"The dark-greenish sub-argillaceous sands, known as the Sandgate beds, rise on the shore at a short distance west of Folkestone. The low undercliff which skirts the shore from Folkestone nearly to Hythe owes its origin to the presence of these beds, which from their retention of water and slight coherency of structure have caused the frequent subsidence of the beds above."

It would appear, then, that there are two possible sources of the slipping—the Atherfield clay and the clayey bands of the Sandgate beds, and thus much was indicated at once by Mr. F. W. Rudler (*Daily Graphic*, March 8).

On a personal examination of the area the whole history of the subsidence becomes clear enough. At

<sup>1</sup> The modern Egyptians still hold to the old months for irrigation. <sup>2</sup> Tuba=January 15 is commencement of wheat irrigation; 30 Misra is the latest safe date for sowing maize in the Delta; 1st Tut is the date of regulating the bridges=September 8 in Upper Egypt.

BLAKE

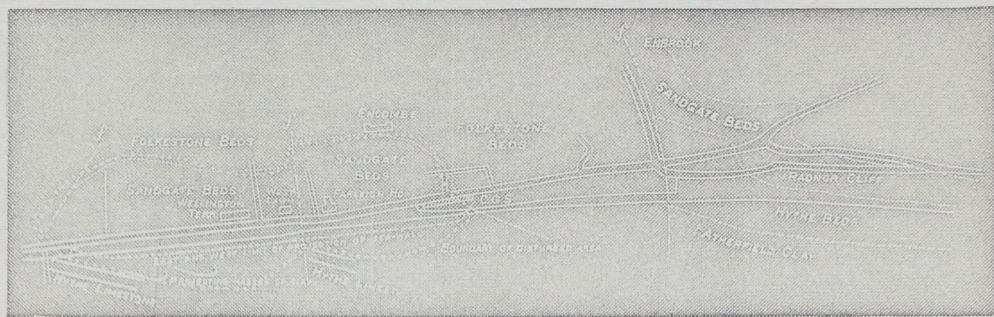


Sandgate itself neither the Atherfield clay nor the Sandgate beds are well exposed, but on the seashore between there and Folkestone we meet with the white-weathering massive limestone of the Hythe beds at Mill Point, and to the west of it. They are here dipping east at a moderate angle, and if this dip is continued, as the beds rise to the west, there would be room for the 60 feet of them which are seen at Hythe, between their probable outcrop in the lower part of the Enbrook Valley and low-water mark, opposite its debouchure. It must be here, if anywhere, that the recorded appearance of Atherfield clay occurs—for the state of things above described must here be terminated by a fault, as will be presently explained, and nowhere else along the coast till Sandgate is entirely passed can this clay occur within 40 yards seaward of low-water. On the east side of Enbrook, however, there is no landslide, and the actual landslide is thus shown to have nothing to do with the Atherfield clay.

Above the strong bands of Hythe limestone, however, west of Mill Point, are seen about 20 feet of soft, crumbling clay, occupying the base of the low cliff and becoming sandier above, as described by Mr. Price, and it is easily seen that the bottom of the Enbrook Valley is excavated in clay. The same clay is admirably seen on the other side of Sandgate, in the first cutting beyond Hythe Station on the branch line from Sandling Junction, so

spring, which may indicate the line of another fault; or it may be that all this is only a surface slip; but, in any case, Folkestone beds occupy the actual surface.

The strike faults thus indicated are only what we might expect if the strata broke, as they so often do, during their upheaval. It is plain that such faults will rather complicate the surface exposure of the clayey rocks which overlie the Hythe limestone. Now, if we allow some 100 feet for the Sandgate beds, so as to include in the title all that portion of the series above the clay band at the base, which is not strengthened by the occurrence of indurated bands, and draw, from the purely geological considerations detailed above, the boundary of their surface exposure, which will not be an entirely simple one, it exactly coincides with the boundary of the disturbed area. Thus the upper boundary commences just beyond the town on the west, and runs very nearly along the line of the most westerly fault, till the latter has Folkestone beds on both sides of it; it then changes direction, and runs parallel to the outcrop of the Hythe beds on the foreshore, sloping down to a point above West Lawn, that is, to the probable position of the second fault; it is then thrown back along the probable line of that fault. It then again changes its direction and runs at first parallel to the second outcrop of the Hythe limestone, afterwards sloping down rapidly to the shore, so as to follow what



that though it is not now well exposed in Sandgate itself, we may be sure that it forms a continuous band immediately above the Hythe limestone.

Now, continuing to examine the coast below Sandgate on the west side of Enbrook we find an outcrop of Hythe limestone nearly opposite Farleigh House. Here also it has a dip towards the east; but it has also an abnormally high dip—perhaps  $10^\circ$ —inshore; such a dip in itself indicates a dislocation in the neighbourhood, but independently of this, the position of this band at the same level as that at Mill Point, while both bands dip, proves that there is a fault between the two, probably along the Enbrook Valley, with a downthrow on the west. This brings down the clay band at the base of the Sandgate beds to the sea level immediately to the east of the limestone above mentioned, and further on, to the east of the coastguard station, the sandy beds of the Folkestone series, which may, however, have slipped.

Going further west, we find the same band of Hythe limestone exposed on the sloping shore, having a similar easterly dip; but not so great an inshore dip, which, unless this were a lower band of Hythe limestone (which other observations negative), proves a second fault between these two, with a downthrow also to the west, but of smaller amount. Further west again, and just beyond the town, the sandy Folkestone beds are found at a lower level than they should be if the stratification were regular, and in the slight valley intervening there is a

would be probably the line of outcrop of the first hard band in the possibly slipped mass of the Folkestone beds. The conclusion from this seems inevitable. *The whole disturbance is due to a motion of soft Sandgate beds where they are unprotected by the overlying hard bands of the Folkestone beds.*

The nature of the motion can be determined by an examination of its upper, and particularly of its lower limit. The greatest amount of visible disturbance has taken place along the upper limit; here the ground is seen to have slipped downwards and forwards. This might be caused by the collapse of an underground hollow if such a thing were possible, but the loose sandy and clayey nature of the rocks would not admit of such a hollow being formed, and the thick clay band at the base would effectually shield the Hythe limestones from chemical erosion. The lower limit, however, shows very plainly that the motion has been a simple slip in a south-east or east-south-east direction. In the first place the westerly band of Hythe limestone on the foreshore which abuts against a concrete groin is absolutely unmoved, and the sea-wall above is quite intact (which is a second proof— if, after what has been said above, any further proof were needed, that the Atherfield clay has nothing whatever to do with the matter). In the second place, immediately to the east of this outcrop, the sea-wall has bulged forward by about three feet, as shown by the next, wooden, groin, and near low-water mark the overlying clay is seen



to be bulged up, so as to form a mound on the foreshore, which is being rapidly destroyed by the sea; while further east, opposite the end of Wellington Terrace, the overlying more sandy clays are also seen bulged up. Along the main road also, in front of West Lawn, on the western side of the supposed fault, the surface has been squeezed up. On the eastern side of this fault, further cracks, indicating a forward motion, are seen at the entrance to Encombe grounds; and, finally, the Coast Guard houses and the wall in front bulge forward at least three feet, and probably more, and the two sides of the street opposite have been squeezed together.

