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OLOGICAL SURVEY.

ENGLAND AND WALES.

THE
WATER SUPPLY OF SUSSEX
FROM UNDERGROUND SOURCES.

BY
WILLIAM WHITAKER, B.A., F.R.S.,
AND
CLEMENT REID, F.L.S., F.G.S.

PUBLISHED BY ORDER OF THE LORDS COMMISSIONERS OF HER MAJESTY'S TREASURY.

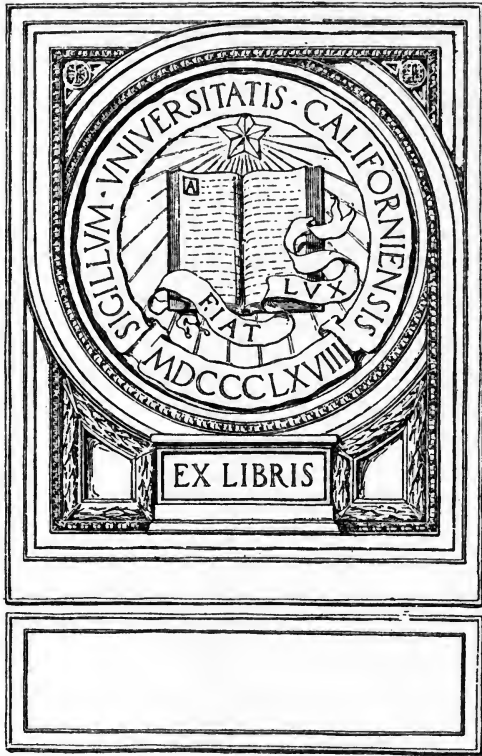


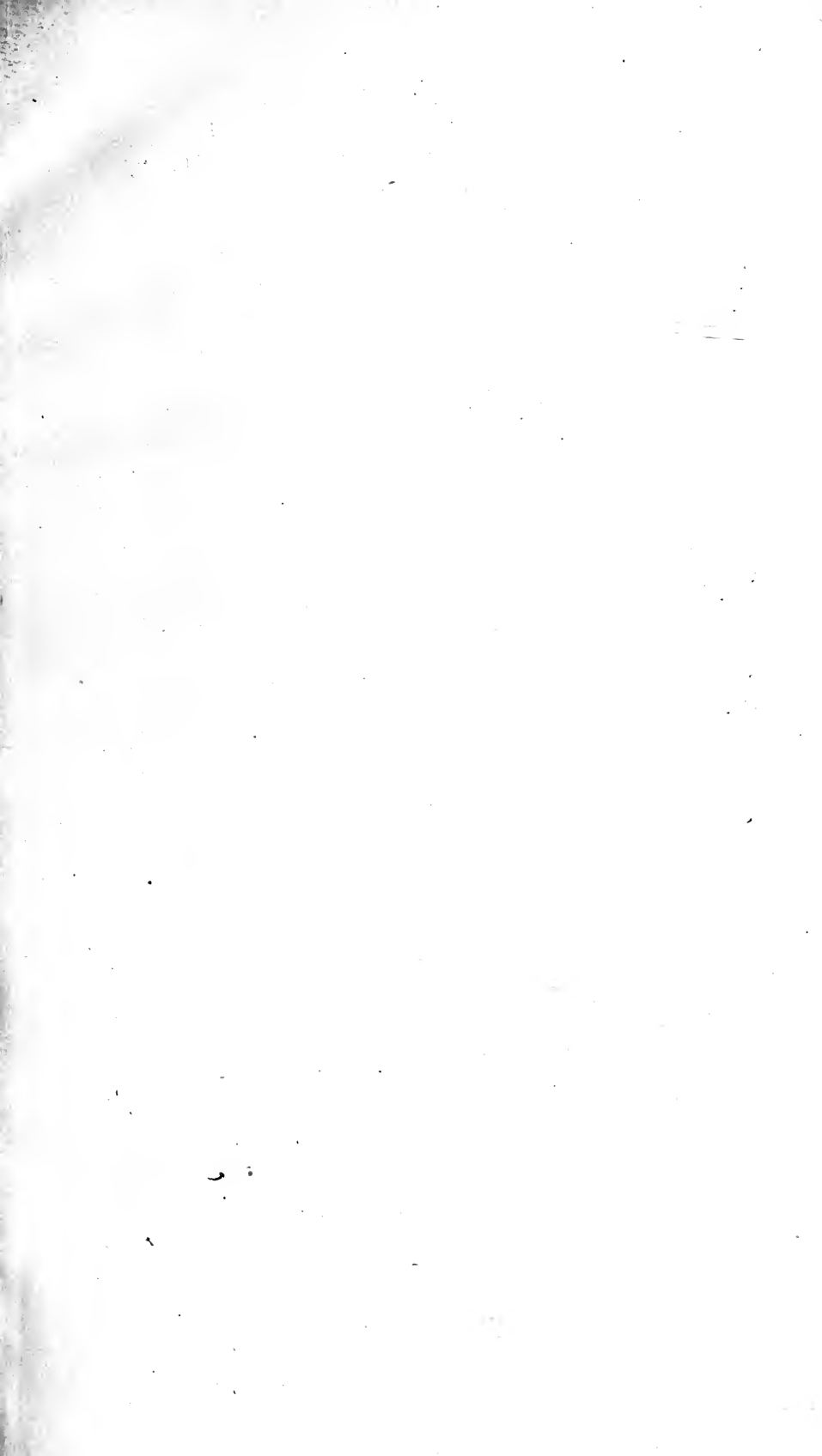
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MEMOIRS OF THE GEOLOGICAL SURVEY.

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PREFACE.

EVER since its commencement the Geological Survey of the United Kingdom has given much attention to the question of water supply, and has accumulated a large body of information on the subject relative to all parts of the country. It has thus been able constantly to give assistance to professional men and others who have sought for advice in regard to the geological problems involved. In order to make the practical work of the Survey in this department more useful to the general public, it is now proposed to issue a series of Memoirs which, dealing with the underground waters of the different counties, may aid local effort in obtaining supplies of wholesome, uncontaminated water. In these Memoirs only such geological details will be given as may bear directly upon the question of water supply. The present account of the underground waters of Sussex is the first of the proposed series.

While the Geological Survey has been ready to furnish geological information, it has, in turn, received much assistance from those practically concerned in dealing with water supply. Engineers and well-sinkers have willingly lent their aid, without which it would have been impossible to gather the numerous facts of which the Survey is now in possession. In the preparation of the present Memoir, for example, we have been specially indebted to Mr. P. H. Palmer, the Borough Engineer of Hastings, and to Mr. E. Easton; also to the communications of the well-sinkers Messrs. Duke and Ockenden, Messrs. Le Grand and Sutcliff, Messrs. Doewra, and Messrs. Isler and Co. The contributions of these collaborators, as well as those from other sources, are acknowledged in each case. About 150 of the records of wells in the following pages are now published for the first time.

The late Mr. W. Topley took part in the collection of materials for the present Memoir, but his much-lamented death has deprived us of remarks on many of the sections which he could have supplied better than anyone else.

In issuing this first publication on the water supply of the English counties, I desire to point out to those interested in the subject that it would be greatly for the public benefit if full details of all the strata passed through in sinking wells were in each case forwarded to the Geological Survey Office in order that they might be placed among the permanent records of water supply. The name of each informant would, of course, be given when the information supplied by him was published. It would be desirable, at the same time, to have information regarding the yield of water, and to obtain copies of any chemical analyses that might be made. Many of the records supplied to us are less valuable than they would be for want of information as to these particulars.

The detailed geological structure of the County of Sussex is given in the Maps and Memoirs of the Geological Survey enumerated on p. 7 of the present publication. For general purposes of reference the two sheets (12 and 15) of the Index Map of England and Wales, on the scale of four miles to one inch, will be found useful. Fuller information is given on the maps on the one-inch scale, while, where further local details are specially required, they can be obtained from MS. maps on the scale of six inches to a mile, which can be supplied at the cost of transcription for those parts of the county which have been revised and published in the new series of one-inch maps.

It should be added that Mr. Whitaker, though he has retired from the Survey, has been good enough to find time, during his tenure of the office of President of the Geological Society, to assist in arranging and connotating the well-sections in the present Memoir and in correcting the proofs.

ARCH. GEIKIE, Director-General.

Geological Survey Office,
28, Jernyn Street, London.
31st October, 1898.

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THE WATER SUPPLY OF SUSSEX

FROM UNDERGROUND SOURCES.

INTRODUCTION.

Sussex, for various reasons, is largely dependent on deep wells for its water-supply. Good surface-springs are comparatively rare, the running streams soon become turbid, and shallow wells in loose superficial deposits are so liable to contamination that the increasing population renders them every year more unsafe. As the amount and quality of the water to be obtained from a deep well depends mainly on geological considerations, a short account of the geology is prefixed to these records, to help those who desire to obtain water at new localities.

OUTLINE OF THE GEOLOGY AS FAR AS RELATES TO WATER SUPPLY.

The upheaval of the Weald, which caused nearly all the streams to flow north or south, away from the central axis, still causes the underground waters over the greater part of the county to flow southward, in the direction of the dip. The upward arching of the strata, and the subsequent removal by denudation of the higher parts, have brought within reach so many different formations that we must here deal with the whole of the following series:—

		<i>Character of the water in Sussex.</i>
Recent -	{	Blown Sand - - - - - } usually bad, salt, and supply
		Shingle - - - - - } small.
		Alluvium - - - - - } very bad.
		Brickearth - - - - - } none.
Pleistocene	{	Valley Gravel - - - - - { fair, somewhat ferruginous, but very liable to surface contamination.
		Coombe Rock - - - - - { very hard; liable to surface contamination.
		Raised Beach - - - - - { water has percolated through Coombe Rock, and is of similar character.
		Plateau Gravel - - - - - { variable, small quantity, and liable to contamination.
		Clay with Flints - - - - - } none.
Eocene - -	{	Bracklesham Beds - - - - - } generally bad.
		Bagshot Beds - - - - - { probably ferruginous, and quantity small.
		London Clay - - - - - } none.
		Woolwich and Reading Beds } a little in the sandy beds, generally containing iron and sulphates; none else- where.

Character of the water in Sussex.

Upper Cretaceous	{	Upper Chalk - - -	}	abundant supply of good water, hard with carbonates (temporary hardness), less so with sulphates (permanent hardness).		
		Middle Chalk - - -				
		Lower Chalk - - -			{	a little hard water, usually with excess of sulphates.
		Upper Greensand - - -				
		Gault - - -			-	good, comparatively soft.
Lower Cretaceous	{	Folkestone Beds - - -	}	slightly ferruginous, but good.		
		Sandgate Beds - - -		little.		
		Hythe Beds - - -		much, good quality.		
		Atherfield Clay - - -		none.		
		Weald Clay - - -		{	occasionally a little in sand beds.	
		Tunbridge Wells Sands - - -				
		Wadhurst Clay - - -		-	good, quantity uncertain.	
		Ashdown Sand - - -		-	water in the rock-beds.	
Fairlight Clay - - -	-	good, slightly chalybeate.				
Upper Jurassic	{	Purbeck Beds - - -	}	none.		
		Portland Beds - - -		probably none.		
		Kimeridge Clay - - -		perhaps some.		
Middle Jurassic	{	Corallian - - -	}	none.		
		Oxford Clay - - -		little or none.		

Water-supply being the sole question to be dealt with in this Memoir, no geological details are given which do not refer directly to the water-bearing or retentive character of the rocks, the quality of the water, or to the probable continuity of the various strata, on which last depends the amount of water which we may expect to find. Those wishing to study the geology from other points of view will find further particulars in the Geological Survey Memoirs which deal with the various parts of the county, or in Dixon's "Geology of Sussex" (2nd ed., 4to, Brighton, 1878).

Palaeozoic Rocks.

The prospect of obtaining water from the Palaeozoic Rocks under any part of Sussex is so slight that we could not advise the sinking of any trial-bores. In the first place, the least depth of these rocks from the surface is probably fully 2,000 feet, and any water found at that depth would be distinctly warm. Secondly, over the whole county, and far beyond its limits, thick masses of impervious clays occur, so that the only sources of supply would be from distant areas, where Palaeozoic rocks crop out, or are overlaid by porous strata. Thirdly, rocks at such depths are so compressed by the weight of overlying strata that they seldom contain open fissures or yield much water.* The deep borings and sinkings in search of coal now being made in the adjoining parts of Kent may, however, cause us to modify this opinion.

* See also Prestwich, "Proc. Inst. Civ. Eng.," vol. xxxvii., p. 126.

Jurassic Rocks.

The oldest rocks yet met with in the county are those penetrated by the "Sub-Wealden Boring" at Mountfield, near Battle. In this boring the Oxford Clay, Corallian Rocks, and Kimeridge Clay were either shales or very shaly, and yielded no water. The Portland Beds consisted mainly of sandstone. When the tools penetrated the Purbeck rocks at 169 feet, the column of water in the bore-hole sank 40 feet, thus proving that the Portland Beds are pervious, and at lower levels may yield water. The quality of the water, however, would be uncertain, for if the springs are fed by percolation through the gypsum-bearing overlying rocks there would probably be an excess of sulphates, and the quantity also would not be large. There is also a possibility that rocks in such a position might yield natural gas or petroleum instead of water. In the Purbeck Beds no water is found, except small springs highly charged with sulphates.

Fairlight Clay.

In the neighbourhood of Hastings occurs a mass of clay over 300 feet in thickness, with subordinate beds of sand. Its exact relation to the Purbeck and Wealden strata is still in doubt. No water is found in this clay.

Ashdown Sand.

This sand is found at the surface over a large area in the middle of the Weald. It contains water of good quality, but like most of the Wealden sands is too fine-grained usually to yield any large supply from a boring. It should be noticed that sunk wells may succeed where borings fail, for the amount yielded by such strata depends largely on the surface exposed in the well. The Ashdown Sand often contains beds of clay, which must greatly hinder the circulation of the water. Hastings is supplied from this source.

Wadhurst Clay.

The Wadhurst Clay is 130 feet thick or more. It yields no water, but over the area occupied by it a moderate supply can usually be obtained by boring to the Ashdown Sand below.

Tunbridge Wells Sand.

This sand varies from 160 feet in the east to 380 feet near Cuckfield, two masses of clay, the Grinstead Clay and the Cuckfield Clay, coming in where the deposit is thickest. Mr. Topley's estimate at Cuckfield gives:—

	<i>Ft.</i>
Upper Tunbridge Wells Sand.	{ Sand and sandstone, with layers of } 115 Tilgate stone at the top - - - Cuckfield Clay - - - 15 Sand and sandstone - - - 70
Grinstead Clay	
Clay and shale-	
Lower Tunbridge Wells Sand.	

The water from the sand is good, but commonly ferruginous. It is doubtful whether water can travel freely through it for any great distance, and except where bare or covered by a small thickness of Weald Clay it cannot be depended on. Borings reaching this sand below any great thickness of clay may yield enough for isolated houses or small villages, but will seldom supply a large quantity.

Weald Clay.

The Weald Clay, though usually quite devoid of water contains occasional beds of sand, which sometimes yield good water in unexpected places. These sands are impersistent and their position cannot be forecast with any certainty. The supply to be expected from them is probably nowhere large. The clay is probably over 600 feet thick at the northern border of the county, but appears to diminish considerably in thickness towards the east. It has, however, been proved to a depth of 200 feet at Eastbourne, without reaching the base.

Lower Greensand.

These sands are usually of coarser grain than those of the Wealden Series, and consequently yield their water more freely, and are less liable to choke the bore-hole. The water is either soft and very pure, or else somewhat ferruginous, or it may contain sulphates; it does not usually show excess of lime. Between Eastbourne and Lewes this formation has become very thin, or is only represented by the highest division, and cannot be depended on for anything but a small supply. West of Lewes it thickens rapidly and can be divided into four series:—

Folkestone Beds : coarse sands, 12 to 140 feet.

Sandgate Beds : fine-grained sand and clay, 30 to 100 feet.

Hythe Beds : sand, sandstone, and chert, calcareous above, 25 to 200 feet.

Atherfield Clay : shelly clay, without water.

The Hythe Beds and the Folkestone Beds can be depended on to yield a fair supply in most localities. The Sandgate Beds are uncertain, except sometimes in shallow wells and near the outcrop.

Gault.

The Gault in Sussex is about 300 feet thick, and is always impervious and without water. It is often advisable, however, to commence a well in the Gault, for water obtained from the the Lower Greensand in this way is free from any suspicion of direct surface-contamination.

Upper Greensand.

The Upper Greensand is a glauconitic sand or sandstone, calcareous in the upper part, and from 40 to 80 feet in thickness. The general narrowness of its outcrop in Sussex makes it difficult to obtain a large supply from this source. The water, however,

is moderately soft and of excellent quality. Headings in the rock-bed of the Upper Greensand till lately supplied Eastbourne. The water, however, is apparently to a large extent derived from the Chalk above, and is let in by the exceptionally fissured state of the rocks in that district.

Lower Chalk.

This division consists of from 160 to 200 feet of alternating well-bedded grey chalk and chalk marl with pyrites. It is too impervious to yield water, except where so shattered that fissures let in water from the more pervious chalk above. Springs originating in this way are seen on the foreshore at Holywell, and at Jevington, near Eastbourne. Small springs from the Lower Chalk yield water with excess of sulphates.

Middle Chalk.

The Middle Chalk includes about 200 feet of hard rubbly chalk, with a few flints in the upper part. Towards the base, where it rests on the impervious grey "Belemnite Marl," which forms the top of the Lower Chalk, occurs about 10 feet of hard rock, the Melbourn Rock, from which are given out many springs, like those in the cliff at Holywell. The hardness of this rock, and the consequent openness of the fissures, makes it advisable to continue borings to this level, in cases where the Chalk above has proved too compact to let in water.

Upper Chalk.

This division is about 700 feet thick in West Sussex, but thins to 500 feet at the east end of the South Downs, through the loss of the upper part before the Eocene strata were deposited. It consists of soft chalk with flints. The water from the Middle and Upper Chalk is hard, but can readily be softened.

Woolwich and Reading Beds.

These are principally clays, and where sandy are full of pyrites; they cannot be recommended as a source of water-supply.

London Clay.

The London Clay is about 300 feet thick in Sussex. It contains a few beds of loamy sand, especially in the uppermost and lowermost parts, and at the base is sometimes found a mass of flint-pebbles. These have nowhere yielded a supply, though a little ferruginous water is sometimes met with.

Bagshot and Bracklesham Beds.

The Bagshot Sands in Sussex are thin and inseparable from the Bracklesham Series. These latter are apparently 500 or 600 feet thick near Selsey. Occasionally drinkable water is found in them, but usually the supply is small and the taste very unpleasant.

Drift Deposits.

The character of the water to be found in these is sufficiently set forth in the table. In all cases there is risk of contamination in shallow wells, though isolated farms and houses are perforce obliged to put up with water from this source. The usual situation of these wells, surrounded by farm-buildings, is particularly objectionable; a site in the middle of a lawn or garden is preferable, and greater care should be taken to place any cesspools as far as possible from the well.

MEAN ANNUAL RAINFALL OF SUSSEX.

(From "*Rainfall Tables of the British Islands, 1866-1890.*")

---	Height above Mean Sea Level.	Period of Observation.	Mean Rainfall.
Arundel, Dale Park - - - -	316	1866-80	34·29
Balcombe Place - - - -	300	1866-80	34·17
Brighton - - - - -	55	1881-90	28·33
Chichester, Westgate - - -	40	1866-80	29·16
Chilgrove, near Chichester - -	284	1866-90	33·74
Crowborough Beacon - - -	777	1871-90	36·81
Cuckfield, Borde Hill - - -	270	1881-90	29·73
Eastbourne - - - - -	15	1871-90	31·60
East Grinstead - - - - -	365	1866-90	32·72
Fernhurst (Haslemere) - - -	301	1866-80	32·19
Glynde Place, near Lewes - -	49	1866-90	32·60
Hastings, Hollington - - -	320	1866-90	29·19
Littlehampton - - - - -	20	1881-90	27·48
Midhurst, Lynch - - - - -	160	1866-80	39·65
Petworth Rectory - - - - -	180	1866-90	34·75
St. Leonards - - - - -	130	1881-90	29·08
Uckfield Observatory - - - -	149	1866-80	31·02
Uckfield - - - - -	200	1881-90	29·42

It may be observed that there are no records from the higher parts of the South Downs, on which occurs, apparently, the heaviest rainfall. These Downs are the first hills to intercept the moist air from the south-west. On the Downs above four hundred feet the condensation of mist also is considerable in the autumn and winter, often causing moisture to drop from every leaf, though in the towns below it is quite dry. This condensation supplies the dew-ponds.

LIST OF GEOLOGICAL SURVEY WORKS ON SUSSEX.

Sheets of the Index Map. Scale four miles to one inch.

- 12 Northern half of the county.
- 15 Southern half of the county.

Sheets of the Map. Old Series. Scale an inch to a mile.

4. Western part. Rye. By F. DREW. 1863.
5. All but the north-eastern part. Battle, Eastbourne, Hastings, Lewes, Seaford, Winchelsea, and Ashdown Forest. 1864. By W. T. AVELINE, H. W. BRISTOW, F. DREW, C. GOULD, T. R. POLWHELE, C. LE N. FOSTER, W. TOPLEY, and W. B. DAWKINS. Chalk-divisions and Drift over the Chalk-tract added 1893. By W. A. E. USSHER and C. REID.
6. Strip on the south (western and central parts). East Grinstead. 1864. By F. DREW. Drift Edition, 1886. (Little Drift in the Sussex part.)
8. Strip on the south (eastern and central parts). 1862. By F. DREW. Drift Edition, 1887. (Hardly any Drift in the Sussex part.)
9. All but a narrow strip on the north (western part). Arundel, Bognor, Bramber, Brighton, Chichester, Cuckfield, Horsham, Littlehampton, Midhurst, Petworth, Shoreham, Steyning, Worthing, and Selsea Bill. 1864. By H. W. BRISTOW, F. DREW, C. GOULD, J. HAY, F. C. BISHOPP, and W. B. DAWKINS. Chalk-divisions and Drift over the Chalk-tract added 1893. By C. REID.

Sheets of the Map. New Series. Scale an inch to a mile.

331. North-eastern corner. 1893.
332. Bognor, Littlehampton, and Selsea Bill. 1893.
333. Worthing (part). 1893.
334. Seaford, Eastbourne. 1893.

Sheets of the Horizontal Sections. Scale six inches to a mile.

- 73 (part). From Selsea Bill to Siddlesham, Chichester, East Lavant, Singleton, Cocking, Midhurst, and Haslemere. 1868.
- 75 (part). From W. of Worthing to Cisbury, Chanctonbury, Shipley, Itchingfield, and near Horsham. 1867.
- 76 (part). From E. of Kemp Town, Brighton, to Warren Farm (Brighton Industrial Schools), Stammer, Ditchling Beacon, Wivelsfield, Haywards Heath, Wakehurst Park, and Rowfant. 1867.
- 77 (part). From W. of Newhaven Harbour to Piddinghoe, Mount Caburn (near Lewes), Little Horsted, near Uckfield, to Buxted, across Ashdown Forest to Crowborough Beacon, and near Groombridge. 1867.
- 78 (part). From Beachy Head, across the Downs, to Polegate, Hailsham, near Heathfield, Ticehurst Road Station, and Ticehurst. 1867.

Memoirs, 8vo.

- The Geology of the Weald (parts of the Counties of Kent, Surrey, Sussex, and Hants). By WILLIAM TOPLEY. 1875.
- The Jurassic Rocks of Britain, Vol. V. The Middle and Upper Oolitic Rocks of England (Yorkshire excepted). By H. B. WOODWARD. 1895.
- The Geology of the country around Bognor. (Explanation of Sheet 332.) By CLEMENT REID. 1897.
- The Geology of the country around Eastbourne. (Explanation of Sheet 334.) By CLEMENT REID. 1898.

WELL SECTIONS IN SUSSEX.

[Words, etc., in square brackets have been added by us.]

ALDINGBOURNE. Headhone Farm.

Blue [London] Clay - - - - - 235 }
 [Reading Beds.] Red mottled clay - - - - - 100 } 335 feet.

[Must have stopped within 10 feet of the Chalk.]

ANGMERING.

Communicated by Mr. R. WINCHESTER, 1896.

---		Thickness.	Depth.	
		<i>Feet.</i>	<i>Feet.</i>	
[Drift]	{	Clayey gravel, "shrave" - - - - -	12	—
		Clean loam - - - - -	4	16
		Sand - - - - -	10	26
[Upper Chalk]	{	Chalky marl, with water - - - - -	12	38

ARUNDEL. Coal Yard.

[Recent Deposits] { Marsh clay - - - - - 20 }
 [Upper Chalk]. { Sand and shingle - - - - - 18 } 38 feet.
 Marl and chalk.

ARUNDEL. Mr. T. Barnes'.

From Mr. CRAWFORD.

Water-level 30½ feet down.

---		Thickness	Depth.	
		<i>Feet.</i>	<i>Feet.</i>	
Dug well, the rest bored - - - - -		—	8	
[Reading Beds]	{	Clay and freestone - - - - -	29	37
		Mottled clay and sand - - - - -	4	41
		Black sand - - - - -	5	46

ASHBURNHAM Place.

W. TOPLEY, "Geology of the Weald," p. 65, 1875.

Wadhurst Clay, with a few inches of rock, 62 feet.

In a shallower well, at a cottage north of the Parsonage, there were a few thin beds of sandstone full of fossils.

BALCOMBE. Mid-Sussex Waterworks. 1890.

Communicated by MR. J. CHURCH.

Shaft of $8\frac{1}{2}$ feet diameter. Water level $248\frac{1}{4}$ feet down.

Compared with springs in the neighbourhood the water is very free from iron. The pumps in use for sinking could only lift 120 gallons a minute (=172,800 a day of 24 hours), and could not keep the water down (after seven days' pumping), therefore the work was suspended. The yield has been 180,000 gallons in 24 hours.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Tunbridge Wells Sand]	Yellow sand, with bands of ironstone - - -	13	13
	Rock - - - - -	5	18
	Sand and clays - - -	32	50
	Spring tapped here [bed not described] - - -	1	51
[Tunbridge Wells Sand or Wadhurst Clay, 47 feet]	Hard grey clay - - -	20	71
	Coloured [mottled] clay -	12	83
	Yellow clay and sandstone	9	92
	White sandstone - - -	6	98
	Clay - - - - -	2	100
[Wadhurst Clay, $109\frac{1}{2}$ feet]	Clay and rock, with water	24	124
	Bluesandy clay, much water	8	132
	Bluish-green clay, giving off carbonic acid - - -	2	134
	Light-blue sandy clay -	4	138
	Hard grey clay and shale	24	162
	Very dark shales and clay	$45\frac{1}{2}$	$207\frac{1}{2}$
	Hard white and grey sandstone - - - - -	45	$252\frac{1}{2}$

The following pumping-tests have been made :—

October 25th and 26th, 1897.

Total water pumped in 5 hours 14 minutes (at intervals during three days), 105,000 gallons.

November 1st, 1897.

Total pumped in 11 hours 25 minutes, 98,082 gallons.

December 6th and 7th, 1897.

On the 6th, yield in 12 hours 90,585 gallons.

On the 7th, „ 5 „ 38,350 „

For Analyses of the water, see p. 104.

BARCOMBE. Sewell's Farm, over a mile N.N.W. from the Church. 1883.

Made and communicated by MR. G. BATES, of Lewes. Good supply.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Brown mixed earth - - - - -		30	30
Light-blue clay - - - - -		60	90
Blue clay and mud - - - - -	}	60	150
Sand and hard veins of slate rock - - -			

BARNHAM. Half a mile E.S.E. of the Railway Station.

Sunk and communicated (from memory) by MR. OCKENDEN, SEN.

To Chalk [Drift, London Clay, and Reading Beds] ... 125 }
 Chalk. Good spring 21 } 206 feet.

The Station is in EASTERGATE (which see).

BATTLE. The Brewery.

W. TOPLEY, "Geology of the Weald," p. 65, 1875.

Wadhurst Clay. Shale, with a bed of Tilgate stone, 2 feet thick, 40 feet down, 60 feet. Similar stone met in other wells here.

BATTLE. Waterworks N. of the town. 1890 (second boring).

Communicated by MR. J. CHURCH.

Most water comes in on the western and south-western sides of the well, chiefly from the rock below 144 feet.

Where brickwork occurs the beds are soft and shaly (except in old well).

		Thickness.	Depth.
		<i>Ft.</i> <i>in.</i>	<i>Ft.</i> <i>in.</i>
[All Ashdown Sand; or probably the lower part Fairlight Clay, more sandy in this direction.]	Old Well	—	35 0
	Rock	2 4	37 4
	Brickwork	2 6	39 10
	Rock	3 4	43 2
	Brickwork	16 1	59 3
	Rock	2 10	62 1
	Brickwork	11 4	73 5
	Rock	2 0	75 5
	Brickwork	4 3	79 8
	Rock	9 7	89 3
	Brickwork	26 8	115 11
	Rock. Water	2 6	118 5
	Brickwork	10 0	128 5
	Rock	10 2	138 7
	Brickwork	6 0	144 7
	Rock (hard sandstone, W.T.).		
Water	8	152 9	
Brickwork	5 0	157 9	
Hard Rock, Ironstone	1 6	159 3	

MR. TOPLEY has left the following short notes of wells at Battle :—

1. On the eastern side of Mount Street, between a quarter and a third of a mile from the Abbey Gate-house, 60 feet to water.
2. At the workhouse, on the northern side of Northrade Road, nearly a mile west of the town, 65 feet deep, not much water.
3. At North Lodge, east of the workhouse, 70 to 80 feet deep, very little water.
4. In the field south of the road a quarter of a mile south-west of Parkdale (nearly a mile south-west of the railway station), 35 feet deep. Gravel 6 feet and then sand 26.
5. Telham Farm, nearly 1½ miles south-east of the church, 149 feet deep and mostly in rock.

BATTLE (Sub-Wealden Exploration), see MOUNTFIELD.

BEDDINGHAM. Courthouse Farm (near the Church).

Boring. Samples, &c., communicated by MR. KILLICK.

About 25 feet above Ordnance Datum.

Water overflows. Good supply of soft water (for Analysis, see p. 105).

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Upper Green-sand.	Made ground - - - -	2	2
	Very fine-grained marly green sand - - - -	18	20
	Clayey greensand - - - -	10	30
	Grey very sandy clay - - - -	10	40
	Dark-grey sandy clay (samples at 40, 50, and 60 feet) - - - -	30	70
Gault, 310 feet.	Dark soapy clay (samples at 79 and 100 feet) - - - -	130	200
	Dark soapy clay and fossils (samples at 200, 283, 300, and 336 feet) - - - -	138	338
Lower Green-sand.	Clayey greensand (water at base)	2	340
	Loose, very green coarse sand, full of water - - - -	6	346

BEDDINGHAM. Toy Farm, about 2½ miles south-east of the Church. Well, 1893.

Communicated by MR. T. W. PICKARD.

About 250 feet above Ordnance Datum.

Average height of water 5 feet. Average yield 300 gallons a day.

White Chalk with veins of flints, 124 feet.

BEEDINGWOOD [? Lower Beeding], near Horsham. Stone Lodge.

Communicated by MESSRS. G. ISLER & Co.

Water-level 93 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Shaft (the rest bored)	- - - -	-	87
Clay	- - - -	30	117
Clay and rock	- - - -	3	120
Rock	- - - -	5½	125½

BEXHILL, 1851.

Communicated by MESSRS. DOCWRA.

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Clay - - - - -	19	19
Stone - - - - -	5	24
Clay - - - - -	1	25
Stone - - - - -	10	35
Hard dead sand - - - - -	30	65
Petrified wood - - - - -	$\frac{1}{2}$	$65\frac{1}{2}$
Coloured clay - - - - -	$4\frac{1}{2}$	70
Sand rock - - - - -	8	78
Coloured clay - - - - -	6	84
Stone - - - - -	1	85
Claystone - - - - -	2	87
Coloured clay - - - - -	30	117
Dead black sand - - - - -	8	125
Boggy stuff - - - - -	2	127
Coloured clay - - - - -	16	143
Green sand - - - - -	1	144
Rock - - - - -	$11\frac{1}{2}$	$145\frac{1}{2}$
Dark dead sand - - - - -	$11\frac{1}{2}$	157
Dark clay - - - - -	23	180

BEXHILL, for MR. G. LANE. 1851.

Sunk and communicated by MESSRS. DOCWRA.

Water of only 1 degree of hardness rose to 48 feet from the surface.

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Light[-coloured] sandy clay - - - - -	30	30
Blue clay - - - - -	76	106
Blue shaly rock - - - - -	24	130
Coloured clays [5 beds] - - - - -	80	210
Grey sand - - - - -	30	240

BEXHILL. Mr. J. C. Kenwood's.

Boring. Made and communicated by MESSRS. G. ISLER & Co.

Water-level 37 feet down. Supply abundant.

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Sandy clay - - - - -	15	15
Blue clay - - - - -	8	23
Soft sandstone - - - - -	28	51
Hard blue clay - - - - -	9	60

BEXHILL. Waterworks. Boring, in the Marsh, less than half a mile S.E. of Buckholt Farm. 1892.

Communicated by MR. W. B. LEWIS.

Twelve feet above Ordnance Datum. Water good. September 1893. Pumped day and night 300,000 gallons. A letter from MR. LEWIS (October 1894) adds that when about 260,000 gallons are pumped in 24 hours it about balances the ordinary flow.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Sump - -		—	25
[Mapped as Ash-down Sand, but apparently only so in part] -	Marl - - - -	13½	38½
	Clay - - - -	71	109½
	Blue stone, the bottom foot hard - - - -	5½	115
	Marl and clay - - - -	20	135
	Blue sand-rock - - - -	18	153

MR. W. B. LEWIS's letter of 1894 says that some recent boring, close to the sump, does not encourage the belief that more water would be got by deepening ; and that a boring near Sidley Brook, made in 1891, gave no promise of water in sufficient quantity.

