Epidemics resources include

1. Introduction to the set of resources

2. Fact Sheets Set 1: Measles (1874). There are 4 fact sheets in this set. Set includes an introduction to the Dawson Family memorial in Dunedin’s Southern Cemetery and clippings from newspapers about measles epidemic information, spread, remedies and the numbers of immigrants arriving in the colony with measles.

3. Fact Sheets Set 2: Scarlet Fever – There are 6 fact sheets in this set that detail 2 epidemics. A very poignant headstone at Palmerston where three children in one family died on the same day and three headstones in the Northern Cemetery lying adjacent to each other indicate a Scarlet Fever epidemic in Dunedin in 1877.

4. Fact Sheets Set 3: Typhoid Fever. There are 3 fact sheets in this set. Set includes an introduction to the Scally Family memorial in the Old Cromwell Cemetery as well as newspaper cuttings about the typhoid outbreak in Cromwell and maybe some food for thought about the Cromwell epidemic!

5. Fact Sheets Set 4: Consumption. There are 2 fact sheets in this set. A graph shows cause of death at Waitati Cemetery Dunedin between 1869 and 1899. There is also the Adam family graves at Waitati.

6. Fact Sheets Set 5: Diphtheria. There are 3 fact sheets in this set. The set includes an introduction to the Burton and Sillars family memorials in the Roxburgh and Millers Flat Cemetery as well as newspaper cuttings about the epidemic and the effect on the Sillars family.

7. Fact sheets Set 6: New Zealand’s worst epidemic ever! The 1918 Flu epidemic. There are 4 fact sheets in this set that show the location of many unmarked flu epidemic graves at Dunedin’s Anderson’s Bay Cemetery and the graves of both a returned serviceman from the Great War and a Dunedin nurse who died in the epidemic.
INTRODUCTION

Finding evidence of epidemics in our cemeteries is not easy. One reason for this is that in only a few cases is the cause of death inscribed on the tombstone and this is almost always for an accidental death such as a drowning, for ship wrecks, mining cave-ins, explosions, falls from horses, or railway accidents. The cause of death from disease was, at best, intermittently listed in burial records kept by cemetery authorities but such records are now rarely found. The cemetery authorities for Cromwell Old Cemetery, and Waitaiti Cemetery did keep such records and in both cases there is evidence of epidemics.

To locate headstones where more than one family member has died within a very short space of time, possibly even on the same day is usually evidence of an epidemic that has affected a large number of people in a local community. The Scally family memorial featured in this resource set is a very good example of this. So is the Mitchell family memorial in Dunedin’s Northern cemetery. Further evidence in the Mitchell case is two young children who died at about the same time and who feature on two adjacent headstones – the Hendry and Turner family headstones.

The Dawson family in Dunedin’s Southern cemetery have been located through the City of Dunedin Cemeteries database. There is nothing mentioned on their very simple headstone to indicate the grief of losing so many family members in such a short time.

Mothers dreaded the outbreak of infectious diseases as they could and did devastate families. In each of the resource sets that follow are examples of families devastated by diseases that just over a century later we take very lightly due to advances in medicine and public health. Nevertheless few if any of these diseases have been eradicated and are still prevalent in many third-world countries.
FACT SHEET SET 1: MEASLES

Measles is a highly infectious disease that is spread through respiration or breathing. The disease was very common in the past and remains so today. Epidemics resulting in deaths of young people are still common in third world countries.

For further student inquiry:

See Measles at [http://en.wikipedia.org/wiki/Measles](http://en.wikipedia.org/wiki/Measles) Have students find out what measles are, the causes, the history of measles, and how measles are treated today. There is also a good website with a description of the disease in plain English at Measles FAQ: Centers for Disease Control and Prevention in the United States [http://www.cdc.gov/vaccines/vpd-vac/measles/faqs-dis-vac-risks.htm](http://www.cdc.gov/vaccines/vpd-vac/measles/faqs-dis-vac-risks.htm)

The outbreak of measles in 1874 that claimed the lives of the Dawson family was prevalent in Otago at the time causing school closures in Milton and Lawrence.
Fact Sheet 1A: A Measles Epidemic

The Dawson family - Southern Cemetery Dunedin

This is a large plot that is commemorated with a small, simple and easily overlooked headstone. The records reveal that in this plot lies Hannah and Benjamin Dawson and four of their children. The Dawson’s lived at Ravensbourne.