Thus the whole disturbance has been caused by the slipping downwards of the overlying soft beds over the inclined plane formed by the basement band of clay which rests on the Hythe limestone as a firm foundation, the direction of motion having been somewhat modified by the resisting mass of rock which lies to the east, and by the natural tendency of the sliding mass to take the shortest course to a lower level.

It is thus seen that the circumstances of the locality exactly fulfil the usual geological conditions for a landslide—i.e. a sloping bed of clay, which is liable to become slippery, and whose dip is towards the lower surface level where the overlying rocks find no support. Hence it may safely be said that any geologist, whose attention had been specially directed to the question, could have predicted that such an occurrence was extremely likely, sooner or later, to happen. There is, however, one necessary condition, which does not depend on the lie of the strata and the form of the ground, and that is that the clay should become slippery. This condition will probably account for the fact that in the area to the east of the Enbrook fault where all the other conditions are satisfied, i.e. in the neighbourhood of Radnor Cliff, no landslide has occurred. Clay is of course rendered slippery by the access of water. Now water will easily find its way through sandy strata, and there are sandy beds even in the lower portion till we come to the band of clay itself. As this is equally true in both localities the only difference can be in the amount of water.

Now there is a natural tendency for water to run down the dip slope of the strata, especially when there are hard bands as in the Folkestone beds, so that in this case most of the water will come from the west, and this source is cut off from the Radnor Cliff side by the Enbrook Valley, to the east of which there is little or no gathering ground; but to the west and north-west of the disturbed area there is a wide expanse of high ground, mostly rising 100 feet above the level of the Sandgate beds, and the water which falls on this finds its easiest outlet into these beds. They are therefore exactly in a position to get waterlogged, and that they are so is shown by the numerous springs that may be seen along the upper limit of the disturbed area.

The above considerations show that this area always has been and always will be liable to landslips. The lie of the beds which produces this liability cannot be altered by human agency, but the liability may be reduced to a minimum by a suitable system of drainage, which shall prevent the access of so large a body of water to so dangerous an area.

In the meantime the inhabitants of Sandgate may congratulate themselves that the shoreward dip of the beds and fault which breaks their continuity have reduced the result of the slip to a minimum, and rendered possible the remarkable circumstance that, though it happened in an area covered with houses, not a single house has been actually thrown down—not a single life lost.

As to the immediate cause of the occurrence, it is perhaps scarcely necessary to look for it. The landslide must necessarily have occurred at some time or another, and the conditions must for a long time have been gradually

accumulating, by the constant access of water and the wearing action of the sea. If, however, the free discharge of the water from the beds has been in any way interfered with—by the stoppage of wells, or the construction of imperforate sea-walls—this would doubtless tend to the acceleration of the catastrophe; and an exceptionally wet season, like that we have recently experienced, might suffice to determine it. It would be scarcely necessary to add, except that the idea has been mentioned in the House, that the blowing up of the *Benvenue* and the *Calyпсо* could have absolutely nothing to do with it; in the first place, because the scene of the explosions was to the west of the disturbed area, and cut off from it by the massive Hythe beds, which are absolutely undisturbed—to say nothing of the Atherfield clay at sea which must necessarily intervene; secondly, because such a cause could not require several months to operate; and, lastly, because a vibration would rather tend to cause such beds to settle than to slip.

J. F. BLAKE.

#### NOTES.

PROF. VIRCHOW will deliver the Croonian Lecture this afternoon, and in the evening he will be entertained at the public dinner which is to be given in his honour at the Hôtel Métropole. It may at the same time be noted that an important scientific work, in three volumes, has just been issued by the Berlin publisher, August Hirschwald, in memory of the celebration of Prof. Virchow's seventieth birthday. The work is entitled "Internationale Beiträge zur Wissenschaftlichen Medicin," and among the contributors to it are Sir James Paget, Sir Joseph Lister, and other English writers.

A MOVEMENT has been started for the celebration of the hundredth anniversary of the birth of the illustrious Russian mathematician, Lobatcheffsky, who was described by the late Prof. Clifford as "the Copernicus of geometry." He was born on October 10, 1793. It is proposed that honour shall be done to his memory at the Imperial University of Kasan, with which he was for many years connected as a professor and as rector. The Physico-Mathematical Society of the University, which has taken the matter in hand, hopes to be able either to establish a prize with Lobatcheffsky's name for researches in mathematics, or to erect a bust of the great investigator in the University buildings. If the funds suffice, both of these things will be done. Subscriptions should be sent to the Physico-Mathematical Society, Kasan.

THE German Congress of Naturalists and Physicians, which was postponed last year on account of the outbreak of cholera, is to meet this year at Nürnberg.

PROF. W. C. ROBERTS-AUSTEN, F.R.S., chemist and assayer to the Royal Mint, and Mr. Thomas Bryant, President of the Royal College of Surgeons, have been elected members of the Athenæum Club, under the provisions of the rule by which the Committee is empowered to elect annually nine persons "of distinguished eminence in science, literature, the arts, or for public services."

THE half-yearly general meeting of the Scottish Meteorological Society was held at Edinburgh on Monday, March 13. The council of the society submitted its report, and the following papers were read:—On the temperatures of Lochs Lochy and Ness as affected by the wind, by Dr. Murray; mean temperature of London from 1763 to 1892, by Dr. Buchan; hygrometric researches at the Ben Nevis Observatories, by A. J. Herbertson.

WE understand that an enormous iron meteorite weighing nearly one ton (2044 lbs.) has just been received by Mr. J. R.