A note by MR. TOPLEY says that the old well [? Wrest Wood] is 114 feet above Ordnance Datum, and is a shaft of 122 feet. The water was pumped out in 3½ hours, at the rate of 6,000 gallons an hour ; but 45,000 to 50,000 gallons a day can be got. The water comes into the heading more at high tide than at low. The heading being 22 feet both eastward and westward from the shaft.

The pumping from this well has drained the wells at Buckholt Farm and at Henniker Farm (less than half a mile W.S.W. from the works). Note by MR. TOPLEY.

BEXHILL. Waterworks. New Well (? first) in the Valley.

The following notes by MR. TOPLEY (1890) may refer to the well above described, but they differ much from the description given.

Well 18 feet above Ordnance Datum.

Sump 12 feet square and 25 feet deep, then bored.

Water rose to 4 feet from the surface, from the more open sandstone. At first 40,000 gallons a day got from the top sandstone, then this fell to 24,000, and then to 15,000.

—	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Soil, passing into sandstone, some hard, mostly broken, with partings - - - -	38	38
Blue clay - - - -	57	95
Blue marl and hard layers - - - -	10	105

Another note of MR. TOPLEY's mentions a New Well, N.W. of Crouch Farm [? site], as passing through the following beds :—

Soil	1 foot
Sandy marl and clay	32 feet
Blue clay.	

According to another note (November 1893), a borehole, 50 or 60 feet, a little S. from the new well, gave this section :—

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Peat - - - - -	8	8
Yellow sand - - - - -	22	30
Blue clay - - - - -	6½	36½
Blue sand - - - - -	9½	46
Blue and brown sand - - - - -	5	51
Clay and stone (hard and shelly) - - - - -	(?) 22	(?) 73

The water in the new well stood 18 feet down when pumped, but rose to the surface when pumping ceased ; 250,000 gallons pumped per day of 24 hours (106,000 for Hastings). When 360,000 were pumped air was drawn in.

For another well for Bexhill Waterworks, see p. 101.

BEXHILL. Trial for Coal, 1804–1809 (near the Shore).

DR. MANTELL. "The Fossils of the South Downs . . ." 4to.
London, 1822, pp. 35, 36.

Shaft 27 feet, the rest bored.

	Thickness.	Depth.
	<i>Ft. in.</i>	<i>Ft. in.</i>
Soil, clay and sandy loam - - - - -	9 0	9 0
Dark clunch - - - - -	9 0	18 0
White rock with kind partings - - - - -	13 0	31 0
Dark clunch - - - - -	3 0	34 0
Grey rock - - - - -	5 0	39 0
Dark clunch - - - - -	3 0	42 0
Strong grey rock - - - - -	5 6	47 6
Blue binds - - - - -	3 6	51 0
Grey rock with kind partings - - - - -	18 0	69 0
Blue bind - - - - -	3 6	72 6
Stone grey rock - - - - -	3 0	75 6
Blue bind - - - - -	2 7	78 1
Strong white rock - - - - -	4 4	82 5
Dark clunch - - - - -	7 9	90 2
Smut coal - - - - -	2 3	92 5
Grey bind - - - - -	14 3	106 8
Blue bind with iron-ore - - - - -	10 9	117 5
White stone - - - - -	3 0	120 5
Clunch or fire-clay - - - - -	3 2	123 7
White sandstone - - - - -	5 9	129 4
Kind clunch parting- - - - -	0 8	130 0
Brown sandy rock - - - - -	2 9	132 9
Sharp peldron - - - - -	9 0	141 9
Blue bind - - - - -	5 0	146 9
Strong brown rock - - - - -	4 0	150 9
Blue bind, with impressions of fern-leaves - - - - -	7 6	158 3
Blue bind with iron-ore - - - - -	2 0	160 3
Strong coal - - - - -	3 6	163 9

MR. TOPLEY has remarked of this section : "Some seams of lignite were passed through, reported to vary in thickness from 2 feet 3 inches to 4 feet 6 inches [should be 3 feet 6 inches]; the thickest seam is said to be of bad quality and very sulphureous. These seams are thicker than any known to occur on the surface; and supposing the section to be reliable, it is very remarkable that the shaft should happen to be sunk at a spot where these beds, usually thin and very inconstant, had attained their greatest known thickness. It is, however, very doubtful if these beds really were found, or there would surely have been some more serious attempt to work them. LOWER speaks of sanguine adventurers being induced to sink a shaft here, and he adds "adventurers of another kind encouraged the scheme, and fictitious specimens of coal were brought to the surface."* ("Geology of the Weald," p. 348.)

There being some local interest in the matter, it seems well to reproduce the above details, although partly in terms not used for these southern beds.

BIRDHAM. Holt Place.

Communicated (from memory) by MR. OCKENDEN, SENR.

Loam - - - - - 15 } 250 feet.
 London Clay - - - - - 235 }

BOGNOR. Waterworks. (See also EASTERGATE and MERSTON.)

From a lithographed section, communicated by MR. J. W. GROVER, C.E. (published as a woodcut in *The Builder*, 25th March, 1876.)

Shaft and cylinders 80 feet, the rest bored.

Water-level, without pumping, 20 feet down, giving 150,000 gallons a day nearly 80 feet down.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Drift, 24 feet] -	Brickearth - about	9	9
[? London Clay]	Running sand, saturated with water, which supplied the town about	15	24
	Red and blue clay - "	34	58
[Reading Beds] -	[Undescribed bed] - "	4	62
	Wet sand - - - "	5	67
	Red and blue clay - "	47	114
Chalk, with flints at 120, 170, and 190 feet down	Marl rock [may be top of chalk] - - - about	4	118
		212	330

BOSHAM. At the Gatehouse a quarter of a mile E. of the Station.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

[Reading Beds] Mottled clays - - - - - 88 } 150 feet.
 Chalk, very soft, with good water - - - - - 62 }

BOSHAM HARBOUR. The Duke of Gloucester.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

Brickearth, &c. * - - - - - 18 } 45 feet.
 Chalk, very soft - - - - - 27 }

Plenty of good water, but the well cannot be kept clear.

* "History of Sussex," vol. i., p. 49.

BRIGHTON. North Street. Messrs. Smithers' Brewery. 1889.
Boring made and communicated by MESSRS. LEGRAND & SUTCLIFF.
Water level 100 feet down.

Old dug well (the rest bored) - - - - - 102 }
Hard chalk and flints - - - - - 50 } 152 feet.

BRIGHTON. Waterloo Street. Messrs. Robins' Brewery. 1885.
Made and communicated by MESSRS. LE GRAND & SUTCLIFF.
Water level 28 feet down

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Drift]	- - {	Dug pit (the rest bored) -	10½
		Clay and flints - - -	14½
		Sand - - - - -	15
		Chalk and flints - - -	65

BRIGHTON. Waterworks. Two Pumping Stations.

For a third see PATCHAM. For Analyses, see pp. 105, 106.

These works are one of our best examples of a large supply from the Chalk. They have been described in the following papers, from which particulars have been taken, supplemented by information from Mr. J. JOHNSTON, the present engineer :—

1882. E. EASTON. Transactions of the Brighton Health Congress, 1881, pp. 48-56, three plates. Separately printed, 16 pp., 8vo.

1886. W. WHITAKER. *Geol. Mag.*, dec. iii., vol. iii., pp. 159-161. Reprinted in *Public Health* some years later.

1890. W. H. HALLETT. "The Brighton Waterworks," 8vo, 8 pp. Read at the Brighton Congress of the Sanitary Institute.

Lewes Road Works. By Hollingdean Road.

First well and boring 1830? Second well, with galleries, 1853?

Engine-room floor 87.85 feet above Ordnance Datum. Level of the bottoms of the headings about 93 feet lower.

Total length of headings 2,150 feet (2,400 according to MR. EASTON). It was rare for 30 feet to be driven without finding a fissure, but the produce of the largest was only from 100 to 150 gallons a minute.

Average daily yield in 1895, 2,000,000 gallons.

Goldstone Bottom Works. Over half a mile northward of West Brighton Railway Station. 1866? and later (galleries extended).

Ground-level at the engine-house 147.37 feet above Ordnance Datum. Four shafts. Level of the bottom of the headings about 167½ feet lower. The headings are in north-easterly and north-westerly directions, and about 2,600 feet in length. They vary in size, up to a height of 18 feet and a width of 12 feet.

Average daily yield in 1895, 3,000,000 gallons. Much more at times.

The galleries are in white chalk, with few flints in the flat planes of bedding, but with many oblique layers of thin flint along joint-planes. Some joint-fissures are filled with a soft calcareous sandy deposit, brought down from above by water. Some of the chalk seemed fairly soft, but some was found to be hard.

The supply comes chiefly from a few large springs a long way apart, yielding from 4,000 to 5,000 gallons a minute, and in connection with joint-planes. There are small additions between these. The contrast between this and the Lewes Road station is remarkable.

In the north-eastern gallery the roof is throughout (1886) of one bed, at the bottom of which was a thin continuous layer of flint, which had been cleared away.

BRIGHTON Industrial School. See FELSCOMBE.

BROADWATER. Rectory.

F. DIXON'S "Geology of Sussex," new Ed., 1878, p. 78.

Mould and Gravel - - - - - 15
Sand, with marine shells of recent species 7 or 8 } 22 or 23 feet

BUXTED. The Box (Mr. E. W. Streeter). 1891.

Made and communicated by MESSRS. A. WILLIAMS & Co.
265 feet above Ordnance Datum.

Shaft 6 feet, then a boring of 6 inches diameter.

Water-level. At the depth of 260 feet, 137 feet down. The boring was then deepened in hope that the water-level would rise. At the last it was 142 feet down, and the yield about 3,000 gallons an hour.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Lower Tun- bridge Wells Sand]	Sandstone - - - - -	11	11
	Hard sandstone - - - - -	18	29
	Clay and sand - - - - -	6	35
	Hard white sandstone - - - - -	2	37
[Wadhurst Clay, 147 feet]	Sandstone and clay - - - - -	8	45
	Hard blue clay - - - - -	8	53
	Clay and stone - - - - -	73	126
	Clay and slate [shale] - - - - -	8	134
	Clay and stone - - - - -	49	183
	Stone - - - - -	2	185
	Clay and stone - - - - -	7	192
	Hard stone - - - - -	17	209
	Stone and clay - - - - -	2	211
	Hard stone - - - - -	10	221
[Ashdown Sand, 168 feet]	Hard blue stone - - - - -	9	230
	Hard stone and fine white sand - - - - -	3	233
	Hard white sandstone - - - - -	27	260
	Sandstone and white clay - - - - -	7	267
	Sandstone - - - - -	30	297
	Hard clay and sand - - - - -	3	300
	Hard clay - - - - -	4	304
	Sandstone - - - - -	20	324
	Sand and clay - - - - -	10	334
	Sandstone - - - - -	26	360

An earlier account gives some of the details differently.

A well at the Maypole Inn, north of the village, is 90 feet through clay.

Another, at Pope's Hall Farm, 70½ feet deep, gives an ample supply, the water rising 23 feet.

CATSFIELD. Normanhurst Court. Old Well.

Communicated by MESSRS. TILLEY.

Shaft 145 feet, with adits at the base (? 340 feet long), the rest bored.

? Normal water-level about 110 feet down, lower in summer.

Supply (November, 1886) 2,000 to 3,000 gallons a day, from the bore-hole.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Funbridge Wells Sand]-	Sand and loam - - -	12	12
	Blue clay - - -	30	42
[Wadhurst Clay, 136 feet]	Rock with thin layers of blue clay - - -	60	102
	Hard red clay - - -	43	145
	Blue clay - - -	3	148
	Hard white rock - - -	6	154
	Hard white clay - - -	4	158
	Hard white rock - - -	1	159
[Ashdown Sand, 69 feet]	Blue clay - - -	8	167
	Red sandstone - - -	2	169
	Hard white rock - - -	6	175
	Hard blue rock - - -	7	182
	Blue clay - - -	1	183
	White rock - - -	7	190
	Thin layers of coloured [mottled] clay and layers of stone -	13	203
	Hard blue clay - - -	14	217

CATSFIELD. For Hastings Waterworks. Just W. of the parish-boundary, a little S. of the north-western corner of Fore Wood.

Communicated by MR. P. H. PALMER, Engineer to Hastings.

45 feet above Ordnance Datum.

Yield (April 1895) about 230,000 gallons in 24 hours, and the 12 months pumping has not affected the springs lower down the valley.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Alluvial deposit, with much iron-oxide -	-	4½	4½
Grey [Wadhurst] clay - - -	-	16½	21
Beds of sandrock, with thin layers of clay-shale, dip of about 40° north-eastward -	-	31	52

CHICHESTER. Grayling's Well Farm.

For the Lunatic Asylum, about a mile Northward of the city. 1894.

Boring, made and communicated by MESSRS. DUKE & OCKENDEN.

Lining tubes to 167 feet down. Water-level 50 feet down (October).

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Drift] Gravel and running sand - - -	-	20	20
Reading clay beds - - -	-	80	100
[Upper Chalk] Marl and black flint with small particles of chalk - - -	-	269	369

CHICHESTER. South Street, Gatehouse's Brewery. 1844.

W. RANGER, "Report to the Local Board of Health, Southampton, on the Various Sources of Water Supply, 1851," p. 48; and SWINDELL and BURNELL, "Rudimentary Treatise on Well-digging," Ed. 4, 1860, pp. 87, 88; and information supplied by Messrs. Gatehouse & Co.

At first water rose so as to yield 26 gallons an hour. In December, 1845, it yielded 78 gallons; in September, 1846, 90 gallons. Since then the yield has lessened; in 1885 it was about 45 gallons. At no time did the water rise to more than 18 feet from the surface. The water is chalybeate, and smells of sulphuretted hydrogen; its temperature is not such as to indicate that it rises from the Greensand.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
	Mould [and made ground]	6	6
[Drift] - - -	Gravel - - - -	16½	22½
	Red sand - - - -	½	23
[London Clay]	Blue clays - - - -	60	83
[Reading Beds]	Coloured (mottled) clays -	97	180
	Chalk - - - -	600	
[Chalk, 790 feet]	Crystallized carbonate of lime [Melbourn Rock ?]	4	780
	Chalk - - - -	125	784
	Chalk marl - - - -	61	909
Upper Greensand -	Malm Rock containing Iron Stone Nodules	84	970
			1054

CHICHESTER. Waterworks.

Communicated by MR. W. SHELFORD.

Yield 15,000 gallons per hour.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Loose Soil - - -	- - - - -	7	7
[Reading Beds, 18 feet]	Yellow and red clay -	9	16
	Black clay, loose, not solid	4	20
	Light-blue clay -	1	21
	Marl - - - -	4	25
Chalk - - - -	- - - - -	22	47

CHICHESTER. Westgate.

From notes made during excavation by C. R.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Drift - - - -	Soil - - - -	10	10
	Gravel - - - -		
	Running gravel - - -		
	Sand - - - -		
London Clay -	Blue clay - - - -	25	46

CHIDDINGLY. Willowhurst, E. of Stone Cross.

For Major Grant. 1885.

Weald Clay, 112 feet [? more since].

CHILTINGTON. Mr. J. M. Cripps'.

Dr. MANTELL, "The Fossils of the South Downs," 4to, London, 1882, p. 84.

Gault. Blue marl, with *Inocerami*, *Ammonites*, etc., 90 feet.

COOKSBRIDGE. Cottage of Mr. W. Lee.

Dr. MANTELL, "The Fossils of the South Downs," 4to, Lond., 1822, pp. 83, 84.

Blue marl, with *Hamites*, *Ammonites*, etc., 95 }
Marl, with much chlorite [glauconite] sand, 45 } 140 feet.

CRAWLEY. 1898.

Trial-boring, for the Waterworks. About a quarter of a mile south-westward of the Railway Station. 1898.

Communicated by MR. C. O. BLABER.

[Notes in these brackets from specimens.—W.W.]

268 feet above Ordnance Datum.

MR. JAMES JOHNSTON adds that water overflowed 12 feet above the ground (small quantity). Pumping 420 galls. per hour, reduced the water-level to 300 feet below surface.

		Thickness.	Depth.	
		<i>Feet.</i>	<i>Feet.</i>	
[Weald Clay]	Clay [brownish] - - - -	12	12	
	Hard blue clay [light-grey and buff at 15, grey at 46] - - - -	34	46	
	Soft blue clay [brownish at 52] -	6	52	
	Rock - - - - -	11	63	
	Blue clay [light-coloured at 84] -	33	96	
	Undescribed [light-grey clay at 98]	12	108	
	Blue clay [brownish-grey at 111] -	4	112	
	Rock - - - - -	3½	115½	
	Blue clay and rock [greyish clay at 140, darker clay at 146] - - -	32	147½	
	Rock [grey clay at 148] - - - -	7½	155	
	Rock and clay [grey clay at 158, 162 and 173, the last pale] - - -	20	175	
	Rock [brownish-grey fissile clay at 185, very pale grey clay at 190] -	24½	199½	
	Brown rock - - - - -	1½	201	
	Blue and brown rock [grey shaly clay at 204, brownish-grey clay at 206]	8	209	
	Rock [grey shaly clay at 210 and 250]	68	277	
	[Tunbridge Wells Series]	Brown rock [light-grey compacted sand at 280] - - - - -	6	283
		Blue and brown rock - - - - -	6	289
Brown rock - - - - -		32	321	
Blue rock [light-grey compacted sand at 390] - - - - -		124	445	
Hard blue rock [very pale grey com- pacted sand at 500. Very fine grained soft buff earth, compacted, at 550] - - - - -		139	584	
Sand rock [very light-grey com- pacted clayey sand at 588] - -		4 ?	588	
Sand [grey, compacted, ? clayey at 600; grey or buff ditto at 610; light-grey at 630, compacted light- grey, ? clayey, at 637] - - -		60 ?	648	

It is clear that the term Rock has been used alike for the firm hard clays and for the fine-grained compacted sands beneath.

In "The Geology of the Weald," MR. TOPLEY has estimated the total thickness of the Tunbridge Wells Series in this neighbourhood at 380 feet. It seems probable, therefore, that all the beds beneath the Weald belong to this; but unfortunately there is nothing to show the presence of the Cuckfield Clay or of the Grinstead Clay.

For Analysis of the water see p. 107.

CROWBOROUGH, *see* ROTHERFIELD.

CROWHURST. Just N. of the Furnace Stream (or Asten River), a little W. of S. from the church. Hastings Waterworks.

Communicated by MR. P. H. PALMER, Engineer.

1. A well.

Water rose to the peat and got away. 210,000 gallons a day.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Alluvium]	{ Sand and clay - - - -	4	4
	{ Peat and clay - - - -	2	6
[Ashdown Beds] -	{ Clayey sand - - - -	22	28
	{ Sandstone - - - -	14	42
	{ Clay - - - -	35	77

2. Shaft 62 feet, the rest bored, 10,000 gallons a day run over.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil - -	- - - - -	2	2
[Alluvium] -	- Peat - - - - -	14	16
[Ashdown Sand] -	{ Yellow sand and traces of clay	17	33
	{ Clay and sand - - - -	7	40
	{ Fine sand- - - - -	22	62
	{ Blue marl (clay) - - - -	48	110

3. Fore Wood. Boring. 1898 (? not finished). Yielding upwards of 150,000 gallons a day.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Alluvium, with a considerable amount of oxide of iron - - - - -	- - - - -	4	4
Clayey shale - - - - -	- - - - -	58	62
Sand-rock - - - - -	- - - - -	2	64

CUCKFIELD. Workhouse. 1884. 380 feet above Ordnance Datum.
 Communicated by MESSRS. E. EASTON & Co.
 Shaft and cylinders 197 feet, the rest bored.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Upper Tun- bridge Wells	Soil - - - - -	13	13
	Sand - - - - -	1½	14½
	Grinstead Clay - - - - -	15½	30
Lower Tun- bridge Wells	Sand - - - - -	89	119
	Marl. Very hard thin layers occur at the depth of about 155 to 190 feet. At the depth of 195½ feet a lot of gas bubbled up. At the base the marl is mixed with a little sand - - - - -	91	200
Wadhurst Clay	Marl, with traces of shells - - -	13	213
	Sand - - - - -	1	214
	Marl, with traces of shells - - -	5	219
	Very hard sand-rock. A lot of gas met with after passing through this	4	223
	Marl, with traces of shells, and with two inches of very hard sand-rock	27	250
	Marl, with rock at the depth of 282¾ to 284 feet. Very hard rock, 7 inches thick, at 291. 2 inches of rock at about 302. 6 inches of rock at about 309. At the bottom, 10 inches with shells and then 6 inches of rock - - - - -	63	313
	Marl, mixed with sand. Top, for nearly 6 feet, rock-marl. Then a foot of rock. Rock from 322½ to 326 feet down. 6 inches of rock at about 331. - - - - -	33	346
	Rock - - - - -	½	346½
	Coarse soft sand - - - - -	1½	348
	[Undescribed], with hard sand-rock (? ½ foot) at 389 - - - - -	102	450
Ashdown Sand, 104 feet			

Another account differs in the details of the Wadhurst Clay, which are thus given :—

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Marl - - - - -		54	173
Sandstone - - - - -		1	174
Marl - - - - -		39	213
Sandstone - - - - -		1	214
Marl - - - - -		97	311
Undescribed - - - - -		35	346

CUCKFIELD PLACE. New Lodge at the entrance to the Park, by the Avenue.

H. W. BRISTOW, in "The Geology of the Weald," p. 93, 1875.
Sand, without water, 25 feet.

DITCHLING. Ditchling Rise, near the Alms Houses.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

Old well, the rest bored - - - - - 70 } 175 ft.
Grey clay and a little sand-rock. No water - 105 }

EASEBOURN. For the Midhurst Rural Sanitary Authority. Just N. of Todham Lock, about 1½ miles E.S.E. of the town.

Communicated by MR. E. EASTON, 1883.

Shaft 11½ feet, the rest bored. Water-level 2 feet down.

—	Thickness.	Depth.
	<i>Fect.</i>	<i>Fect.</i>
Dark brown clay - - - - -	1	1
Strong yellow clay - - - - -	3½	4½
Soft blue clay - - - - -	1½	6
Blue mottled clay - - - - -	1½	7½
Marly clay, with sand - - - - -	4	11½
Charred wood [lignite], with layers of sand	7	18½
Dark sand, with greenish sand - - - - -	3	21½
Green sand - - - - -	1	22½
Sandy clay - - - - -	1½	24
Stiff clay (2 beds) - - - - -	81½	105½

EASEBOURN (close to Midhurst). About half a mile N.E. of the Workhouse. 1894.

Bored and communicated by MESSRS. LE GRAND & SUTCLIFF.

290 feet above Ordnance Datum.

Water rose 17 feet above the ground.

—	—	Thickness.	Depth.
		<i>Fect.</i>	<i>Fect.</i>
[Hythe Beds]	Yellow sand and bands of iron-stone - - - - -	18	18
	Sandstone - - - - -	4	22
	Sand and sandstone in layers - - - - -	13	35
	Light-coloured clay - - - - -	3	38
	Clayey sand and pieces of sandstone - - - - -	26	64
	Clayey sand and bluish stone - - - - -	76	140
	Very fine sand. Large volume of water rose to 13 feet above the surface and overflowed at the rate of 150 gallons a minute at the surface - - - - -	3	143
[? Atherfield Clay]	Sandy clay, with nodules - - - - -	8	151
	Very hard stone - - - - -	2½	153½
	Sandy clay and stones - - - - -	9½	163
	Very hard stone - - - - -	1½	164½
	Sandy clay and stones - - - - -	5¼	170
Atherfield Clay	Stony clay, with fossils - - - - -	6	173

EAST BLATCHINGTON. Newhaven and Seaford Waterworks, nearly three quarters of a mile N. of St. Peter's Church.

Communicated by MESSRS. EASTON & FOLKES.

159 feet above Ordnance Datum. Shaft 179 $\frac{1}{4}$ feet, with galleries (N. and S. as well as W. and E.), close to the bottom. Boring of 98 feet a little way in the eastern gallery, to about 90 feet below the bottom of the well. Another about 55 feet along the western gallery, of 145 feet, to about 100 feet below the bottom of the well. Supply from this last.

A bed of flints along the top part of the western gallery yielded a little water. A bed near the bottom of the N. and S. gallery gave water in places, but was dry in others.

[Soil, &c.] - - - - - 14 or 15 feet }
Chalk - - - - - 303 or 304 feet } ? over 318 feet.

At a visit in 1896, I (W. W.) learnt that the water-level was 157 ft. down. There are three shafts and five borings. One of these, of 6 ins. diameter, in the westerly heading, to a depth of 158 below Ordnance Datum, yielded a fair supply, whilst another, of 10 ins. diameter, 3 ft. westward and to a depth of 171 ft. below Ordnance Datum, gave no water. Another, also of 10 ins. diameter, just south of these, in a chamber at the side of the gallery, to a depth of 217 ft. below Ordnance Datum, yielded only a small supply. One of 8 ins. diameter, to the depth of 115 ft. below Ordnance Datum yielded no water; and one of 10 ins. diameter reduced to 4, yielded hardly any. The yield being insufficient, and the water having somewhat deteriorated in quality, new works are being made in Poverty Bottom, Denton.

For analyses of the water see p. 117.

EASTBOURNE. Star Brewery. 1877.

Sunk and communicated by MR. R. B. PATEN, of St. Albans.

Shaft 50 feet, the rest bored.

---		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet</i>
[Chalk]	{ Chalk - - - - -	110	110
		53	163
[Upper Green-sand]	{ Marl - - - - -	39	202
		1 $\frac{1}{2}$	203 $\frac{1}{2}$
		1 $\frac{1}{2}$	205

For analysis of the water see p. 109.

EASTBOURNE. Gas Works (1878?).

From SIR J. PRESTWICH'S MS.

---		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Drift]	{ Soil and light-coloured clay -	2	2
		4	6
[Gault]	{ Ash-coloured sandy mica- ceous clay - - - - -	8	14
		173	187

EASTBOURNE. Laundry Company's Works, Latimer-road. 1892.

Made and communicated by MR. G. BATES, of Lewes. No water.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Beach - - -	- - - - -	30	30
[Top of Gault ?] -	Mixed earth and sand - - -	30	60
[Gault]- - -	{ Light-blue clay - - -	40	100
		Blue clay - - -	200

EASTBOURNE. Lion Brewery.

—		Depth.	
		<i>Feet.</i>	
[Upper Green-sand]	{ Green-grained sandstone (no water) -	30	
		Calcite, with some green-grained sandstone, about $\frac{1}{2}$ inch (with 4,000 gallons an hour) - - -	32 $\frac{1}{2}$
		Green sandstone (no water) - - -	35

EASTBOURNE. Hygienic Laundry Company, Upperton Laundry, Commercial-road. 1893.

A boring made (in a few days) and communicated by MESSRS. LE GRAND & SUTCLIFF.

Water-level 6 feet down.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[? Chalk Marl]	{ Chalk Marl, light-greyish blue - - -	18	18
		Grey chalk - - -	36
		Light-blue clay - - -	37

EASTBOURNE. PARSON'S Sawmills. 1885.

Made and communicated by MR. G. BATES. Good supply of water.

Red earth - - -	} 50	} 105 feet,
Mixed marl and flints		
Chalk and flints - - -		

EASTBOURNE. Waterworks. Old well, on the marsh northward of the present Engine-house.

Communicated by MR. H. D. SEARLES-WOOD, from a rough section in the office.

Joined by galleries to the newer well, from which pumping is now done.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Mould - - -	- - - - -	1	1
Alluvium -	Yellow clay - - -	13	14
	Peat - - - - -	1	15
	Blue clay - - -	24	39
Upper Greensand	Sandstone - - -	8	47
	Hard rock - - -	2	49
	Sandstone - - -	10	59

The total depth is given as 100 feet. Probably, therefore, the Gault has been reached. For analysis of the water see page 108.

EASTBOURNE. Waterworks. Newer well with headings, just W. of railway. 1883.

Communicated by MR. J. A. WALLIS (from a drawing at the Works).

Well-top 5·2 feet above Ordnance Datum, and about 15 feet below the level of the ground southward; less northward, as the ground slopes down to the marsh. This of course adds to the thickness of the Chalk.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Chalk - - -	—	25	25
[Upper Green-sand]	Green sandstone - - -	3	28
	Hard brown sandstone - - -	2	30
	Green sandstone - - -	24	54
	Hard green sandstone - - -	9	63

EASTBOURNE. Waterworks (see also FOLKINGTON, FRISTON, JEVINGTON, WEST DEAN, and WESTHAM). Trial-boring, by pond northward of Engine-house. 1895-6.

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.
[Notes of specimens.]

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Alluvium] -	Clay - - - - -	5	5
	Peat - - - - -	3	8
	Blue Clay - - - - -	22	30
[Upper Green-sand, 35½ ft.]	Greensand and clay [glauconic] - - -	29½	59½
	Sandstone [glauconic] - - -	¼	60
	Greenish clay and a little sand [whitish and glauconic] - - -	2	62
	Sandstone [glauconic] - - -	3½	65½

EASTBOURNE. Waterworks—*continued.*

—		Thickness.	Depth.	
[Gault] -	{	Clay and stone [hard, dark sandy clay] - - - -	<i>Feet.</i> 2	<i>Feet.</i> 67½
		Gault, with septarium (6 inches) at base - - - -	171½	239
		Gault and fossils [<i>Inoceramus sulcatus</i>] - - - -	102½	341½
		Gault, green veins and fossils [<i>Ammonites lautus</i>] - - -	10	3 51½
		Gault and sand [coarse loamy sand, mixed black and green at 360] - - - -	12	363½
[? Gault and Lower Green-sand]	{	Sand [moderately coarse, with glauconitic grains at 367] -	3½	367
		Gault [clay] and sand [coarse sand, and small phosphatic modules with glauconitic grains at 400] - - - -	65	432
Weald Clay] -	{	Weald clay [light-grey sandy clay at 432. Dark grey clay at 436. Red mottled clays, specimens down to 510 feet. Whitish silty clay (a 6 inch seam) at 575. Red-mottled clay at 586 and down to bottom] - - - -	201	633

EASTERGATE. Barnham Junction Railway Station

From a section communicated by the LONDON-BRIGHTON AND SOUTH COAST RAILWAY Co., and from samples down to 233 feet.

About 25 feet above Ordnance Datum.

Sunk 42 feet, the rest bored.

—		Thickness.	Depth.	
[Drift] -	{	Yellow sand and stones - - -	<i>Feet.</i> 12	<i>Feet.</i> 12
		London clay - - - -	44	56
[London Clay, 208 feet]	{	Sandy loam, with water (1,500 gallons in 24 hours) - - -		
		London clay - - - -	56	112
		Rock - - - -	1	113
		Blue clay; stiff at 140 feet; sandy blackish with septaria at 150; stiff at 151 - - - -	38	151
		Rock - - - -	1	152
[Reading Beds, 109½ feet]	{	Blue clay (stiff at 170 feet), sandy with septaria - - -	68½	220½
		Red and mottled clays - - -	108½	329
		Bed of flints - - - -	1	330
[Upper Chalk] -	{	Chalk with flints every 3 or 4 feet (a 15 inch bed of flint at 422 feet - - - -	105¾	435¾

EASTERGATE. Bognor Waterworks.

Made and communicated by MRSSRS. DOCWRA.

Shaft and cylinders 85 feet, the rest bored (24 and then soon 23 inches diameter).

Water-level 25 feet 8 inches down, 14th June 1896.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Concrete, above the original ground-level	- - -	3	3
	Ballast - - - - -	5	8
	Clay - - - - -	1½	9½
	Ballast - - - - -	2	11½
	Marl and Ballast - - - - -	8	19½
	Clay - - - - -	2	21½
	Yellow sand - - - - -	1	22½
	Blue clay - - - - -	10½	33
	Mottled clay - - - - -	4	37
[Reading Beds]	Blue clay - - - - -	3	40
	Mottled clay - - - - -	14½	54½
	Blue clay - - - - -	8	62½
	Clay-stones - - - - -	¾	63¼
	Mottled clay - - - - -	21½	84¾
	Flints - - - - -	¼	85
[Upper Chalk]	Chalk and marl - - - - -	4	89
	Chalk and flints - - - - -	111	200

EAST GRINSTEAD. Waterworks.

Communicated by MR. E. EASTON, 1883.

Shaft throughout, with galleries at the bottom. Water-level about 29 feet down.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Clay - - - - -	- - - - -	10	10
Blue shale - - - - -	- - - - -	53	63
Red sand-rock - - - - -	- - - - -	57	120

Another well, for the Gas and Water Co., 1891.

Made and communicated by MR. R. D. BATCHELOR. Shaft throughout.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Clay, made earth - - - - -	- - - - -	9	9
Hard dark clay - - - - -	- - - - -	8½	17½
Septaria (9 inches), and then hard blue clay - - - - -	- - - - -	2	19½
Rocky sand - - - - -	- - - - -	7½	27
Rock - - - - -	- - - - -	2	29
Hard clay - - - - -	- - - - -	4	33
Rock - - - - -	- - - - -	3	36
Hard blue clay - - - - -	- - - - -	6	42
Hard blue shaly clay - - - - -	- - - - -	15½	57½
Hard rocky sand - - - - -	- - - - -	7½	65
Hard sand - - - - -	- - - - -	12	77
Rocky sand - - - - -	- - - - -	25	102

EAST GRINSTEAD. Brewery.

W. TOPLEY, "Geology of the Weald," p. 86, 1875.

GRINSTEAD CLAY. Blue shale with beds of limestone (probably calc-grit), 70 ft.

The unusual thickness of this clay may be owing to a local flexure, causing the bed to be cut obliquely.

ELSTEAD. On Mr. Albery's land, north of the station.

Made and communicated by MESSRS. DUKE & OCKENDEN.

Water stands 31 feet down.

—		Thickness.	Depth.	
		<i>Feet.</i>	<i>Feet.</i>	
[Gault] -	{	Hard dark clay, with 2 inches of rock 50 feet down - -	95	95
		Various sands, green, white, and black, mostly running - -	105	200
[Folkestone Beds, 139 ft.]	{	Sand-rock - - - - -	2	202
		Various sands, as above - -	32	234
		Clayey at the base, like pipe-clay.		

