LATE VICTORIAN SANDWICH – POLLUTED WATER, SICKNESS, COUNCIL INERTIA AND THE CASE OF THE DECEASED UNNAMED MAYOR: A PUBLIC HEALTH STUDY

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Sandwich has always been surrounded, and for a long time made rich, by water. Yet providing a potable and reliable water supply became a political and fiscal as well as sanitary hot potato during the last half of the Victorian era. This unravelling of a rather murky story came about by the tale of the Mayor of Sandwich who died, in office, of typhoid. This event is mentioned by historians, notably Gardiner and Bentwich,[1] but the mayoral fatality is never given a name. Worse, there is no mention of a mayor dying in office on the tableau of mayors in the Mayor's Parlour of this proud historic town. Yet he died, much lamented; and the source of his demise and of serious illness in his family was strongly connected by the Medical Officer of Health (MOH) to drinking Delf water. This very notable event in a small town became important in eventually persuading a reluctant Council to belatedly invest in a modern waterworks with huge benefits to residents.

The most ancient parts of Sandwich were built on the highest most solid ground available – geologically known as Thanet Beds. They are relatively impervious, without springs or easily accessible pure well water. To overcome this lack, an elaborate system of aqueducts was constructed and which provided the town with the greater part of its water for nearly 700 years.

The story of the Water Delf (or Delph) is well researched by Dorothy Gardiner. It is first referred to in the early twelfth century and may have been constructed by, or for, the monks of Christchurch Priory who owned much of Sandwich at the time. The name Delf means ditch or something dug in old English (as in 'delve').[2]

The source of the Delf is a group of springs some 5km south of Sandwich on the fringes of the Lydden valley and Hacklinge marshes (**Fig. 1**). A remarkable engineering project diverted water from the North Stream and Roaring Gutter along the man-made Pinnock Wall (a canal). To obtain a suitable gradient part of the course had to be 'coffined' in wooden walls, other sections had to be dug out; but always it was an open stream, neither conducted through pipes nor concealed in conduits.[3]

Maintenance of the Delf which was, at least from fourteenth century, Corporation property was of perennial public concern. The town owned a strip of ground 16 feet broad on either side of the stream to receive debris dug out during clearing work. The sea had to be kept out by constructing a dam at Sandown Gate and sluices at e.g. Horse Pond Sluice (both visible today).[4]