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## LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

## Locusts at Great Elevations.

THE following account of the occurrence of swarms of locusts at great elevations in the Himalaya, and these stripping birch trees, is from a privately printed record of an expedition to the north-east of Kinchinjunga, in 1891, by Mr. White, the British resident in Sikkim. That flights of locusts are carried from the plains of India up to great heights in the Himalaya is a well-known fact; but not, I think, in the numbers nor with the results to birch or other forest trees here recorded.

The Camp, April.

J. D. HOOKER.

"On July 19, 1891, I crossed the Lunglala Pass, 17,400 feet . . . On the Pass I saw the locusts that had infested Darjeeling, for the first time, though subsequently I saw them as high as 18,000 feet, where they were dying in the snow. It will be remembered that this was the year of the great plague of locusts in Malie. I heard that they had penetrated even into Tibet. On the 21st I came down as far as Tangu, 12,750 feet, where the locusts were in swarm and dying in thousands. The only plants they seemed to care about were the birches, and these they stripped bare."

## The Sandgate Landslip.

As I have just returned from Folkestone, and have had opportunities for observing the recent "landslip" at Sandgate, perhaps a note on it may be of some interest to readers of NATURE, as I do not think the explanation suggested by Mr. Blake in NATURE (vol. xvii. p. 467) is altogether applicable to the present instance.

So far as I could see from a careful examination of the exposures, there is no trace of any movement of the solid rocks of the cliff, as these are nowhere exposed in the fissures that have been formed by the earth-movements; and my impression from all that I saw is that the "slip" has been entirely confined to the debris which has accumulated in past ages against the flank of the escarpment. On referring to the four types of Bergstürze or landslips described by Prof. A. Heim, of Zürich, some years ago in a monograph, which was summarised (with additions) by myself in the *Geological Magazine* (Decade II., vol. x. p. 166 *et seq.*), it is not difficult to identify the Sandgate incident with the first class of such phenomena, to which Prof. Heim gives the name "Schuttrutschung"; that is to say, a slide or push of an accumulation of debris (Schutt). Such accumulations often in mountain regions occur as lateral moraines or as talus; and in my paper on the origin of valley lakes (*Quar. Jour. Geol. Soc.*, vol. xxxix., February, 1883) I have attempted to show how such masses play an important part in the formation of some lakes. The Sandgate phenomenon I take to be no more than a magnified instance of what occurs in many a clayey railway-cutting, as railway-engineers know too well. There seems to be no occasion for importing the notion of "faulting" of the rocks themselves into the question. Still less rational is the notion that vibrations due to the blowing-up of one or two ships lately had anything to do with the catastrophe. The most elementary principles of mechanics explain it completely.

A mass of rock-fragments and clayey material, such as may constitute a "scree," acquires in time a certain amount of coherency from the oxidation of the iron constituents, or from the solution and redeposition of carbonate of lime (where the materials are calcareous) by carbonated atmospheric waters percolating the mass, or from both of these causes. If the mass is fairly drained internally it may retain its stable condition for any length of time, and be mistaken for a part of the solid geotectony of the district, though in cases where the materials are largely composed of decomposable silicates, it is evident that there is a tendency for the proportion of the fine slippery clay-material in the mass to increase. The consequence may be (and often is) that there is a tendency in the whole mass to settle down under the force of gravitation, and so a slow preliminary differential movement often goes on for years, before some new factor is introduced to precipitate the disaster. There can scarcely be

any doubt that the new factor in this case was the excessive rainfall of last February, and the want of sufficient under-draining to carry away the water, which entered the mass of partly-compacted debris from above. A small lateral valley parallel with the general line of the escarpment had no doubt served as a catchment agent for much of this water. This supposition is borne out by the facts (1) that further to the east, where a land-drain was laid some years ago, the mass below it remained stable; (2) that above the western end of the "slip" the military hospital suffered no damage, the stability of its base being doubtless due to the complete under-draining of the site, which, as my kind friend and host Colonel Cranmer Byng informed me, was carried out before the hospital was built. It is probable, however, that at the point of maximum movement the springs from the beds which form the plateau above had much to do with the water-logging and consequent diminution of the internal friction of the debris which moved, and that the action of those springs was exceptional or excessive in the early part of this year, owing to the rise of the water-line in the ground at the back of the escarpment.

I have talked the matter over with Mr. Topley, who is an expert on all matters of Wealden stratigraphy, and he agrees generally with me as to the real nature of the phenomenon. There is one obvious and only preventive against its recurrence.

Wellington College, Berks, April 15.

A. IRVING.

## "Roche's Limit."

I MUST thank your correspondent G. R. for correcting my carelessness in giving Roche's limit round the sun as about a tenth of the earth's distance, instead of about a ninetieth as it really is.

If  $R$  is the radius and  $D$  the density of a spherical planet, and  $d$  the density of the tidally disturbed and infinitesimal satellite, moving in a circular orbit so as always to present the same face to the planet, then the distance at which the satellite is on the point of being broken up by the tidal forces is  $2.44 R \times (D/d)^{1/3}$ . This is Roche's limit, and the formula is correctly stated by G. R.

The mean density of Jupiter is about one third greater than that of water, and it does not seem unreasonable to suppose that the density of the fifth satellite may be as low as 2. This would bring the limit to  $2.13 R$ .

Any plausible hypothesis as to the density of the stones forming Saturn's rings will no doubt bring the limit somewhat inside the outer edge of the rings.

I must plead guilty to not having made these numerical estimates whilst writing my review of Mr. See's paper. However, it still seems to me that the coincidences which I there noted are very remarkable.

The simple illustration by which G. R. obtains a fair approximation to Roche's limit is very interesting.

The satellite is replaced by two small spheres of density  $d$  and radius  $r$ , touching one another, in line with the large sphere of density  $D$  and radius  $R$ . Suppose that when the point of contact is distant  $c$  from the centre of the large sphere, the small spheres are on the point of being pulled apart; then  $c$  is the approximation to Roche's limit. G. R.'s condition is that the excess of the attraction of the large sphere on the nearer small one above the attraction on the further one is equal to the attraction between the small ones. In algebraical language this becomes

$$\frac{4}{3}\pi DR^2 \cdot \frac{4}{3}\pi dr^3 \left\{ \frac{1}{(c-r)^2} - \frac{1}{(c+r)^2} \right\} = \left( \frac{4}{3}\pi dr^3 \right)^2 \cdot \frac{1}{4r^2}.$$

Whereas

$$\frac{(c^2 - r^2)^2}{c} = 16R^3 \cdot \frac{D}{d}.$$

Treating  $r$  as very small we have  $c = 2.52 R \times (D/d)^{1/3}$ . If the spheres  $r$  are not very small, if  $D = d$ , and if  $R$  be taken as unit of length, the equation for  $c$  becomes

$$c^4 - 2c^2r^2 - 16c + r^4 = 0.$$

This quartic determines the approximate limit when the satellite is not infinitely small.