FAIRLIGHT. Hastings Waterworks, Ecclesbourne Valley.

Communicated by MR. W. ANDREWS, late Borough Surveyor.

No. 1. Trial Shaft and Boring. On the Northern side of the Fault by the North-eastern end of the reservoir, 1876.

About 250 feet above Ordnance Datum.

Shaft 33 feet, the rest bored (6 inches diameter).

No water found, but some foul air.

—		Thickness.	Depth.	
		<i>Feet.</i>	<i>Feet.</i>	
[Wadhurst Clay]	{	Gravel - - - - -	10	10
		Dark marl (3 beds) - -	23	33
		Hard marl - - - - -	4	37
		Pipe-clay - - - - -	3	40
		Hard sand rock (2 beds) -	24½	64½
		Dark clay - - - - -	1	65½
[Ashdown Sand]	{	Hard sand rock - - - -	5½	71
		Dark clay - - - - -	2¾	73¾
		Hard white sand - - - -	5¼	79
		Dark clay - - - - -	4½	83½
		Hard light[-coloured] sand	3½	87
		Dark clay - - - - -	5	92
		Hard stone - - - - -	2	94
		Sand rock - - - - -	6½	100½
Dark clay - - - - -	1	101½		

No. 2. Trial Shaft to 110 $\frac{3}{4}$ feet, then bored. About 20 feet lower than the Reservoir, or about 230 above Ordnance Datum (220, W. Topley).

At the depth of 17 feet water flowed in. Also thought at first to flow in at 75 feet 8 inches, and at the rate of about 2,500 gallons a day; but this proved to be soakage.

		Thickness.	Depth.
		<i>Ft. in.</i>	<i>Ft. in.</i>
	Gravel - - - - -	5 5	5 5
	Dark marl - - - - -	11 6	16 11
	Gravel - - - - -	3 7	20 6
	Blue stone - - - - -	2 8	23 2
	Brown sand rock - - - - -	0 10	24 0
	Hard stone - - - - -	0 10	24 10
	Blue marl - - - - -	3 0	27 10
[? Wadhurst Clay]	Hard stone - - - - -	0 6	28 4
	Hard blue marl - - - - -	3 0	31 4
	Shelly stone - - - - -	0 2	31 6
	Brown marl - - - - -	0 4	31 10
	Hard blue marl - - - - -	2 9	34 7
	Hard blue stone - - - - -	1 6	36 1
	Black sandstone - - - - -	14 11	51 0
	Brown sandstone - - - - -	0 6	51 6
	Hard blue stone - - - - -	3 0	54 6
	Brown sandstone - - - - -	0 9	55 3
	Dark bind - - - - -	1 9	57 0
	Very hard rock - - - - -	1 6	58 6
	Hard blue stone - - - - -	1 8	60 2
	Sandy bind - - - - -	4 0	64 2
	Very hard brown rock - - - - -	0 9	64 11
	Dark sandstone - - - - -	2 1	67 0
[Ashdown Sand]	Very dark sandstone - - - - -	3 0	70 0
	White sandstone - - - - -	5 8	75 8
	Dark sandy bind [No fossils; but ? Endogenites-shale. W. Topley] - - - - -	13 6	89 2
	Very hard sand rock - - - - -	2 0	91 2
	White sandy bind - - - - -	3 0	94 2
	White sandy rock and vege- table deposit - - - - -	9 0	103 2
	White sandy rock - - - - -	3 10	107 0
	White sandy rock, with ferns and traces of vegetable deposit - - - - -	3 9	110 9
	Hard tough ferruginous rock (took eight hours to get through 7 inches) - - - - -	—	—
	Hard shaly marl or bind, dry at 170 ft. - - - - -	—	—
	Dry at 177 ft. - - - - -	—	—
	Drab clay at 189 to 194 ft. - - - - -	5 0	194 0

FAY GATE. The Beeches (Mr. Frewin's).

Communicated by MESSRS. G. ISLER & Co.

Water-level 28 feet down. Supply abundant.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Shaft (rest bored)	- - - - -	—	32
	Rock - - - - -	1½	33½
	Clay - - - - -	3½	37
	Clay and rock - - - - -	12	49
	Clay - - - - -	3	52
	[Weald Clay] - Clay and rock - - - - -	9½	61½
	Clay - - - - -	3¼	64¾
	Rock - - - - -	6¼	71
	Hard clay and rock - - - - -	48¾	119¾
Hard clay - - - - -	16½	136¼	

FAY GATE. Capt. Frazer's (new house).

Bored and communicated by MESSRS. DUKE & OCKENDEN.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Weald Clay] -	{ Old Well - - - - -	—	35
	{ Hard blue shaly marl and clay	20	55
	{ Shingle and clay - - - - -	3	58
	{ Blue clay - - - - -	7	65

FILSHAM, see HOLLINGTON.

FISHBOURNE. Opposite the Blacksmith's shop.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Dug well - - - - -	- - - - -	—	20
Clay [Reading Beds] - - - - -	- - - - -	59	79
Chalk, with good water - - - - -	- - - - -	20	99

FISHBOURNE. No. 54 Gate-crossing on the railway, a mile west of Chichester Cathedral.

From a tracing communicated by MR. G. L. PURCHASE, City Surveyor.

Shaft 50 ft., the rest bored.

Water-level, December, 1865, about 17½ ft. down.

—		Thickness.	Depth.
		<i>Fect.</i>	<i>Fect.</i>
Reading Beds. 106½ ft. ?	Earth [soil] - - -	1	1
	Sand and gravel - - -	4½	5½
	Light-grey clay - - -	8	13½
	Blue clay with red veins -	42½	56
	Blue slate clay - - -	2	58
	Blue clay with red veins -	34	92
	Grey clay - - -	4	96
	Brown clay with blue veins	6	102
	Blue clay - - -	4	106
	Brown clay - - -	6	112
	Chalk, mixed with clay -	7	119
	[Chalk, 18 ft.] -	Chalk and flints - - -	4
	Blue clay - - -	3	126
	Chalk and clay, mixed -	2	128
	Gravel [? flints] - - -	2	130

It is difficult to say whether there is any London Clay here or not, and therefore it is perhaps safer to class the clays as Reading Beds. Clay may have been carried down into the Chalk in boring, or the blue clay in the Chalk may be one of those marly beds that are not of uncommon occurrence.

FITTLEWORTH, near Pulborough. 1897.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

2 in. tubes to 111 ft. Much ferruginous water at 73 ft. ; none below

—		Thickness.	Depth.
		<i>Fect.</i>	<i>Fect.</i>
[Hythe Beds] -	Running sand - - -	53	53
	Sandstone rock- - - -	20	73
	Gravel - - -	¼	73¼
	Sandstone rock- - - -	1¾	75
[Atherfield Clay]	Clay, intermixed with sand [dark sandy clay] - - -	12	87
	White sand rock - - -	5	92
	Dark sandy clay [with green grains and fossils]	30	122

FOLKINGTON. Trial-boring for the Eastbourne Waterworks, 170 yards east of Broughton Spring. (For adjacent borings, see JEVINGTON, p 56.)

Made and communicated by MESSRS. ISLER & Co.

Water-level 25 feet below surface. No supply.

---		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Dug Pit	- - - - -	—	7
[Rubble?]	- - - - - Chalk	11	18
[Gault]	- - - - - Light [coloured] clay	5	23
	- - - - - Gault	208	231

FOREST ROW. (S.E. of East Grinstead.) Claypits Farm. On the south. Communicated by MR. P. BIRCH (1880). An old well. No water.

---		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Steining (beds not recorded)	- - - - -	—	15
[Ashdown Sand]-	{ [Fine grained sandstone with vegetable impressions in places.] Tolerably homogeneous, except for bands of soft clay at the depths of about 31, 36, and 67 ft., and about a foot thick - - - - -	50	65
	{ Steining (beds not recorded)	5	70
	{ [Fine-grained sandstone, with occasional vegetable remains]. Apparently interbedded with thin layers of clay at intervals of 3 or 4 inches, and dipping N.E. about 1 in 3 or 4 - - - - -	34	104

FRAMFIELD. Eason's Green, between East Hoathly and Framfield.

W. TOPLEY, "Geology of the Weald," p. 65, 1875.

Wadhurst Clay. Marl (shale), 61½ feet. Good water, probably from the top of the Ashdown Sand.

FRANT. Knowle. S.E. of the village. Colonel H. Grace. 1890.

---		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Upper Tunbridge Wells Sand]	Soil - - - - -	2	2
	White sand - - - - -	6	8
[Grinstead Clay, 14 feet]	{ Reddish clay - - - - -	4	12
	{ Hard sandstone - - - - -	6	18
	{ Clay - - - - -	1	19
[Lower Tunbridge Wells Sand]	{ Reddish clay - - - - -	3	22
	{ Hard brown rock - - - - -	1?	23?
	{ Soft sandstone - - - - -	6	29

FRANT. Tunbridge Wells Station (South-eastern corner of the yard),
London Brighton and South Coast Railway. S. of the town. 1895.

Bored and communicated by MESSRS. LE GRAND & SUTCLIFF.

Fossils determined by MR. E. T. NEWTON.

Water-level 20 feet down. 7,000 gallons an hour easily got. Water flows
through a valve at the bottom of the well, fixed to the bore-pipe.

		Thickness.		Depth.	
		<i>Ft. in.</i>		<i>Ft. in.</i>	
[Tunbridge Wells Sand]	Old Well (the rest bored). Said to have ended in mottled marl-rock - - - - -	—		89	0
	Dark mottled clay { [? Grin- stead	1	0	90	0
	Hard light-blue clay { Clay]	11	2	101	2
	Blue shaly rock - - - - -	2	4	103	6
	Blue limy sandstone - - - - -	3	0	106	6
	Dirty white sandstone - - - - -	5	9	112	3
	Bands of hard buff and irony sandstone - - - - -	11	9	124	0
	Hard buff sandstone - - - - -	38	6	162	6
	White sandstone - - - - -	22	0	184	6
	Hard blue shaly clay - - - - -	1	6	186	0
	Bands (4 to 9 inches thick) of blue-grey sandstone and blue clay - - - - -	9	0	195	0
	Hard light-blue marl - - - - -	1	0	196	0
	Blue clay - - - - -	0	4	196	4
	Hard blue marl-rock, with $\frac{1}{2}$ inch of granular rock 8 inches down - - - - -	8	8	205	0
	Hard blue sandy marl-rock - - - - -	0	6	205	6
	Blue-grey sandstone - - - - -	0	6	206	0
	Hard light-blue sandy marl-rock - - - - -	27	0	233	0
	Grey sandstone - - - - -	3	3	236	3
	Blue sandy marl-rock - - - - -	11	3	247	6
	Whitish sandstone - - - - -	5	6	253	0
Blue sandy marl-rock - - - - -	7	9	260	9	
Whitish sandstone - - - - -	2	4	263	1	
Blue sandy marl-rock - - - - -	3	1	266	2	
Whitish sandstone - - - - -	1	10	268	0	
Blue marl-rock - - - - -	13	0	281	0	
Whitish sandstone - - - - -	1	0	282	0	
Blue marl-rock - - - - -	4	8	286	8	
Whitish sandstone - - - - -	9	5	296	1	
Blue marl-rock - - - - -	1	11	298	0	
Blue marl-rock, with greenish tint - - - - -	8	0	306	0	
Blue marl-rock - - - - -	5	3	311	3	
Mottled marl-rock and shale - - - - -	63	7	374	10	
Dark grey calcareous sand- stone - - - - -	6	6	381	4	
Blue calcareous shaly rock. Fossils from 394 ft. 9 ins. to 398 ft. 3 ins (<i>Cyrena media</i>)	26	8	408	0	

FRANT. Tunbridge Wells Station—*continued.*

		Thickness.		Depth.	
		<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>
[? Wadhurst Clay, of great thickness]	Blue shaly rock, with layers of sandstone. Fossils from 408 to 410 ft. (<i>Paludina fluviolum</i> , <i>Cyrena media</i>) and from 413 to 469½ ft. (<i>Cyrena media</i> ? or <i>Cyclas</i>) - -	10	3	418	3
	Blue shaly rock, with layers of sandstone (no shells) - -	11	3	429	6
	Light-blue marl-rock - -	1	3	430	9
	Blue calcareous shaly rock and thin bands of grey sandstone	1	9	432	6
	Light-blue marl-rock - -	2	0	434	6
	Soft loose blue marl - -	1	9	436	3
	Blue marl-rock - - -	4	3	440	6
	Blue calcareous shaly rock and bands of grey sandstone -	1	10	442	4
	Blue marl-rock - - -	22	4	464	8
	Blue calcareous shaly rock and bands of grey sandstone -	3	2	467	10
	Blue marl-rock and frequent bands of ironstone - -	50	8	518	6
	Grey sandstone and bands of ironstone - - -	2	0	520	6
	Grey sandstone and thin bands of grey loam - - -	14	4	534	10
	Grey sandstone - - -	9	5	544	3
	Grey sandstone and thin bands of grey loam - - -	4	6	548	9
	Grey sandstone - - -	7	6	556	3
	Grey sandstone and thin bands of grey loam - - -	2	0	558	3
	Grey sandstone - - -	1	3	559	6
	Grey sandstone and thin bands of grey loam - - -	10	0	569	6
	[Ashdown Sand] -	Brown sandy marl-rock - -	2	6	572
	Grey sandstone and bands of grey loam - - -	3	9	575	9
	Brown sandy marl-rock - -	2	3	578	0
	Grey sandstone and bands of grey loam - - -	1	3	579	3
	Brown sandy marl-rock - -	0	9	580	0
	Grey sandstone, loam, and sandy marl-rock - - -	7	9	587	9
	Brown sandy marl-rock - -	1	3	589	0
	Grey sandstone and sandy marl-rock - - -	10	0	599	0
	Hard grey sandstone - -	3	6	602	6
	Grey marl-rock - - -	2	9	605	3

Should the above classification be right the Wadhurst Clay is of most unexpected thickness, 323½ feet. If, however, the Tunbridge Wells Sand reaches lower down than is suggested above (? to 296 feet), then that division is of much greater thickness than would have been expected, especially as the topmost part is absent. If, again, the Ashdown Sand reaches higher up than has been shown, its upper part is exceptionally clayey; but this is unlikely, the ironstone often found at the base of the Wadhurst Clay being a marked bed.

FRANT. Messrs. Wares' Brewery.

Made and communicated by MESSRS. ISLER & Co.

Water-level 85 feet down. Supply, with $3\frac{3}{4}$ inches pump (barrels 120 feet down), 500 to 600 gallons an hour.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Tunbridge Wells Sand]	Stone and clay - - -	30	30
	Sandstone - - - -	103	133
	Blue shale - - - -	12	145
	Sandstone - - - -	7	152
	Rock - - - - -	13	165
[Wadhurst Clay]	Brown shale - - -	41	206

FRANT. Rock Cottages, near the south-eastern side of Eridge Park. 1897.

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.

Water-level $60\frac{1}{2}$ feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil	- - - - -	$6\frac{1}{2}$	$6\frac{1}{2}$
[? All Tunbridge Wells Sand]	Shaly sandstone - - -	$7\frac{1}{2}$	7
	Blue marl - - - - -	1	8
	Sandstone and shaly stone	3	11
	Layers of sandstone, blue marl, and clay - - - -	$4\frac{1}{2}$	$15\frac{1}{2}$
	Thin sandstone and coloured clays - - - - -	$7\frac{1}{2}$	23
	Coloured clay - - - -	4	27
	Black shale and stone - -	$5\frac{2}{3}$	$32\frac{2}{3}$
	Sandstone - - - - -	$1\frac{1}{3}$	34
	Black shale, stone, and clay, in layers - - - -	$12\frac{1}{2}$	$46\frac{1}{2}$
	Yellow clay and stone - -	$2\frac{1}{2}$	49
	Yellow sandstone - - - -	2	51
	Yellow clay and stone, in layers - - - - -	8	59
	Hard sandstone - - - - -	8	67
	Yellow clay and stone - -	$2\frac{1}{2}$	$69\frac{1}{2}$
Sandstone - - - - -	$1\frac{1}{3}$	70	
Tools dropped	- - - - -	$5\frac{3}{4}$	$75\frac{3}{4}$

FRISTON. Eastbourne Waterworks. New Well. 1898.

Communicated by MR. F. STILEMAN.

Shaft, 110 feet ; headings, in Upper Chalk, 4,012 feet. Work unfinished. Supply, Dec., 1898, about 6,000,000 gallons per week to the Town, besides what is pumped to waste in the unfinished headings.

(For Analysis of the water, see page 109.)

FUNTINGTON (?). Hambrook House.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

Plenty of water.

[? Reading Beds]	{	Old well	54	}	135 feet.
		Sand	2		
Chalk with flints			79		

GLYNDE. Lord Hampden's Butter Factory.

Communicated by MR. WELLS.

49½ feet above Ordnance Datum.

Well 6 feet diameter for 50¾ feet ; 4½ inch bore to 128¾ feet.

From the sunk well the supply was 1,310 gallons an hour. After completion of the boring the yield was 4,305 gallons an hour. A letter from MR. T. PICKARD (June, 1896) says that the average water-level is 11 feet, and the average quantity pumped 30,000 gallons a day.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Lower Chalk	Chalk, much shattered - - -	50¾	50¾
	Chalk [grey marly chalk at 73½ feet; blue sandy marl at 90½ feet] - - -	40	90¾
Unrecorded, part Upper Greensand	probably part Chalk Marl, - - - - -	38	128¾

The sample from 90½ feet corresponds with the lower part of the Chalk Marl. The lowest 2 feet of this well is described as "hard pan," apparently Upper Greensand. For Analysis of the water, see p. 110.

GLYNDE. Mill close to the Railway Station. 1886.

Communicated by MR. T. W. PICKARD.

Average water-level 30 to 40 feet.

Shaft 19 feet, the rest bored. Deepened, from 60 feet, later.

Nearly full of water. Overflows in winter.

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Mould - - - - -	2	2
Clay, stone-coloured, firm - - - - -	2½	4½
Black sand, with hazel-nuts and sticks - - - - -	11½	16
Chalk-rubble - - - - -	3	19
Chalk-rock - - - - -	100	119

GROOMBRIDGE. Alongside of Corseley Farm, a quarter of a mile south-west of the Railway Station. 1897.

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.
Water-level 33 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Tunbridge Wells Sand	Marl and sandstone - - -	8	8
	Hard sandstone - - -	2	10
	Hard and soft sandstone - -	4	14
	Sandy marl - - - -	6	20
	Clay and sandstone - - -	7½	27½
[? Wadhurst Clay]	Grey sandstone - - - -	6½	34
	Blue clay - - - -	3	37
	Sandy blue clay - - - -	5	42
	Hard rock - - - -	2	44
	Blue clay, sandy - - - -	16	60
	Sandstone - - - -	2	62

HAILSHAM. Ambergate. [? Amberstone.] Hailsham Water Company.

Shaft, 6 feet diameter.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Made ground	- - - - -	2½	2½
Alluvium	Clayey alluvium - - - -	4	6½
	Alluvium, with tree-trunks, hazel-nuts, etc. - - - -	15	21½
[Tunbridge Wells Sand]	Hard laminated sand-rock -	10	31½
	Soft rock-sand, with some water	5	36½
	Hard sand-rock - - - -	2¼	38¾
	Blue shale - - - -	1¼	40
	Very hard sand-rock. Principal source of supply - - - -	7	47
	Sandy shale - - - -	6	53
	Hard sand-rock - - - -	5	58
	Blue shale - - - -	4	62
	Hard white rock with some water - - - -	1½	63½

HAILSHAM. Cottages a mile south of the Railway Station.

Boring made and communicated by MESSRS. LE GRAND & SUTCLIFF.
Water level 15 feet 8 inches down.

		Thickness.	Depth.
		<i>Ft. in.</i>	<i>Ft. in.</i>
Dug well -	(the rest bored) - - -		28 0
[Weald Clay] {	Hard blue clay - - -	4 0	32 0
	Shaly blue clay - - -	41 0	73 0
[? Tunbridge Wells Sand] {	Hard blue rock - - -	5 0	78 0
	Blue slaty rock - - -	4 0	82 0
	Sand - - -	0 6	82 6
	Sandstone - - -	13 6	96 0
	Sand - - -	0 5	96 5
	Rock - - -	3 7	100 0

HAILSHAM. Polegate. Mr. Marsden's. 1876.
Good supply from sand-rock.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Old well - - -	- - - - -	65	65
Hard dark clay	- - - - -	125½	190½
Hard sand-rock	- - - - -	6	196½

HARTFIELD. Hartwell. For Mr. J. Mews. 1878.

Sunk and communicated by MESSRS. P. DOCWRA & SON.

Shaft 74 feet (?), the rest bored.

Old water-level (? from a different source) 32 feet down; present water-level 52½.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil - - -	- - - - -	¾	¾
[Ashdown Sand] {	Sandy marl and sand veins -	10	10¾
	Sandy rock - - -	10	20¾
	" " softer - - -	5	25¾
	Hard sand-rock, with veins of sandy marl -	5	30¾
	Rubbly vein and hard sandstone - - -	5	35¾
[Fairlight Clays] {	Soft sandstone, with veins of white clay - - -	3	38¾
	Sandy marl and hard lumps of rock - - -	4	42¾
	Blue slaty clay, with hard veins	19½	62
	Blue slaty clay, with veins and claystones - - -	10	72
	Hard blue slaty clay - - -	64	136
	Very hard blue slaty clay - -	3	139
	Hard blue slaty clay - - -	95	234
Hard sand-rock - - -	8	242	
Hard light-blue clay - - -	12	254	

Another account, also from MESSRS. DOCWRA [? of another well], is as follows:—

Shaft and cylinders 92 feet; water-level, June, 1885, 41½ feet down.

—	Thickness.		Depth.	
	<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>
Clay and sand, with beds of stone - - -	59	8	59	8
Brown shaly clay - - - - -	3	6	63	2
Rock (2 fissures) - - - - -	3	0	66	2
Blue shaly clay - - - - -	105	0	171	2
Light-blue clay - - - - -	9	0	180	2
Hard sand-rock; water 3½ feet down - -	10	6	190	8
Hard blue shale - - - - -	4	0	194	8
Light [-coloured] clay - - - - -	2	6	197	2

Another section (1884).

Shaft 60 feet, the rest bored; water level 20 feet from bottom of well.

—	Thickness.		Depth.	
	<i>Feet.</i>		<i>Feet.</i>	
Made ground - - - - -	1		1	
Congeaed sand and loam - - - - -	10½		11½	
Yellow clay, with sand - - - - -	2½		14	
Blue clay - - - - -	6½		20½	
Yellow clay - - - - -	½		21	
Blue clay, with stones - - - - -	7		28	
Clay and sand - - - - -	6		34	
„ more sand - - - - -	1		35	
Blue clay and sand - - - - -	15		50	
Hard stone - - - - -	1		51	
Blue clay, stone, and sand - - - - -	10		61	
Yellow clay and sand - - - - -	6		67	
Blue clay and sand - - - - -	15		82	
Sand - - - - -	10		92	

HARTFIELD. MR. H. B. W. TURNER'S.

Made and communicated by MESSRS. A. WILLIAMS & Co.

Dug pit 10 feet, the rest bored.

Water level 81½ feet down.

—	—	Thickness.		Depth.	
		<i>Feet.</i>		<i>Feet.</i>	
[Ashdown Sand]	Soft clay - - - - -	2		2	
	Sandstone - - - - -	27		29	
	Hard rock - - - - -	9		38	
	Rock and sandstone - - - - -	3		41	
	Hard rock - - - - -	17½		58½	
	Rock and sandstone - - - - -	3		61½	
	Red sand rock - - - - -	21½		83	
Red sand rock with marl - - - - -	8½		91½		

HASSOCKS, see KEYMER.

HASTINGS. Pelham Baths. A boring. 1829.

“The Geology of the Weald,” p. 51.

Began nearly at the bottom of the Ashdown Sand.

Beds passed through chiefly clay. Water at 260 feet, rose nearly to the surface.

HASTINGS. St. Leonards Waterworks. (? N. of Caves Road, about a quarter of a mile W. of Church.) 1866.

“The Geology of the Weald,” pp. 53-54. 1875.

Shaft 111 feet 2 inches, the rest bored.

Soil, etc.	Thickness.	Depth.	
		<i>Ft.</i>	<i>in.</i>
- - - - -	3 0	3	0
White sand - - - - -	21 0	24	0
Brown sand - - - - -	5 0	29	0
Coarser brown sand - - - - -	4 0	33	0
Slaty marl - - - - -	1 0	34	0
Ferruginous sand-rock - - - - -	4 0	38	0
Marl, with shells - - - - -	1 0	39	0
Strong blue clay - - - - -	5 0	44	0
Hard yellow sandstone-rock - - - - -	2 0	46	0
Grey sandy marl - - - - -	1 0	47	0
Variegated marl - - - - -	1 0	48	0
Yellow sand-rock - - - - -	2 0	50	0
Grey slaty marl - - - - -	1 0	51	0
Grey soft stone - - - - -	3 0	54	0
Grey marl - - - - -	1 6	55	6
White marl - - - - -	1 6	57	0
? Ashdown Sand Grey marl - - - - -	1 0	58	0
Yellow and blue rock - - - - -	0 8	58	8
Soft grey marl - - - - -	3 0	61	8
Marl - - - - -	2 6	64	2
Hard limestone-rock - - - - -	4 0	68	2
Hard blue limestone-rock - - - - -	3 0	71	2
White clay - - - - -	10 0	81	2
Grey clay - - - - -	1 0	82	2
Yellow and blue veined rock - - - - -	1 0	83	2
Darker blue veined rock - - - - -	1 0	84	2
Brown rock - - - - -	0 8	84	10
Grey hardish rock - - - - -	3 0	87	10
Bluish rock - - - - -	6 0	93	10
Bluish clay - - - - -	2 0	95	10
Rock - - - - -	0 4	96	2
Limestone-rock [?calcareous sandstone] - - - - -	15 0	111	2
Strong blue clay - - - - -	27 0	138	2
Clay and sand - - - - -	7 0	145	2
Strong blue clay - - - - -	18 0	153	2
Strong clay mixed with lignite - - - - -	9 0	162	2
Hard rock - - - - -	9 0	171	2
Strong clay, with a little sand and rock - - - - -	12 0	183	2
? Fairlight Clays, about 173 feet Mottled clay - - - - -	17 0	200	2
Sand - - - - -	7 6	207	8
Rock-sand - - - - -	8 6	216	2
Mottled clay - - - - -	13 0	229	2
Clay - - - - -	3 0	232	2
Hard compact clay of various tints, with thin layers of rock - - - - -	51 10	284	0

HASTINGS. Waterworks (see also CATSFIELD, CROWHURST (3), FAIRLIGHT (2), HOLLINGTON (11), and WESTFIELD (8). Less than a quarter of a mile N.N.E. of the remains of the chapel of St. Mary Bulverhithe. Known as the Pepsham or Pepplesham site, being S.S.E. of the farm of that name. Two wells.

Communicated by MR. P. H. PALMER, Engineer.

No. 1. Shaft.

—		Thickness.	Depth.
Soil -	- - - - -	<i>Feet.</i>	<i>Feet.</i>
	- - - - -	2	2
	Sand and clay - - - - -	1	3
	Yellow sandstone - - - - -	13	16
	Clay - - - - -	$\frac{1}{2}$	16 $\frac{1}{2}$
	Hard sandstone - - - - -	4 $\frac{1}{2}$	21
	Grey marl - - - - -	1 $\frac{1}{2}$	22 $\frac{1}{2}$
	Hard yellow sandstone - - - - -	2	24 $\frac{1}{2}$
	Hard red sandstone - - - - -	1	25 $\frac{1}{2}$
	Hard yellow sandstone - - - - -	1	26 $\frac{1}{2}$
	Grey marl - - - - -	1	27 $\frac{1}{2}$
	Yellow sandstone - - - - -	2 $\frac{1}{2}$	30
	White sand and clay, with two inches of clay and sand at top - - - - -	4 $\frac{1}{2}$	34 $\frac{1}{2}$
	Grey marl - - - - -	3	37 $\frac{1}{2}$
Yellow sandstone - - - - -	2 $\frac{1}{2}$	40	
Clay and white sand - - - - -	3	43	

No. 2. Shaft, 60 feet, the rest bored.

—		Thickness.	Depth.
[Ashdown Sand] -	- - - - -	<i>Ft. in.</i>	<i>Ft. in.</i>
	Clay - - - - -	6 0	6 0
	Sand-rock - - - - -	33 0	39 0
	Blue marl - - - - -	1 0	40 0
	Sand-rock - - - - -	6 0	46 0
	Blue marl - - - - -	0 10	46 10
	Sand-rock - - - - -	1 8	48 6
	Blue marl - - - - -	2 6	51 0
	Sand-rock - - - - -	9 0	60 0
	White sand - - - - -	8 0	68 0
	Clay - - - - -	1 6	69 6
	Clay and sand - - - - -	3 6	73 0
	Yellow sand, the bottom part with traces of lignite - - - - -	7 0	80 0
Clay - - - - -	15 0	95 0	

HASTINGS. Waterworks. Near the Gasworks, at the northern part of the town.

"The Geology of the Weald," p. 50. (1875.) With some additions, from a tracing, and from MESSRS. TILLEY. (1883.)

Shaft 80 feet, the rest bored.

		Thickness.	Depth.
		<i>Ft. in.</i>	<i>Ft. in.</i>
Soil - - -	- - - - -	1 0	1 0
Wadhurst Clay -	Light-coloured clay - - -	0 9	1 9
	Dark blue clay - - -	2 0	3 9
	Stiff blue clay - - -	4 6	8 3
	Clay and marl, impregnated with iron - - -	1 2	9 5
	Clay and ironstone - - -	3 4	12 9
	Clay, marl, shale and ironstone - - -	5 0	17 9
	Beds of hard stone - - -	6 2	23 11
	Sandstone - - -	4 0	27 11
	Sandstone, with beds of hard stone - - -	8 3	36 2
	Hard stone - - -	4 0	40 2
	Sandstone - - -	8 0	48 2
	Hard stone - - -	1 0	49 2
	Sandstone, with large open rents - - -	4 0	53 2
	Marl - - -	6 0	59 2
Ashdown Sand, 145 $\frac{3}{4}$ feet	Sandstone, with open rents	9 0	68 2
	Marl and stiff blue clay [with <i>Endogenites erosa</i>]	22 0	90 2
	Blue clay, with thin beds of hard stone - - -	5 0	95 2
	Hard sandstone - - -	13 3	108 5
	Clay - - -	1 0	109 5
	Sandstone with clay - - -	4 0	113 5
	Stiff blue clay, with thin beds of sandstone - - -	7 7	121 0
	White sandstone - - -	28 6	149 6
	Blue sandy clay - - -	1 0	150 6
	White sandstone - - -	13 0	163 6
	Stiff marly clay [slightly mottled] - - -	5 0	168 6
	Dark sandstone - - -	5 0	173 6
	Stiff blue clay - - -	14 0	187 6
	Clay, with marl [slightly mottled] - - -	7 0	194 6
Fairlight Beds, 388 $\frac{1}{4}$ feet.	Clay, with veins of lignite and vegetable mould -	10 0	204 6
	Sandy marl - - -	13 0	217 6
	Sandstone - - -	14 0	231 6
	Marl - - -	12 6	244 0
	Sandstone - - -	3 6	247 6
	Dark stiff sandy marl - - -	10 0	257 6
	Dark stiff clay - - -	8 6	266 0
	Hard blue stone - - -	11 6	277 6
	White sand - - -	35 0	312 6
	Marl - - -	3 0	315 6
	Stiff blue clay - - -	14 0	329 6
	Coloured [mottled] clay -	16 6	346 0

HASTINGS. Waterworks—*continued.*

		Thickness.	Depth.
		<i>Ft. in.</i>	<i>Ft. in.</i>
Fairlight Beds, 388½ feet.	Light-red sandstone - -	14 6	360 6
	Dark stiff blue clay - -	25 0	385 6
	Coloured [mottled] clay, with yellow streaks -	10 0	395 6
	Sandy marl, with veins of stone - - - - -	14 0	409 6
	Dark coloured [mottled] clay - - - - -	2 0	411 6
	Sandy clay, red in the top part - - - - -	18 0	429 6
	Pipe-clay - - - - -	3 0	432 6
	Light-blue clay - - - -	5 0	437 6
	Light-coloured clay - - -	6 0	443 6
	Dark red clay - - - - -	2 0	445 6
	Light-coloured clay - - -	1 0	446 6
	Very dark red clay - - -	3 0	449 6
	Light-coloured clay - - -	6 0	455 6
	Light-coloured sandy clay	18 0	473 6
	White sandstone - - - -	1 9	475 3
	Light-coloured clay - - -	1 3	476 6
	Dark red clay - - - - -	5 0	481 6
	Dark green mottled sandy clay - - - - -	15 0	496 6
	Dark green clay - - - - -	8 0	504 6
	Mottled clay - - - - -	24 0	528 6
Clay and veins - - - - -	6 0	534 6	
Clay - - - - -	17 3	551 9	

One account gives the bed next below 257½ feet thus:—

Stiff clay - - - - - 4½ feet.

Undescribed - - - - - 8 ”

and adds 2 or 2½ feet to the depth.

HAYWARDS HEATH. For MR. Bannister. 1883.

Communicated by MR. E. EASTON.

153 feet above Ordnance Datum. Shaft throughout.

Water-level 11 feet down. MR. J. CHURCH says that the water is very ferruginous, and smells.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil - - - - -	- - - - -	1	1
{	Sandy loam and clay, with a little soakage - - - - -	11	12
	Running sandy marl and clay -	6	18
	Sand, mixed with blue marl -	3	21
	White sand. Strong spring -	1½	22½
	Hard blue marl - - - - -	17½	40
	White sand and marl - - - -	1	41
	Hard blue sandy marl - - - -	9	50
	Blue marl, nearly as hard as stone - - - - -	18	68
	Sand - - - - -	1	69
	Hard blue marl, with occasional small sandy veins - - - -	26	95
	White sand. Strong spring -	5	100

HAYWARDS HEATH. County Lunatic Asylum.