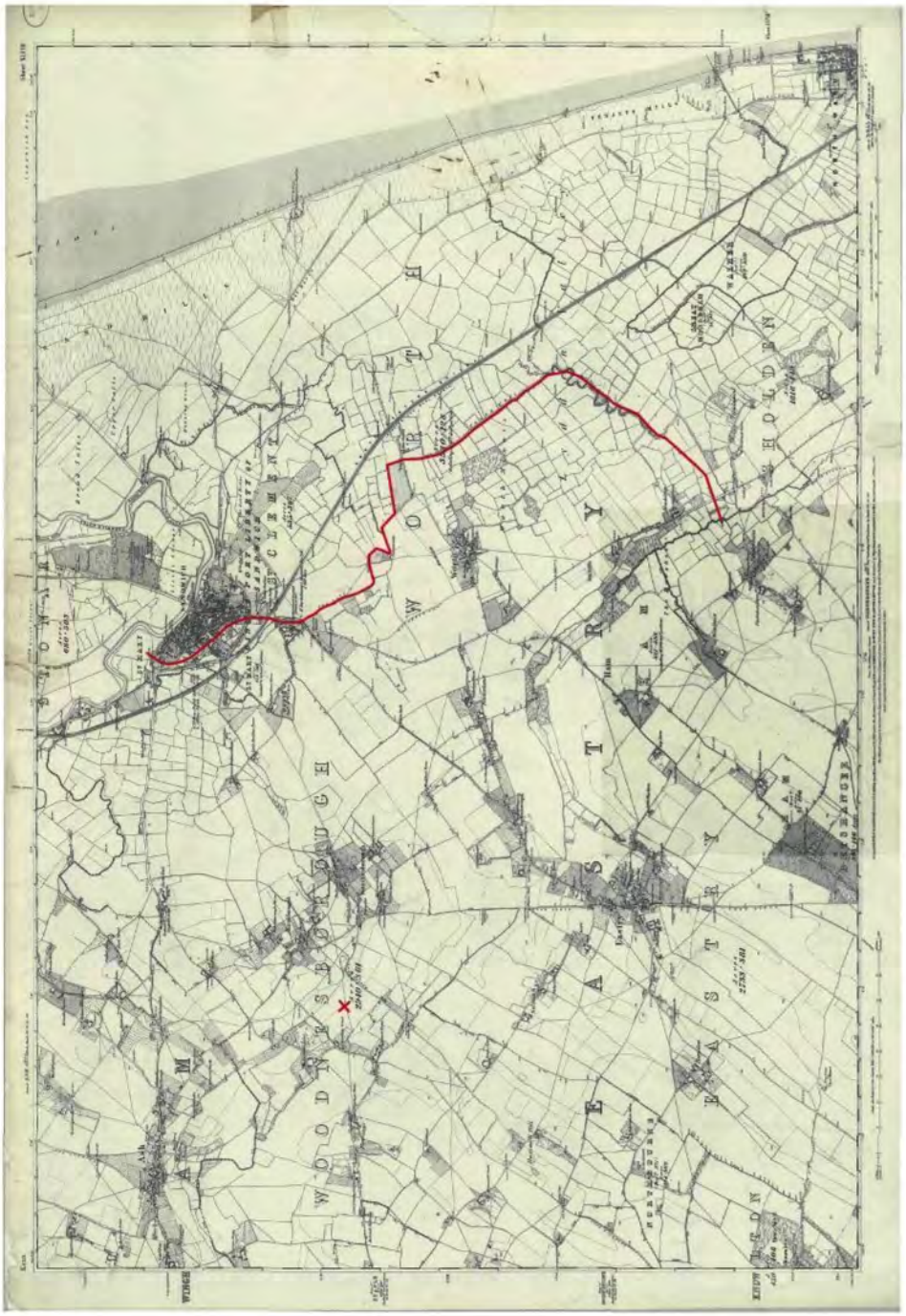

Fig. 1 The 4½-mile course of the Delf. The cross marks the location of Beacon Hill reservoir at Woodnesborough.

Gardiner refers to constant encroachments, to pollution, to private irrigation leets and to market booths straddling the stream which later became the permanent housing and shops of New Street and east Delf Street. In 1551 the Delf had again been blocked by rubbish leading 'to the putrefaction of the water and the great perishment of the people'. One remedy was to order all the townsfolk who had back windows looking on to the stream, and used them for throwing out dirty water or other harmful matter, to fill these windows with glass or make lattices of them![5]

Sandwich and its residents had seen many fluctuations – of trade, population and of health – throughout the centuries. This was particularly true of the seventeenth and eighteenth centuries.[6] One feature that is apparent throughout is the degree of independence, of autonomy, of individuality, of a port town such as Sandwich. This was no doubt enhanced to some extent by ceremonial manifestations and residual collective memories of the town's status as a leading member of the Cinque Ports.

In the outside world, change was happening rapidly. The Captain Swing agricultural riots and associated abject rural poverty originated very near Sandwich in the 1820s. The clamour for reform – of democracy, of welfare, of justice, the coming of the railways (by 1847 Sandwich has a railway station with daily services to London via Redhill), could not be ignored. For Sandwich the rise of Margate and especially neighbouring Ramsgate as seaside resorts brought additional anxiety.

Sandwich had always benefited from major wars but the end of the Napoleonic conflict ushered in serious decline. According to Richardson, many visitors testified to an air of gloom hanging over the town. They commented on its 'old fashioned and ill-built dwellings, its dismal and dilapidated churches, its narrow and inconvenient streets and general decline into feebleness and obscurity'. Not surprising then that in 1823 Cobbett considered the town to be 'as villainous a hole as one could wish to see'.[7]

Gardiner tells of the need for special inspections of the 'Gestelyng', Delf and South stream. The diminished quantity of water, insufficient for the needs of the town, was partly due to a number of encroachments. 'Grips', small open ditches, had been cut into the stream in many places, presumably for irrigation purposes. Elsewhere sludge had accumulated in the channel, also low slung bridges were impeding the flow.[8]

One man's name will forever be associated with the great public health reforms of the nineteenth century – Edwin Chadwick (1800-1890). In 1842 he published a *Report on the Sanitary Condition of the Labouring Population*. For the purposes of this article a paragraph is worth quoting:

> That for the general means necessary to prevent disease, it would be good economy to appoint a district medical officer, independent of private practice, with the securities of special qualifications, and responsibilities to initiate sanitary measures and reclaim execution of the law.[9]

The first Public Health Act of 1848 required local authorities to establish a Local Board of Health which would be responsible for sewers, street cleaning and slaughter houses and ensure the proper supply of water to their districts. There were permissive powers to appoint various officers including an Inspector of Nuisances and an Officer of Health. Sandwich made no such appointments. Presumably it

was not alone because the 1848 Act was replaced by the 1858 Local Government Act. This provided for a Local Government Act Officer intended to administer Local Government Boards. Presumably, again, that was not enough for in 1871 a powerful national body was created – the Local Government Board (LGB), empowered to make general regulations enforcing the various statutes for which it was responsible. Amongst these responsibilities were listed: births and deaths registrations; public health; drainage and sanitary measures; baths and wash houses; prevention of diseases, including vaccination. These were wide responsibilities and backed up by quasi-judicial powers. They were supported by further Public Health Acts in 1872 and 1875. Where these impressive Acts were implemented there were substantial and measureable improvements in public health, particularly in the big cities. However, most smaller towns saw these measures as an expensive luxury they could well do without. In all only 85 authorities were employing even the part-time services of a MOH. Sandwich was not one of them.

The troubled history of the public health problems affecting Sandwich can be followed in the Council's Minute Books (CMB).[10] In consequence of the 1875 Act the town had become a Sanitary Authority and was now required to appoint a MOH. To sugar the pill the central department offered the bait of a grant of half the salary. As will be seen later, both the appointment and its reporting requirements caused the Council some trouble. Thus it was that Sandwich appointed its first MOH in 1878, Dr Thomas Horne a local general practitioner. His salary to be £12 per year (half to be collected from the LGB).

Dr Horne presented his first formal Annual Report for the year 1879; it was read to the Council at their meeting on 6 May 1880. He noted that the population numbered 3,045. Amongst the deaths were three from typhoid, often at the time known as 'enteric'; one death was attributed to 'visitation of God'. He drew the Council's attention to the persistent stink in the town, made worse by putrid fish manure draining from leaking vehicles.

On 5 May 1881 the LGB pointed out the desirability of analysing items under The Food and Drugs Act 1875 – but the Town Council 'resolved; no action to be taken'. In a separate letter the LGB asked about water supply arrangements for the Town. The Council ordered that the surveyor take samples of Delph (always spelled this way in the CMB) water and get the same analysed. The borough analyst was to report the results to the Council and thence onward to the LGB.

The LGB also asked what had been done to improve the water supply. It was resolved that a reply be sent 'in inoffensive terms'. On 2 December, however, the surveyor was instructed to procure an analysis of the North Stream water and that a sub-committee would inspect the Delph stream up to its source.

When Dr Horne presented his report for 1881 he noted 12 cases of enteric fever, none of them fatal. Also, 'the Analyst has described the Delph water as 'never safe' as a beverage'. It was 'contaminated with paraffin oil; cesspools and ash pits existed on all sides; along the course of the stream water percolated through the earth with surface impurities'. Only a few days previously Dr Horne had observed the urine of horses trickling into the stream while, a few yards below, several persons were taking the water. The previous week he had inspected Pondicherry Alley and found tenements occupied by four families, consisting of 17 persons in all, who were only supplied with one privy and this was overflowing. There was

also a large heap of refuse close by. A child living in one of the tenements was just recovering from typhoid fever.

The Council's minute for 29 March 1882 noted that the latest Annual Report by the MOH disclosed matters for serious consideration and went on 'after much consideration and discussion it was resolved that a committee be formed to consider the whole subject of scavenging the town and systematically cleaning the streets and emptying the privies and water closets, cesspools and ash pits'. The surveyor was directed to pay special attention to the Delph with a view to preventing contamination of the stream.

The LGB had received a copy of the MoH's report and had duly written to the Council. The Town Clerk was instructed to reply that a system of scavenging had been arranged and pointing out the difficulties attending on an improved water supply. The Clerk was also to convey the Council's opinion that 'the terms of the report have a tendency to convey an exaggerated view of the sanitary deficiencies of the district'.[11]

Councillor William Bradley was first elected Mayor for the Town, Port and Borough in November 1880 and on 9 November 1881 it was 'resolved unanimously that he be re-elected' for a second term (**Fig. 2**). On 1 May 1882 there is the first intimation of an impending tragedy. The minute merely states that 'in the absence of the Mayor from ill health Alderman James Dorman was chosen to take the Chair'. The East Kent Mercury for 6 May 1882 has this death notice:

> Sandwich – May 5th at his residence, William Bradley, Mayor of Sandwich.