I shall now use this equation to find what size we must attri-

<sup>1</sup> "La figure d'une masse fluide soumise à l'attraction d'un point éloigné." E. Roche. *Acad. des Sci. de Montpellier*, vol. i. (1847-50), p. 243.

IRVING.



# The Government and the Sandgate Landslip.

*To the Inhabitants of Sandgate, West Folkestone, and Seabrooke.*

LADIES AND GENTLEMEN,

On Saturday night and Sunday this district suffered from a serious subsidence of the land, for a distance of about half a mile, immediately opposite the spot where the *Calypso* and the *Benvenue* were destroyed by dynamite explosions, resulting in the complete wreck of numbers of houses, causing intense suffering to the people and injury to property of the estimated value of £100,000.

Yesterday afternoon you met in public meeting in the largest Hall the Town possesses, and, as is natural under the circumstances, the meeting was a large one, and included the Vicar and other Members of the Local Board. You did me the honour of electing me as your Chairman, and, after considering the situation brought about by the disaster, the following resolution was unanimously passed:—"That this public meeting of the Inhabitants of Sandgate, West Folkestone, and Seabrooke, whilst lamenting the sad catastrophe which has fallen upon the town, in consequence of the dynamite explosions in connection with the blowing up of the *Calypso* and *Benvenue*, cannot but call the attention of the Government, the Board of Trade, and the Trinity Board to the fact that some such calamity was foreseen if the blowing up of the *Benvenue* was persisted in, and that the inhabitants protested against it at a public meeting on September 10 last; this meeting is therefore of the opinion that it is the duty of the Government to see that the loss which has fallen upon the town should be made good by the Trinity Board or the Government itself."

The meeting requested me to forward copies of the resolution to the President of the Board of Trade and to the Corporation of the Trinity House, and this was done. I was further asked to go to the House of Commons for the purpose of submitting the case to the Rt. Hon. A. Akers-Douglas, M.P. I came to London accordingly last night, had a most satisfactory interview with Mr. Akers-Douglas, with the result that notice of a question was at once given which has this evening been put and answered as follows:—

"Mr. AKERS-DOUGLAS asked the President of the Board of Trade whether his attention had been called to the catastrophe which had befallen the town of Sandgate by a serious landslip, resulting in the destruction of some 200 houses; and whether he was aware that this disaster had been attributed by a public meeting of the inhabitants to the use of dynamite in connection with the blowing up of the wrecks of the *Calypso* and the *Benvenue*, whether he was also aware that, in September last, prior to the destruction of the latter vessel, a public meeting was held at which, in view of the damage done to property by the explosives employed in the destruction of the *Calypso*, the authorities were urged to abandon their determination to blow up the *Benvenue*, and whether the resolution protesting against the proposed explosions was passed by this meeting and forwarded to every member of the Trinity Board; and whether, under these

circumstances, Her Majesty's Government were prepared to give compensation for the damage which had been done.

"MR. MUNDELLA.—My attention has been called to the sad calamity which has befallen the town of Sandgate, and to the public meeting which has been held there on the subject. In June last, I understand, the Sandgate Local Board called the attention of the Board of Trade to the rumoured intention of dispersing the wreck of the *Benvenue* by explosives, but the Board of Trade had no power to interfere with the statutory discretion vested in the Trinity House by the Removal of Wrecks Act. There is no evidence that the recent subsidence has been caused by the dispersion of the wreck by dynamite. Indeed, it has been attributed on engineering authority to natural causes. But in no case can Her Majesty's Government be held to be liable to pay compensation.

"MR. J. LOWTHER.—Do I understand that the Trinity Board is an irresponsible body, not subject to the control of Parliament?

"MR. MUNDELLA.—The Trinity Board acted under the statutory powers of the Removal of Wrecks Act; but it is not believed that what the Trinity Board did had anything to do with this unfortunate occurrence."

When I left Sandgate last night I had not seen any notice that an Official Inquiry on behalf of the Local Government Board was to be made to-day, and I now hear that not only has such an Inquiry been opened, but that it has been concluded. I cannot believe that such an Inquiry can be otherwise than quite preliminary, as it would be an insult to the Government to suggest that an investigation into the causes of a disaster so ruinous in its results could be made in the course of a single day, to say nothing of the injustice that would be done to individuals by proper notice of the Inquiry not being given.

I will apply to the President of the Local Government Board for a copy of the Report of to-day's Inquiry, and at the earliest possible date arrange for a further public meeting for the consideration of Mr. Mundella's reply, and what steps ought to be taken in view of the fact that the Government practically say *it does not matter whether the disaster has been caused by the explosives or otherwise, in neither case are the Government responsible.*

I am glad to be able to assure you of the thorough co-operation of Mr. Akers-Douglas, and hope to arrange for the next public meeting at a time when he will be able to attend.

I AM, LADIES AND GENTLEMEN,

Your faithful servant,

MARK H. JUDGE.