"The Geology of the Weald," p. 88. 1875. From specimens which had been kept for some time.

MR. TOPLEY notes that in March, 1892, the water was about 10 feet down, and that 40,000 gallons a day were pumped (for analysis see p. 121).

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil	- - - - -	$\frac{3}{4}$	$\frac{3}{4}$
	White loamy clay - - -	$5\frac{1}{4}$	6
	Fine-grained yellow sand - -	$5\frac{1}{2}$	$11\frac{1}{2}$
	Very fine sand - - -	$1\frac{1}{2}$	13
	White clay - - -	10	23
	Fine white sand - - -	$4\frac{3}{4}$	$27\frac{3}{4}$
	Grey and white sand, finely laminated - - -	$10\frac{1}{4}$	38
	Pipe-clay, with vegetable impressions - - -	1	39
	Grey sand, with vegetable impressions - - -	4	43
	Sand and conglomerate - -	2	45
	Compact sand - - -	15	60
	White sandstone, with carbonaceous specks - - -	1	61
	Fine sand, with vegetable impressions - - -	9	70
	Iron-pyrites - - -	1	71
	Fine loose whitish sand, the bottom 2 feet rather clayey -	13	84
Cuckfield Clay, 14 feet	Slate-coloured clay - - -	2	86
	Sand - - -	1	87
	Bluish clay - - -	11	98
	Fine-grained sand [? rock-bed]	16	114
Lower part of Upper Tunbridge Wells Sand, 69 feet	Blue clay - - -	1	115
	Fine-grained sand - - -	16	131
	Rather clayey sand - - -	36	167
	Greenish clay - - -	5	172
Grinstead Clay, 43 feet	Red and green clay - - -	2	174
	Red clay - - -	2	176
	Clay - - -	34	210

HEATHFIELD. For Mr. W. Ash. 1887?

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.

Water-level 35 feet down (September).

		Thickness.	Depth.
		<i>Ft. in.</i>	<i>Ft. in.</i>
[Ashdown Sand]	Clay - - - - -	20 0	20 0
	Sandstone - - - - -	6 0	26 0
	Hard marl - - - - -	2 0	28 0
	Sandstone - - - - -	4 6	32 6
	Clay - - - - -	1 6	34 0
	Sandstone - - - - -	23 6	57 6
	Sandy clay - - - - -	5 0	62 6
	Sandstone - - - - -	6 10	69 4
	Sandy clay - - - - -	12 2	81 6
	Sandstone - - - - -	0 6	82 0

HEATHFIELD Station and Hotel, see WALDRON.

HELLINGLY. Park Farm. For the Sussex County Council.

Made and communicated by MR. A. E. NUNN, and from MR. C. O. BLABER
110 feet above Ordnance Datum.

Shaft 76 feet, the rest a boring of 10 inches diameter.

Water rises to 72 feet from the surface.

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Sandy soil - - - - -	4	4
Red clay - - - - -	8	12
White hard clay - - - - -	8	20
Blue marl - - - - -	7	27
White hard sand - - - - -	6	33
Black hard sand - - - - -	5	38
White hard sand - - - - -	6½	44½
Blue marl - - - - -	4	48½
Grey sand - - - - -	4½	53
Brown sand - - - - -	7½	60½
Blue marl - - - - -	22½	83
Grey sand - - - - -	37	120
Blue clay - - - - -	3	123
Hard rock - - - - -	7	130
Purple brown clay - - - - -	36	166
Sand rock - - - - -	12	178

HENFIELD. General Gordon's. 1895.

Boring, made and communicated by MESSRS. DUKE & OCKENDEN.

Water rises to 56 feet from the surface. (For analysis see page 113.)

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Folkestone Beds] }	Running sand and water -	25	25
	Clay (thin rock at 149) - -	—	to 163

HENFIELD. "Gardner's Arms." 1899.

Bored and samples communicated by MESSRS. DUKE & OCKENDEN.

Water, from the Folkestone Beds, rises to 47 feet from the surface.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Folkestone Beds] }	Yellow sand [ferruginous sand and iron sandstone at 1, 11, and 17] - - - - -	24	24
	Running sand [glauconitic at 30] - - - - -	33	57
[Sandgate Beds] }	Blue clay intermixed with sand [dark-green clayey sand at 106; dark sandy clay at 111; sandy clay and pyrites at 125, 127; black clay at 137] -	83	140
	Grey fuller's earth - - - -	4	144
	Dark-green loamy sand - - -	—	—

At the time of going to press this boring was still unfinished, and the Hythe Beds do not appear to have been reached. Another boring, at the Bull Inn, made in 1893, reached 200 feet, in "blue clay," apparently without touching Hythe Beds.

HOLLINGTON. For Hastings Waterworks. Filsham or Bopeep.

Boring No. 1. East of the Marsh (? finished 1881).

Communicated by MR. E. EASTON.

---		Thickness.	Depth.
		<i>Feet</i>	<i>Feet.</i>
Soil	- - - - -	4	4
[Ashdown Sand]	White sand (3 beds)	28	32
	Brown sandstone, top 5 feet soft	20	52
	Dark sand and clay	10	62
	Brown sandstone and clay	16	78
	Brown sandstone	10	88
	Light-blue pipe-clay	11	99
	Dark sandy clay	6	105
	Dark clay, with lignite	2	107
	Dark blue clay	3	110
		Blue clay, with thin beds of sandstone and vegetable remains	11
[? Ashdown or Fairlight Beds]	Blue clay, with thin layers of lignite	10	131
	Blue clay	9	140
	Light-blue clay	14	154
	Sandy clay	6	160
	Sandy clay and pebbles	8	168
	Blue clay and sand	7	175
	Blue clay and lignite	11	186
	Sandy clay and lignite	14	200
	Sandy clay	12	212
	Light [-coloured] sandy clay	11	223
	Dark sandy clay (2 beds)	27	250

[This points to a slight extension of the outcrop of the Ashdown Sand, as shown on the Geological Survey Map, and perhaps also to the occurrence of Fairlight Beds nearer the surface than would have been expected.]

Filsham (No. 1 Well), also from MR. E. EASTON, is as follows:—

Shaft 64 feet, the rest bored.

---		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil	- - - - -	4	4
[Ashdown Sand]	White sand	30	34
	Brown sandstone	19	53
	Dark sandy clay	10	63
	Brown sandstone	4	67
	Brown sand with beds of clay	13	80
	Pipe-clay	9½	89½

Filsham (No. 2 Well), at a slightly higher level.
Shaft, with a heading about 60 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil	- - - - -	6	6
[Ashdown Sand]	White sand - - - - -	20 $\frac{2}{3}$	26 $\frac{2}{3}$
	Light-brown sand - - - - -	9 $\frac{1}{3}$	36
	Dark-brown sand - - - - -	10	46
	Light-brown sand - - - - -	8	54
	Light [-coloured] sandy clay - - - - -	10 $\frac{1}{2}$	64 $\frac{1}{2}$
	Very dark bind - - - - -	1 $\frac{1}{4}$	65 $\frac{3}{4}$
	Hard sand-rock - - - - -	5	70 $\frac{3}{4}$
	Pipe-clay - - - - -	1	71 $\frac{3}{4}$
	White sandy clay - - - - -	10 $\frac{1}{4}$	82

In the upper part the beds dip 1 in 6 to the west. Lower down (at the depth of about 40 feet ?) 1 in 12.

Of wells Nos. 3 and 4 there is no record.

Filsham. Boring No. 5. In the marsh, N.W. of the Pumping Station.

Communicated by MR. P. H. PALMER, Engineer (and from specimens. The colours much alike throughout, mostly a sort of brownish grey or buff).

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Alluvium]	Soil - - - - -	2	2
	Clayey soil - - - - -	4	6
	Peat - - - - -	12	18
	Blue clay - - - - -	5	23
	Peat - - - - -	2	25
	Blue muddy clay - - - - -	5	30
[Looks as if the Ash-down Sand was absent, and Fair-light Clays near the surface]	Muddy clay, with fine traces of sand [pale brownish - grey clay, with traces of twigs and slight streaks of Vivianite] -	29 $\frac{1}{2}$	59 $\frac{1}{2}$
	Yellow clay, with small stones [? a fine gravel] - - - - -	$\frac{1}{2}$	60
	Clay [buff, sandy] - - - - -	3	63
	Yellow clay, with small stones [? a very fine gravel or broken up stone] - - - - -	1	64
	Dense blue clay [buff fine clayey sand or sandy clay. <i>Endogenites</i> ?] - - - - -	24	88
	Clay [buff sandy] with slight traces of sand - - - - -	8 $\frac{2}{3}$	96 $\frac{2}{3}$
	Clay [buff sandy], with traces of sand and small stones -	4 $\frac{1}{3}$	101
	Clay [pale-grey] with traces of (buff) sand - - - - -	5 $\frac{1}{2}$	106 $\frac{1}{2}$
	Clay [sandy] and lignite [streaks] - - - - -	$\frac{1}{2}$	107
	Clay [pale grey] and sand -	2	109

Filsham. Boring No. 5—*continued.*

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Looks as if the Ash-down Sand was absent, and Fair-light Clays near the surface.]	Dense clay [buff], with traces of lignite - - - - -	10	119
	Clay [buff sandy] and sand - - - - -	11	130
	Clay [buff clayey sand or sandy clay] and lignite - - - - -	1	131
	Clay [sandy and clayey sand] - - - - -	32	163
	Soft white sand [pale grey, fine]	1½	164½
	Clayey sand [blackened] with lignite - - - - -	½	165
	Sandy clay [grey] - - - - -	9	174
	Clay, with white [buff] sand - - - - -	2	176
	Clay [pale grey] and sand [paler] - - - - -	2	178
	Clay [pale grey, streaked with paler sand] - - - - -	18	196
	Clay [light-grey, sandy] - - - - -	22	218
	Clay [pale grey or buff, sandy]	13½	231½
	Pipe-clay [pale grey or buff, sandy] - - - - -	9½	241
	Black clay and sand [clayey sand, coloured by lignite] - - - - -	1	242
	Black clay and sand, with lignite [pale grey] - - - - -	2	244
	Sand [fine, sharp, light-coloured, with grains of lignite (? from above)] - - - - -	7	251
	Clay [pale grey sandy clay or clayey sand] - - - - -	2	253
	[Brownish-grey clay at 267] - - - - -	14	267
	[Brownish-grey and light-coloured clay and sandy clay at 270] - - - - -	3	270
	[Pale grey clay at 272] - - - - -	2	272
	[Brownish-grey sandy clay at 306. Pale-grey clay at 308] - - - - -	36	308
	[Stiff grey and crimson-mottled clay at 311] - - - - -	3	311
	[Grey clay at 329. Grey and buff clay at 334. Brownish-grey clay at 341. Buff and pale-grey sandy clay at 350] - - - - -	41	352

HOLLINGTON. Hastings Waterworks. Wells near Old Roar or Buckshole Reservoir. [Between this and Harmer's Reservoir. No. 3, about half way. Nos. 2, 1, and 4, successively nearer the latter.]

No. 1. 54·2 feet above Ordnance Datum.

Shaft of 69 feet. Water-level 59 feet down.

The water, if left to itself, before the heading was made, overflowed, according to MR. W. ANDREWS.

Connected with No. 2 by a heading. No details.

No. 2. 66¼ feet above Ordnance Datum.

Shaft 71 feet, boring 95. Water-level 33½ feet down.

Two springs, from W. and S.W. (W. Topley). No details.

Yield of 1 and 2, 87,000 gallons in 24 hours, according to MR. W. ANDREWS (1875).

No. 3. 82·9 feet above Ordnance Datum.

Shaft 88½ feet, the rest bored.

Water found 47½ feet down (35,000 gallons a day. Enters from N.W. and S.W. W. Topley).

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[? Ashdown Sand] -	Blue clay and gravel - - -	20	20
	Blue clay - - - - -	10	30
	Sandstone - - - - -	4	34
	Blue clay - - - - -	10	44
	Hard grey rock - - - - -	3½	47½
	Sandstone - - - - -	1¼	49¼
	Blue bind - - - - -	5¼	54½
	Mingled blue and red bind - -	2	56½
	Grey bind - - - - -	2	58½
	Sandstone - - - - -	6	64½
	Black bind - - - - -	5½	70
	Blue bind - - - - -	53½	123½
	Sandy soil - - - - -	11½	135
	Grey bind - - - - -	5	140
	Sandstone - - - - -	7	147
	Blue bind - - - - -	10	157
Sandstone - - - - -	16	173	
Blue bind - - - - -	16¼	189¼	

No. 4. About 51·9 feet above Ordnance Datum. 1875.

? Shaft 112 feet, with a heading of 120 feet, ? the rest bored. Yield about 80,000 gallons in 24 hours, according to MR W. ANDREWS (1875). [Words in these brackets by W. TOPLEY, as also particulars below 102 feet.]

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Bog - - - - -		17	17
Grey bind [sandy clay] - - - - -		15	32
Sandy soil [laminated sandstone] - - - - -		10	42
Dark bind [sandy clay] - - - - -		9	51
Sandy bind [laminated]. Water at the depth of 62¼ feet [28,000 gallons a day] - - - - -		13¼	64¼
Sandstone [white] - - - - -		4½	68¾
Hard grey rock [coarse] - - - - -		5¾	74½
Black bind [sandy] - - - - -		2½	77
Sandstone [white, clayey]- - - - -		3¼	80
Dark bind and lignite - - - - -		2¼	83
Hard sandy bind - - - - -		3	86
Blue bind - - - - -		2	88
Mingled blue and red bind - - - - -		2	90
Blue bind - - - - -		9	99
Mingled blue and red bind [pisolitic iron bed]- - - - -		3	102
Hard white sandstone. Water at the depth of about 110 feet; 60,000 gallons a day - - - - -		?13½	115½
Mottled clay [? soon passing down into] blue bind - - - - -		?49½	165
Fine sand-rock - - - - -		7	172
Soft blue bind - - - - -		4	176

No. 5. About 30 feet beyond the heading of No. 4. From a letter by MR. W. ANDREWS, August 1876. Large spring found in this shaft (August 1876) at the depth of about 90 feet, when air and water rushed up with noise, giving the workmen barely time to get out of the well. Water rose 60 feet

in 1½ hours, and seems to be almost stationary at 64 feet. Beds different from those in the other shafts; nearly the whole a rotten blue marl, dip opposite to that in No. 4 well and heading (some at angle of 45°). At 72 feet part of a fossil fish.

Of No. 6 there is no record.

No. 7. Old Roar Valley. 1880.

[Words and figures in brackets from a tracing from MR. W. ANDREWS, Surveyor.]

Measurements from the level of the pump. [Shaft, 100 feet, the rest bored.] Measurements originally taken from the top of the well-frame, which is 2 feet above the ground level. This has been altered to the ground level here.

	Thickness.	Depth.
	<i>Ft. in.</i>	<i>Ft. in.</i>
Loam and sandy ground [17]	10 0	10 0
Loose black bind [16]	23 0	33 0
Hard black shale	5 0	38 0
Green bind	12 0	50 0
Black bind	10 0	60 0
Black shale	6 0	66 0
[Beds partly on end (fault. W. Topley). 3.]		
Hard blue stone [high dip, seems to cut across the other beds]	4 0	70 0
Blue bind (? 2 beds)	9 0	79 0
Black shale	18 3	97 3
Blue-stone	1 3	98 6
Sandstone [? 2 beds, 4 feet 2 inches]	2 2	100 8
Blue stone and clay	7 4	108 0
Dark grey bind	8 4	116 4
Bluish sandstone	1 8	118 0
Fine light (-coloured) sandstone	1 0	119 0
Bluish sandstone	2 0	121 0
Dark sandy bind [thin beds, black and white]	3 0	124 0
Black bind	3 0	127 0
Black clay bind and thin bedded sandstone	23 0	150 0
White sandy clay	2 0	152 0
Dark sandy bind	35 0	187 0
Dark brown bind	1 6	188 6
Dark brown sandstone	2 0	190 6
Light-blue pipe-clay	2 6	193 0
Light (-coloured) soft sandstone	9 0	202 0
White sand [the drill went part through this]	9 6	211 6
Light (-coloured) sandy clay and lignite	8 6	220 0
Dark clay and sand, hard	10 0	230 0
Brownish bind	17 0	249 0
Brown sandstone and lignite	0 6	249 6
Light brown sandy clay and vegetable remains (lignite) and then layers of sandstone	16 6	265 0
Light [-coloured] sandy, brown and yellow bind with thin beds of sandstone and vegetable remains (lignite)	15 0	280 0
Sandstone	1 0	281 0
Light [-coloured] and brown clay	1 0	282 0
Blue pipe-clay	11 6	293 6
Light [-coloured] sandstone	6 6	300 0
Very fine soft green sandstone	8 0	308 0
Coarse light [-coloured] sandstone	2 0	312 0
Mottled clay bind, red, blue and yellow	10 0	324 0
Very fine light [-coloured] sandstone	7 0	339 0
Dark brown bind	0 6	339 6
Mottled clay bind, red, blue and yellow	10 6	340 0

The beds have a slight dip northward. A good deal of water was met with at the depth of 98 to 102 feet 8 inches, supposed to be a spring connected with Nos. 6 and 4 wells.

HOLLINGTON. Hastings Waterworks, originally Mr. Burton's. Two wells connected by a heading. At the back road over a sixth of a mile southward of St. John's Church. 1874.

From a note by MR. TOPLEY.

(?) Shaft 100 feet, the rest bored.

Yield 70,000 to 75,000 gallons a day. According to a letter from MR. BURTON (Jan. 1875), this supply rises out of the borehole into the well (for analysis of the water see page 113).

Wadhurst Clay	-	-	-	-	-	-	24	}	141 feet.
Ashdown Sand.	Sandstone and sand	-	-	-	-	117			

HOLLINGTON. Silver Hill. For the Hastings Rural Sanitary Authority. On the western side of the high road over a sixth of a mile northward of St. Matthew's Church. 1885.

Communicated by MESSRS. JEFFERY & SKILLER.

? About 225 feet above Ordnance Datum.

Shaft 215 feet, the rest bored

A later letter (1889) adds that water was found at 215 feet, the calculated yield being about 80,000 gallons in 24 hours. Supply 40,000 to 50,000 gallons a day, with no falling off in the yield.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Wadhurst Clay]	Yellow clay marl - - - -	16	16
	Blue marl - - - -	16½	32½
	Blue stone - - - -	5	37½
	Blue marl - - - -	44½	82
	Blue stone - - - -	4	86
	Yellow sandstone - - - -	5	91
[? Ashdown Sand]	Brown sandstone - - - -	4	95
	Yellow sandstone - - - -	5	100
	Blue marl, changing to following - - - - about	95	195
	Yellowish sand-rock, in which the headings were driven about	30	225

There are now (1894) two wells 50 feet apart, connected by a heading. Another heading runs 100 feet westward from the newer well, at the bottom of which is a boring, in which the jumpers were lost in a fissure.

HORSHAM. Stammerham. Christ's Hospital.

Made and communicated by MESSRS. DOCWRA.

Shaft and cylinders 140½ feet, the rest bored.

Water-level 57 feet 10 inches down, October 20, 1896.

	Thickness.		Depth.	
	<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>
Sandstone rock (with girder, 7 inches, above) -	65	0	65	0
Blue shale - - - - -	30	0	95	0
Red marl - - - - -	2	0	97	0
Blue shale - - - - -	74	0	171	0
Red marl - - - - -	1	0	172	0
Blue shale - - - - -	40	0	212	0
Hard beds of ironstone rock and blue shale -	81	7	293	7
Hard sand-rock - - - - -	16	8	310	3
Hard clay - - - - -	2	6	312	9
Hard sand-rock - - - - -	38	3	351	0
Blue shale, with couts rock from 353 to 353¼ -	3	0	354	0
Hard sand-rock, with couts rock from 400 feet 6 inches to 401 feet 2 inches - - -	63	0	417	0

HORSHAM. Waterworks, a little W. of Railway Station.

Communicated by MR. P. CHASEMORE. 1890.

Shaft 74 feet, the rest bored (? more than one bore-hole.)

	Thickness.		Depth.	
	<i>Feet.</i>		<i>Feet.</i>	
Clay - - - - - about	4		4	
Grave or shrave, about - -	10		14	
[? Upper Tun-bridge Wells Sand] - - - - - Brown marl - - - - -	46		60	
Rock of sand - - - - -	8		68	
Blue marl - - - - -	6		74	
Land-rock [? sand-rock] about	8		82	
[? Grinstead Clay] - - - - - Blue marl - - - - -	20		102	
Rock - - - - -	3		105	
Blue marl - - - - -	18		123	
[? Lower Tun-bridge Wells Sand] - - - Very hard rock, under which water was found, "between two rocks about nine inches apart" - - - - -	¾		123¾	

HORSHAM. London and Brighton Railway Station.

Well, 1881. Boring, 1895. Shaft 91½ feet, the rest bored.

The well from a small drawing (in Mr. TOPLEY'S collection), from a letter from MR. R. J. BILLINGTON, and from a letter from MR. P. NEATE. The boring made and communicated by MESSRS. LE GRAND & SUTCLIFF.

The following particulars from the Railway Co. Two headings, 10 feet high, 6 feet wide and 40 long, bottom about 87 feet down. The well at first yielded about 25,000 gallons in 24 hours, but since the Water Company has deepened its well the effect has been a shorter supply in this.

Water-level $37\frac{1}{2}$ feet down.

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Soft clay - - - - -	5	5
Hard sandstone. Impure limestone in another account - - - - -	14	19
Soft blue marl - - - - -	4	23
Hard blue limestone (sandstone in note). Finely bedded clayey sand in another account	16	39
Soft blue marl - - - - -	1	40
Blue rock. Finely bedded clayey sand in another account - - - - -	2	42
Soft blue marl - - - - -	3	45
Hard blue limestone (sandstone in note). Finely bedded clayey sand in another account	30	75
Hard sandstone. Described as flaggy and micaceous in another account - - - - -	1	76
Hard blue limestone. Finely bedded clayey sand in another account - - - - -	13	89
Unaccounted for, Messrs. Legrand & Sutcliff giving the depth of the shaft as $91\frac{1}{2}$ - - - - -	$2\frac{1}{2}$	$91\frac{1}{2}$
Grey sandstone and blue marl rock - - - - -	$9\frac{1}{3}$	101
Thin bands of sandstone and blue marl rock - - - - -	$11\frac{1}{3}$	$112\frac{1}{3}$
Bands of sandstone and blue marl rock - - - - -	$22\frac{1}{3}$	135
Grey sandstone - - - - -	8	143
Grey sandstone and blue marl rock - - - - -	4	147
Grey sandstone - - - - -	4	151
Bands of grey sandstone and blue marl rock - - - - -	$24\frac{1}{2}$	$175\frac{1}{2}$
Bands of grey sandstone and thin bands of blue marl rock - - - - -	5	$180\frac{1}{2}$
Grey sandstone - - - - -	8	$188\frac{1}{2}$
Bands of grey sandstone and blue marl rock - - - - -	$9\frac{1}{2}$	198
Grey sandstone - - - - -	1	199
Blue marl rock - - - - -	5	204
Bands of grey sandstone and blue marl rock - - - - -	1	205
Mottled marl rock - - - - -	$7\frac{1}{2}$	$212\frac{1}{2}$
Sandy marl rock - - - - -	$5\frac{1}{2}$	218
Mottled marl rock - - - - -	8	226
Grey sandstone - - - - -	35	261
Hard blue marl rock - - - - -	6	267
Grey sandstone - - - - -	$9\frac{1}{2}$	$276\frac{1}{2}$
Bands of grey sandstone and blue marl rock - - - - -	$12\frac{1}{2}$	289
Mottled marl rock - - - - -	8	297
Hard grey sandstone - - - - -	8	305
Mottled marl rock - - - - -	17	322
Grey sandy marl rock - - - - -	$9\frac{1}{2}$	$331\frac{1}{2}$

The beds may be all part of the Tunbridge Wells Sand, the various and more or less local divisions of which, however, one cannot make out. The lowest $26\frac{1}{2}$ feet may, however, belong to the Wadhurst Clay.

For Analysis of the water see p. 114.

HORSTED KEYNES. Railway Station. 1896.

Boring made and communicated by MESSRS. LE GRAND & SUTCLIFF.

Water-level 6 feet 9 inches down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Dug well (the rest bored) - - - - -		—	45
[Wadhurst Clay?]	Blue marl and bands of blue shale - - -	36	81
	Blue marl and bands of shale and ironstone-nodules - - -	4	85
	Blue marl and bands of shelly limestone - -	26	111
	Blue marl-rock, bands of shale, ironstone-nodules, and bands of blue-grey sandstone - - -	3	114
	Bluish-grey sandstone and bands of blue marl-rock	7½	121½
	Grey sandstone and thin bands of blue marl-rock	45½	167
	Grey marl-rock - - -	1	168
	Grey sandstone and bands of grey marl-rock - -	25	193
	Grey marl-rock - - -	6½	199½
	Grey marl-rock and thin bands of grey sandstone	10½	210
	Grey sandstone - - -	25½	235½
	Grey sandstone and bands of blue marl-rock - -	17	252½
	Blue marl-rock - - -	2	254½
	Grey marl-rock - - -	1½	256
	Grey sandstone - - -	2½	258½
	Grey marl-rock - - -	2	260½
	Grey sandstone - - -	2½	263
	Brown marl-rock and lignite	2½	265½
[All Ashdown Sand]	Grey sandstone and bands of blue marl-rock - -	18½	284
	Blue marl-rock - - -	7½	291½
	Brown marl-rock - - -	11½	303
	Brown marl-rock and bands of grey sandstone - -	6½	309½
	Brownish mottled marl-rock and bands of grey-sandstone - - -	9	318½
	Grey sandstone - - -	3	321½
	Brownish mottled marl-rock and bands of grey sandstone - - -	5½	327
	Grey sandstone and bands of blue marl-rock - -	16	343
	Brown marl-rock and bands of grey sandstone - -	5½	348½
	Grey sandstone - - -	11	359½
	Blue marl-rock - - -	1½	361
	Grey sandstone and bands of blue marl-rock - -	12½	373½
	Brown marl-rock - - -	4½	378
	Brown marl-rock and lignite	7½	385½
	Brown marl-rock - - -	1½	387
	Grey sandstone - - -	20½	407½

HUNSTON. Hoe Farm.

Sunk and communicated, from memory, by MR. OCKENDEN, SENR.

—	—	Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Bracklesham Beds] -	Sand - - - - -	42	42
[London Clay and Reading Beds]	Clay, lower part red - -	233	275
Chalk - -	- - - - -	1½	276½

JEVINGTON. Trial borings for the Eastbourne Waterworks. 1896.

(For another adjoining see FOLKINGTON).

Made and partly communicated by MESSRS. ISLER, and partly by MR. F. STILEMAN, and from specimens and observations.

1. Shaft 7 feet, the rest bored. About 100 yards, a little E. of N. of the outbreak of Broughton Spring, which is over half a mile E. S. E. of Folkington Church. Surface 99·5 feet above Ordnance Datum.

—	—	Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
	Chalk [wash of chalk down slope] - - -	5	5
[Gault, 345 feet]	Blue marl (specimens dark grey sandy clay, 60 and 68 feet) - - -	275	280
	Greensand and gault, mixed from clay falling in (specimen, green sandy clay, with some grey clay) - - -	54	334
	Dead greensand (specimen, like the above, with very little clay) -	16	350
	Brown clay (specimen, grey with brownish patches)	4	354
	Blue clay (specimen, dark grey) - - - - -	7	361
[Weald Clay]	Light [-coloured] clay (specimen, mottled grey and brownish) - -	3	364
	Blue clay (specimen, grey with a little brownish -	30	394
	Red and grey mottled clay	11	405
	Dark greenish-grey clay -	8	413

The beds between 280 and 350 feet perhaps represent the Lower Greensand.

2. About 50 yards a little N. of W. from the head of Broughton Spring. Shaft 49 feet, the rest bored. Surface 108·5 feet above Ordnance Datum.

—		Thickness.	Depth.
Gault	{ Top soil [and rainwash?] - Upper Greensand - - - Specimen, dark grey clay, said to be all alike Sandstone - - - Gault - - -	<i>Feet.</i> 14½	<i>Feet.</i> 14½
		4	18½
		184½	206
		2	208
		30	238

JEVINGTON. Cottage on the eastern side of the road, close to the southern end of Wannock Coppice. 1880.

Information from MR. MILLER, foreman to Mr. Diplock, the owner. Shaft 102 feet, the rest bored.

On the completion of the boring water rose 36 feet, at the rate of 2 feet an hour, and then continued rising (? at less rate to within 15 feet of the surface.

—		Thickness.	Depth.
[Gault]	{ Clay, with a foot of rock at the base - - - Hard clay, with shells. Another rock about 56 ft. down - - - Clay, to sand - - -	<i>Feet.</i> 12?	<i>Feet.</i> 12
		90	102
		56?	158

Further information from MR. F. STILEMAN gives the following data :—
 Level of coping 73·9 feet above Ordnance Datum.
 Bottom of well 21·6 feet below " "
 Water-level 53·8 feet above " "

This seems to show that the well may have been silted up somewhat.

KEYMER. Hassocks.

New house on the Brighton Road, about 27 chains south of the road to the Station.

From information and samples obtained during the work (1890).

—		Thickness.	Depth.
[Gault]	{ Weathered clay - - - Black clay - - - Coarse greensand, mixed with clay (water) - -	<i>Feet.</i> 12	<i>Feet.</i> 12
		18	30
		9	39

KEYMER. Hassocks Gate.

At Mr. Stevens', close to Hassocks Goods Station, on the west side of the line.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

[Lower Greensand] Black clay, rock, and sand, to red sand with water, 40 ft.

KEYMER. Leylands Park, just W. of Keymer Junction Station. 1890.
 Made and communicated by MESSRS. LE GRAND & SUTCLIFF.
 114 feet above Ordnance Datum. Water-level $12\frac{1}{2}$ feet down.

—		Thickness.	Depth.
Soil	—	<i>Ft.</i> <i>in.</i>	<i>Ft.</i> <i>in.</i>
	—	1 0	1 0
[Weald Clay]	Weald clay - - - - -	134 6	135 6
	Hard Weald clay and sand conglomerate - - - - -	5 6	141 0
	Weald clay - - - - -	2 0	143 0
	Weald clay and sand - - - - -	5 0	148 0
	Weald clay - - - - -	3 0	151 0
	Weald clay, slightly mottled - - - - -	6 0	157 0
	Weald clay - - - - -	22 6	179 6
	Weald clay, slightly mottled, with a rock-band 3 feet down - - - - -	5 0	184 6
	Rock - - - - -	9 6	194 0
	Clay - - - - -	19 6	213 6
	Hard clay and sand - - - - -	8 0	221 6
	Hard clay - - - - -	31 6	253 0
	Hard clay and sand - - - - -	50 0	303 0
	Hard clay - - - - -	1 3	304 3
	Very hard clay, with green specks - - - - -	2 3	306 6
	Very hard clay - - - - -	25 3	331 9
	Very hard clay, mottled - - - - -	2 10	334 7
Very hard clay - - - - -	21 8	356 3	
Red mottled clay - - - - -	3 1	359 4	
Dark hard clay - - - - -	8 4	367 8	
Hard clay and brownish sand - - - - -	8 9	376 5	

KINGSTON. Newmarket. 1893.

Made and communicated by MR. G. BATES. Good supply of water.

Chalk - - - 50
 Chalk and flints 50 } 100 feet.

KIRDFORD. At Fittleworth Scrub House.

P. J. MARTIN. "A Geological Memoir on a Part of Western Sussex".
 pp. 42, 43. 4to, London. 1828.

—		Thickness.	Depth.
[Weald Clay]	—	<i>Feet.</i>	<i>Feet.</i>
	Reddish clay - - - - -	12	12
	Marble - - - - -	$1\frac{1}{2}$	$13\frac{1}{2}$
	Blue clay and shale, with much selenite; also <i>Cypris</i> and fish-scales, hardened and often passing into fuller's earth - - - - -	44	$57\frac{1}{2}$

LAMBERHURST. Brewery.
 Made and communicated by MESSRS. DOCWRA.
 Water-level 22 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Tunbridge Wells Sand] - -	Shaft (the rest bored), un- described - - -	—	35
	Sandstone rock - - -	10	45
	Gault [clay] - - -	2½	47½
	Sandstone rock - - -	7½	55
	Gault [clay] - - -	3½	58½
[Wadhurst Clay] - -	Sandstone rock - - -	10	68½
	Gault [clay] - - -	3	71½
	Black slaty rock - - -	7	78½
	Gault [clay] - - -	5	83½
	Hard slaty rock - - -	6	89½
	Gault [clay] - - -	2½	92
	Hard slaty rock - - -	2½	94½*

* Given as 95½

LANCING. In the Level. ? About 300 yards east of Lower Lancing.
 F. Dixon's "Geology of Sussex," Edition 2, 1878, p. 77.

	<i>Feet.</i>
Rolled flints and sand - - - - -	8 or 10
Marl - - - - -	10 or 12
Upper Chalk, with flints, and with an excellent supply of water - - - - -	5 or 6

LANCING. The Terrace. 1891.

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.
 Water-level 16 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[? Reading Beds]	Made ground - - - - -	6	6
	Gravel - - - - -	13	19
	Mottled clay - - - - -	12	31
	Dark clay - - - - -	4	35
	Black shaly clay - - - - -	9	44
	Mottled clay - - - - -	4	48
	Dark clay, with boulders [? flints]	6	54
	Chalk and flints - - - - -	41	95

LAUGHTON. Laughton Place.

DR. MANTELL. "The Fossils of the South Downs," 4to, London, 1822, p. 82.
 Gault. Blue marl, with many fossils 60 feet. -

LEWES. The Baths.

Waterworks Investment Review, January, 1898.

At the depth of 40 feet water rose to within 12 feet of the surface. After sinking the pipe a few feet lower it rose to within 8 feet of the surface.