The next edition (13 May) carries further worrying news:

> We regret to state that another of the family of the late Mayor, Master John Bradley, the youngest son, is now prostrated with typhoid. The others of the family are recovering, though Miss Emily Bradley has recently suffered a relapse so serious as to arouse the most painful apprehensions.

Fortunately, the other members of the family did eventually recover.

William Bradley's death certificate was signed by Dr Horne – it was the result of enteric fever, at the age of 48. He lived at St Bartholomew's Farm, St Bartholomew's, Sandwich. Mayor Bradley's death caused wide sadness and consternation. His funeral was held at Sandwich's Congregational Church where he had been a Deacon and Superintendent of the Sunday School.

There was only one public health item of business at the Council's meeting of 25 May 1882 but it was particularly significant. The surveyor was ordered to submit samples of water from the public pumps in Market Street and Harnet Street for quantitative analysis. On 3 June the borough analyst presented his report. Heavy nitrate levels were found in both samples with visual evidence of sewage contamination. The analyst declared the samples unfit to drink and the Council ordered both pumps to be closed. As the Delph water was already known to be unsafe and now the alternative use of the pumps was unavailable, the supply of reliable water had become critical. This was particularly so for the sick and elderly

Fig. 2 Mayor William Bradley, magistrate, farmer and corn merchant, 1881. Source: Sandwich Guildhall Archives. (Photographer: E.N. Bowles, Dover.)

or poor who had to trudge further upstream for supplies. Others might arrange for water to be supplied in butts or tankers. The Council therefore requested that an experienced water engineer advise upon the best mode of supplying the town with pure water. Mr John Hall, architect and engineer from Canterbury, was engaged

to make an initial feasibility study. A contract was also agreed to hire horses for a water cart for watering the streets.

On 31 July Hall reported his initial findings. He told the Council that the location of the town on the Thanet Beds precluded boring for water in the town itself. The Northbourne spring (the main source of the Delph) was not nearly adequate and that the expense of 'protecting' the Delph would be very great. He ruled out a system of filtration as likely to be inefficient and unsatisfactory. He considered the Delph to be always susceptible to pollution along its whole course by the excrements of animals and liquid refuse of all kinds. He prescribed a radical remedy. From a site 1,000 yards to the west of Woodnesborough church and close to the Wingham and Canterbury road, water could be readily extracted from the underlying chalk. Allowing for 15 gallons per head per day he advised that a service reservoir should be constructed. At the elevation of 109 feet above sea level near the church there would be an adequate fall for a gravity feed to the Town. The estimated cost of this project would be £8,900.

On 1 March 1883, reacting to pleas from residents, the Council agreed to re-open the Market Street and Harnet Street pumps with notices 'water not suitable for drinking purposes'.

The MOH attended the Council's meeting on 4 April to present his report for 1882. He noted a decline in the population to an estimated 2,835 and the fact that the number of deaths exceeded births. He reported six deaths from phthisis (tuberculosis) and three from enteric fever. One of the cases of enteric had been imported from a neighbouring parish; one was a young man whose sickness was probably caused by emanations from a pig sty adjoining his house. The third was the highly respected Mayor of the town whose illness was produced either by respiring cesspool gas or by drinking water defiled by organic matter. Dr Horne makes his professional opinion very clear; 'it is sad in the extreme to think that such valuable lives should sacrificed or jeopardised, despite such sanitary defects long being known and disclosed'. Dr Horne acknowledged improvements in scavenging and removal of night soil, but continued, 'a class of the community are quite unmindful of such needs unless it interferes with their immediate convenience. Clearance should be made compulsory, not optional'. Regarding the water supply:

> I regret to have little of a satisfactory nature to report. The engineer's report commissioned by the Council has been received and considered but owing to the estimated cost being considered large the subject has been postponed *sine die*.
>
> Were it necessary to verify, further than I have already done, the unsuitableness of this [Delph] supply, I would instance the fact that during wet weather it is often impossible to obtain clear water. During the week ending 9 December there were four consecutive days, and during the last week (Feb. 1883) several more, when the water was insufficiently pellucid for the bottom of the pail containing it to be seen. As to the town's wells, these are invariably unsafe. It would be strange if it were otherwise, for cesspools and midden pits abound in the district. People make a great mistake in believing that if a well is a few yards distant from such abuse the water would be safe. Even if there is no direct percolation into the well, yet the water passing through the earth decomposes and dissolves any chemical impurities in the soil and thus is polluted before it reaches these shallow wells. All wells resemble those closed by order.