15 CONNAUGHT SQUARE, LONDON, W.  
March 7, 1893.



**SANDGATE  
LANDSLIP RELIEF FUND.**

**Town Hall, Folkestone.**

**On SATURDAY, APRIL 1st, 1893,**

**MRS. MARK H. JUDGE will give a**

**GRAND  
EVENING CONCERT**

**In the Town Hall,**

**BY KIND PERMISSION OF THE MAYOR,**

**In Aid of the above Fund.**

**Under the Patronage of**

**Her Royal Highness the Duchess of Fife.**

**His Grace The Duke of Fife, K.G.**

**His Grace the Duke of Westminster, K.G.**

**Earl Stanhope.**

**Countess Stanhope.**

**Major Sir Simon Lockhart (1st Life  
Guards), &c., &c.**

**ARTISTES :**

**MADAME GIULIA VALDA** (Of the Royal Italian Opera,  
Covent Garden).

**MADAME AMY SANDON** (Of the Principal London Concerts).

**MR. JOSEF CLAUS** (Of the Royal Opera Houses of Rome  
and Florence).

**MR. MAX REICHEL** (The Eminent Violinist).

**MR. HIRWEN JONES** (Of the Principal London Concerts).

**SENOR GUETARY** (Of the Royal Italian Opera, Covent  
Garden).

**A the Piano :**

**MRS. MARK H. JUDGE and MR. RAPHAEL ROCHE.**

**Doors open at 7.30 ; commence at 8.**

**Numbered and Reserved Seats—Front Stalls, Half-a-  
Guinea ; Central Stalls, Five Shillings ; Back Stalls,**

**Three Shillings ; Unreserved Seats, Two Shillings.**

**Tickets at the Libraries in Folkestone, Sandgate, and  
Hythe ; also of Mrs. Mark H. Judge, Castle Glen,  
Sandgate.**



## CONCISE HISTORY OF

SEP 1970

EARTH MOVEMENTSANDGATE

In 1827 a landslip occurred in Sandgate extending from the Church at the foot of the Undercliff to the Eastern end of Encombe house. This area was later drained.

In 1893 another landslip occurred extending from the eastern end of the Coastguard Cottages to the Military Hospital behind Helena House. In this slip 68 houses were damaged, 24 beyond repair. The land dropped ten feet in places with chasms 3 to 6 feet wide. It occurred at low water of Spring tides after heavy rain. Photographs in Public Library.

The Local Authority, Sandgate Local Board of Health, on the advice of the Local Government Board in London, called in Baldwin Latham, engineer, of London. He advocated a deep drain along the lines of the main fault of the slip. Its purpose was to protect all the houses in the area. Sewer laying was suspended until the drain was complete.

The slip occurred on 4th March. On 24th March the Clerk to the Local Board wrote the Local Government Board mentioning an Act of Parliament as one means amongst several of paying for the drain. On 26th April the Local Board resolved to ask the Sandgate Landslip Relief Fund committee to contribute towards the cost of the drain, to "make Sandgate safe for the future". Latham's Report received on the same day.

Letters to a London newspaper announcing the opening of the appeal fund dated 6th and 9th March say it is for the relief of the distress of the inhabitants and make no mention of the drain. When Latham was engaged the Local Board had every intention of carrying out any remedial work he might advise as a normal public work to be paid for and maintained out of the rates.

The Relief Fund agreed to meet the whole cost of the drain, at a meeting on 19th May. On 24th May, the fund totalled £8400. The final total of the fund was £8741 and of this sum £5286 was paid out in "Grants to Sufferers". This does not include the sum contributed towards the drain, £2450.

Latham's Report is addressed to the Sandgate Local Board of Health. The Specification makes the contractor responsible only to them. The final accounts of the Relief Fund report the drain as satisfactory to them and to the engineer and make no mention of being satisfactory to the Relief Fund. There is no report of the Relief Fund Committee inspecting the drain. The Appeal Fund was NOT launched to raise funds to pay for the drain.

The Local Board failed to take powers to maintain the larger part of the drain which was laid across the lands of small private owners. That is, they gave it away. They had no power to do so. It has not been maintained.

Folkestone Corporation, who as successors to Sandgate Urban District Council hold both Local Board and U.D.C. Minutes, state that the two volumes covering the 1893/94 period are missing.

Substantial movement took place in and around Encombe House between 1951 and 1958 and was duly recorded in Halcrow's 1959 report. In 1960 and in 1962 outline planning permissions were granted in respect of the Encombe estate without stipulation of precautions against earth movement. Later in 1962 Soil Mechanics Specialists Reports were stipulated and permission was made conditional on

"any recommendation of the specialists being undertaken as part of the approved scheme of development".

The report accepted by Folkestone Corporation in satisfaction of these stipulations was Halcrow's report of 26th April, 1960, two years before, and prepared neither for the developers nor for the Corporation but at Dr. Leader's request. This report made two recommendations:-



- (1) that "...it would be unwise to build on or close to any of the lines of the 1893 landslip".

Halcrow's report of 1967 shows that the Corporation have allowed five houses to be built over such lines.

- (2) "Should any increase in the rate of ground movements be noted...this office should be consulted".

When therefore after the movement of October, 1966 the Corporation became alarmed at the clear evidence of continuing increased ground movement they should have made the developers consult Halcrows at the developers' expense instead of calling them in themselves at the ratepayers' expense, as they did in July, 1967. Further, had the planning permission been properly worded, the developers would have had to pay for the three bore holes, the cost of which has been thrown by the Corporation on the ratepayers AND the £35,000 drain, some part of the cost of which the Corporation now seek to pass off onto householders.

The 1960 report amounted to only  $2\frac{3}{4}$  pages but in that small compass contained eight references to the 1893 landslip or its effects and six references to Halcrow's report of 1959. It was clearly quite unsuitable as a basis for a £200,000 development in a dangerous area and the Corporation should have insisted on seeing the 1959 report or, more wisely, demanded an up to date report. The Borough Engineer stated in December, 1967 that he had not got a copy of the 1959 report and expressed interest when shown extracts from it. As stated above, it contained a list of incidents proving recent earth movement. It also stated that underground erosion was the main cause of recent disturbances. Folkestone Corporation allowed 8000 tons of earth to be dumped over the drain put in by the Local Authority in 1893 to stop just such erosion. Did Halcrow's authorise the use of the 1960 report and confirm that it was suitable for the purpose to which the Corporation put it? In February, 1969 the Corporation refused to supply a copy to a householder on Encombe whose house was cracking, moving and tilting on the grounds that it was "confidential".

Engineers all agree that in this type of unstable ground, common around the Kent coast, the aim should be to reduce weight at the back of the slip and increase the weight on the toe. At Encombe 8000 tons was taken off the sites above the Esplanade, near the toe, and dumped in the old Water Garden at the back of the slip over two branches of the Sandgate U.D.C. drain. The Sandgate Society's research has shown a clear link between low tides and landslips especially if the ground is very wet. On the first occasion on which abnormal rainfall coincided with very low tides, in late October, 1966, the present movement began.