		Depth.	
		<i>Feet.</i>	
[Alluvium]	{	To blue-grey clay - - - -	10
		Alluvial deposit found at - - - -	20
		Greyish-green clay - - - -	—
		A sort of brown sand at - - - -	29
		A green sand at - - - -	31
		Blue gault at - - - -	34
		A foot layer of petrified wood at - - - -	36
		Flints, 2 feet - - - -	—
		To Chalk - - - -	39
In Chalk to - - - -	59		

LEWES. 1. Gasworks. 1895. 2. Southdown Brewery Company. 1896.

Made and communicated by MR. G. BATES.

Good supply of water in both.

	<i>Feet.</i>	<i>Feet.</i>
	(1)	(2)
Mixed red earth - - - -	10	10
Blue marl and alluvial deposit - - - -	40	40
Chalk and flints - - - -	15	32
	—	—
Totals	65	82

LEWES. Phoenix Ironworks. About marsh-level.

Communicated by MESSRS. WELLS & Co.

[Alluvium] Clay, 50 feet.

LEWES. Close to the river.

Made and communicated by MESSRS. WELLS & Co.

A driven tube of 2 in. diameter.

River-deposits, to Chalk, 30 feet.

LEWES. Waterworks. At the edge of the marsh, close to strong springs.

Communicated by the Company.

Sunk 24 ft., the rest bored.

[Drift]	{	Red gravelly loam - 20	} 144 feet.
		Chalk-gravel - - 4	
[Upper]		Chalk, with flints - 120	

For Analysis of the water see pp. 114, 115.

LITTLEHAMPTON. Waterworks. 1888.

Communicated by MR. R. F. GRANTHAM.

About 24 feet above Ordnance Datum.

First shaft about 60 feet, the rest bored. Second shaft 80 feet, with galleries from the bottom, east and west, for 76 yards.

Water found in the Chalk with flints, in the galleries (none in the boring). 168,000 gallons pumped in 24 hours.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Drift, 19½ feet]	Brickearth - - - -	7	7
	Earth and sand - - - -	5	12
	Stiff clay and sand - - - -	7½	19½
	Chalk, dyed yellow - - - -	5½	25
	Pervious white chalk - - - -	17	42
	Hard white chalk - - - -	12	54
[Upper Chalk, 95½ feet]	Hard white chalk with a few flints - - - -	5	59
	Hard white chalk with many flints - - - -	27	86
	Solid white chalk, very hard, no flints - - - -	29	115
	Impervious clunch - - - -	8	123
[Middle Chalk and Lower Chalk, 391 feet]	Hard white chalk - - - -	236	359
	Clunch - - - -	2	361
	Blue chalk marl, very hard --	6	367
	[Undescribed] - - - -	11	378
	Soft chalk, light blue - - - -	35	413
	Solid white chalk - - - -	61	474
	Impervious grey chalk - - - -	32	506

If the classification suggested in square brackets be approximately correct, we might expect to reach Chloritic Marl and Upper Greensand within a few feet, for the combined thickness of the flintless Lower and Middle Chalk in Sussex is usually about 400 feet. In the absence of specimens it is impossible, however, to identify the different zones.

According to Dr. Kelly's Report for 1887, a shaft of 6 feet diameter was carried to the depth of 60 feet, then one of 3 feet diameter for 9 feet, then a boring of 9 inches diameter for 150 feet, and then one of 8 inches to 358 feet (at the end of 1877).

LITTLEHAMPTON. Anchor Brewery. About 1830 (or soon after).

Communicated by MR. T. CONSTABLE (partly from a letter by Mr. W. Dyer, the former owner).

Bored throughout (there is also a well of 20 feet, about 12 feet off).

Water-level 6 feet down, not decreased after pumping 12 hours. Has always been the same.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
	Sandy loam - - - -	5	5
	Hard chalk, with layers of flints (water found 12 feet down in this) - - - - about	95	100
	What appeared to be a very stiff pipe-clay, but burnt to lime [soft chalk] - - - -	211	311
	Undescribed - - - -	2	313

Boring not carried deeper because the rods were too slight. Plenty of water for the first 100 feet, but none after.

When the channel of the brook, some 400 yards off, nearer the sea, was cleared, on cutting through the clay they came into marl [chalk], and the water in the well then became salt. However, after that part of the drain that passed through the marl was puddled with clay, the saltness gradually decreased until it disappeared.

For Analysis of the water see p. 115.

LITTLE HORSTED. Wicklands, at the bend of the road, three-quarters of a mile S.W. of the village.

120 feet above Ordnance Datum.

Shaft, with 35 feet of water from the Lower Tunbridge Wells Sand.

[?Upper Tunbridge Wells Sand.]	Marly clay and sandstone	35	} 50 feet.
[?Grinstead Clay.]	Blue clay	6	
[?Lower Tunbridge Wells Sand.]	Sand (and sandstone?)	9	

According to information from Mr. J. LUCAS, an old well at a cottage 400 feet S.W. of the above, and 115 feet above Ordnance Datum, is 50 feet deep in sand, with 6½ feet of water. Marl not having been reached, the water comes from the Upper Tunbridge Wells Sand. The water is low in autumn.

LODSWORTH. Messrs. Tallants, for Earl of Egmont. 1883.

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Lower Greensand]	Brown sandy soil	6	6
	Sandy clay	10	16
	Dark sand, with loose shale	29	45
	Loose shaly sandstone	2	47
	Hard sandstone	2	49

LOXWOOD. Tichbourne Public House. 1889?

Made and communicated by MESSRS. DUKE & OCKENDEN.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Weald Clay]	Clay. At 228 feet down, changes from deep red to dark blue -	380	} 430
	Hard rock [Paludina-marble] a few inches.		
	Clay	30	

A quarter of a mile south, at Loxwood House, a good supply was got in marly clay at 31 feet.

MADEHURST. Dalepark.

Made and communicated by MESSRS. A. WILLIAMS & Co.

Water-level varies from 150 to 450 feet down.

Shaft, in Chalk	-	-	320	} 470 feet.
Boring, in Chalk with flints	-	-	150	

MAYFIELD. Convent (the Old Palace). About 300 yards N. of the building, and at a level about 50 feet lower.

From letters from the Mother Superior, with details of the beds from the borer, MR. HYMAS.

The spring met with at the depth of about 50 feet was inadequate, and this supply escaped at two lower depths. The yield was tested at the depth of 105 feet and found to be at the rate of 30 gallons an hour. Unsuccessful.

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Shaft (the rest bored)	—	24
Blue clay - - - - -	4	28
White sand-rock - - - - -	8	36
Blue clay and sand - - - - -	8	44
Blue clay. Water found - - - - -	6	50
Blue shale - - - - -	8	58
Brown rock - - - - -	2	60
Yellow clay and sand - - - - -	8	68
Sand-rock - - - - -	6	74
Blue clay - - - - -	4	78
Clay sand - - - - -	9	87
Brown rock - - - - -	3	90
Blue shale - - - - -	8	98
Blue clay - - - - -	3	101
Sand-rock. Water lowered - - - - -	6	107
Blue shale - - - - -	14	121
Shale and stone - - - - -	14	135
Sand-rock - - - - -	20	155
Blue shale - - - - -	4	159
Sand-rock - - - - -	6	165
Clay and sand - - - - -	3	168
Shale and stone. Water lowered - - - - -	8	176
Sand-rock - - - - -	10	186
Sand shale - - - - -	2	188
Sand-rock - - - - -	12	200
Clay sand - - - - -	4	204
Soft sand-rock - - - - -	10	214
Soft shale - - - - -	10	224

Another well. Made and communicated by MESSRS. ISLER & Co. 1895.
Water-level 193 feet down. Supply abundant.

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Sunk Well		
[Clay, unevenly on the bed below. (Note of MR. TOPLEY'S)] - - - - -	98	98
Hard sandstone - - - - -	9 $\frac{1}{2}$	107 $\frac{1}{2}$
Hard rock - - - - -	12 $\frac{1}{2}$	120
Sandstone - - - - -	70 $\frac{3}{4}$	190 $\frac{3}{4}$
Sandy shale - - - - -	8 $\frac{1}{4}$	199
Sandstone - - - - -	2 $\frac{1}{4}$	201 $\frac{1}{4}$
Light [-coloured] shaly marl - - - - -	3	204 $\frac{1}{4}$
Sandstone - - - - -	4 $\frac{1}{2}$	208 $\frac{3}{4}$
Shale - - - - -	1 $\frac{1}{4}$	210
Marl - - - - -	59 $\frac{1}{3}$	269 $\frac{1}{3}$

MERSTON. Trial boring for Bognor Waterworks.

Made and communicated by MESSRS. DOCWRA.

? Water-level about 10 feet down.

		Thickness.	Depth.
		<i>Ft. in.</i>	<i>Ft. in.</i>
Made ground	- - - - -	1 0	1 0
[Drift, 12½ feet]	Light ballast - - - - -	9 0	10 0
	Light sand - - - - -	2 0	12 0
	Clay and ballast - - - - -	1 6	13 6
	Hard blue clay - - - - -	4 0	17 6
	Soft clay with sand - - - - -	12 6	30 0
[London Clay, 292½ feet]	Blue clay - - - - -	16 0	46 0
	Sandy clay - - - - -	2 0	48 0
	Blue clay - - - - -	95 6	143 6
	Green sand - - - - -	1 6	145 0
	Hard rock - - - - -	0 10	145 10
	Blue clay - - - - -	88 2	234 0
	Hard rock - - - - -	1 0	235 0
[Reading Beds, 99½ feet]	Hard blue clay - - - - -	65 0	300 0
	Blue clay - - - - -	6 0	306 0
	Mottled clay - - - - -	8 0	314 0
	Hard red clay - - - - -	91 0	405 0
	Flints - - - - -	0 6	405 6
[Upper Chalk, 244½ feet]	Chalk marl - - - - -	4 6	410 0
	Chalk, with six inches of flints at the base - - - - -	45 6	455 6
	Chalk and flints - - - - -	59 6	515 0
	Hard chalk - - - - -	8 0	523 0
	Chalk and flints - - - - -	27 0	550 0
	Hard chalk - - - - -	94 0	644 0
	Mild chalk - - - - -	6 0	650 0

MIDHURST. Rev. H. Back's, Ashfield, opposite Gulland's Oak (Gilders' Oak F. of the old Ordnance Map). 1885.

Sunk and communicated by MESSRS. LE GRAND & SUTCLIFF.

Water-level 46 feet down. Good supply.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Folkestone Beds]	Sandy brown clay - - - - -	10½	10½
	Ironstone - - - - -	1	11½
	Sandy loam - - - - -	11	22½
	Dark sandy clay - - - - -	3	25½
[Sandgate Beds]	Light-grey sand - - - - -	19	44½
	Yellow sand - - - - -	7½	52
	Dark-green clayey sand - - - - -	8½	60½
	Light-green sand - - - - -	14½	75
[Hythe Beds]	Dark-green sandy clay - - - - -	4	79
	Dark dead sand - - - - -	2	81
	Yellow sandstone - - - - -	19	100

A letter from MR. BACK makes the top part "mixed gravel and sand and a little clay, about 12 feet, then one foot of ironstone rock" (which he thinks is probably more correct), and notes that there was a little water at a depth of 55 feet, but more at 79 feet (rather ferruginous).

MIDHURST. Pitsham Brickfield, about a mile S.W. of the town. Messrs. Tallant. For Lord Egmont. 1883.

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.

Water-level 28 feet down.

		Thickness.	Depth.	
		<i>Feet.</i>	<i>Feet.</i>	
[Folkestone Beds]	{	Old dug well (the rest bored) -	—	15
		Variouly coloured hard sand, with ironstone - - - - -	31	46
		Bands of white clay and yellow sand - - - - -	2	48
[Sandgate Beds]	}	Clay - - - - -	1	49

MIDHURST. For other wells, see EASEBOURN.

MID-SUSSEX WATERWORKS, see BALCOMBE.

MOUNTFIELD. "The Sub-Wealden Exploration."

About 60 feet eastward of the bed of the stream separating Councillor's Wood from Lime Kiln Wood, according to "Sub-Wealden Explorations, First Quarterly Report."

"The Geology of the Weald," by W. TOPLEY, 1875, pp. 42-49 (and other sources).

First Boring, finished 1874. 9 inches diameter to 312 feet, then 4 inches to 328 feet, the rest 3 inches.

		Thickness.	Depth.	
		<i>Feet.</i>	<i>Feet.</i>	
Purbeck Beds	{	Shales - - - - -	16½	16½
		Blue limestone, with spring - -	2½	19
		Shale - - - - -	5	24
		Blue limestone - - - - -	2	26
		Shale - - - - -	4	30
		Limestone - - - - -	1½	31½
		Shale - - - - -	4	35½
		Limestone - - - - -	3	38½
		Shale, with spring. Water stood permanently at 42 feet down, in- side the tubes - - - - -	4	42½
		Limestone - - - - -	4	46½
		Hard blue shale - - - - -	15½	62
		Hard grey shale - - - - -	3	65
		Hard shale - - - - -	14½	79½
Shales, with crystals of carbonate of lime - - - - -	9	88½		

MOUNTFIELD. "The Sub-Wealden Exploration"—*continued.*

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Purbeck Beds	Grey shale - - - - -	13	101½
	Greenish shales, with gypseous veins - - - - -	20	121½
	Impure gypsum - - - - -	8½	130
	Pure white gypsum (alabaster) - -	4	134
	Impure gypsum - - - - -	5½	139½
	Pure white gypsum (alabaster) - -	3	142½
	More or less pure, hard and dark gypsum - - - - -	14½	157
	Black shale, very sulphureous - -	3½	160½
	Gypsum in nodules and veins - -	12	172½
	Gypseous marl - - - - -	6½	179
	Sandy marl. Water-level lowered here - - - - -	½	179½
	Black sulphureous shale - - - - -	½	180
	Greenish sand, with nodules of black chert - - - - -	21	201
	Sandy shale - - - - -	30	231
? Portland Beds, 110 feet	Calcareous matter, with chert- nodules - - - - -	8	239
	(Not described) - - - - -	2	241
	Hard black sandy shale, very sulphureous - - - - -	12	253
	Blacker and softer shale - - - - -	7	260
	Harder shale, with much chert - -	12	272
	Black shale, very sulphureous - -	14	286
	Paler shale, with veins of gypsum -	4	290
	Darker and more sandy shale - - -	2	292
	Shale - - - - -	2	294
	Dark clay - - - - -	18	312
	Clay, generally rather sandy, some calcareous (toward the lower part)	288	600
Kimeridge Clay, 727 feet	Hard light-coloured bed, very rich in petroleum - - - - -	2	602
	Clay, with bands of cement-stone -	232	834
	Cement-stone - - - - -	50	884
	Clay - - - - -	2½	886½
	Cement-stone - - - - -	2½	889
	Clay - - - - -	67	956
	Dark clay, with cement-stone - -	55	1011
	Sandy bed - - - - -	2	1013
	Dark clay - - - - -	4	1017

The lowest 61 feet were originally classed as Oxford Clay; but the second boring showed that the Kimeridge Clay goes much deeper and is succeeded by Corallian Beds.

A core of some 17 feet, or to the depth of about 1,030 feet was left in the borehole. The work was stopped by an accident to the rods.

A list of the fossils found, from 300 to 1,013 feet down, is given in the "Wealden Memoir," p. 44.

No complete section of this boring is given in the "Quarterly Reports of the Exploration;" but in the second of these, some details from 131 feet downward, differ from the above account.

White gypsum (alabaster) reached at 131, 4 feet thick, or to depth of 135	
Gypseous marl - - - - - 10 "	145
Alabaster - - - - - 3 "	148

"The Sub-Wealden Exploration." Second Boring. Begun February 1875, finished 1876.

Tenth and Twelfth Quarterly Reports, in the "Record of the Sub-Wealden Exploration," by H. WILLETT. 8vo, Brighton, 1878. This also gives the amount of core brought up, and the amount done each day, down to 1,546 feet. These details are given by MR. THORNTON. Those below 1,546 feet are from a lithographed section issued by the Aqueous Works and Diamond Rock-Boring Co. Boring of 8 inches diameter at first, decreasing to 2 inches at last. Some further details from an account by W. TOPLEY, *Rep. Brit. Assoc.* for 1880, p. 105.

	Thickness.		Depth.	
	<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>
Alluvial deposit - - -			16	0
Soft shale - - - -	1	0	17	0
Blue limestone - - -	1	6	18	6
Calcareous shale - - -	6	0	24	6
Blue limestone - - -	1	0	25	6
Calcareous shale - - -	1	0	26	6
Soft shale - - - -	3	0	29	6
Limestone - - - -	1	6	31	0
Calcareous shale - - -	0	6	31	6
Strong shale - - - -	3	0	34	6
Calcareous shale - - -	1	0	35	6
Blue limestone - - -	2	6	38	0
Calcareous shale - - -	1	0	39	0
Strong shale - - - -	6	0	45	0
Blue limestone - - -	2	0	47	0
Shale - - - - -	0	6	47	6
Hard limestone - - -	1	6	49	0
Limestone and soft shale - -	8	0	57	0
Shale - - - - -	5	0	62	0
Calcareous shale - - -	1	0	63	0
Shale - - - - -	7	0	70	0
Blue limestone - - - -	1	0	71	0
Strong shale - - - -	6	3	77	3
Compact blue limestone - - -	1	3	78	6
Strong shale - - - -	6	9	85	3
Calcareous shale - - - -	2	6	87	9
Strong shale, with limestone at 93 ft. 11 in. to 94 ft. - - -	11	3	99	0
Compact hard shale - - - -	7	0	106	0
Calcareous shale - - - -	2	4	108	4
Hard limestone - - - -	0	8	109	0
Hard blue shale - - - -	6	6	115	6
Blue limestone - - - -	1	0	116	6
Dark blue shale - - - -	6	6	123	0
Shaly limestone, with thin veins of broken gypsum - - -	4	0	127	0
Impure gypsum - - - -	6	0	133	0
Limestone and gypsum (thin veins) - - - - -	1	0	134	0
Shaly gypsum - - - - -	2	3	136	3
Gypsum in crystals, veins in shale - - - - -	7	6	143	9
Gypsum in veins and nodules -	3	6	147	3
Gypsum, with veins of limestone	1	0	148	3
Strong shale and veins of lime- stone, with gypsum - - -	0	6	148	9
Strong shale, with nodules of gypsum - - - - -	4	3	153	0
Gypsum, more or less pure - -	7	9	160	9
Strong shale, with gypsum - -	3	3	164	0
Nearly pure gypsum, with veins of carbonate of lime -	4	4	168	4

[Purbeck
Beds]

MOUNTFIELD. "The Sub-Wealden Exploration." Second Boring—*cont.*

		Thickness.		Depth.	
		<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>
[Portland Beds, 105 $\frac{3}{4}$ ft.]	Fragments of shale and chert.				
	Water ran away at 169 ft. and tool dropped 4 ft., and again lower down - - - -	24	4	192	8
	Soft sandy shale - - - -	7	4	200	0
	Soft whitish sandstone - -	52	0	252	0
	Soft sandstone, darker - -	5	0	257	0
	Sandy shale - - - -	17	0	274	0
	Kimeridge clay - - - -	109	0	383	0
	Kimeridge clay, rather softer -	45	0	428	0
	Kimeridge clay, more compact	44	0	472	0
	Kimeridge clay, softer - -	23	0	495	0
	Kimeridge clay, solid - - -	26	0	521	0
	Kimeridge clay, with traces of carbonate of lime - -	20	0	541	0
	Dark brown Kimeridge clay -	66	0	607	0
	Brown limestone - - - -	1	6	608	6
	Kimeridge clay - - - -	3	0	611	6
	Brown limestone - - - -	0	6	612	0
	Kimeridge clay - - - -	27	0	639	0
	Kimeridge clay, with veins of carbonate of lime - -	40	0	679	0
	Kimeridge clay, very calcareous	21	0	700	0
	Kimeridge clay, much softer and darker, very full of fossils - - - -	24	0	724	0
Kimeridge clay, with large veins of carbonate of lime - -	17	0	741	0	
Kimeridge clay, with smaller veins of carbonate of lime -	22	0	763	0	
Kimeridge clay, with small veins of carbonate of lime -	18	0	781	0	
[Kimeridge Clay, ? 1290 ft.]	Kimeridge clay - - - -	19	0	800	0
	Kimeridge clay, with veins of carbonate of lime - -	10	0	810	0
	Kimeridge clay - - - -	72	0	882	0
	Kimeridge clay, with hard bands of limestone. A very soft place at 922 ft. - - - -	57	0	939	0
	Clay - - - -	16	0	955	0
	Clay, with veins of carbonate of lime - - - -	28	0	983	0
	Oxford clay, harder and more calcareous - - - -	9	0	992	0
	Oxford clay, more sandy and very soft, with veins of carbonate of lime - - - -	12	0	1004	0
	Sandstone, rather shaly and full of fossils - - - -	41	0	1045	0
	Sandy shale - - - -	2	0	1047	0
	Sandy shale, more compact and solid - - - -	17	0	1064	0
	Sandy shale, with nodules of limestone - - - -	28	0	1092	0
Shaly sandstone - - - -	16	0	1108	0	
Very shaly sandstone - - -	21	0	1129	0	

MOUNTFIELD. "The Sub-Wealden Exploration." Second Boring—*cont.*

		Thickness.		Depth.	
		<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>
[Kimeridge Clay, ?1290 ft.]	(Undescribed). All the core left in the hole. [Sandstone, very shaly, TOPLEY] - - -	8	0	1137	0
	Shaly limestone - - -	27	0	1164	0
	Light-blue limestone - - -	4	0	1168	0
	Shaly limestone - - -	14	0	1182	0
	Calcareous shale - - -	28	0	1210	0
	Calcareous shale, more free from sand - - -	26	0	1236	0
	Very clayey shale, more like Oxford Clay - - -	19	0	1255	0
	Calcareous shale - - -	21	6	1276	6
	Soft dark gritty limestone - -	28	6	1305	0
	Calcareous shale - - -	20	0	1325	0
	Friable calcareous grit - - -	17	0	1342	0
	Soft calcareous grit, with bands of hard limestone - - -	24	0	1366	0
	Limestone - - -	4	0	1370	0
	Blue limestone changing into shale - - -	27	0	1397	0
	Strong blue shale, with few fossils - - -	19	0	1416	0
	Strong blue shale - - -	4	0	1420	0
	Limestone, very full of oyster- shells - - -	10	0	1430	0
	Blue very calcareous shale - -	16	0	1446	0
	Shale, with very few fossils - -	20	0	1466	0
	Blue shale, few fossils for 11 ft., then traces of encrinites - -	60	0	1526	0
	Blue shale, with a great many encrinites and other fossils - -	38	0	1564	0
	Calcareous shale, with hard bands of limestone - - -	88	0	1652	0
	Light-blue limestone - - -	10	0	1662	0
Calcareous shale and fossils - -	9	0	1671	0	
[? Corallian, 222 ft.]	Calcareous shale, with hard limestone - - -	27	0	1698	0
	Very soft dark shale, with a great many fossils - - -	59	0	1757	0
	Strong dark shale - - -	12	0	1769	0
	Hard grey limestone - - -	17	0	1786	0
[Oxford Clay, 120 ft. ?]	Dark sandy shale - - -	26	0	1812	0
	Dark shale - - -	12	6	1824	6
	Shale - - -	81	6	1906	0

The classification is taken, as nearly as can be, from that of H. B. WOODWARD in the "Memoir on the Jurassic Rocks of Britain," Vol. v., pp. 346, 347 (1895). But his account of the Purbeck and Portland Beds does not tally with the above details, whereas it does agree much more with those of the first boring. There is no doubt that in various accounts the two borings have been rather mixed up, and that some error has crept in by reason of this.

MR. WOODWARD'S classification is as follows, with the figures given above on the left :—

<i>Feet.</i>	<i>Feet.</i>	
274 { 168 $\frac{1}{3}$	Purbeck Beds - - -	177 } 292, whereas Kimeridge Clay
105 $\frac{2}{3}$	Portland Beds - - -	115 } clearly begins after 274.
? 1290	Kimeridge Beds - - -	1273
? 241	Corallian Beds - - -	241
? 120	Oxfordian Beds - - -	99
		1905

His details, too, differ from the above, but are not so full. I must own to some doubt as to the classification.—W. W.

For Newhaven and Seaford Waterworks, see EAST BLATCHINGTON.

NEWICK. For Dr. Hughes. 1898 ?

Boring made and communicated by MESSRS. ISLER.

Water-level 12 feet down. Supply 360 gallons an hour.

		Thickness.	Depth.
Well [? old] -		<i>Feet.</i>	<i>Feet.</i>
		—	70
	Blue marl - - - -	24	94
	Grey sand - - - -	2	96
	Sandstone - - - -	1	97
	Blue marl - - - -	11	108
	Sand-rock - - - -	3 $\frac{1}{2}$	111 $\frac{1}{2}$
	Blue clay - - - -	5 $\frac{1}{2}$	117
	Sand-rock - - - -	3	120
	Sandstone and marl - - - -	5	125
	Blue marl - - - -	1	126
	Brown marl - - - -	1	127
	Mottled clay - - - -	14 $\frac{1}{2}$	141 $\frac{1}{2}$
	Blue marl - - - -	1	142 $\frac{1}{2}$
Blue rock - - - -	1	143 $\frac{1}{2}$	

NEWICK. Cobb's Nest (? half-a-mile northward of Parsonage.)

H. W. BRISTOW, in "The Geology of the Weald," p. 88. 1875.

Water came in on the northern side, on top of the sand-rock.

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
? What (? sand in part), - - - - about	41	41
? Grinstead Clay. Tea-green and purple variegated shale, the lower part harder and more gritty, - - - - about	20	61
Rock - - - - -	3	64

NEW TIMBER (near).

DR. MANTELL. "The Fossils of the South Downs," 4to, Lond., 1822, p. 84.

Gault { Grey chalk marl, gradually passing down into the next 20 } 90 feet
 { Blue chalk marl, with many *Ammonites*, *Inocerami*, &c. 70 }

NORTH MUNDHAM. Runcton House.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

Good supply of water, standing within 3 feet of the surface.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Reading Beds] } [Upper] Chalk	Old dug well - - - -	—	20
	Clay - - - - -	60	80
	with black flints - - -	45	125

NORTH MUNDHAM. The Vicarage.

Abundance of water. Communicated by MR. OCKENDEN.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Drift] - -	Sand - - - - -	6	6
[Reading Beds] {	Red clay, at 18 feet - - -	69	75
	Mottled clay, at 46 feet - - -		
	Rock (9-inch), at 66 feet - - -		
	Rock, at 70 feet - - - -		
[Upper Chalk] {	Rock, at 72½ feet - - - -	82	157
	Chalk and flints, with pink clay at bottom - - - -		

NUTHURST. Manning's Heath. Close to the Dun Horse.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

Good supply at the depth of 48 feet.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[? Tunbridge Wells Sand] {	Old well (the rest bored) - - -	—	32
	Rock - - - - -	2	34
	Sand - - - - -	3	37
	Blue rock - - - - -	44	81

At NUTHURST Lodge a well was sunk 80 feet (belled out from 60 feet) and then a boring was made for 27 feet. Narrow fissures were cut at 67 feet, running W. or N. of W. The water-level is 75 feet down. There is an older well here.

PAGHAM. Sefter School.

From samples communicated by MESSRS. DUKE & OCKENDEN, who sunk the well.

		Thickness.	Depth.	
		<i>Feet.</i>	<i>Feet.</i>	
[Drift 18 feet]	{	Loamy gravel - - - -	8	8
		Shrave - - - -	10	18
		Hard blue clay, more or less sandy - - - -	6	24
		Buff and brown sand - -	8	32
		Buff sand - - - -	14	46
		Blue clay and shells - -	11	57
		Brownish and blue clay -	11	68
		Blue clay, not sandy - -	23	91
[London Clay, 157 feet]	{	Blue clay, more soapy - -	9	100
		Blue clay, with pyrites and fragment of large oyster -	9	109
		Blue and brownish clay -	34	143
		Blue and brownish clay, more sandy - - - -	13	156
		Blue and brownish clay, still more sandy - - - -	11	167
		Black sandy loam - - - -	5	172
		Brown sandy loam - - - -	3	175
		Mottled red and brown clay and sand - - - -	7	182
		Grey loam - - - -	7	189
		Blackish loam - - - -	3	192
[Reading Beds, 104 feet]	{	Mottled clays - - - -	87	279
		Chalk and flints (no water) -	188	467

Heavy charges of dynamite were exploded in this well, to increase the yield of water, but without result, and the well has been abandoned.

PATCHAM. Brighton Waterworks. Third Pumping Station, less than half a mile westward of the church. 1886. Galleries extended later.

Information from Mr. J. JOHNSTON.

Ground-level at the engine-house 195.2 feet above Ordnance Datum. The bottoms of the headings 174½ feet lower.

The wells are elliptical, longer diameter 12 feet, and shorter diameter 8 feet. The directions of the chief headings approximately N.E. and S.W., with a shorter one S., for about 410 feet. Total length 1,727 feet, but being extended.

Average daily yield in 1895, 1,200,000 gallons.

The following notes on the galleries here were made in September, 1893, from personal inspection (W. W.). They were all in firm chalk.

The western gallery then reached to 125 feet from the pumping-shaft and showed a marked continuous layer of flint. Practically no water found till reaching the end, where there was a good spring along a small fault (?9 inches throw). The beds mostly flat, but the flint-layer sometimes queerly broken.

The eastern gallery, from the pumping-shaft to another shaft (Robey Engine) had practically no water. At the Robey shaft water is said to come in, some way up, after heavy rain, showing ready communication with the surface. Further on was another case of like communication down a fissure from the surface, the gallery has given way at the top and water is said to come in 24 hours after rain. Still further there was a good spring at the bottom of the channel along the bottom, forming a hole. Apparently the beds rise slightly eastward and the marked flint-layer is lost very soon after leaving the pumping-shaft

The southern gallery had hardly any water till getting to the end, 230 feet from the Robey shaft, where there was a small spring. Just here the roof had given way on account of rotten flint beds at the top, which had therefore been narrowed; elsewhere the galleries have a nearly flat roof, sometimes over 7 feet wide.

PATCHING. Cottage close to house for Mr. Goad.

Made and communicated by MESSRS. DUKE & OCKENDEN.

Water stands 8 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Reading Beds]	Blue and yellow clay - - -	30	30
	Blue and black clay - - -	25	55
	Clay and flint - - -	10	65
	Clay - - -	2	67
[Upper Chalk]	Hard flint and chalk - - -	58	125

PETWORTH HOUSE.

P. J. MARTIN. "A Geological Memoir on a Part of Western Sussex," p. 36, 4to, Lond., 1828, and W. TOPLEY, note in "The Geology of the Weald," p. 116, 1875.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Hythe Beds	Loose sandy rock - - -	16	16
	Whin (? chert) - - -	2	18
	Sandstone, sand and whin (? chert) - - -	35	53
	Whin (? chert) - - -	5	58
Atherfield Beds	Rocky sand. Water - - -	7	65
	Black sand - - -	35	100
	Brown sand. Water - - -	15	115
Weald Clay	Clay - - -	281	396
	Pyrites - - -	1	397
	Greenish-grey sand - - -	3	400

PEVENSEY SLUICE. House marked on the old Ordnance Map (Sheet 5) northward of Martello Towers 52, 53.

A tube-well struck rock at the depth of 20 feet and got salt water.

PLASHETT PARK. Near a cottage in the south-eastern corner.

DR. MANTELL. "The Fossils of the South Downs," 4to, Lond., 1822, p. 66.

		Thickness.	Depth.
		<i>Ft. in.</i>	<i>Ft. in.</i>
Weald Clay	Ochraceous loam - - -	5 0	5 0
	Weald clay - - -	5 0	10 0
	Sussex marble - - -	0 5	10 5
	Weald clay - - -	5 0	15 5
	Sussex marble - - -	0 10	16 3
	Weald clay - - -	9 0	25 3
	Sussex marble. To spring of excellent water - - -	0 10	26 1

POLEGATE, see HAILSHAM.

PORTSLADE. Aldrington Waterworks, a quarter of a mile north of the Station. Since acquired by the Corporation of Brighton.

Boring made and communicated by MESSRS. LE GRAND & SUTCLIFF.

Water-level 65 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Shaft - - -	[? Drift and Chalk] - - -	—	74
	Hard chalk and flints - - -	28	102
[Upper Chalk] -	Chalk and flints, free cutting	33	135
	Hard chalk and flints, free cutting from 201 to 213 -	169	304

PORTSLADE. Brewery (Mew's). 1884.

Made and communicated by MESSRS. DOCWRA.

Shaft, with gallery (base 10 feet above bottom of shaft).

Water-level, 57½ feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Made ground - - - - -		5	5
Comb rock - - - - -		18	23
Chalk and flints - - - - -		65½	88½
	? bored deeper		

PORTSLADE. Brickyard, southern side of Brighton Road, about 15 feet below old surface level, and about 60 feet above Ordnance Datum.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Woolwich and Reading Beds, perhaps reconstructed] -	Brick earth - - -	9	9
	Sand and clay - - -	11	20
	Sand with flints - - -	20	40
[Upper Chalk] -	Chalk. To water - - -	4	44

PULBOROUGH. Borough Farm. 1898.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

Water-level at 31 feet from the surface. Supply small.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Hythe Beds ?]	Soil and loam - - -	4	4
	Sand-rock, loose stones at about 10 to 12 feet -	8	12
	Sand and stones - - -	8	20
[Atherfield Clay ?]	Yellow clay mixed with sand - - -	4	24
	Green and yellow sand with clay - - -	2	26
	Sand and clay - - -	5	31
	Wet sand (about the level of old dug well) - -	2	33
[Weald Clay]	Yellow sand and clay -	12	45
	Blue clay - - -	7	52
	Brown [and purple] clay -	5	57

PULBOROUGH.