Finally, Dr Horne drew attention to the re-opening of the two pumps:

> I feel it is my moral duty to take this – the earliest opportunity – of pointing out what a great danger is necessitated by this. It is notorious that the closure was an inconvenience and considered unnecessary by many – many preferring one of the pumps because of the bright and sparkling appearance – not a few murmured at the closure and so, I fear, will not be slow to use it as of yore. The consequences may be disastrous'!

By 2 August the Council had received another letter from the LGB asking what had been done relating to the water supply to the town. The Council referred the matter to its 'Improvements Committee' which resolved to invite Mr Hall to direct his attention to the question of utilising the present Delph stream in order to avoid the heavy expense of a waterworks.

Mr Hall duly attended the Council's committee and was asked about properly utilising the Delph by some method of filtration. He emphatically advised against that course, as it was likely to result in failure and a very large and useless expense. It was resolved that the Mayor be requested to gain more information on the costs of and maintenance of the proposed water-works, as well as the income to be derived from 'water rates'.

Mr Hall's full report was before the Council when it met on 5 November 1883; it proved explosive. The MOH was present when a buoyant Mr Hall explained that having drilled a pilot bore-hole he believed the total costs of construction would be less than the original estimate – just £7,700. This would cover everything, including legal matters and parliamentary approval, engineers, clerk of the works and all incidental expenses. He continued:

> the water from the 150 feet deep bore hole by the side of Beacon Lane, Woodnesborough, has been tested and shows that the yield therefrom is sufficient for a town three or four times the size of yours and is of excellent quality.

The annual expenses, he had calculated, including engineers, coals, maintenance of pumps and boilers and depreciation should not exceed £210. Hall concluded by emphasising that the river waters could never be effectively filtered. Even if they could, water could not be delivered to the consumer at the same volume or even temperature as from his proposed source, with covered reservoir and pipes.

Nevertheless, the Council resolved (the word 'unanimously' was crossed out) that the Town Clerk be instructed to inform the LGB that the Local Authority are not prepared to make any alteration in the present mode of supply. They would take steps to protect the present water source and also facilitate the delivery by means of pipes and pumps placed at certain points in the town. By the 6 December meeting, a reply had been received from the LGB:

> I am to express the Board's regret and to point out that in view of the persistent recurrences of fever and of figures and reports received from the Medical Officer as to the dangerous quality of the present water supply, the Authority will incur a grave responsibility if they neglect to take the necessary steps for ensuring a wholesome supply of water for the District.

On 3 January 1884 there was another letter from the LGB, relating to the previous

correspondence, which advised that the Board had received a 'memorial' from a Mr G.G. Stevenson of Sandwich and asked for the Town Council's observations. There is no copy of the memorial in the minute book, but its contents are clearly implied by the Council's response:

> that the water is not unwholesome, having been used for several centuries without any serious injury having been traced to its use. The plans by an engineer for an artificial water supply have been prepared as stated in the memorial at a cost of £8,900 – subsequently reduced to £7,700. That considering the small population of the town and of its rateable value the cost is not reasonable and that a majority of ratepayers are actively against such an expenditure.[12]

On 8 March 1884 the Town Clerk reported that he had received a notice from the LGB that the previously notified Inspector's enquiry into the water supply would take place on 20th inst.[13] The clerk was to engage counsel, subject to the understanding that he 'is not to engage a Queen's Counsel'. The surveyor, in the presence of two Councillors, should take further samples of Delph water to the borough analyst and send duplicates to a Dr Bell at Somerset House in London. All matters pertaining in defence of the Council at the approaching enquiry, including samples of water and evidence of witnesses were to be left to the management and discretion of the Town Clerk.