In July, 1967 the Corporation asked Halcrows to report on ground movement in the Sandgate area. Halcrows issued a preliminary report on 9th October and in December the Corporation resolved that owners affected should be notified and the report made available to persons interested. Owners affected were NOT notified. Solicitors making searches for prospective buyers were invited to purchase the report. Loss of sales began. Halcrows' final report came out in January, 1969 advocating a drain costing up to £35,000. At a meeting between the Corporation and owners in that month Mr. Muir Wood, of Halcrows, agreed that the proposed "new" drain was no more than a relay of parts of the Sandgate U.D.C. drain of 1893 without change.

Folkestone Corporation with Ministry of Agriculture approval suggested a drainage scheme under the Land Drainage Act under which owners would pay. The Sandgate Society took Counsel's advice and suggested a scheme under a different section of the Act under which the Corporation would have powers to pay. At the Society's suggestion a meeting took place at the Ministry of Agriculture in London in July at which all parties were represented. The Ministry turned both schemes down. The Society then asked the Corporation to suggest to the Ministry of Housing that the work should be done under a Coast Protection scheme, adducing their evidence of a tidal link.

The Ministry have now approved this suggestion in principle but with a suggestion that householders deriving benefit should contribute.



states at paragraph 2:-

"Coast Protection Authorities are therefore advised that from now on no more works schemes should be made for the purpose of recovering compulsory contributions from private interests".

and at paragraph 5:-

"...the Minister reminds coast protection authorities of the powers in the Act to obtain contributions by agreement. He considers that such contributions should be sought where appropriate, e.g. when works will protect substantial properties such as hotels, holiday camps, etc."

and at paragraph 6:-

"Indeed it may be that in some cases a private and commercial undertaking is the sole interest involved and in such cases local authorities will no doubt consider whether it would be more appropriate for them to.... make a contribution towards the cost of coast protection work carried out by other parties".

The Sandgate Society asserts that all the householders now asked to contribute are "private interests" as exempted by paragraph two and further that these householders are NOT either a hotel, holiday camp or a private and commercial undertaking involved as the sole interest.

Folkestone Corporation as successors to Sandgate U.D.C. must admit to full knowledge of the 1893 disaster and the official action taken to prevent a recurrence. Tipping of the 8000 tons of earth took place nearly a year before the first purchaser bought his plot on Encombe. There is therefore no excuse for the Corporation's failure to place an entry on the Register to the effect that relaying of the U.D.C. drain would be necessary and that they proposed to ask owners to contribute. No entry having been made, the remedy provided by the Act applies and the proposed charge is invalid.

Society research has revealed that movement is not confined to the "Green Belt" area covered by the Town Clerk's warning letter.

They have evidence of movement in the new Moore Barracks on the edge of the cliff top, which cost the taxpayer £1,500,000.

The Minutes relating to the proposed development at "Latchgate", Sunnyside Road contain the following:-

"...the Committee, having in mind the problems which had arisen at Encombe (a short distance to the east of "Latchgate") considered that a report should be made by Sir William Halcrow & Partners..."

(Note:- Actual distance 1550 feet, over a  $\frac{1}{4}$  mile.  
Sandgate Society)

and

"...the applicant be requested to obtain from Sir William Halcrow & Partners a report on the suitability of this site for the proposed development and any measures necessary to maintain the stability of the development and the adjoining land and property".

The Minutes relating to the proposed development in the Undercliff refer to

"...the works (if any) necessary for reinforcing the foundations of and strengthening the proposed buildings and such other works (including works of drainage) as may be necessary in relation to the site and the adjacent roads, lands, buildings including those in the Undercliff, the Crescent, Gough Road and Sandgate High Street, and the drains, sewers and other services in connection therewith..."

Clearly, the Corporation consider the whole area from the east end of the Undercliff to beyond Sunnyside to be dangerous. This area coincides roughly with the combined area of the 1827 and 1893 landslips. The Society's map of Public Utility failures (of which there have been sixty since October, 1966) shows evidence of movement from one end to the other of this area.

/There...