P. J. MARTIN. "Geological Memoir on a Part of Western Sussex, p. 30, 1828.

Gault? { Well (the rest bored) - - - - - 30 }
 { Sandy blue clay, to sand rock, with a copious supply of good water, which rose 18 ft. above the boring 35 } 65 feet.

RINGMER. Five wells from Dr. Mantell's "Fossils of the South Downs." Quarto, London, 1822, pp. 75, 82, 83.

Park-house. Chlorite [glauconite] sand, 40 feet.

Moor Lane. Cottage. Blue marl, the lower beds with much green sand and some fossils (Gault), 50 feet.

Norlington Green. (Gault.) Blue marl, with very many shells below 15 feet. At 20 feet a layer of red marl, a few inches thick, and another 10 feet lower. 50 feet.

Cottage near Mr. W. Green's house :—

A spring of excellent water suddenly appeared at the bottom, and the water rose 10 feet.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Gault-	Yellow ochraceous loam -	5	5
	Blue marl, with <i>Ammonites</i> , <i>Inocerami</i> , <i>Hamiites</i> , and selenite - - -	15	20
	Dark blue marl, inclining to black. Small crystals of selenite in the upper part, and in the lower nodular masses of hard marl, with green sand, quartz grains, and pyrites - - -	10	30
	Green chlorite [glauconite] sand - - -	4	34

RINGMER. Mr. W. F. Martin's.

From samples communicated by MR. MARTIN.

[Lower Green-sand ?]	-	{	Clay and nodule, at 143 feet.
			Hard micaceous clay (bottom of sunk well) at 150 feet.
			Blackish clay and green sand at 160 feet, more sandy at 165 and 180 feet.
			Green sand at 188 feet.

No record has been kept of the old sunk well, which was probably entirely in Gault. Perhaps the beds to 180 feet belong to the Gault.

RINGMER. Public well, on the Green. 1883. 72 feet above Ordnance Datum.

From samples (taken occasionally) communicated by MR. W. F. MARTIN, of Ringmer.

[Gault, 130 feet]	{	Soil.
		Weathered clay, at 2 feet.
		Grey clay, at 19 feet; <i>Ammonites</i> , at 25 feet; fossils, at 30 feet; <i>Dentalium</i> , at 36 feet; shelly, at 44 and 50 feet; <i>Inoceramus</i> , at 60 and 70 ft.
		Ochre, at 74 feet.
		Grey shelly clay, at 80 feet; and cement-stone, with <i>Nucula pectinata</i> , at 85 and 90 feet; <i>Ammonite</i> , at 96 feet.
		Grey shelly clay, at 108 and 110 feet.
		Hard bed, with <i>Inoceramus</i> and phosphatic nodules at 120 to 130 feet.
[Lower Green-sand ?]	{	Greenish sandy clay, at 170 feet.
		Coarse quartz-sand, with small quartz pebbles, and glauconite (good water), 190 to 218 feet.

Compare with West Firlé (p. 97), four miles to the south-east, where the "greenish sandy clay" rests directly on Weald Clay.

Another version, communicated by MR. G. FULLER, of Lewes, adds, the shaft is 150 feet deep, the rest being bored, and that the water-level is 39 feet down. It gives a different classification, as follows:—

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Gault	189	189
Mixture of gault and sand. Pipe continually choked by hard lumps of a conglomerate of gault and sand. Thin layer of shale	19	208
Lower Greensand	6½	214½

ROTHERFIELD. Maynard's Gate. For the Crowborough District Water Company.

Made and communicated by MR. A. E. NUNN, and from MR. C. O. BLABER.
322 feet above Ordnance Datum.

Shaft, of 10 ft. diameter, to 56 feet ; the rest a bore of a foot diameter.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil - - -	- - -	2	2
[Drift] - - -	- - -	3	5
	Gravel - - -	24	29
	Dark clay - - -		
	Brown sand-rock. Dip 65° [?] to N.E. On reaching this, the yield was at the rate of 60,000 gallons of water in 24 hours - - -	8	37
	Hard stone, on piercing which the supply increased to 150,000 gallons a day - - -	1	38
	Blue clay - - -	3½	41½
Ashdown Sand -	White sand-rock, dip 30° [?] to N.E. - - -	3	44½
	Blue clay - - -	1¼	45¾
	White rock, on reaching which the supply increased to 216,000 gallons a day - - -	17¼	63
	Soft clay - - -	3	66
	Hard blue clay - - -	17	83
	Sand-rock - - -	6	89
	Clay - - -	4	93
	Sand-rock. Supply 303,000 gallons a day - - -	2	95

[The recorded dips probably represent current-bedding in the sand. Measurements from 5 to 45¼ feet taken on the side highest by dip.]

RUDGWICK. Hermongers. For Mr. T. T. Busk. 1890.

Communicated by MR. BUSK.

Shaft about 55 feet, the rest bored.

The supply, from the bottom did not fail (from August, 1890, to February, 1891), although many wells in the parish were dry during the long frost. Water very hard, but otherwise satisfactory. It rises up the bore and stands at about 43 feet down the well.

[Weald Clay] -	{	Blue and red clay. A little water at the depth of 18 feet - - -	} Varying in thickness and reaching nearly to the base of the shaft on one side.
		Clay - - -	
		Brown rock, in the bottom of the shaft and in the top of the bore.	
		Grey rock.	
		Clay.	

RUDGWICK. Upper Hillhouse Farm, nearly two miles westward of the village. 1891?

From specimens sent by MESSRS. TILLEY and from workman's note-book.
Boring of six inches diameter.

Water at first stood $15\frac{1}{2}$ feet down. Started falling when the boring was $60\frac{1}{2}$ feet deep, to 19 feet, and when the boring was 80 feet deep stood at 52 feet.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Weald Clay]	Sand, dry at top - - -	15	15
	Red clay - - - -	5	20
	Bluish sandy clay - - -	4	24
	Brown clay - - - -	10	34
	Bluish clay - - - -	6	40
	Yellow sandy clay - - -	5	45
	Stiff yellow clay - - -	5	50
	Blue clay - - - -	17	67
	Sandstone - - - -	$\frac{1}{2}$	$67\frac{1}{2}$
	Blue clay - - - -	$32\frac{1}{2}$	100

RYE. Batchelor's Brewery. Northern end of the town, south of the railway.

About 15 to 20 feet above Ordnance Datum.

From MR. J. ELLIOTT, in "Geology of the Weald," p. 49. 1875.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Alluvium	Clay - - - -	3 or 4	10?
	Peat, with logs of wood - -	6 or 8	
Fairlight Clays	White and red mottled, with several layers of sandstone (one, at a depth of about 150 feet, 23 feet thick), and a few thin layers of hard rock -	330	340?

RYE. Under Cadborough Cliff, $1\frac{1}{4}$ miles from the town. For public supply. 1898?

Boring communicated by MR. P. H. PALMER.

Yield 160,000 gallons a day, not lowering the water more than 9 feet below the ground. After half an hour's cessation of pumping the water overflows, a foot above the ground, at the rate of 40,000 gallons in twenty-four hours. Water very good.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Alluvium] -	Peat - - - -	18	18
	Shale - - - -	14	32
	Sand-rock - - - -	30	62

SEAFORD. Waterworks, *see* EAST BLATCHINGTON.SEFTER, *see* PAGHAM.

SELMESTON. Mr. C. Long's Cottages, by Reading Room, S. of Church. 1888.

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.

Water-level 50 feet down.

—		Thickness.	Depth.
		<i>Ft. in.</i>	<i>Ft. in.</i>
Top soil	- - - - -	0 6	0 6
[Gault]	Yellow Clay - - - - -	5 6	6 0
	Blue clay - - - - -	12 0	18 0
	Red shale - - - - -	0 2	18 2
	Mixed coloured clay and sand	15 0	33 2
[Lower Greensand]	Green sand (soft stone?)	4 10	38 0
	Brown sand - - - - -	19 0	57 0
	Grey sand - - - - -	16 6	73 6

SELSEY. Park Farm. 1889.

From a section and samples communicated by MESSRS. DUKE & OCKENDEN.

No good water.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Drift] -	Brickearth - - - - -	4	4
	Fine beach - - - - -	8	12
	Sand and beach - - - - -	7	19
	Lug sand - - - - -	11	30
	Green [shelly] sand - - - - -	14	44
	Green [shelly] sand with streaks of light-coloured marl - - -	12	56
	Green [shelly] sand - - - - -	28	84
[Bracklesham Beds, 330 feet] -	Black clay [sample light-green, smooth, and soapy]. At 90 feet a few inches of sub- stance like coal - - - - -	6	90
	Sand and clay [laminated (?), with fossils] - - - - -	12	102
	Green sand - - - - -	6	108
	Dark clay - - - - -	16	124
	Green sand [light-grey mica- ceous clay at 125 feet; green sand at 130 feet; carbona- ceous sandy clay at 134 feet]	10	134
	Black clay [light-grey clay, not quite so smooth and soapy as at 84 feet] - - - - -	3	137
	Black sand [dark-coloured clay and sand] - - - - -	2	139

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Bracklesham Beds, 330 feet]	Sand and clay [laminated clay and sand at 141 feet; green sand at 151 feet] - - -	18	157
	Clay - - - - -	4	161
	Clay and marl with a little sand [green sand and yellow concretion] - - - -	11	172
	Light clay and green sand [green sandy clay at 185 feet; light-grey clay at 212 feet; whitish and pale-yellow clay with darker streaks at 249 feet] - - - - -	77	249
	Green sand with layers of clay and light-coloured rock [green sand and yellow concretions from 249 to 251 feet] - -	8	257
	Sand and clay - - - -	16	273
	Clay and a little sand - - -	6	279
	Hard clay - - - - -	3	282
	Green sand and clay - - -	19	301
	Hard black sand-rock - - -	3	304
	[Green] sand and clay - - -	6	310
	Black clay [grey clay at 321 feet]	23	333
	Sand and clay [finer sand at 346 feet] - - - - -	13	346
	Green sand - - - - -	9	355
	Sand (layers of) and sand-rock [blacker sand at 357 feet] -	2	357
	Sand [with glauconite] - - -	3	360
	Sand and clay [dark-coloured micaceous sandy clay] - -	16	376
	Black clay [rather sandy at 394 feet] - - - - -	34	410
	Sand [blacker clay and broken flint] - - - - -	20	430
	[London Clay, 192 feet]	Hard clay [dark sandy clay at 430, 440, 450, 460, and 470 feet; stiffer black clay at 479 feet; more sandy clay at 498 feet; dark-grey or black clay at 500, 502 and 503 feet; black clay with white streaks (crushed septaria?) at 505 feet] - -	77
Hard white rock (no sample obtained) - - - - -		$\frac{1}{2}$	507 $\frac{1}{2}$
Black clay - - - - -		29 $\frac{1}{2}$	537
Bluish sandy clay and brown clay, to running sand - -		15	552

SHIPLEY. Workhouse. Abandoned (no water).

P. J. MARTIN. "Geological Memoir on a part of Western Sussex," 4to, Lond., 1828, p. 44.

Shaft 75 feet, the rest bored.

Weald Clay. In the middle of the boring a thin shelly bed, and a thicker one at the bottom (two beds of Sussex Marble). 110 feet.

In DR. MANTELL'S "Geology of the South-east of England," 8vo, Lond., 1833, p. 186, a well at Shipley is referred to as having passed through masses of shells at the depth of 30 feet, and also at 100 feet.

SHORT GATE.

DR. MANTELL. "The Fossils of the South Downs." 4to, Lond., 1822, p. 66. Weald Clay, with two beds of Sussex Marble, 30 feet.

SLAUGHAM. Ashfold House.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

Plenty of water, standing at 190 feet from the surface.

	Thickness.	Depth.
	<i>Feet.</i>	<i>Feet.</i>
Old well - - - - -	—	39
Blue rock - - - - -	23	62
Coal [lignite] - - - - -	1	63
Very hard blue rock - - - - -	10	73
Blue rock and marl - - - - -	3½	76½
Hard white marl - - - - -	10½	87
Hard white rock - - - - -	7½	94½
Very hard blue rock - - - - -	29½	124
Blue rock and sand - - - - -	4½	128½
Blue rock and clay - - - - -	5	133½
Clay and white marl - - - - -	3½	137
Rock - - - - -	4	141
Hard rock - - - - -	3	144
Hard rock and clay - - - - -	5	149
Hard rock - - - - -	5	154
Hard rock and a little clay - - - - -	16	170
Hard rock - - - - -	35	205
Hard rock and a little clay - - - - -	4	209
Very hard rock - - - - -	14½	223½
Very hard sand-rock (spring) - - - - -	36½	260

SLINFOLD. Rowfold Farm.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Weald Clay]	Old Well (the rest bored) - - - - -	—	59
	Light-coloured clay - - - - -	6	65
	Clay - - - - -	10	75
	Blue rock - - - - -	7	82
	Rock and blue marl - - - - -	46	128

SLINFOLD. Rapkins (Mr. W. D. Knight's) E.N.E. of the village.

Made and communicated by MESSRS. A. WILLIAMS & Co.

Shaft 6 feet, the rest bored.

Water-level 63 feet down. Yield (with a 3-inch pump) 500 gallons an hour.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
? Horsham Stone]	Brown clay and rock - - -	6	6
	Light-blue clay, with sand-rock	7	13
	Blue clay and shaly rock - -	2	15
	Dark dry hard clay - - -	7	22
	Light[-coloured] dry hard clay	20	42
	Light-blue hard clay - - -	5	47
	Light-brown rock, with clay -	6	53
	Dark hard dry clay - - -	6	59
	Light-blue slaty rock - - -	7	66
	Light[-coloured] slaty clayey rock	6	72
Weald Clay]	Light-brown shaly clay - - -	9	81
	Light-brown hard clay - - -	4	85
	Hard light-blue clay - - -	5	90
	Dark-grey shaly clay - - -	6	96
	Light-blue shaly clay - - -	4	100
	Light-blue shaly rock - - -	4	104
	Dark-blue shaly rock - - -	6	110
	Dark-blue shale - - -	6	116
	Light-blue hard clay and rock	7	123
	Blue shaly clay - - -	30	153
Blue shaly rock - - -	10	163	

SOMPTING.

F. Dixon's "Geology of Sussex," Ed. 2, 1878, p. 78.

Gravel, with a little marl - - - - 10 or 12 feet.

Sand, with marine shells of recent species - 6 or 7 "

Chalk, with very good water.

STEYNING. Shelley's Farm, for Mr. Gates.

Made and communicated by MESSRS. DUKE & OCKENDEN.

Water coming in at different places in rocks, stands 28 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Hard clay - - - - -	- - - - -	24	24
Rock - - - - -	- - - - -	4	28
Hard clay - - - - -	- - - - -	26	54
Clay, with thin layers of stone	- - - - -	12	66
Hard clay - - - - -	- - - - -	18	84
Rock - - - - -	- - - - -	1	85
Hard clay, of varying colours	- - - - -	47	132

STEYNING. Waterworks, *see* UPPER BEEDING.

SUB-WEALDEN BORING, *see* MOUNTFIELD.

TELSCOMBE. Warren Farm. Brighton Industrial School. 1858-1862.

H. WILLETT. In F. Dixon's "Geology of Sussex, Ed. 2, 1878, pp. 115-117. From *Brighton Gazette*, 17th April, 1862.

Shaft 437 feet. Then, at 400 feet, a gallery northward, 7 feet high, 6 wide and 30 long. At 12 feet lower another, to the west, 9 feet high, 6 wide and 30 long. These connected by another, 6 feet high, 3 wide and 20 long. Another heading eastward, 9 feet high, 6 wide and 20 feet long. From these sources only 1,000 gallons of water per day were got.

Then another shaft was made in the eastern gallery, and this continues to the base. [The construction of this well is peculiar. Why the work of sinking a shaft was continued in so inaccessible a place instead of being taken straight down from the surface is hard to understand.]

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Upper] Chalk, with flints. A thin seam of marl [? 3 feet] at the base - - - -		418	418
[Middle] Chalk, without flints - - - -		212	630
[Lower Chalk] Grey marl, with blue seams - -		155	785
[Lower Chalk and partly Upper Greensand?] Blue marl with grey seams - - - -		173	958
Upper Greensand. Firestone without water -		10	968
	Clay, varying from ash-brown to black and bluish-black -	282	1,250
Gault, 312 feet -	Clay, with seams of green sand, much vegetable matter, wood and pyrites. A sulphurous stench from this -	25	1,275
	Brown clay, not effervescing with acid, as the rest of the Gault does, with hard white nodules (? phosphatic) -	5	1,280
[? Lower Greensand or Gault] Greensand with seams of white sand, mixed with pebbles, [? phosphatic nodules] - - - -		5	1,285
[Lower Greensand] Red sand, touched by a small auger - - - -		-	-

"The beds dip S., and for this reason a deduction of 5 to 10 per cent. should be made from the above figures to get the true thickness. [This would imply a very high dip, of which there is no evidence at the surface.]

On March 16th, 1862, after the workmen had ascended the lower shaft, the thin floor of Gault left at the bottom of the well was broken up, under a pressure of 420 lbs. to the square inch, by the water in the sand below, and the first descending man of the next shift, got into water at 400 feet from the bottom, 32,000 gallons having rushed in during the interval of three-quarters of an hour. The water continued to rise, but it took several days to fill the galleries, and by April 10th it had risen to 945 feet from the bottom [340 from the surface], or 60 feet above low water-mark, when the well held 100,000 gallons."

[As there is an outlier of Reading Beds close to the site, we have here all but the whole thickness of the Chalk. The collective thickness of Middle Chalk, Lower Chalk and Upper Greensand is 550 feet, which seems excessive, even allowing the suggested reduction for dip.]

For Analysis of the water see p. 119.

THAKEHAM. Merrywood. Mr. Gilbert's.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

Good supply, in the sand, the water rising to within 55 feet of the ground.

—		Thickness.	Depth.
Well (old)	- - - - -	<i>Ft. in.</i>	<i>Ft. in.</i>
[Hythe Beds]	{ Hard blue rock - - -	30 0	90 0
	{ Green sand, to rock - - -	0 10	90 10

THREE BRIDGES STATION, *see* WORTH.

TICEHURST. Metropolitan Drinking Fountain. Middle of road in centre of village. 1885.

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.

Water-level 12½ feet down. Yield 2½ gallons a minute.

—		Thickness.	Depth.
Dug (the rest bored)	- - - - -	<i>Feet.</i>	<i>Feet.</i>
	{ Clay - - - - -	12	14
	{ Yellow loamy clay - - -	6	20
	{ Clay - - - - -	2	22
	{ Stone - - - - -	3½	25½
[Weald Clay]	{ Blue marl - - - - -	4½	30
	{ Mottled marl - - - - -	4	34
	{ Sandstone - - - - -	5½	39½
	{ Blue marl - - - - -	1	40½
	{ Loamy clay and stone - - -	2½	43
	{ Blue marl - - - - -	23	66

TUNBRIDGE WELLS. L. B. & S. C. Station, *see* FRANT.

UCKFIELD. Grammar School.

Communicated by MR. SMITH, the Head Master.

Old well 50 feet, the rest bored.

Water rose to the height of 45 feet below the ground. The water in the old well was bad. The supply from the bore-hole is at the rate of 300 to 400 gallons an hour, and the water can be pumped without lowering the head.

—		Thickness.	Depth.
[Tunbridge Wells Sand]	{ Bricked - - - - -	<i>Feet.</i>	<i>Feet.</i>
	{ Sandstone - - - - -	44	50
	{ Rock (sandstone) - - -	14	64
[Wadhurst Clay]	{ Blue clay - - - - -	187	251
[Ashdown Sand. ? in part Wadhurst Clay]	{ Lighter [-coloured] clay and sand, gradually more sandy	13	264

UCKFIELD. Waterworks, Hempstead Mill.

Made and communicated by MESSRS. A. WILLIAMS & Co. With some additions from MR. H. B. NICHOLS (1890).

Engine-house floor about 100 feet above Ordnance Datum.

Water-level 90 feet above Ordnance Datum. Reduced 20 feet by pumping at the rate of 6,000 gallons an hour, after 3 to 4 hours.

—		Thickness.	Depth.
[Soil and Alluvium]	Yellow clayey alluvial soil -	<i>Feet.</i> 20	<i>Feet.</i> 20
	Blue clay, with thin bands of red clay toward the top -	20	40
	Very compact blue clay -	20	60
	Very hard blue clay -	15	75
	Very hard and very solid blue clay -	10	85
[Wadhurst Clay, 180 feet]	Softer blue clay -	5	90
	Hard blue clay, with sandy particles -	10	100
	Blue clay -	10	110
	Light-grey sandstone -	10	120
	Compact blue clay -	20	140
	Sandy paste clay -	10	150
	Blue rock [? calcareous grit], very hard, with sand in streaks -	25	175
	Compact blue clay, very hard -	25	200
	Light-grey sand -	30	230
	Light-grey sand, with clay -	10	240
[Ashdown Sand, 78 feet]	Close-grained sand -	15	255
	Fine white sand -	5	260
	Hard blue clay -	5	265
	White-grey sand, very fine and clear -	5	270
	Very pure white sand, with water. Thin bands of red clay toward the top -	8	278

UPPER BEEDING. Room Bottom.

Boring (trial) for Steyning water-supply, made and samples communicated by MESSRS. DUKE & OCKENDEN.

114 feet above Ordnance Datum.

—		Thickness.	Depth.
Run of the hill	Chalk rubble and flint -	<i>Feet.</i> 15	<i>Feet.</i> 15
	Grey chalk -	25	40
Lower Chalk	Dark-grey marl - at 40 feet		
	Light-grey hard chalk at 55 "		
	Dark-grey marl - at 65 "		
	Grey marl - at 69 "		
	Do. - at 70 "		
	Dark-grey hard marl at 80 "		
	Hard grey marls at 85, 88, 97, and 100 feet -		
Dark-grey hard marl at 101 and 102 feet -			

WADHURST. Buckhurst Manor Farm (? about two miles westward of the Church).

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.
Water-level 120 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Pit (? the rest bored)	- - - - -	—	5
	Yellow clay - - - - -	7	12
	Blue clay - - - - -	11	23
	Yellow claystone - - - - -	2	25
	Sandstone - - - - -	4	29
	Yellow clay and stone - - - - -	38	67
	Hard stone - - - - -	4	71
	White sandstone - - - - -	3	74
	Yellow clay and stone - - - - -	4	78
	Brown sandstone - - - - -	19	97
[? Wadhurst Clay]	Clay and stone - - - - -	12	109
	Stone - - - - -	2	111
	Clay and stone - - - - -	2	113
	Hard stone - - - - -	2	115
	Clay and stone - - - - -	3	118
	Hard stone - - - - -	24	142
	Dark mottled clay - - - - -	3	145
	Clay and stone - - - - -	14	159
	Hard sandstone - - - - -	4	163
	Stone and loamy sand - - - - -	2	165
[? Ashdown Sand]	Hard sandstone - - - - -	20	185
	Loamy clay - - - - -	2	187
	Hard sandy blue clay - - - - -	8	195

WALBERTON. Messrs. Ellis & Sons' Brewery.
Section and samples communicated by MESSRS. ELLIS.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Drift] - - -	Loamy sand - - - about	20	20
	[London Clay] Blue clay - - - about	30	50
[Reading Beds]	Mottled clay, at about 50 feet [?]	148	198
	Red clay at 128 and 146 feet -		
	Lignite and black clay, thin bed between 150 and 160 feet		
	Grey clay, at 170 feet - - -		
	Red clay, at 171, 171½, and 173 feet - - - - -		
	Hard grey sand, at 174 and 176 feet - - - - -		
	Mottled sand and clay, at 183 and 185 feet - - - - -		
[Upper Chalk]	Red clay, at 187, 190, and 192 feet - - - - -	115	313
	Dark mottled clay, at 193, 194, 196, and 197 feet - - - - -		
	Hard bed, at 198 feet - - - - -		
	Mixed chalk and clay, at 199 feet - - - - -		
	Layers of flint beds and blue clay, from 199 to 214 feet - - - - -		
Chalk, at 214 feet - - - - -			
Chalk and flints - - - - -			

The London Clay should probably be thicker, and the Reading Bed thinner, than is given. The first numbered sample was from 128 feet.

WALDRON. In the railway cutting between the north-east end of Heathfield Railway Station and the mouth of the tunnel (60 yards south of Hotel). 1896.

C. DAWSON, *Quart. Journ. Geol. Soc.*, vol. liv., pp. 570, 571.

450 feet above Ordnance Datum.

—	—	Thickness.		Depth.	
		<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>
Dug well	(No record—see next section) -	—	—	73	0
	Grey sandy marl-rock - -	6	0	79	0
[Fairlight Clays]	Grey sandy marl-rock, with bands of grey sandstone -	17	6	96	6
	Blue sandy marl-rock - -	4	0	100	6
	Blue sandy marl-rock, with bands of grey sandstone -	2	6	103	0
	Blue shale and fossils, grey sandstone with lignite and ironstone - - - -	9	0	112	0
	Blue marl-rock, with bands of grey sandstone and ironstone	15	6	127	6
	Blue marl-rock and shale -	3	8	131	2
	Blue sandy marl-rock, with occasional ironstone - -	8	10	140	0
	Hard grey sandstone - -	1	9	141	9
	Blue sandy marl-rock - -	1	3	143	0
	Blue sandy marl-rock, with bands of grey sandstone -	9	0	152	0
	Blue sandy marl-rock and ironstone - - - -	9	6	161	6
	Grey sandstone - - - -	1	3	162	9
	Blue sandy marl-rock, with bands of grey sandstone and ironstone - - - -	8	6	171	3
	Grey sandstone (? 9 inches)	1	9	172	0
	Blue sandy marl-rock, with bands of grey sandstone and ironstone - - - -	12	0	184	0
	Grey sandstone - - - -	0	8	184	8
	Blue sandy marl-rock, with bands of grey sandstone and ironstone - - - -	3	4	188	0
	Blue sandy marl-rock, with ironstone - - - -	8	3	196	3
	Hard grey calcareous sandstone	1	2	197	5
	Blue sandy marl - - - -	0	1	197	6
	Grey calcareous sandstone -	0	3	197	9
	Blue sandy marl - - - -	0	1	197	10
	Grey calcareous sandstone -	0	4	198	2
	Blue marl-rock - - - -	0	2	198	4
	Grey calcareous sandstone -	0	3	198	7
	Bands of the same, and blue marl-rock - - - -	1	11	200	6
	Blue shale, with thin bands of grey calcareous sandstone -	7	6	208	0
	Blue marl-rock, with thin bands of blue shale - - - -	6	0	214	0
Blue marl-rock, with thin hard blue shale - - - -	1	0	215	0	
Blue shale - - - -	2	6	217	6	
Grey sandstone - - - -	1	6	219	0	
Blue sandy marl-rock - - -	5	6	224	6	

WALDRON—*continued.*

		Thickness.		Depth.	
		<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>
[Fairlight Clays]	Blue sandy marl-rock, with bands of blue shale - - -	8	0	232	6
	Blue sandy marl-rock and grey sandstone - - - - -	3	6	236	0
	Blue sandy marl-rock, with nodules of clayey ironstone -	8	0	244	0
	Blue sandy marl-rock and shale	13	6	257	6
	Bands of blue sandy marl and shale, with bands of greyish sandstone - - - - -	7	0	264	6
	Brown and greenish sandy marl, with thin bands of marble -	2	6	267	0
	Blue and greenish sandy marl, with bands of shale - - -	3	6	270	6
	Blue and grey sandy marl, with bands of shale - - - - -	6	0	276	6
	Blue, brown, and greyish marl and shale - - - - -	10	6	287	0
	Brown and greyish sandy marl and blue shale - - - - -	13	0	300	0
	Greysands, marl-rock, and shale (Gas first lighted, 312 feet.)	12	0	312	0
	Blue sandy marl-rock and shale	1	0	313	0
	Greyish limestone - - - - -	0	1½	313	1½
	Blue sandy marl-rock - - - - -	2	10½	316	0
	Blue sandy marl-rock, with nodules of grey sandstone -	5	0	321	0
	Blue sandy marl-rock, with bands of shale (<i>Paludina</i> <i>fluviorum</i> , 333 feet) - - -	18	0	339	0
Blue sandy marl-rock, with bands of bituminous shale and broken fossils (<i>Corbula</i> and <i>Cyrena</i> , 347 feet) - - -	8	0	347	0	
Blue sandy marl-rock, and bands of hard bituminous shale with shells (<i>Ostrea</i> , <i>Melania</i> , <i>Hydrobia</i> ?, <i>Cor-</i> <i>bula</i> , <i>Cyrena</i> , <i>Cardium</i> , &c., 353 feet <i>et seq.</i>) - - - - -	6	0	353	0	
[Purbeck Beds]	Bands of shell-rock and shale	3	6	356	6
Blue sandy marl, with bands of shale with shells - - -	5	6	362	0	
Blue shale and bands of shell- rock - - - - -	3	6	365	6	
Shell-rock - - - - -	0	8	366	2	
Bands of blue shale with shells	1	4	367	6	
Blue shale and hard bands of shells - - - - -	3	6	371	0	
Blue sandy marl, with bands of shale with shells - - - - -	6	0	377	0	

Little water was found in this boring; but gas has continued to escape, though in March, 1898, the boring was found to be blocked at the depth of 229 feet from the surface.

WALDRON. New Heathfield Hotel. On the southern side of the main road, half-a-mile west of the town. 1893.

C. DAWSON, *Quart. Journ. Geol. Soc.*, vol. liv., p. 569.
493 feet above Ordnance Datum. Sunk 21 feet, rest bored.

Abandoned as unsuccessful.

Water-level 180 feet down. Was higher when the boring was shallower.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Ashdown Sand]	Dark brown rusty ferruginous sand, with very thin bands of lignite - - - -	5	5
	Light yellow and grey sand, with thin bands of lignite -	5	10
	Slate-coloured marl - - -	1	11
	Yellow and white bands of sand	10	21
	Sandstone and blue marl, in layers - - - -	11	32
	White sandstone - - - -	18	50
	White sandstone and layers of marl or clay - - - -	9	59
	Blue sandstone - - - -	2	61
	Blue sandstone and layers of marl - - - -	10	71
	White and yellow sandstone -	5	76
	Blue sandstone and marl -	10	86
	Blue marl. First signs of water	3	89
	Sandstone and marl - - -	5	94
	Blue marl - - - -	57	151
[Fairlight Clays]	Hard sand-rock - - - -	4½	155½
	Blue marl - - - -	12½	168
	Hard stone - - - -	1½	169½
	Hard blue marl - - - -	46½	216
	Hard sand-rock - - - -	3	219
	Blue marl (inflammable gas first noticed at 228 feet) - -	30	249

WANNOCK, see FOLKINGTON & JEVINGTON.

WARNHAM.

“The Geology of the Weald,” p. 101.

		Thickness.	Depth.
		<i>Feet in.</i>	<i>Feet in.</i>
Bluish clay - - - -	- - - -	7 0	7 0
Red sandstone - - - -	- - - -	0 9	7 9
Bluish clay - - - -	- - - -	20 0	27 9
Red sandstone - - - -	- - - -	0 8	28 5
Blue clay - - - -	- - - -	15 7	44 0
Hardened blue clay - -	- - - -	2 6	46 6
Blue clay - - - -	- - - -	31 6	78 0
Water-bearing bed - -	- - - -	1 0	79 0
Blue clay - - - -	- - - -	35 0	114 0
Hard sandy clay - - -	- - - -	3 0	117 0
Blue clay, with fragments of other formations [?]	- - - -	27 0	144 0
Red clay, with fragments of red sandstone [?]	- - - -	8 0	152 0

WARNHAM. Lodge.

Made and communicated by MESSRS. DOCWRA.

Shaft 82½ feet, now filled to 80. Heading to old well at 24 to 29 feet down.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil	- - - - -	1½	1½
[Weald Clay]	Loamy yellow clay - - - - -	4	5½
	Hard brown rocky marl - - - - -	13¾	19¼
	Hard blue (marl) clay - - - - -	6	25¼
	Brown clay - - - - -	2¾	28
	Blue clay - - - - -	75½	103½

Water got at the depth of 73 feet was lost at 80 feet. Present supply from a higher level (? 33).

WARNHAM. Kingsfold Estate.

Bored and communicated by MESSRS. DUKE & OCKENDEN.

Place Farm, on the hill.

Weald Clay, no water 303 feet.

According to MR. P. CHASEMORE there was plenty of surface-water, which, however, was contaminated with salt, making it unfit for use.

At the Crossing gates in the Park, east of the Farmstead.

Weald Clay, no water, 84½ feet.

At the western corner of the Park, by the side of the railway.

Weald Clay, to plenty of bad water, with Epsom salts, 73 feet.

West of the last boring, and under the windmill at the foot of the hill.

Weald Clay - - - - - 30
Blue rock, with hard but passable water - 27 } 57 feet.

According to MR. P. CHASEMORE water was found, in the Horsham stone-beds, at the bottom.

WARREN FARM, *see* TELSCOMBE.

WEST DEAN. Trial-boring for the Eastbourne Waterworks. North of the pond.

Made and communicated by MESSRS. ISLER & Co.

Water-level 5 feet below surface.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Dug Pit	- - - - -	—	4
[Alluvium]	Clay - - - - -	8	12
	Running sand - - - - -	3	15
	Blue clay - - - - -	27	42
	Rock - - - - -	1	43
[Upper Chalk]	Chalk and flints - - - - -	57	100

WEST DEAN. Trial-boring for the Eastbourne Waterworks. In the valley half a mile above the pond.

Made and communicated by MESSRS. ISLER & Co.

Water-level 5 feet below surface.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Dug Pit	- - - - -	—	6
[Drift]	{ Mottled clay - - - - -	5	11
	{ Clay and flints - - - - -	5	16
[Upper Chalk]	{ Chalk and flints - - - - -	84	100

WESTFIELD. Hastings Waterworks. Brede Valley Scheme. Trial-borings and wells.

Communicated by MR. P. H. PALMER, Engineer to the Borough.

1. *Brede Bridge*, just west of the road and south of the stream. About 11½ feet above Ordnance Datum.