At the same meeting the MOH's Annual Report for 1883 was read to the Council. The doctor was alarmed to report that here had been seven deaths from enteric fever. This had led him to arrange to step up the sanitary inspections. Out of 115 visits, 78 households had privy pits, 37 had removable receptacles of various kinds. As to the removal of 'house dust', 19 households distributed it in their gardens, 13 used some kind of box and 16 burned the refuse. He goes on to add that 15 households deposited their 'dust' in pits, while 52 stored it in heaps. The heaps varied in size from handfuls to a cartload or more. The piles would be exposed on their premises to be either sold on or used as manure. The contents of the privy pits being added from time to time.

Further detailed enquiries had been made about the water that households used. Seventeen used surface well water; four used raw water. Seven used partly well/ partly Delph, and 87 used only Delph water. Twenty-six of the houses had no drains, the occupants of these used the street gratings for their slops. Dr Horne adds:

> The visitation of these houses as well as inspections of other parts of the District has strengthened my opinion, expressed in previous reports, that a more systematic and regular removal of excrements and other refuse would be a means of materially improving the health of the community.

The report of the enquiry was read to the Council's General Purposes Committee on 11 June. Inspector Codrington had noted that following the closure of the wells by order of the MOH and borough analyst there was an increasing dependence on the Delph – some three-fourths of the population have no other source, he found. Many people go considerable distances to dipping places in the stream's course. He too had observed stables and accumulated 'filth' near the stream. Something not reported on before was causing problems. If tidal sluices were not closed in

time (presumably where the Delph joins the Guestling) rubbish is carried back up the Delph. Leakages from several cess pools and defective drains make the situation worse, he considered. In an accompanying letter the LGB adds:

> Under the circumstances and having regard to the continuing risk of typhoid fever in the town, the Board must impress upon the Council the necessity of providing the district with an improved supply of water'. The Board would suggest for your consideration whether this might not be done by means of an intake in the Delph above the town, at a point where the water is pure, much more cheaply than the scheme which has been before the Council.

Reading between the lines this must have come as a welcome compromise, as the GP committee immediately recommended that it be acted upon. The surveyor was asked to draw up detailed plans; these to include the size of storage tanks (15-20,000 gallons) the height required (this was therefore to borrow from the previous scheme by becoming a gravitational feed system), and annual costs.

The Local Government Board were soon enquiring into the Council's plans. On 29 August 1884 the Clerk was instructed to reply along the lines that the Delph had provided plentiful water during the recent drought; that the health of the town has been and remains in a satisfactory state and that, considering the large expenses involved in *any* system, the LGB be informed that the Council do not intend to make any alteration. They would however take steps to prevent contamination of the stream. (Although there is no reference to the borough surveyor's costings, it seems reasonable to assume that the works he had described had also proved to be expensive.)

The LGB reply was received on 29 September 1884:

> ... the Board do not regard the proposals of the Town Council as of any practical advantage. On the contrary, they seem to involve a useless expenditure without providing a remedy to the defects which have been shown ... The Board must impress upon the Council the necessity of providing the Borough with a sufficient supply of pure water.

The next relevant reference does not appear until a minute of the meeting of the GP Committee of 21 January 1885. The Committee recommended to the Council that:

> the LGB be informed that, taking account of the revised report by Mr Hall and of the newer suggestions of filtration, the Town was not in a position to bear the expenses of any such schemes. The LGB should understand therefore that the Council does not propose to make any alteration.

On 7 May there was a letter from Dr Horne wishing to resign due to ill health. He wrote rather pathetically in asking for a testimonial. Poor Dr Horne's position must at times have seemed very isolated (entirely in the tradition of public health officers – Ibsen's *An Enemy of the People* makes this case grippingly). In his final Annual report on the health of the population for the year 1884, he does not compromise, lamenting that many cases of infectious sickness:

> do not come to the cognisance of the MOH, who is kept in the dark. The public seem to regard the MOH as a prying officious meddlesome functionary – entailing unnecessary expense and nuisance!

By August 1885 the LGB had written to point out the risk that the Council was taking, should cholera be imported. (In public health terms, and with the sanitary conditions being as reported, it was remarkable that this had not occurred already). A similar stalling reply as previously, alluding to cleansing and supply by pipes and pumps, but using existing Delph water, was sent.

The Mayor also referred to a very serious new 'intrusion'. The Commissioners of Sewers (perhaps the nearest modern equivalent would be the Internal Drainage Boards) were proposing to take judicial proceedings to demand that the Delph and other streams be lowered to facilitate drainage in the Lydden Valley. This would inevitably make the Town's water supply vulnerable to shortages at key times and would have severely undermined the Council's position that the quantity was always sound, (never mind the quality!). In hindsight it appears that this development heralded the Town Council's loosening grip on the situation. From early 1886, references to the long standing debate about the water supply in the Council's minutes become less frequent.