# SANDGATE DISASTER.

## FUND FOR THE RELIEF OF THE SUFFERERS FROM THE LANDSLIP AT SANDGATE.

### FIRST LIST OF SUBSCRIPTIONS.

The Lady Emily Hankey.....	£100 0 0	Mr. Edwin Smith....	£5 0 0
Sir E. W. Watkin, Bt., M.P.....	100 0 0	A Few Workmen at Southall, Norwood, Sewage Works.....	0 6 6
R. F.....	100 0 0	Mrs. J. Cooper Foster	10 0 0
The Countess of Chichester.....	50 0 0	Major Bell.....	2 10 0
The Officers of the Life Guards.....	25 0 0	P. M.....	1 1 0
The Mayor of Folkestone (Banks Esq.).....	10 10 0	W. Brittain-Jones....	20 0 0
The Countess of Arran.....	5 0 0	Lucy Bevoor.....	1 1 0
Mrs. General Francis.	5 0 0	Fred Gorringe.....	10 10 0
Miss Francis.....	0 10 0	Miss Campbell.....	5 0 0
Mrs. Bosworth.....	5 0 0	J. M. Child.....	0 2 6
Mr. and Mrs. Wilkin (Folkestone).....	5 0 0	J. Morris.....	10 10 0
The Rev. H. G. Roberts, M.A.....	2 0 0	Thomas Lumley.....	5 6 0
Mr. Arnold H. Ulyett	0 10 6	Arthur Roberts.....	1 0 0
The Rev. and Mrs. F. C. Woodhouse.....	5 0 0	T. E. H.....	0 10 0
Francis Adams.....	2 2 0	"Friend".....	2 2 0
David Wilkinson.....	10 10 0	Anonymous.....	0 5 0
Mr. Tom Malthy.....	5 0 0	A Visitor.....	0 10 0
Miss E. Baldwin.....	0 10 0	Miss Koe.....	2 0 0
"Royal Red Cross".....	2 0 0	R. Oxenham.....	5 5 0
"Gratitude".....	0 10 0	Miss Eyre.....	5 0 0
Francis D. Brockman, Esq., J.P.....	10 0 0	A. M.....	0 2 6
J. Selwin Calverley..	5 0 0	M. Hawkins.....	0 5 0
Mrs. Musgrave Hilton	3 0 0	A Friend.....	
Mrs. Powell.....	3 0 0	Mrs. E. St. Auburn	
Mrs. E. E. Paterson..	2 2 0	Hastie.....	1 0 0
Mr. and Mrs. J. W. Dawson.....	2 2 0	Theodore Lloyd.....	3 3 0
Mrs. Fisher Miller....	2 2 0	Captain Richmond	
"Friend".....	0 5 0	Moore, R.N.....	2 2 0
The Misses Fynmore (Folkestone).....	1 1 0	Rayment Kirby.....	2 2 0
Mr. H. Alborough.....	0 10 0	William Griggs.....	1 1 0
Mrs. T. E. Scott.....	0 10 0	R. M.....	0 10 0
"Friend".....	0 5 0	Frederick Farmer...	0 10 0
W. A. C.....	2 0 0	George Legg.....	5 0 0
Mr. and Mrs. Willis..	2 0 0	A Neighbour.....	1 1 0
T. J. Woodruff.....	2 2 0	Robert S. Dick.....	0 10 0
Miss Deedes.....	5 0 0	A Friend.....	0 3 0
C. H. Master.....	10 0 0	William Bond.....	2 0 0
E. Nettleship.....	5 0 0	W. S. J.....	1 0 0
Miss Louisa Twining	2 0 0	Help for Sufferers...	0 10 0
Miss Parr.....	0 2 6	Henry G. Clarke.....	1 0 0
Captain Shaw.....	5 0 0	Mrs. Ann Wagstaff..	1 1 0
Mrs. Gardner.....	5 0 0	D. Wilkinson.....	10 10 0
Mrs. Urmsom.....	1 1 0	Mackeson and Co....	10 10 0
Master Urmsom.....	0 4 0	J. Geddes.....	5 0 0
Mr. T. C. Brandon....	3 3 0	W. Whiffin.....	2 2 0
Mrs. Woodruff.....	2 0 0	Jas. Boulton.....	2 2 0
Mr. Humphrey Roberts	5 0 0	F. E. E. S.....	1 0 0
General Sir C. P. Keyes, G.C.B.....	10 0 0	Mrs. Edward West..	2 2 0
Mrs. Brandon.....	2 2 0	J. Louisa Mashiter..	1 0 0
Miss Fenton and Miss Smith.....	3 0 0	"Forest Gate".....	0 3 0
A. H. W.....	0 10 0	Major and Mrs. Cokayne-Frith.....	2 0 0
Miss E. Venables.....	5 0 0	Mrs. Charles Dodd..	1 1 0
Miss Smith.....	0 1 0	"Anon".....	0 5 0
Major Wynne.....	1 1 0	"Sympathiser".....	0 2 0
Miss Fawkes.....	2 2 0	E. Armitage, R.A....	20 0 0
General Sir E. B. Ham-ley (per the Mayor)	5 0 0	W. R. Kirby.....	0 10 6
Mrs. Butterworth.....	2 2 0	E. G.....	0 5 0
Mazawattee Tea Com-pany.....	10 10 0	Arthur R. Glyn.....	1 0 0
Mrs. E. F. Noel.....	2 0 0	Miss Chabot.....	1 1 0
Surgeon Major R. Gil-bourne.....	5 0 0	Percy Ell.....	1 1 0
Mr. Chas. F. Addis...	1 1 0	Joseph Sprawforth..	5 0 0
Mr. A. W. Vidal.....	0 5 0	Anon.....	2 0 0
Lady MacGregor.....	2 0 0	E. H. S. "Brading"...	0 5 0
W. H. Rosher.....	3 0 0	Miss E. H. Lansdale..	1 1 0
J. Russell.....	0 5 0	W. H. Collett.....	0 10 0
Miss Peel.....	5 0 0	F. and S.....	5 0 0
Mr. A. Simpson.....	1 1 0	Colonel G. M. Onslow	1 1 0
Mr. G. M. Rose.....	1 0 0	J. O. N.....	0 10 0
Major Genl. Haddam	2 2 0	Miss Reynett.....	1 0 0
W. H. Hart and Messrs. Harvey.....	0 5 0	Miss Brownlow.....	1 0 0
Mr. W. M. Rhodes....	2 2 0	Miss Isabella Brown-low.....	1 0 0
Rev. J. A. Bruce.....	0 10 0	Mrs. Ross.....	1 0 0
Mr. E. Whiteley.....	10 0 0	Mr. A. G. Bicker-Caarten.....	1 0 0
Mr. Douglas Owen.....	2 2 0	X. Y. Z.....	0 5 0
Lady Bruce.....	1 1 0	Volunteer.....	0 5 0
Mr. J. W. Palmer.....	0 5 0	E. R. Payne.....	1 0 0
Lady Brook Middleton	5 0 0	Miss Alston.....	1 1 0
Mr. J. H. Salmon.....	0 10 0	J. H. Alcott.....	10 5 0
Mr. H. H. Bishop.....	1 0 0	Miss Ricketts.....	0 10 0
Mr. D. Jay.....	1 1 0	E. D.....	0 0 6
Carl Cranbrook.....	5 0 0	Fred Morse.....	1 0 0
Mr. George Marsham	5 0 0	Chas. P. Carpenter..	1 0 0
Miss A. M. Reynolds	0 10 6	Beetham Batchelor..	1 1 0
Mr. J. Stannah.....	1 1 0	Miss Coore.....	1 1 0
Mr. Charles Anderson	1 0 0	H. Jenson-Bryceson..	1 0 0
B. L.....	0 10 0	Mrs. English.....	0 5 0
Soldier of King William IV.....	0 5 0	E. M. S.....	0 2 0
A.....	1 0 0	R. P. Paine.....	2 0 0
Sympathy.....	0 10 6	A. Moberly.....	1 0 0
Mrs. Prescott.....	3 3 0	W. E. Stokes.....	1 1 0
		Henry Lea.....	1 0 0
		M. Newmann.....	0 3 0
		Keating, M.A.L.....	1 0 0
		G.T. Cumberland, M.G.	2 2 0
		Roland Agassiz.....	0 10 6
		Lord Wm. Seymour..	5 5 0
		Walter Leek.....	1 1 0
		Alice Girardot.....	0 10 0
		F. A. Jenner.....	1 0 0
		Jno. Costeker.....	2 0 0
		Rich. Nicholson (Sir)	5 0 0
		A. Sebag Montefiore..	2 2 0
		Mrs. Bell.....	5 5 0
		Mathew Bell.....	5 5 0

Subscriptions received by—

General Sir C. P. KEYES, G.C.B., Chairman;  
The Rev. H. RUSSELL WAKEFIELD, Vicar; and  
Messrs. JENNER and Co., Bankers, Sandgate.