The water (found at 83 feet deep) ran over the top of the tube at the rate of 28,000 gallons in 24 hours.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Alluvium]	{ Sandy clay - - - - -	3½	3½
	{ Peat - - - - -	24	27½
	{ Clay, slight traces of sand - - - - -	15	42½
	{ Clay and sand - - - - -	8	50½
	{ Blue stone (sandstone) - - - - -	2	52½
	{ Dense hard mottled clay - - - - -	7	59½
	{ Clay - - - - -	2	61½
	{ Pipe-clay - - - - -	8½	70
	{ Clay and sand - - - - -	2½	72½
	{ Very dense clay - - - - -	3	75½
	{ Clay and sand - - - - -	2	77½
[Ashdown Sand]	{ Clay sand and pebbles - - - - -	4½	82
	{ Close-grained white sand.		
	{ Water (increasing to 108 feet)	6	88
	{ White sand and clay - - - - -	6	94
	{ White sandstone - - - - -	14	108
	{ Rock marl (firm clayey sand) - - - - -	8	116
	{ Sandstone - - - - -	8	124
	{ Blue marl (firm clayey sand) - - - - -	4	128
	{ Sandstone - - - - -	6	134
	{ Clay - - - - -	8	142
	{ Sandstone - - - - -	2½	144½
	{ Clay - - - - -	15½	160

WESTFIELD. Hastings Waterworks—*continued.*2. *Owl's Castle* (N.W. of), 60 feet above Ordnance Datum.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Ashdown Beds]	Clay - - - - -	7	7
	Sand and clay - - - - -	5½	12½
	Blue marl - - - - -	11½	24
	Brown clay - - - - -	9	33
	Sandstone - - - - -	19	52
	Blue marl - - - - -	44	96
	Light-blue marl - - - - -	11	107
	Blue stone - - - - -	1	108
	Blue marl - - - - -	6	114
	Blue stone - - - - -	7	121
	Blue marl - - - - -	10	131
	Blue stone - - - - -	1	132
Blue marl - - - - -	5½	137½	

3. Just E. of the footpath, by stream a third of a mile N.N.W. of Crowham. 12 feet above Ordnance Datum.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil - - - - -	- - - - -	2	2
[Alluvium]	Clay - - - - -	1	3
	Peat - - - - -	3½	6½
	Sandy clay (or loam) - - - - -	15½	22
	Yellow clay - - - - -	2	24
	Blue clay marl, with stone at the depth of 54½ to 55½ - - - - -	46	70
Ashdown Sand]	Light-brown silt (or sand) - - - - -	1	71
	Blue stone - - - - -	1	72
	Sand-rock - - - - -	9½	81½
	Blue marl (or clay) and sand-rock (rather sandy clay) inter-mixed - - - - -	18½	100
	Hard white sand-rock and clay - - - - -	23	123
	Hard brown (sandy) clay (or sand-rock and clay) - - - - -	18	141
	Greyish clay - - - - -	20	161

[Can there be Wadhurst Clay here? Nothing but Ashdown Sand is shown on the Geological Survey Map.]

WESTFIELD. Hastings Waterworks—*continued.*

4. *Redley Farm.* Well. By the side-stream, less than a sixth of a mile south-westward of the house.

Over 29½ feet above Ordnance Datum. Original surface 3 feet lower.

—	—	Thickness.		Depth.		
		<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>	
[Alluvium]	{	Soil, loam and peat - - -	4	6	4	6
		Silt and clay - - -	4	6	9	0
		Sand-rock and ironstone -	2	3	11	3
		Blue marl or clay. Two inches of beach-stones at the depth of 38½ feet. Below the pebbles the beds dip 60° to S.S.W. -	89	11	101	2
		Blue stone - - -	1	10	103	0
		Blue marl or clay (<i>Unio antiquus</i> at the depth of 112 feet) - - -	13	0	116	0
		Blue stone - - -	0	6	116	6
		Sandstone and water - -	5	6	122	0
		Blue clay - - -	5	0	127	0

[Can there be Wadhurst Clay here?]

5. In the marsh five-twelfths of a mile above Brede Bridge, 10¼ feet above Ordnance Datum.

A shallow sump (? about 15 feet), the rest bored [descriptions of specimens in these brackets].

—	—	Thickness.		Depth.		
		<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>	
[Alluvium]	{	Soil and peat - - -	12	0	12	0
		Very soft, muddy (?sandy) clay [fine yellowish-buff clayey sand] - - -	23	0	35	0
		Soft brown sand and clay	4	0	39	0
		Soft ironstone (or sandstone) and shale [buff loam, and pieces of iron sandstone], (dirty sand, and gravel of Wealden sandstone) - - -	2	6	41	6
		Brown sandy loam [fine buff clayey sand or sandy clay] - - -	3	0	44	6
		Blue clay and pebbles -	0	6	45	0
		Blue clay [pale grey clay, at 66 feet, not calcareous]	85	0	130	0
		Blue stone (hard grey calcareous grit or sandstone) - - -	2	6	132	6
		Running [fine grey] sand and water - - -	0	8	133	2
		Blue clay [grey, slightly calcareous] - - -	30	7	163	9

WESTFIELD. Hastings Waterworks.—*continued.*

	Thickness.	Depth.
Hard bluestone (calcareous grit) - - - -	<i>Ft. in.</i> 8 9	<i>Ft. in.</i> 172 6
Blue marl [grey calcareous clay and pale soft sandstone] - - - -	18 0	190 6
Blue stone [grey, calcareous] - - - -	2 6	193 0
Blue marl [grey calcareous clay, and then somewhat sandy, but not calcareous] - - - -	15 0	208 0
Sand-rock [fine grey sand at 213 and 213½ feet, fine pale buff clayey sand at 238, brownish clay at 243½, pale grey clay at 247½, pale buff and grey clay at 249½. Not calcareous] - - - -	57 0	265 0
Brown clay shale [buff clay, slightly sandy, not calcareous] - - - -	24 6	289 6
Sand-rock (or stone) [fine buff sand, partly compacted] - - - -	29 0	318 6
Clay [pale brownish-grey, not calcareous] - - - -	3 0	321 6
Sand and clay [pale brownish-grey sand] - - - -	1 0	322 6
Clay [pale brownish-grey, not calcareous] - - - -	1 6	324 0
Stone sand [pale brownish-grey] and clay - - - -	4 9	328 9
Clay [very pale (whitish), not calcareous] - - - -	1 3	330 0
Stone, sand and clay - - - -	1 6	331 6
Clay - - - -	2 0	333 6
Stone, sand and clay [fine buff sand] - - - -	0 6	334 0
Clay [very pale clay, not calcareous] - - - -	—	334 6

Water met with at the depth of 132 feet 8 inches, and it overflowed at the rate of 50,000 gallons in 24 hours. A pump of 6 inches diameter placed in the borehole, and worked for 24 hours, could not lower the water more than to 14½ feet below the ground, the yield being still 50,000 gallons.

A well 52 feet deep has been made close by.

6. In the marsh, about a third of a mile N. of E. from Rock's Farm.

About 14¾ feet above Ordnance Datum.

A shallow sump (? about 15 feet), the rest bored.

Pumping here affected Nos. 5 and 4.

Water from the beds of sand-rock (and loose sand) between 62 and 119 feet down overflowed at the rate of 70,000 gallons (in 24 hours?). It

WESTFIELD. Hastings Waterworks.—*continued.*

has ceased to overflow, and has gradually lowered [? through pumping from the well close by].

—		Thickness.	Depth.			
		<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>	
[Alluvium]-	{	Soil, peat, &c. - - - -	16	0	16	0
		Peat - - - - -	6	0	22	0
		Clay - - - - -	5	0	27	0
		Yellow sandstone (broken, gravelly) - - - -	2	6	29	6
		Grey sandstone (? with fish scales) - - - -	4	3	33	9
		Bluestone (calcareous grit). Water ran over the top	1	7	35	4
		Blue marl [? 19 ft. 8 in.]	20	5	55	9
		Running sand (water) [? 4 feet] - - - -	3	3	59	0
		Clay - - - - -	3	0	62	0
		Yellow sand-rock - - -	2	6	64	6
[Ashdown Sand]	{	Sand-rock, with 9 inches of clay at the base, probably a fissure - -	16	0	80	6
		Hard grey sand-rock - -	19	6	100	0
		Sand-rock - - - - -	19	0	119	0
		Brown clay (shale) [? 24 ft.]	27	0	146	0
		Sharp brown sand, or sand-rock [? 22 ft.] - - -	19	0	165	0
		Sand and clay - - - -	3	0	168	0
		Sand-rock - - - - -	31	6	199	6
		Clay - - - - -	3	0	202	6
		Sand and clay, chiefly the former - - - - -	7	6	210	0
		Sand-rock - - - - -	10	0	220	0

In another account the top two beds are given as Clay 4 feet, Peat 18; and the beds below 168 feet as Sand-rock 17½, Clay 14½, Sand and clay 2½, Sandstone 3½, this account stopping at the depth of 206 feet.

On touching the sand-rock below 146 [or 143] feet, water burst up in the well close by from a crack or fissure in the bottom, then 54 feet down, and the yield (of the well) increased from 432,000 to 576,000 [gallons in 24 hours].

7. Well, about 30 feet from No. 6. Has yielded a large amount of water.

—		Thickness.	Depth.		
		<i>Feet.</i>	<i>Feet.</i>		
Soil - - - - -		1	1		
Alluvium]-	{	Clay - - - - -	4	5	
		Peat - - - - -	6	11	
		Silt and loose stones-	13	24	
[Ashdown Sand]	{	Sand and blue stone, in small pieces, mixed -	6	30	
		Blue marl - - - - -	5½	35½	
		Thin shaly rock - - -	1	36½	
		Silt and loose marl, mixed	11½	48	
		Sand-rock. Large vents filled with running sand	6	54	

WESTFIELD. Hastings Waterworks—*continued.*

An account of this boring from MESSRS. ISLER differs in the following particulars, giving some fuller detail in parts.

Water started overflowing at 56 ft. down. During work between the depths of 56 and 101 feet the springs blew out the bottom of the well, 30 ft. from the boring. Yield increased 150,000 gallons a day more at 147 feet, and the amount at no time reached from 35,000 to 40,000 an hour.

—	Thickness.		Depth.	
	<i>Ft.</i>	<i>in.</i>	<i>Ft.</i>	<i>in.</i>
			29	6
Light [coloured] sandstone - - - - -	1	4	30	10
Very hard sandstone - - - - -	5	9	36	7
Blue stone - - - - -	5	0	41	7
Marl and stone - - - - -	1	6	43	1
Hard yellow sandstone - - - - -	3	0	46	1
Hard beds of sand and blue stone - - - - -	1	11	48	0
Hard sandstone - - - - -	1	0	49	0
Shale and marl - - - - -	2	9	51	9
Sand - - - - -	5	9	57	6
Sandy clay - - - - -	2	6	60	0
Undescribed - - - - -	—		64	6
Hard sandstone - - - - -	19	6	84	0
Light [coloured] clay and stone - - - - -	5	4	89	4
Sand-rock - - - - -	28	8	118	0
Black shale - - - - -	22	0	140	0
Layers of hard rocks - - - - -	0	6	140	6
Black shale - - - - -	5	6	146	0
Sand-rock - - - - -	74	0	220	0

8 (called 4 by MR. ELWORTHY *in* "The Hastings Water Supply Past and Present." Svo. 1894.) By the River Brede, north of Forge Bridge. 1896.

Water, from the sandstone, overflowed and flooded the field.

—	Thickness.		Depth.	
	<i>Feet.</i>		<i>Feet.</i>	
Alluvium and clay - - - - -	42		42	
Iron-sandstone - - - - -	13		55	
Clay - - - - -	8		63	
Grey sandstone (like that from which the water is got in Nos. 5 and 6), with here and there a thin layer of clay - - - - -	153		216	
Light-brown shale - - - - -	13½		229½	

WEST FIRLE. Bushy Lodge.

Made and communicated by MESSRS. DUKE & OCKENDEN

Water was finally obtained from the Lower Greensand.

—		Thickness.	Depth
		<i>Feet.</i>	<i>Feet.</i>
[Gault]	- Black clay with shell fragments	327	327
[Lower Greensand]	Green sandy clay (as at 170 feet on Ringmer Green) - -	12	339
[Weald Clay]	Light-grey shaly clay - -	90	429

WESTHAM. Langley Farm (N.E. of Eastbourne). Two Borings.
 Made and communicated by MESSRS. LE GRAND & SUTCLIFF.
 No supply found in either.

1.

—		Thickness.	Depth
		<i>Feet.</i>	<i>Feet.</i>
Soil - -	- - - - -	2	2
[Weald Clay]	Loam - - - - -	8½	10½
	Sandy loam - - - - -	8½	19
	Weald clay - - - - -	10	29
	Weald clay and green sand - -	25½	54½
	Light-grey shaly clay - -	68½	123
	Light-blue clay and stone -	3	126

2. A short distance further from the sea.

—		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil - -	- - - - -	1½	1½
[Weald Clay]	Grey sand - - - - -	4	5½
	Red sand - - - - -	1½	7
	Brown sand - - - - -	2	9
	Coloured [mottled] loamy sand	3	12
	Brown live sand - - - - -	6	18
	Brown loamy sand - - - - -	9½	27½
	Black sandy clay - - - - -	13½	41
	Black clay and green sand -	34	75
	Weald clay and green sand -	23	98
	Weald clay - - - - -	43	141
	Brown sand - - - - -	6½	147½
	Weald clay - - - - -	18	165½
	Light blue clay and stone -	9½	175
	Dark brown clay - - - - -	5	180
	Coloured [mottled] clays -	16	196
Greenish clay with whitestreaks	5	201	
Brown and blue shaly clay -	11	212	

WESTHAM. Stone Cross. Mr. Marsden's. 1876.

Made and communicated by MESSRS. S. F. BAKER & SONS.
Good supply, from the sand-rock.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Weald Clay]	Old well [? all clay] - - -	—	65
	Hard dark clay - - -	125½	190½
	Hard sand-rock - - -	6	196½
[Tunbridge Wells Sand]			

WILLINGDON. Park Croft, near Willingdon Mill. For new Infectious Hospital and Workhouse.

Communicated by MESSRS. DUKE & OCKENDEN.

Old well 60 feet. Then bored.

At 75 feet a little water, shut out by tubes.

Dark greenish clay with very little sand at 150 feet.

WINCHELSEA. Marsh W. of the town.

Shaft, 18 feet diameter.

Yield, 3,000 to 4,000 gallons a day.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soil - - -	- - - - -	2	2
	Unrecorded - - - - -	3	5
	Loose sand - - - - -	6	11
[Ashdown Sand]	Rather compact rock - - -	4	15
	Blue marl - - - - -	2½	17½
	Soft sandstone - - - - -	6	23½

A letter from Mr. W. Martindale (1890), apparently referring to this well, states that the water is opalescent, and contains a flocculent sediment. The old town-well is 100 feet deep, but has not much water.

WITHYHAM. See p. 102.

WIVELSFIELD. Tawning's Place. Mr. Denman's. 1896?

Made and communicated by MESSRS. DUKE & OCKENDEN.

Shaft 82 feet, the rest bored. Abandoned. No water.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Soft sand-rock - - - - -	- - - - -	82	82
Hard sandstone rock - - -	- - - - -	3	85
Stiff slaty clay - - - - -	- - - - -	8½	93½
Hard rock - - - - -	- - - - -	6½	100
Slaty rock - - - - -	- - - - -	32	132
Hard clay - - - - -	- - - - -	12½	144½
Hard blue rock - - - - -	- - - - -	6	150½
Hard chalky rock - - - - -	- - - - -	2½	153
Very hard rock - - - - -	- - - - -	3	156
Very hard dry clay - - - -	- - - - -	2	158

WORTH. Three Bridges Station, western side. About 1887.

Note by MR. TOPLEY.

Well, through sandstone, 35 feet.

Water rises to 14 feet from the surface. Could not be lowered below 4 feet from the bottom.

Good water. 120,000 gallons a day got.

WORTH. Cophorne. For Mr. Whitechurch.

Communicated by MESSRS. G. ISLER & Co.

Supply abundant.

		Thickness.	Depth.
		<i>Ft. In.</i>	<i>Ft. In.</i>
Shaft (the rest bored)	- - - - -	-	49 0
[Tunbridge Wells Sand]	Rock - - - - -	8 5	57 5
	Clay - - - - -	2 0	59 5
	Rock - - - - -	42 1	101 6

WORTHING. Chippendale House, Chenwood Road.

Made and communicated by MESSRS. DUKE & OCKENDEN.

Water stands 21 feet down, but does not come in very freely.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[? Drift, London Clay, and Reading Beds]	Reading bed - - - - -	76	76
	Grey sand - - - - -	18	94
	Sand-rock and flints - - - - -	41	135
[Upper Chalk]	Flint and chalk - - - - -	40	175
	Hard rock - - - - -	2	177
	Flint and chalk - - - - -	8	185
	Flint and sand-rock - - - - -	7	192
	Chalk and flints - - - - -	53	245

WORTHING. Mr. Cornden's New Greenhouse, a few hundred yard north of the railway and close to the lane from Chenwood Road to Broadwater. Boring. 1896.

Made and communicated by MESSRS. DUKE & OCKENDEN.

Water found at the bottom, stands 7 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Reading Beds]	Sand and clay - - - - -	8	8
	Blue and red clay - - - - -	23	31
	Hard clay - - - - -	51	82
	Hard clay and gravel [? flints] - - - - -	5	87
	Hard chalk - - - - -	17	104
[Upper Chalk]	Hard chalk and flint - - - - -	19	123
	Hard chalk and hard rock - - - - -	12	135
	Chalk and flints - - - - -	107	242
	Hard chalk - - - - -	48	290

WORTHING. Mr. Page's New Greenhouses, in a field east of the above, opposite private level crossing. Boring. 1896?

Made and communicated by MESSRS. DUKE & OCKENDEN.

Water started coming in at 170 feet, stands 5 feet down.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Reading Beds]	} Hard red and mixed clay -	102	102
[Upper Chalk]		23	125
		85	210

WORTHING. Waterworks.

Shaft 60 feet (communicated by MR. BLAKER), the rest bored (communicated by the company).

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Drift]	} Soil - - - - - Clay - - - - - Shrave - - - - - Marl - - - - - Rubble chalk - - - - - Solid chalk - - - - - Chalk, with 1 foot of flints at top and at base - - - - - Very hard chalk - - - - - Chalk with flints, 6 inch layer at top - - - - - Chalk, with 1 foot of flints, and a fissure with water at the base - - - - -	5	5
		5	10
		10	20
		50	70
		5	75
		6	81
		9	90
		6	96
		10	106
		64	170
[Upper Chalk]	} Chalk, with flints at 176-7, 184-5, 188-9, 195-6, 204-4½, 215-6, 225-6, 235-6, 245-6, 264-5, 283-4 (grey), 300-1, 303-4 (with much water), 306-7, 309-10, 312-2½, 314-5, 318-9, 321-2, 324-5, 328-8½, 330-1, 334-4½, 337-8, 340-1, 343-4, 347-7½, 349-50, 353-4, 356-7, 360-1, 363-4, 365-5½, 367-8, 371-2, 375-6, 379-80, 382-3, 385-5½, 387-8, 390-1, 393-4, 397-8 - - - - -	230	400

For Analysis of the water see p. 120.

WORTHING. West Worthing Waterworks. 1887.

Made and communicated by MESSRS. LE GRAND & SUTCLIFF.

Water-level 8 feet down (May).

Top ground - : : : : : : : 3 } 100 feet.
 Chalk and flints - : : : : : : : 97

WORTHING. West Worthing. 8 chains N.N.W. of the Station.

Bored, and samples communicated by MESSRS. DUKE & OCKENDEN.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
[Drift] - -	Sand and shingle - - about	34	34
[Reading Beds]	Red clay at 51 ; green clay at 53 ; red clay at 54 and 58 ; mottled clay at 103 and 104 ; grey clay at 126 ; lignite at 128 ; mottled clay at 133, 135, and 137 ; white and red clay at 138 - - - - -	102	136
	[Upper Chalk]- Chalk and black flint - -	39	175

POSTSCRIPT.

BEXHILL. New Well for Waterworks, 400 feet east of old Well. 1891.

Communicated by Mr. W. B. LEWIS.

114 feet above Ordnance Datum.

Well 8 feet diameter to 196 feet ; heading driven to east 180 feet, and then borehole put down.

Supply 48,000 gallons a day.

		Thickness.	Depth.
		<i>Feet.</i>	<i>Feet.</i>
Hard sandy clay - - - - -		47	47
Sand - - - - -		2½	49½
Blue marl - - - - -		50	99½
Sand in beds of 3 or 4 ft. thick. Some water -		15	114½
Blue marl - - - - -		106½	221
Sandstone. Water at 21 ft. - - - - -		64	285
Brown clay - - - - -		15	300
Sandstone - - - - -		27½	327½
Light-blue clay - - - - -		1	328½
Sandstone - - - - -		5¾	334¼
Light-blue clay - - - - -		3½	337¾
Sandstone - - - - -		2½	340¼
Sandy clay - - - - -		9¾	350

WITHYHAM. Crowborough Warren. Two borings.

Communicated by Mr. C. DAWSON.

1. Nearly 305 feet above Ordnance Datum. A few yards East of the South-Eastern corner of the Mill-pond.

Large supply of water tapped 94 feet down and rose to within 23 feet of the ground. Tested up to 50 gallons a minute (at least) after three days and nights pumping. Water rose to within 18½ feet of the surface.

—		Thickness.	Depth.
[Ashdown Sand.]	Yellow clay, with boulders of sandstone - - - -	<i>Feet.</i> 6	<i>Feet.</i> 6
	Blue and red mottled clay -	13	19
	Hard sand-rock - - - -	5	24
	Sand-rock - - - - -	11	35
	Blue marl - - - - -	4	39
	Sand-rock (water) - - - -	8	47
	Yellow clay - - - - -	2	49
	Sand-rock - - - - -	4	53
	Blue marl - - - - -	1	54
	Grey sand-rock. Gypsum-bands	2	56
	Grey sand-rock - - - - -	9	65
	Blue marl - - - - -	6	71
	Sand-rock - - - - -	5	76
	Blue marl - - - - -	2	78
	Sand-rock - - - - -	6	84
	Blue marl. - - - - -	1	85
	Sand-rock - - - - -	1	86
	Blue marl - - - - -	5	91
Drab sand-rock - - - - -	20	111	
Yellow clay - - - - -	½	111½	

2. Nearly 277 feet above Ordnance Datum. 400 feet N. of the bench-mark (295 feet) at the Northern end of the Mill-pond.

At the depth of 67½ feet (?) water stood 11 feet down. On reaching the bottom the water-level sank a foot and remained so on testing.

—		Thickness.	Depth.
[? All Ashdown Sand, or part Fairlight Clay.]	Marly clay, with grey sandstone-boulders - - - -	<i>Feet.</i> 10	<i>Feet.</i> 10
	Marly clay, with hard sandstone boulders veined with iron -	5	15
	Hard sand-rock - - - - -	4	19
	Gravelly clay, friable and pervious - - - - -	5	24
	Grey and red sandy rock - -	7½	31½
	Blue marly clay - - - - -	22	53½
	Blue clay - - - - -	4	57½
	Sandstone with water - - - -	4	61½
	Blue marl - - - - -	2	63½
	Sandstone with water - - - -	4	67½
	Blue marl - - - - -	4	71½
	Sandstone with layers of marl -	10	81½
	Red sand-rock. Much water	2	83½
	Blue-marl - - - - -	1	84½
Sand-rock - - - - -	2½	87	

ANALYSES OF WATERS.

ANGMERING. Decoy. (1.) From a Well, February 1895. (2.) From a Borehole, March 1895.

Analyses by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN.

	1.		2.	
	Grains per Gallon.	[=Parts per 100,000.]	Grains per Gallon.	[=Parts per 100,000.]
Total Solids - - - -	67·	[95·7]	26·5	[37·9]
Chlorine - - - -	9·9	[14·1]	1·9	[2·7]
Ammonia - - - -	·0112	[·016]	·0021	[·003]
Albuminoid of Ammonia - -	·0098	[·014]	·0007	[·001]
Nitrites absent. Nitrates -	Excessive quantity.		Trace.	

(1.) Hardness 31·6° [45·14]. This water is unsafe for drinking purposes, the quantities of chlorides and nitrates are excessive, and the saline and organic ammonia are both too great. All these indicate organic pollution. Microscopic examination of the sediment yielded equally unsatisfactory results, organic debris both animal and vegetable.

(2.) This water is of excellent quality, rather hard, but remarkably free from organic matter. Temporary hardness 13·7° [19·57], permanent 3·1° [4·43]. Total 16·8° [24·0].

ARUNDEL. Park. (1) Spring feeding the Swanbourne [draining the uncultivated land of Arundel Park], October 13, 1873. (2) Spring near the Lodge, October 13, 1873.

Rivers Pollution Commission, 6th Report, 1874, p. 122.

Water from the [Upper] Chalk. Temperature 11·3° C. Clear and palatable. [This water is now supplied to the town of Arundel.]

—	Parts per 100,000.	
	(1.)	(2.)
Total Solid Impurity - - - -	26·30	26·28
Organic Carbon - - - -	·054	·037
Organic Nitrogen - - - -	·009	·007
Ammonia - - - -	—	—
Nitrogen as Nitrates or Nitrites - -	—	·080
Total Combined Nitrogen - - - -	·009	·087
Chlorine - - - -	2·10	2·20
Hardness Temporary - - - -	18·1	16·1
" Permanent - - - -	4·3	8·1
" Total - - - -	22·4	24·2

The Commissioners add (p. 124), "We have only met with one sample of spring water from the chalk (the spring feeding the *Swanbourne* in Arundel Park, Sussex) which exhibits no trace of evidence of previous pollution with organic matter of animal origin; but in no single case was this evidence sufficiently strong to place the sample in the category of suspicious waters."

ARUNDEL. From a Borehole at Offham Farm.

Analysis by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN.

	Grains per Gallon.	[= Parts per 100,000.]
Total Solids - - - - -	44·8	[64·]
Chlorine - - - - -	10·1	[14·4]
Ammonia - - - - -	·08	parts per —
Albuminoid Ammonia- Organic Matter - - - - -	·05 } 3·2	million. [4·57]
Hardness - - - - -	25°	[35·5]

“Moderately large amount of Chlorides. Organically pure for drinking.”

BALCOMBE. Mid Sussex Water Company. October, 1897. (1) Standpipe from Filter Bed. (2) Main near Balcombe Station.

Analyses by R. H. HARLAND.

[Water from the Tunbridge Wells Sand.]

	Grains per Gallon.	[=Parts per 100,000.]	Grains per Gallon.	[=Parts per 100,000.]
Suspended Matter - - -	Very slight trace.		None.	
Temporary Hardness - - -	5·	[7·14]	5·	[7·14]
Permanent Hardness - - -	7·	[10·]	7·	[10·]
Total Hardness - - - - -	12·	[17·14]	12·	[17·14]
Total Solid Matter - - - -	28·0	[40·]	25·2	[36·]
Loss on Ignition - - - - -	2·8	[4·]	2·1	[3·]
Total Mineral Matter - - -	25·2	[36·]	23·1	[33·]
Chlorine equal to Sodium Chloride - - - - -	3·2	[4·57]	3·1	[4·43]
Lead, Copper, Iron (in solu- tion) - - - - -	None		None	
Phosphoric Acid - - - - -	None		None	
Nitrogen as Ammonia - - - -	·0042	[·006]	·0027	[·0038]
Nitrogen as Albuminoid Ammonia - - - - -	·0013	[·0018]	·0018	[·0026]
Nitrogen as Nitrates - - - -	·0560	[·08]	·0672	[·096]
Oxygen absorbed by Organic Matter :—				
In 5 Minutes - - - - -	Nil.		Nil	
In 4 Hours - - - - -	·0168	[·024]	·0140	[·02]

“The water as pumped from the well contains a small trace of iron in solution, which rapidly deposits out an exposure to air and light. It is subjected to sand filtration (which entirely removes the trace of iron).”

BEDDINGHAM. Courthouse Farm. March, 1897.

Analysis by DR. J. A. VOELCKER. Communicated by MR. T. W. PICKARD.

[Water from the Lower Greensand.]

	Grains per Gallon.	[=Parts per 100,000.]
Total Solid Residue - - - - -	31·08	[44·7]
Oxygen absorbed - - - - -	·060	[·086]
Lime - - - - -	1·12	[1·6]
Magnesia - - - - -	·30	[·43]
Sulphuric Acid - - - - -	1·82	[2·6]
Nitric Acid - - - - -		trace
Chlorine - - - - -	2·01	[2·87]
= Chloride of Sodium - - - - -	3·32	[4·74]
Free Ammonia - - - - -	·018	[·0257]
Albuminoid Ammonia - - - - -	·006	[·0087]

“This was yellow coloured but was practically free from deposit. It is a very different water to 1 and 2 [Newhaven Waterworks and Glynde Butter Factory] for, while it has more solid matter than either of the others, there is very little lime or magnesia, and less chlorides and nitrates. Alkaline carbonates appear to be the principal solid constituents composing the residue. The water, accordingly, is one of a soft nature. It contains more dissolved organic matter, which gives rise probably, in measure, to the high amount of Ammonia shown. This latter, however, being unaccompanied by any excess of chlorides, and nitrates being entirely absent, I do not attribute to any objectionable polluting matter, and the water, though one of a peculiar nature, may, I think, be safely used as a drinking supply.”

BRIGHTON. Waterworks. Goldstone Bottom Well. Jan. 18th, 1873.

Rivers Pollution Commission, 6th Report, 1874, p. 99.

Water from headings in the [Upper] Chalk at 160 feet.

Temperature 9·6° C. Clear and palatable.

	Parts per 100,000.
Total Solid Impurity - - - - -	30·24
Organic Carbon - - - - -	·048
Organic Nitrogen - - - - -	·009
Ammonia - - - - -	—
Nitrogen as Nitrates and Nitrites - - - - -	·644
Total Combined Nitrogen - - - - -	·653
Chlorine - - - - -	3·10
Hardness Temporary - - - - -	14·8
” Permanent - - - - -	6·4
” Total - - - - -	21·2

BRIGHTON. Waterworks. Lewes Road Well. Jan. 18th, 1873.

Rivers Pollution Commission, 6th Report, 1874, p. 99.

Water from headings in the Chalk at 100 feet.

Temperature 10°0' C. Clear and palatable.

	Parts per 100,000.
Total Solid Impurity - - - - -	32·40
Organic Carbon - - - - -	·055
Organic Nitrogen - - - - -	·011
Ammonia - - - - -	—
Nitrogen as Nitrates or Nitrites - - - - -	·989
Total Combined Nitrogen - - - - -	1·000
Chlorine - - - - -	3·70
Hardness Temporary - - - - -	14·6
" Permanent - - - - -	6·9
" Total - - - - -	21·5

BROADWATER. From a Borehole in the Chalk.

Analysis by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN.

	Grains per Gallon.	[=Parts per 100,000.]
Carbonate of Lime - - - - -	15·4	[22·]
Sulphate [of Lime ?] - - - - -	1·9	[2·714]
Chlorine - - - - -	3·1	[4·43]
Organic Matter - - - - -	2·4	[3·43]
Free Ammonia - - - - -		0·1 } parts per
Albuminoid Ammonia - - - - -		0·2 } million.

Hardness, total 16° [22·85], permanent 8·4° [12·0.]

"A good sample of a Chalk supply. Chlorine moderate, for the locality A drinking water of perfect purity."

BURPHAM. From a Well.

Analysis by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN.

	Grains per Gallon.	[=Parts per 100,000.]
Total Solids - - - - -	26·	[37·]
Chlorine - - - - -	2·1	[3·]
Ammonia - - - - -	·0007	[·001]
Albuminoid Ammonia - - - - -	·0028	[·004]
Nitrites - - - - -		absent
Nitrates - - - - -		traces
Hardness Temporary - - - - -	11·8°	[16·85]
" Permanent - - - - -	4·5°	[6·4]
" Total - - - - -	16·3°	[23·25]

"Water of good quality, free from organic pollution and contains only a moderate amount of dissolved saline substances. Microscopic examination satisfactory."

CHICHESTER. From a Well.

Analysis by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN.

[Water apparently from Upper Chalk].

—	Grains per [=Parts per Gallon. 100,000.]	
Total Solids - - - - -	20.5	[29.3]
Chlorine - - - - -	1.4	[2]
Ammonia - - - - -	.00056	[.0008]
Albuminoid Ammonia - - - - -	.0007	[.001]
Nitrites - - - - -	absent	
Nitrates - - - - -	trace	
Hardness Temporary - - - - -	13.8°	[19.7]
" Permanent - - - - -	3.2	[4.6]
" Total - - - - -	17.	[24.3]

"A first-class water for drinking purposes, free from organic pollution and containing only a very moderate quantity of dissolved mineral matter. Microscopic examination very satisfactory."

CRAWLEY. Trial-boring for Waterworks.

Analysis by DR. T. STEVENSON, 1898.

Communicated by the Waterworks Company.

[Water from the Tunbridge Wells Sand].

—	Grains per [=Parts per Gallon. 100,000.]	
Total Solid Matter - - - - -	31.64	[45.2]
Loss on ignition - - - - -	.56	[.8]
Combined Chlorine (=Common Salt 1.62) - - - - -	.98	[1.4]
Nitrogen as Nitrates (no Nitrites) - - - - -	.05	[.07]
Carbonate of Sodium - - - - -	25.22	[36.03]
Ammonia - - - - -	.02	[.03]
Albuminoid or Organic Ammonia - - - - -	.0025	[.0036]
Oxygen required to oxidise the organic matter - - - - -	.057	[.081]
Hardness - - - - -	.5°	[.7]

"The water was free from odour and when viewed in bulk of a yellow colour and turbid." It "is well fitted for domestic use. It is very soft and free from organic contamination." As with "all waters from fresh borings the ammonia is rather high, but this is immaterial." The water is exceptional in containing so much carbonate of sodium, but "in this respect it resembles the waters from some Mid-Kent wells. I have not found the presence of this quantity of carbonate of sodium of any detriment except that such waters act freely on ordinary compo-metal taps."