On 5 August 1886 the Mayor had to report typhoid illnesses at Millwall Terrace. The water from the well supplying the premises had been analysed and found to be 'more or less unfit for drinking purposes'. At the meeting on 9 November the new MOH (Dr Harrison) reported more cases of typhoid at the *Two Brewers* public house; one case had died. All drains had been cleared but, 'nothing short of total destruction and rebuilding would make this place healthy', he reported.

At the Council's meeting on 3 February 1887, the Mayor referred to another memorial, presented some months ago, from certain inhabitants asking the Council to take into renewed consideration the subject of an improved water supply. It was resolved that a letter should be sent to ratepayers setting out the issues and costs of alternative schemes. Each ratepayer should indicate whether he wished the present supply to continue; if not, which scheme he was in favour of. The MOH reported good news on improved drainage in the town; the force of water to cleanse pipes now being sufficient to do as much in a few hours as had previously taken days. He thought the town ditches likewise seemed to be pure and free of the previous noxious vapours.

At meeting of the General Purposes Committee on 2 May 1887, Dr Harrison, reported his concern about cesspools. He strongly impressed upon the Committee that:

> there is an urgent need for the entire abolition of the cesspool system. In one case I discovered a pump and well on one side of a wall and a closet and cesspool on the other, entirely unknown to the well owner.

The MOH presented his annual report for the previous year at the February meeting 1888. He wished to remind the Council that the matter of the water supply alluded to last year as a prominent question, has been in 'abeyance; it is, however of vital importance'. He also reported further typhoid cases at Millwall Place. Defective drains had been found together with accumulated refuse of an injurious nature.

In December 1888 news of a Local Government Board-sponsored Parliamentary Bill was revealed. This, the East Kent Water Supply Bill, would, amongst other things take control of the Delph. The Clerk was instructed to oppose the Bill.

However on 29 January 1889 a letter was received from The Rural Sanitary Authority at Eastry which was considering the matter of a water supply to Ash and inviting Sandwich to meet to discuss the project. At its first meeting, on 18 March 1889, a solicitor from the LGB went through the proposals. He told the committee that a company formed for the purpose of supply would charge six pence per thousand gallons. The committee objected and hastened to repair to its own (Mr Hall's) scheme as being a cheaper option. A civil engineer, a Mr Courteny, was rapidly appointed and promised to report within 10 days. On 21 March 1889 the Town Clerk reported on the latest situation with the Bill. The Council ordered that their opposition be proceeded with.

The pace of events rapidly accelerated at this point. There was a joint meeting of the urban (Sandwich) and rural (Eastry) Sanitary Authorities on 29 May 1889. Mr Courteny's report was read out. The meeting approved the principles of a joint project, subject to the detailed costings which would fall on each of the Councils. The provisional total cost was £9,500 for a scheme covering Sandwich, Eastry, Woodnesborough, Worth and Ash. Under this estimate Sandwich's share would have been £4,500.

The East Kent District Water Act received the Royal Assent on 1 August 1889. Under the terms of the Act a new statutory Joint Water Committee was set up, the main partners being the Eastry Rural Sanitary Authority with the Sandwich Town Council. Orders and Regulations for obtaining a joint supply of water, including land acquisition, requirements for construction and materials and the necessary contributions were put together rapidly. A company formed under the Act was to carry out the work and administer the new service. All this was formally approved within three months by 24 October 1889. It took most of the next year to secure a suitable loan, from The Commissioners of Public Works, to be repaid in 30 years. Contractors were appointed for the various stages of construction, the main pipes, and distribution pipes being first, followed by the reservoir. It was not however until March 1893 that the tender for the main well (bore hole) and pumping station was let.

All reservations were laid aside when on 8 May 1894 there was a grand ceremonial laying of the foundation stone of the waterworks (**Fig. 3**). The *Mercury* carries an extended report.[14] The Mayor and Corporation inspected the final stages of covering the reservoir on top of Beacon Hill. The reporter, wandering amongst the brick pillars supporting the roof, compared it to the appearance of the crypt of an ecclesiastical building. The party then processed to the pumping station at the bottom of Beacon Lane. The Mayor and colleagues were able to see that the well had been completed as had most of the housing of the pumping station. The formal laying of the foundation stone was in practice more of a 'topping out'. Generous speeches were made by the Mayor (Major Mates) and by the chief engineer. It was expected that the first water would flow in a matter of weeks.