# NOTICE !

*To the Sandgate Ratepayers and  
Sufferers by the Landslip.*

---

A

## PUBLIC MEETING

To which all of the above are invited, will be held on

Tuesday, April 10th,

AT THE

GOUGH SOLDIERS' HOME,

At 8.30 p.m.,

To consider the following questions :—

1.—As to the advisability of petitioning the Executive Committee to apply the balance of the Relief Fund (or a portion of same) for the purpose of relieving the rate-payers of the cost of reinstating the public property damaged by the Landslip.

2.—The desirability of carrying on the enterprise of the Publicity Committee and taking steps to advertize the town.

---

*Chair to be taken by F. Martin, Esq.*



THE  
Sandgate Sensational Soil Subsidence.  
~~~~~  
TOM MALTBY'S GUIDE.



PRICE ONE PENNY.

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The net proceeds of sale of this Guide will be given to the Relief Fund.



# THE SANDGATE \* SOIL \* SLIP.

## TOM MALTBYS GUIDE.

**U**PON your arrival at Sandgate Station, and enquiring the road to the ruins, any man on the station, from the courteous Station-master, Mr. Caudell, to the boy who collects tickets will direct you to "Keep to the left." Presuming you are here met by a Guide to whom the locality is known, he will first—at a short distance from the Station—point out to you a vacated residence known as Littlebourne Lodge. In reality Littlebourne Lodge has borne a great deal, and is considerably dislodged, the walls and ceilings being badly cracked. Turning up an opening on the left you are shown Cheriton Cliff Villa. The doors of this domicile are owing to the Landslip rendered unfit for opening and shutting, and furniture and goods were at considerable risk lowered to the ground from the windows. On the sea front opposite you'll notice a badly damaged groyne. Re-crossing the road and still keeping to the left you reach a terrace of seven houses, known as Sunnyside. The tenants here mainly depended on summer boarders for maintenance and support, but owing to severe damage to the houses—both inside and out—it is scarcely likely, unless repairs are rapidly proceeded with, that the usually comfortable and charming apartments therein will this year be occupied by visitors.

At the back of Sunnyside Terrace you may be shown one of the gardens belonging to Tavenor Bos., fruiterers and florists, of Sandgate. This garden is in a generally upheaved condition. Adjacent stands Wellington Place, situated on an elevation at the rear of Wellington Terrace. The houses on the Terrace and in Wellington Place are also deserted by the tenants. The apartments in Wellington and Gloucester Terraces have for years been among those most sought after by visitors, and the calamity means a terrible loss to their late tenants. Keeping to the left of Wellington Place you reach the Clarendon Inn, which,



notwithstanding the dilapidated condition of the houses on either side, stands tolerably firm in comparison. Business, up to the time of writing, is still carried on, though very great inconvenience has been caused to the landlord and his wife not having been able to procure proper food, in consequence of the damage done to the stoves. Neighbourly assistance has, however, been forthcoming.

Adjoining the Clarendon stands (so far) three cottages, the lower two being completely parted. The gardens in this neighbourhood are also in a terrible condition. While inspecting the Clarendon Inn and adjacent cottages you stand on Brewer's Hill, a much frequented road leading to Shorncliffe Camp. Almost exactly half-way up this Hill a spacious gap in the path occurred, and for some time the water from a broken drainpipe rushed with great violence towards the sea. Men have been at work here since Sunday, and the roadway is now partially restored.

Descending Brewer's Hill and turning again to the left Castle House is brought to view. This house was occupied by Mr. Mark Judge, a gentleman of influence, who since the catastrophe has come prominently and worthily forward in the interests of the sufferers. The east wall of this residence is parted in the centre, and the ceilings and floors are in a state bordering on collapse. On the left of Castle House stands Prospect Place, consisting of five houses, each being more or less damaged, and, like the others, deserted. Three other smaller houses at the rear of Prospect Place are in a similar condition. In a garden immediately at the rear of the houses referred to above the visitor will be surprised at the sight of greenhouses and vineries fallen and falling, flower beds upheaved, and stone steps and palings lying in startling confusion. This garden is also the property of Tavenor Bros.

Retracing your steps and bearing to the left you reach Farleigh House, which, though considerably damaged inside and out, has been purchased since the disaster by Mr. J. J. Jones, of Beach Rocks. On the left of Farleigh House you enter the gates of Encombe, the property of Miss Reilly, by whose kindness visitors have been enabled—by paying sixpence at the gates—to witness some of the most strange and serious results of the Landslip. The money paid for admission is added to the Relief Fund, and it may with satisfaction be chronicled that during the first four days the grounds



were thus opened to the public nearly one hundred pounds were in this way collected.

On leaving the grounds of "Enchanting Encombe" and again turning to the left, you will not fail to observe that more than ordinary attention is directed towards Spring House and the cottages on either side. Spring House is THE sensation of the subsidence, and by the time this pamphlet is in the printer's hands it may have collapsed altogether.

With but a shed intervening stands the house and bakery, built by the late occupier, Mr. Ludlow, for whom much sympathy is felt, the house and bakery having been but recently completed. Barton House and the Rose Inn are but slightly affected, and are still occupied. On the opposite side of the street you will notice the Station till lately occupied by the Sandgate Coastguards, who are now in safer—though less official—quarters. The flagstones in front of the outer wall were thrown completely out of place, and the appearance of the wall itself is at present decidedly zig-zag. By observing the wall facing the sea and the condition of the row of houses, it is made evident that the authorities were wise in directing the men to remove their families and goods into other quarters. Adjacent stands M. Offredi's café, which is considerably damaged, as is also the sea wall and surface of the Esplanade round about.

Recrossing the road, the much-talked of ruins in Chapel Street, will be witnessed. It is difficult and unnecessary to describe the pranks played by Nature in this locality. Considerable attention has been given it, by the illustrated press, by reporters, and photographers.

Retracing your steps into the High Street, you will pass an imposing building, known as Beach Rocks Convalescent Home, which is in a perfectly safe and sound condition.

A little further on, you'll stop and refresh at The Alexandra Hotel, which adjoins that favourite public resort well-known as Maltby's Mansion of Mirth, the New Alhambra Theatre of Varieties, where every evening, throughout the year, may be witnessed a first-class entertainment of refined variety.

Having reached this Haven of rest, you reward your guide, who leaves you to Wander at Will.