EASTBOURNE. Holywell Springs. September 18, 1895.

Analysis by DR. THOS. STEVENSON.

[Water from Middle and Lower Chalk.]

—	Grains per Gallon.	[= Parts per 100,000.]
Total Solid Matters - - - - -	20·16	[28·8]
Loss on Ignition - - - - -	1·40	[2·0]
Combined Chlorine - - - - -	2·38	[3·4]
Equal to Common Salt - - - - -	3·92	[5·6]
Nitrogen as Nitrates - - - - -	·23	[·33]
Nitrites - - - - -		None.
Heavy Metals (Lead, Copper, Zinc, &c.) - - - - -		None.
Ammonia - - - - -		None.
Albuminoid or Organic Ammonia - - - - -	·001	[·0014]
Oxygen required to oxidise the Organic Matter - - - - -	·006	[·0086]
Hardness Temporary - - - - -	10·5°	[15·0]
„ Permanent - - - - -	2·5°	[3·57]
„ Total - - - - -	13·0°	[18·57]

“The results of chemical analysis are quite satisfactory, since there is no evidence of pollution with sewage, or contamination with injurious metals. The water is of high organic purity, and of moderate hardness most of which is due to chalky matters.”

EASTBOURNE. Spring above the town. February 22, 1873.

Rivers Pollution Commission, 6th Report, 1874, p. 123.

[Water apparently from the Lower Chalk or base of the Middle Chalk.]
Temperature 10·3° C. Clear and palatable.

	Parts per 100,000.
Total Solid Impurity - - - - -	36·46
Organic Carbon - - - - -	·070
Organic Nitrogen - - - - -	·011
Ammonia - - - - -	·001
Nitrogen as Nitrates or Nitrites - - - - -	·736
Total Combined Nitrogen - - - - -	·748
Chlorine - - - - -	3·90
Hardness Temporary - - - - -	24·2
„ Permanent - - - - -	7·7
„ Total - - - - -	31·9

EASTBOURNE. Well at Waterworks. [Old Well N. of Engine House.]
Rivers Pollution Commission, 6th Report, 1874, p. 97.Water from [the Upper Greensand at] 100 feet. Temperature 10·0° C.
Slightly turbid. Palatable.

	Parts per 100,000.
Total Solid Impurity - - - - -	43·12
Organic Carbon - - - - -	·058
Organic Nitrogen - - - - -	·010
Ammonia - - - - -	·004
Nitrogen as Nitrates and Nitrites - - - - -	·130
Total Combined Nitrogen - - - - -	·143
Chlorine - - - - -	10·00
Hardness Temporary - - - - -	13·8
„ Permanent - - - - -	7·1
„ Total - - - - -	20·9

EASTBOURNE. Star Brewery Company's Well. October 14th, 1895.
Analysis by DR. A. WYNTER BLYTH.

	Grains per [= Parts per Gallon. 100,000.]	
Chlorine - - - - -	3.30	4.71
Free Ammonia - - - - -	.0003	.0004
Albuminoid Ammonia- Nitrogen as Nitrates - - - - -	.0022	.0031
Oxygen consumed in 15 minutes	1.19	1.7
Oxygen in hour at 100° C. - - - - -	.0497	.071
Alkalinity expressed as Ca Co 3 - - - - -	.1515	.2164
Hardness (in Degrees) - - - - -	15.30	21.86
Hardness (after Boiling) - - - - -	22.0	31.4
Total Solids - - - - -	13.0	18.57
Loss on Ignition - - - - -	25.2	36.0
Metals - - - - -	9.10	13.0
Sulphates - - - - -	Absent	
Organic Carbon - - - - -	More than traces.	
Organic Nitrogen - - - - -	4.6 } parts per 0.14 } million.	

"The appearance of this water when viewed through a two-foot tube was that of a clear liquid. No deposit fell on standing and the microscopical appearance was negative. The sample has all the characters of a deep chalk spring, and, considered as such, it must be returned as a fairly pure water."

EASTBOURNE. Waterworks. March 20, 1897.

(1) Holywell. (2) Friston Well. (3) Wannock Well.

Analysis by SIR E. FRANKLAND.

[(1) is from base of Middle Chalk. (2) is from Upper Chalk. (3) is from shattered Lower Chalk.]

	Parts per 100,000.		
	(1) Holywell.	(2) Friston.	(3) Wannock.
Total Solid Matters - - - - -	33.24	37.08	25.24
Organic Carbon - - - - -	.055	.041	.043
Organic Nitrogen- Ammonia - - - - -	.010	.012	.011
Nitrogen as Nitrates and Nitrites - - - - -	.664	.656	.096
Total Combined Nitrogen - - - - -	.674	.663	.107
Chlorine - - - - -	5.2	4.3	2.6
Hardness Temporary - - - - -	14.5	16.9	15.2
" Permanent - - - - -	7.3	7.0	4.2
" Total - - - - -	21.8	23.9	19.4

"For Chalk waters they are all of moderate hardness, the Wannock Well remarkably so."

EAST GRINSTEAD. From a Well at Brook House.

Analysis by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN.

	Grains per [= Parts per Gallon. 100,000.]	
Total Solids - - - - -	19·2	[27·4]
Chlorine - - - - -	1·9	[2·71]
Ammonia - - - - -	·066	[·094]
Albuminoid Ammonia - - - - -	·034	[·048]
Organic Matter - - - - -	3·7	[5·28]
Hardness - - - - -	11°	[15·5]

“The hardness, chlorides, and organic matter are from the clear water, after subsidence. Water fit for domestic use and for drinking, after subsidence or filtration.”

GLYNDE. Butter Factory.

Analysis by PROF. A. DUPRE. 1891.

Water clear, almost colourless, inodorous, with no deposit.

	Grains per [= Parts in Gallon. 100,000.]	
Oxygen absorbed from Permanganate - - -	·023	[·033]
Total dry Residue (white) - - - - -	28·28	[40·40]
Chlorine - - - - -	2·17	[3·10]
Nitric Acid (no Nitrous or Phosphoric) - - -	2°	[2·86]
Ammonia - - - - -	—	—
Albuminoid Ammonia - - - - -	—	—
Poisonous Metals, minute trace - - - - -	—	—

The residue blackens on ignition, scarcely perceptible.

Hardness before boiling 19° [27·14].

Hardness after boiling 4° [5·71].

This water is of exceptional purity.

GLYNDE. Butter Factory. March, 1897.

Analysis by DR. J. A. VOELCKER. Communicated by MR. T. W. PICKARD

[Apparently a mixture of waters from the Lower Chalk and the Upper Greensand.]

	Grains per [= Parts per Gallon. 100,000.]	
Total Solid Residue - - - - -	29·96	[42·8]
Oxygen absorbed - - - - -	·053	[·076]
Lime - - - - -	11·48	[16·4]
Magnesia - - - - -	·60	[·86]
Sulphuric Acid - - - - -	1·73	[2·47]
Nitric Acid - - - - -	2·38	[3·4]
Chlorine - - - - -	2·85	[4·07]
= Chloride of Sodium - - - - -	4·70	[6·91]
Free Ammonia - - - - -		None.
Albuminoid Ammonia - - - - -		None.

A later analysis of the same water, made by DR. VOELCKER in May, 1898, shows an improvement in the organic constituents.

	Grains per Gallon.	[=Parts per 100,000.]
Total Solid Residue - - - - -	28·84	[41·2]
Oxidisable Organic Matter - - - - -	·11	[·16]
Nitric Acid - - - - -	1·87	[2·69]
Chlorine - - - - -	2·32	[3·31]
= Chloride of Sodium - - - - -	3·82	[5·46]
Free Ammonia - - - - -	·003	[·004]
Albuminoid Ammonia - - - - -	·003	[·004]

“The water was colourless and free from deposit.”

“The water is a somewhat hard one, owing to the presence of Lime and Magnesia salts, but it contains little dissolved organic matter, and though the amount of Nitrates and chlorides is somewhat high, the water is one which I think may be safely used for drinking purposes.”

GORING. (1) From a Well, July, 1894. (2) Another sample from a Well, May, 1894. (3) From a Borehole, April, 1894.

Analysis by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN.

	(1)	(2)	(3)
	Grains [=Parts per per Gallon. 100,000.]	Grains [=Parts per per Gallon. 100,000.]	Grains [=Parts per per Gallon. 100,000.]
Total Solids - - -	48° [68°]	69° [98°]	17° [24°]
Chlorine - - -	9° [12·8]	13° [18°]	13° [18°]
Ammonia - - -	·00588 [·0084]	·0084 [·012]	·00042 [·0006]
Albuminoid Am- monia - - -	·0028 [·004]	·0042 [·006]	·00196 [·0028]
Nitrites - - -	Merest trace.	Small trace.	Absent.
Nitrates - - -	Trace.	Moderate quantity.	Quantity.
Temporary Hard- ness - - -	10° [14°]	37·3° [53°]	36° [51°]
Permanent Hard- ness - - -	6·5° [9°]	14° [20°]	10° [14°]
Total hardness - -	16·5° [23°]	51·3° [73°]	46° [65°]

“(1) Although this water contains a large quantity of chlorides these are evidently derived from the soil: they are not accompanied by any excess of nitrates or ammonia; the mere traces of nitrites is probably owing to the well having been recently bored. The water may be safely used for drinking purposes.

(2) Microscopic examination fairly satisfactory. Differs little from a sample examined in April (nitrates somewhat less), presumably No. 3.

(3) Microscopic examination—mineral matters, a few animalcules. This water is of very doubtful purity. Nitrates and chlorides excessive, and these commonly owe their presence to access of sewage, which has become altered in character by the action of the soil.”

HASTINGS. Rural District Council.

Analysis by PROF. W. R. SMITH. In grains per gallon.

(1) Silver Hill Well. April, 1895. In Ashdown Sand.

(2) Draper's Well. At the Mill on the higher ground a little south-westward of the above, and about 250 feet above Ordnance Datum. April, 1895. In Tunbridge Wells Sand and Wadhurst Clay.

(3) Experimental Well at Ore, on the northern side of the lane a third of a mile north-east of Christ Church and a little eastward of Windmill. January, 1896. In Ashdown Sand.

	(1)	(2)	(3)
	Grains [=Parts per per Gallon. 100,000.]	Grains [=Parts per per Gallon. 100,000.]	Grains [=Parts per per Gallon. 100,000.]
Colour in 2 feet stratum - -	Almost colourless	Turbid - -	Faint blue.
Suspended matter -	Very slight -	Considerable	Slight, and con- tained some fibres of clothing. Normal.
Taste - - -	Normal - -	Normal - -	
Odour, when heated to 100° F. - -	Normal - -	Normal - -	Normal.
Hardness - - -	17·5° [25·0]	18° [25·7]	5° [7·14]
Total Solid Matter, dried at 120° C. -	32· [45·]	29· [41·]	14· [20·]
Loss on Ignition, after recarbonating -	10· [14·]	9· [12·8]	5· [7·14]
Total Mineral Matter Combined Chlorine. } Equal to Common Salt (in 3), 5·8 - }	22· [31·]	20· [29·]	9· [12·8]
Nitrogen as Nitrates (no Nitrites)- -	6· [8·6]	5·8 [8·3]	3·5 [5·
Ammonia - - -	·5 [·7]	·5 [·7]	·3 [·43]
Albuminoid Ammonia	·004 [·006]	·014 [·02]	·007 [·01]
	·003 [·004]	·007 [·01]	·003 [·004]

“(1) The high chlorine is clearly geological. This water may be used with confidence for all domestic purposes.

(2) The suspended matter consists of vegetable *débris* and starchy matters, which ought not to be found in potable waters, and can hardly be due to any cause but contamination with surface-water. [MR. W. SKILLER tells us that the cause of this was found out and cut off, after which a further analysis proved the water to be satisfactory.]

(3) This water is of a high degree of organic purity.”

HASTINGS. Dr. Maccabe's Spring. Feb. 21, 1873.

Rivers Pollution Commission, 6th Report, 1874, p. 121.

Temperature, 10·0° C. Clear and palatable.

	Parts per 100,000.
Total Solid Impurity - - - -	14·92
Organic Carbon - - - -	·024
Organic Nitrogen - - - -	·005
Ammonia - - - -	—
Nitrogen as Nitrates or Nitrites - - - -	·433
Total Combined Nitrogen - - - -	·438
Chlorine - - - -	4·70
Hardness, Temporary - - - -	·3
, Permanent - - - -	5·7
, Total - - - -	6·0

HENFIELD. From a Borehole. July, 1895.

Analysis by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN.

—	Grains per Gallon.	[=Parts per 100,000.]
Total Solids - - - - -	24'	[34']
Chlorine - - - - -	1'85	[2'64]
Ammonia - - - - -	'0098	['014]
Albuminoid Ammonia - - - - -	'000224	['003]
Nitrites - - - - -		Absent.
Nitrates - - - - -		Merest trace.
Hardness, Temporary - - - - -	12'05°	[17'21]
„ Permanent - - - - -	2'3°	[3'29]
„ Total - - - - -	14'35°	[20'5]

“Microscopic examination satisfactory. Water of good quality. Sample slightly cloudy when received: the water contains a little iron, and this is undoubtedly the cause of the trouble.”

HOLLINGTON. Well for Hastings Waterworks. February, 1874.

Analysis by DR. A. VOELCKER.

[Water from the Ashdown Sand].

—	Grains per Gallon.	[=Parts in 100,000.]
Solid residue, dried at 140° C., in which (found by direct determination) organic and volatile matter 1'12, including '224 Oxydisable Organic Matter - - - - -	13'44	[19'2]
Lime - - - - -	3'05	[4'36]
Magnesia - - - - -	'55	['78]
Sulphuric Acid - - - - -	'96	[1'37]
Chlorine - - - - -	2'86	[4'08]
Soluble Silica - - - - -	'28	['4]
Alkalis and Carbonic Acid, not determined separately.		
Free (saline) Ammonia - - - - -	'009	['0128]
Organic (albuminoid) Ammonia - - - - -	'002	['0028]
The components may be represented as follows—		
Organic and Volatile Matter [as above]	1'12	[1'6]
Carbonate of Lime - - - - -	4'25	[6'07]
Sulphate of Lime - - - - -	1'63	[2'33]
Carbonate of Magnesia - - - - -	1'15	[1'64]
Chloride of Sodium - - - - -	4'21	[6'01]
Alkaline Carbonates - - - - -	'8	[1'14]
Soluble Silica - - - - -	'28	['4]
Hardness before boiling - - - - -	6 $\frac{3}{4}$ °	[9'64]
„ after boiling - - - - -	3 $\frac{1}{2}$ °	[5]

“The water was clear and colourless. The residue left on evaporation was only slightly coloured yellow by a little vegetable matter. The water contains no nitrates and is free from animal organic impurities. I consider it of first rate quality, wholesome and good for drinking and well suited for cooking and washing.”

HORSHAM. London and Brighton Railway Station. Well. 1881.

Analysis by BERNARD DYER.

[Water from the Tunbridge Wells Sand.]

	Grains per Gallon.	[=Parts per 100,000.]
Sulphate of Lime - - - - -	3·62	[5·174]
Sulphate of Magnesia - - - - -	·17	[·243]
Carbonate of Magnesia - - - - -	1·12	[1·6]
Nitrate of Magnesia - - - - -	·03	[·043]
Chloride of Sodium - - - - -	2·54	[3·63]
Oxide of Iron, &c. - - - - -	·49	[·7]
Alkaline Carbonates & Organic Matter - - - - -	4·91	[7·0]
Total Solid Matter in solution - - - - -	12·88	[18·4]
Phosphoric Acid - - - - -	Strong traces.	
Free Ammonia - - - - -	·035	[·05]
Albuminised Ammonia - - - - -	·002	[·0028]
Nitrogen as Nitrates - - - - -	·006	[·0085]
Hardness before boiling - - - - -	4°	[5·7]
„ after boiling - - - - -	0½°	[1·07]

“As a boiler water, this sample leaves nothing to be desired. It contains less than 13 grains of solid dissolved matter per gallon, of which scarcely 5 grains consist of earthy salts, the remainder being simply common salt and alkaline carbonates—which latter are rather beneficial than otherwise.”

HORSTED GREEN, see p. 121.

LEWES. (1) Springs in Verrall's Pool. February 22, 1873. (2) The *Cockshoot Stream* from adjacent Springs. February 22, 1893.

Rivers Pollution Commission, 6th Report, 1874, p. 123.

Water from the [Upper] Chalk. Temperature of (1) 9° C., of (2) 8·8° C.
1) Clean and palatable; (2) Slightly turbid; palatable.

	Parts per 100,000.	
	(1)	(2)
Total Solid Impurity - - - - -	26·44	29·80
Organic Carbon - - - - -	·057	·087
Organic Nitrogen - - - - -	·013	·023
Ammonia - - - - -	·001	·002
Nitrogen as Nitrates or Nitrites - - - - -	·335	·513
Total Combined Nitrogen - - - - -	·349	·538
Chlorine - - - - -	2·30	2·50
Hardness, Temporary - - - - -	14·2	18·1
„ Permanent - - - - -	5·1	4·6
„ Total - - - - -	19·3	22·7

LEWES. Waterworks [Verrall's Pool]. August 10, 1897.

Analysis by JOHN HERON.

—	Grains per Gallon.	[= Parts per 100,000.]
Free Ammonia - - - - -	Trace.	
Albuminoid Ammonia - - - - -	'006	['0085]
Oxygen absorbed in 1 hour - - - - -	'064	['091]
3 hours - - - - -	'065	['093]
Nitrogen as Nitrates - - - - -	'29	['41]
= Nitric Acid - - - - -	1'30	[1'85]
Chlorine - - - - -	1'90	[2'71]
Total solid matters - - - - -	20'16	[28'8]
Hardness before boiling - - - - -	13°	[18'0]
" after boiling - - - - -	3°	[4'0]

"This sample of water presents a bright clear and sparkling appearance, is perfectly free from sediment and suspended matter. I consider it to be a water of high-class purity and one that may be safely used for drinking and all other domestic purposes."

LITTLEHAMPTON. Anchor Brewery. November, 1869.

Analysis by PROF. W. A. MILLER. Communicated by MR. W. SHELFORD.

[Water from the Upper Chalk,]

—	Grains per Gallon.	[= Parts per 100,000.]
Fixed Salts - - - - -	76'65	[109'5]
Volatile and Combustible Matters - - - - -	3'35	[4'78]
Total Soluble Solids - - - - -	80°	[114'28]
Nitric Acid, N ₂ O ₅ - - - - -	1'98	[2'83]
Ammonia as Salts - - - - -	'001	['0014]
Ammonia from Organic Matter - - - - -	'008	['0114]
Oxygen required to Oxidise Organic Matter by Permanganate - - - - -	'067	['0957]

Appearance clear and brilliant.

Hardness on Clarke's scale 36'9° [52'71].

After boiling an hour 14'9° [21'28].

The water is probably excellent for beer-making, owing to its sulphate of lime, but it is not good for domestic uses.

[The permanent hardness is exceptionally high for a water from the Upper Chalk. The analysis given above does not show that this hardness is due to sulphate of lime. See note on the Well at p. 62.]

MID SUSSEX Water Company, see BALCOMBE.

NEWHAVEN and SEAFORD. Waterworks. New Well at Poverty Bottom,
Denton, 21st April, 1898.

Analysis by O. HEHNER.

[Water from the Upper Chalk.]

	Parts per 100,000.
Chlorine - - - - -	3·35
Sulphuric Acid - - - - -	·34
Nitric Acid - - - - -	1·30
Phosphoric Acid - - - - -	None.
Free Ammonia - - - - -	·0008
Albuminoid Ammonia - - - - -	·0038
Oxygen absorbed from Permanganate in 15 minutes - - - - -	·0164
" " in 4 hours - - - - -	} ·0240
(both at 80° F.) - - - - -	}
Total Solids - - - - -	29·96
Loss on ignition - - - - -	2·04

The composition of the mineral matter was as under :—

Chlorine - - - - -	3·35
Sulphuric Acid - - - - -	·34
Nitric Acid - - - - -	1·30
Silica - - - - -	·63
Oxide of Iron and Alumina - - - - -	·23
Lime - - - - -	11·09
Magnesia - - - - -	·55
Soda - - - - -	2·43
Combined Carbonic Acid - - - - -	8·25
	<hr/>
	28·17
Subtract Oxygen for Chlorine - - - - -	- 75
	<hr/>
Total mineral matters - - - - -	<u>27·42</u>

As far as could be ascertained these mineral matters were present in the water in the following forms of combination :—

Sodium Chloride - - - - -	4·58
Calcium Chloride - - - - -	·89
Calcium Sulphate - - - - -	·58
Calcium Nitrate - - - - -	1·97
Calcium Carbonate - - - - -	17·3
Magnesium Carbonate - - - - -	1·1
Silica - - - - -	·63
Oxide of Iron and Alumina - - - - -	·23
	<hr/>
Total - - - - -	<u>27·42</u>

“Organically the water is of great purity; there is no evidence of pollution. The character of the water is that of a typical supply from the Chalk. Its hardness is 21·2, 17·4 of which is due to dissolved calcium carbonate. From the analysis alone I say, without hesitation, that the supply is admirably adapted for public use. With the exception of the hardness, which is the normal hardness of pure Chalk water, the supply is faultless.”

NEWHAVEN and SEAFORD. Waterworks. Old well.

Water supplied to South Heighton, March, 1897. [From the Upper Chalk.]
Analysis by DR. J. A. VOELCKER. Communicated by MR. T. W. PICKARD.

	Grains per Gallon.	[=Parts per 100,000.]
Total Solid Residue - - - -	26·32	[37·6]
Oxygen absorbed - - - -	·020	[·029]
Lime - - - -	8·96	[12·8]
Magnesia - - - -	1·01	[1·44]
Sulphuric Acid - - - -	·77	[1·1]
Nitric Acid - - - -	1·36	[1·94]
Chlorine - - - -	5·51	[7·87]
= Chloride of Sodium - - - -	9·08	[12·99]
Free Ammonia - - - -	·002	[·003]
Albuminoid Ammonia - - - -	·001	[·0014]

“Colourless but had a little deposit of a blackish colour. It is a somewhat hard water, containing carbonate of lime principally, with some amount of magnesia salts. Chlorides, probably as common salt, are present in considerable quantity. The water contains very little Ammonia and has no excess of organic matter in solution. Nitrates are present to some extent but are hardly excessive, and though chlorides exist in certainly large amount, these may arise from natural sources, and I am not inclined to attribute them to pollution. The water, though, in my opinion, not one that can be called a thoroughly good or high-class one, can, I think, be considered a fit one for drinking purposes.”

RUSTINGTON. (1) From a Borehole, August, 1894. (2) From a Borehole, May, 1895. (3) From a Well. (4) From a Borehole.

Analysis by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN.

	In Grains per Gallon [=Parts per 100,000.]			
	(1)	(2)	(3)	(4)
Total Solids - - - -	40·5 [58·]	37· [53·]	48· [68·]	71·5 [102·14]
Chlorine - - - -	7·15 [10·21]	4·8 [6·85]	6·05 [8·64]	11·45 [16·35]
Ammonia - - - -	·0021 [·003]	merest trace.	small trace.	trace.
Albuminoid Ammonia - - - -	·00112 [·0016]	·0021 [·003]	·0021 [·003]	·0021 [·003]
Nitrites absent, Nitrates - - - -	trace.	small quantity.	moderate quantity.	large quantity.
Temporary Hardness - - - -	—	15·70 [22·4]	39·5° [56·4]	35° [50]
Permanent „ - - - -	—	4·3° [6·1]	8·4° [12·0]	7·6° [10·8]
Total „ - - - -	22·2° [31·7]	20° [28·5]	47·9° [68·4]	42·6° [60·8]

“ (1) Microscopic examination, mineral matter. This water is of good quality.

(2) Microscopic examination satisfactory. This water is of good quality. The quantity of chlorine is probably explained by the proximity of the sea.

(3) Microscopic examination satisfactory. This water is of fair quality ; but contains rather large quantities of chlorides and nitrates. It may be used for drinking purposes, although it cannot be classed as first-class.

(4) This water is of very doubtful purity. The Nitrates and Chlorides are excessive, and these probably owe their presence to pollution with sewage, which has become altered in character by the action of the soil.”

RYE. Sample from Rye Hill Reservoir. The supply is from springs at the base of the old cliff, near by, just within the borough boundary.

Analysis by PROF. J. ATTFIELD, November 1894.

	Grains per Gallon.	[=Parts per 100,000.]
Suspended Solid Matter, dried at 250° F. - - -	-	None.
Dissolved	25	[35·7]
Ammoniacal Matter, yielding 10 " per cent. of Nitrogen (= Ammonia per million '08) - - -	'046	['0657]
Albuminoid Organic Matter, yielding 10 per cent. of Nitrogen (= Ammonia per million '02) - - - - -	'012	['0171]
Nitrates (no Nitrites), containing 17 per cent. of Nitrogen (= Nitrogen '58) - - - - -	3·48	[4·97]
Chlorides, containing 60 per cent. of Chlorine (= Chlorine 4·4) - - - - -	7·3	[10·43]
Oxygen absorbed in three hours - - - - -	0·2	['028]
Hardness, removed by boiling, 7·5° [10·71] - - -	} 12·5°	[17·85]
Hardness, unaffected by boiling, 5·0° [7·14] - - -		

Water clear and bright. Of excellent quality.

The water from the proposed site for further supply, at the foot of the old cliff, about a quarter of a mile N.E. of Cadborough, gave a like analysis.

ST. LEONARDS-ON-SEA. Spring in Railway Tunnel. Feb. 21st, 1873.

Rivers Pollution Commission, 6th Report, 1874, p. 127.

Water from the Hastings Sand. Temperature, 4·0° C.

Turbid. Palatable.

	Parts per 100,000.
Total Solid Impurity - - - - -	41·92
Organic Carbon - - - - -	'224
Organic Nitrogen - - - - -	'054
Ammonia - - - - -	'088
Nitrogen as Nitrates or Nitrites - - - - -	'478
Total Combined Nitrogen - - - - -	'604
Chlorine - - - - -	9·60
Hardness, Temporary - - - - -	4·0
" Permanent - - - - -	12·9
" Total - - - - -	16·9

SOUTH HEIGHTON. Sussex Portland Cement Works. March 1897.

Analysis by DR. J. A. VOELCKER. Communicated by MR. T. W. PICKARD,

[Water from the Upper Chalk.]

	Grains per Gallon.	[= Parts per 100,000.]
Total Solid Residue - - - - -	24.39	[34.8
Oxygen absorbed - - - - -	.027	.039
Lime - - - - -	7.84	11.2
Magnesia - - - - -	.70	1.
Sulphuric Acid - - - - -	.96	1.37
Nitric Acid - - - - -	2.73	3.9
Chlorine - - - - -	3.39	4.84
= Chloride of Sodium - - - - -	5.59	7.98
Free Ammonia - - - - -	.006	.0085
Albuminoid Ammonia - - - - -		trace.

"This water was colourless but contained some white flocculent deposit. . . . It does not contain any quantity of dissolved organic matter, but there is more ammonia than in either 1 or 2 [Seaford Waterworks or Glynde Butter Factory]. Chlorides, again, are in excess of those in 2, and there is even more nitric acid (as nitrates). This latter feature, as in the case of water 2, indicates, in my opinion, the existence of pollution of the supply, and for that reason I do not regard the source as a satisfactory one." [The well is close to the marshes of the Ouse.]

TELSCOMBE. Warren Farm. Brighton Industrial School.

Rivers Pollution Commission, 6th Report, 1874, p. 97.

Water from [the Lower Greensand at] 1285 feet. Temperature 9.9° C.
Water clear and palatable.

	Parts per 100,000.
Total Solid Impurity - - - - -	35.36
Organic Carbon - - - - -	.078
Organic Nitrogen - - - - -	.007
Ammonia - - - - -	—
Nitrogen as Nitrates and Nitrites - - - - -	.068
Total Combined Nitrogen - - - - -	.075
Chlorine - - - - -	8.40
Hardness, Temporary - - - - -	3.2
" Permanent - - - - -	1.2
" Total - - - - -	4.4

[The temperature (9.9° C.) is apparently that of the water standing in the well, not that of the spring 1,000 feet lower. The latter is inaccessible, the lower shaft not being vertically under the upper well, which contains a hundred feet of water, see p. 83.]

WASHINGTON. From a Borehole opposite the Church.

Analysis by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN

		Grains per	[=Parts per
		gallon.	100,000.]
Total Solids	- - - - -	34'	[48·5]
Chlorine	- - - - -	2·6	[3·71]
Ammonia	- - - - -	·00308	[·0044]
Albuminoid Ammonia	- - - - -	·0028	[·004]
Nitrites	- - - - -	absent	
Nitrates	- - - - -	traces	
Hardness Temporary	- - - - -	16·35°	[23·35]
" Permanent	- - - - -	6·4°	[9·15]
" Total	- - - - -	22·75°	[32·5]

"Water of excellent quality for drinking-purposes, and free from organic pollution."

WORTHING. New Well at Waterworks. July 17th, 1868.

Rivers Pollution Commission, 6th Report, 1874, p. 99.

Water from the Upper Chalk. Clear and palatable.

		Parts per 100,000.
Total Solid Impurity	- - - - -	32·44
Organic Carbon	- - - - -	·007
Organic Nitrogen	- - - - -	—
Ammonia	- - - - -	·002
Nitrogen as Nitrates or Nitrites	- - - - -	·420
Total Combined Nitrogen	- - - - -	·422
Chlorine	- - - - -	3·08
Hardness Temporary	- - - - -	16·4
" Permanent	- - - - -	8·3
" Total	- - - - -	24·7

WORTHING. From a bored Well.

Analysis by R. A. CRIPPS. Communicated by MESSRS. DUKE & OCKENDEN.

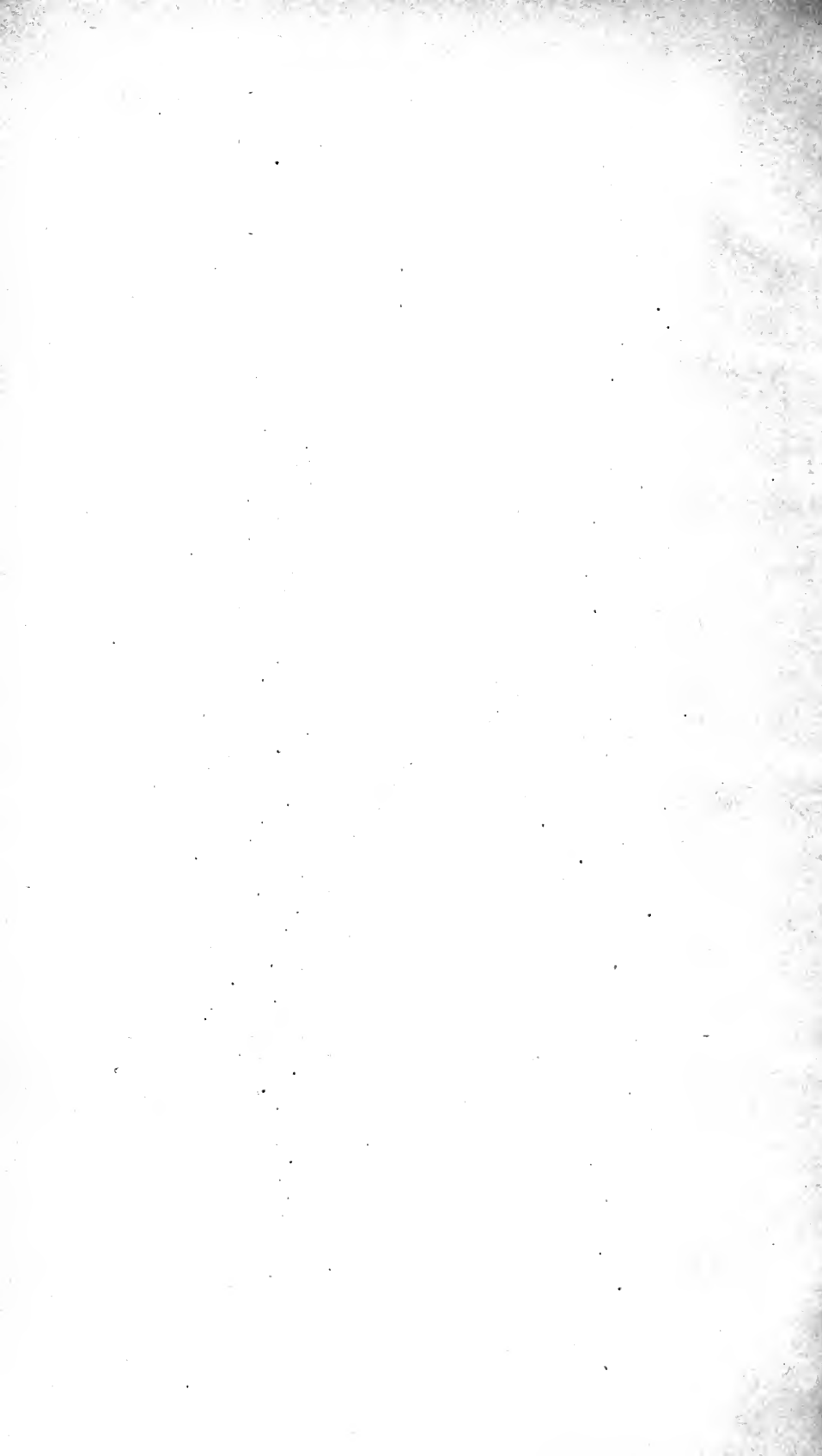
		Grains per	[=Parts per
		Gallon.	100,000.]
Total Solids	- - - - -	23·5	[33·6]
Chlorine	- - - - -	1·9	[2·7]
Ammonia	- - - - -	·00112	[·0016]
Albuminoid Ammonia	- - - - -	·00084	[·0012]
Nitrites	- - - - -	merest trace	
Nitrates	- - - - -	small	

"Water of good quality. It is exceptionally free from organic matter and the amount of dissolved saline substances is moderate. Microscopic examination satisfactory."

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