After this ceremony the party repaired to the *Bell Hotel* where the Mayor and Corporation were entertained at dinner by the main contractors. The Mayor was expansive, if a little selective, when providing a history of the project. 'In past years,' he said, 'he had been strongly opposed to launching out into a great expenditure on water-works, not because he did not admit that it was of the utmost importance that a pure supply of water should be provided, but he considered the

Fig. 3 Ceremonial opening of Sandwich new waterworks, May 1894. Source: Sandwich Guildhall Archives. (Photographer: 'Boyer', Sandwich.)

town could not bear the outlay. Although it had been alleged that the Delph was an impure source, that had never been proved. It had served the town well since the days of Edward I. Nevertheless the Government would grant the Council no money to generally distribute the Delph water. Two factors had changed. Firstly, that, due to continued drainage of the Hacklinge marshes, the supply was becoming insufficient. Secondly, although the question of expense still stood where it had, the conditions had been altered by their (forced) union with the Rural Sanitary Authority, and also by some signs of increased prosperity in the town".

A picture has emerged of a town, proud of its history, but certainly by the second half of the nineteenth century, run down, neglected, slow to adapt, indeed vigorously resistant to change. In the light of the history of Victorian sanitary reform, however, Sandwich was not unique. The rate of progress through the country was far from uniform. The predicted costs were an enormous worry. Perhaps more than that, many local authorities were frustrated and bewildered by the technical and legal issues.

During a long and turbulent history and of fluctuating fortunes the town and people of Sandwich were able to rely on a source of water, the Delph (in our era known as the Delf) constructed centuries earlier by people of remarkable skills and foresight. It was not until death from water-related typhoid of the much respected mayor, William Bradley, that resistance to change very slowly diminished, although 12 years were to pass before Sandwich secured its clean water supply. His posthumous role should be acknowledged.

Sandwich today still benefits from the excellent supply of water from the aquifer at Flemings identified by Mr Hall in 1882, pumped up to the reservoir at Beacon Hill, Woodnesborough. As to the Delf, so important to this story, it flows (rather slowly, if at all) rather forgotten, even neglected. It is often thick with algae, so thick at one stage that a cat walked on it and survived. The 'management' of the Delf seems to be entangled in the interlocking arms of the Environment Agency, The Stour Internal Drainage Board, the riparian owners (farmers and householders) and Dover District Council. The Delf too, deserves to be acknowledged and restored to something befitting its historic significance.

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ENDNOTES

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2 Helen Clarke, 2012, *Discover Medieval Sandwich*, Oxbow Books, p. 18.

3 H. Clarke *et al.*, 2010, *Sandwich The Completest Medieval town in England*, Oxbow Books, p. 36.

4 Gardiner, *op. cit.*, p. 213.

5 *Ibid.*, p. 215.

6 T.L. Richardson, 2006, *Historic Sandwich*, Sandwich Local History Society, chapters 3 and 4.

7 *Ibid.*, p. 120.

8 Gardiner, *op. cit.*, pp. 332, 333.

9 Sidney Chave, 1987, *Recalling the Medical Officer of Health*, King's Fund, p. 21.

10 'Sandwich Corporation Minutes Book 1874 to 1884' [CMB], Kent History & Library Centre. For convenience all the subsequent evidence and quotations from the minute books are referenced by the date of the meeting.

11 The Council had other weighty matters on its agenda. On 17 April 1882 the Bill currently before the House of Commons disenfranchising the Parliamentary Borough of Sandwich was laid before the Council. That was accompanied by the official report of the commission for enquiring into corrupt practices in the Borough. See, Frank Andrews, 1975, 'The inter-relations between politics and economics in Sandwich, Kent 1831-1881', M.A. thesis, University of Kent, pp. 140-156.

12 The Rateable Value of Sandwich in 1882 was £9,412. *Kelly's Directory of Kent*, 1882.

13 'Sandwich Corporation Minutes Book 1884 to 1889', Kent History and Library Centre.

14 Sandwich Mercury (The Deal, Walmer and Sandwich Mercury) Saturday 12 May 1894.