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edith Dorinda Dawson</td>
<td>15 Oct 1874</td>
<td>Child</td>
</tr>
<tr>
<td>Ellen Agnes Dawson</td>
<td>20 Oct 1874</td>
<td>Child</td>
</tr>
<tr>
<td>Alfred Stanhope Dawson</td>
<td>29 Oct 1874</td>
<td>Child</td>
</tr>
<tr>
<td>Jane Hemblen Dawson</td>
<td>2 Nov 1874</td>
<td>Child</td>
</tr>
<tr>
<td>Hannah Dawson (married)</td>
<td>26 Jul 1890</td>
<td></td>
</tr>
<tr>
<td>Benjamin Dawson</td>
<td>8 Jan 1907</td>
<td></td>
</tr>
</tbody>
</table>

The ages of the children or their parents were not recorded but we can see from the records that all four children died within the space of two and a half weeks.

A search of the Papers Past website for an epidemic of the period reveals through a letter to the editor of the Otago Witness, and other comments that a measles epidemic was prevalent and that many children had died and many more had been unable to attend school.

The Dawson Family headstone can be found at Block SP Plot 117A-119
DUNEDIN.

30th October.

An unusually large number of deaths was registered this month, a large proportion being attributable to measles and bronchitis.

DUNEDIN. 30th October. Evening Post, 31 October 1874, Page 2

THE MEASLES EPIDEMIC

TO THE EDITOR

Sir,—The widespread prevalence of this disorder at present in the Province is very much to be lamented, hundreds of children being prevented from attending school, and in too many instances cases have ended fatally. Measles is one of those diseases which is intended by nature to be a mild one; but from want of attention and frequently improper treatment principally among the working classes this disease runs a course attended with much fatality. It is therefore most desirable that a knowledge of the best remedies to be adopted when children and adults are attacked should be as extensively circulated as possible throughout the Province.

THE REMEDY

From a periodical lately perused it is manifestly certain that the homoeopathic treatment of this disease is undoubtedly the most efficacious, there being rarely or never any case ending fatally, if taken in time, when treated by the following homoeopathic medicine:—

1. For the fever, catarrhal symptoms, and during the eruption, Aconite and Pulsatilla. Eight drops of Acon. into a tumbler of cold boiled water, and eight drops of Puls. into another tumbler of same. Under six years a dessert spoonful alternately every hour, over six a tablespoonful.

2. For aching of the limbs and shooting pains in the chest, with laboured respiration, take Bryonia.

3. In excessive sickness and vomiting a pilule now and again of Ipecacuanha.

4. For the head symptoms Belladonna and Gelsemium.

THE MEASLES EPIDEMIC. Otago Witness, 14 November 1874, Page 17
Fact Sheet 1C: A Measles Epidemic

Newspaper clippings: Epidemic spreads around Otago November 1874

**The Boys' High School.**

The prevalence of measles, which kept a third of the boys from school.

The Boys' High School Otago Witness, Issue 1204, 26 December 1874, Page 4

**Local Intelligence.**

The measles epidemic continues to spread in the Tuapeka district. We are informed that with three exceptions, every family having children connected with the Lawrence Grammar School has been visited with the malady. The School, we believe, will not be opened for a week or fourteen days from this date.

Local Intelligence. Tuapeka Times, 14 November 1874, Page 2

**Local Intelligence.**

Measles are gradually spreading through the country districts. At Clyde, Alexandra, and Blakes, this epidemic has already made its appearance, and we are informed that there are now a few cases in Cromwell.

Local Intelligence. Tuapeka Times, 5 December 1874, Page 2

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**North Otago Times.**

**Thursday, November 10, 1874.**

**Measles.**—This disease is now quite an epidemic among children in the town and neighborhood. Over 150 pupils of the Grammar School are kept at home, in consequence of measles being in the house. It is, however, fortunately of a very mild form and we have heard of no fatal cases.

Otago Witness, 28 November 1874, Page 15

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This collection of newspapers clippings gives some idea about the extent of the measles epidemic. A number of schools were closed for more than a week.

It is unclear how many deaths were the result of this epidemic.

What were the possible causes of the epidemic?

Measles are very prevalent at Port Chalmers, and in the Dunedin Benevolent Asylum, nearly all the children—no fewer than 73—are down with the disease. In the Tokomairiro district, the grammar school has had to be closed in consequence of the same epidemic.

Untitled West Coast Times, 1 December 1874, Page 2
Fact Sheet 1D: A Measles Epidemic

Newspaper clippings: Evidence of immigrants arriving in NZ with measles

North Otago Times.

TUESDAY, MARCH 10, 1874.
The arrival of three vessels successively with sickness of a serious type among the Government immigrants is a matter which can scarcely fail to cause great anxiety throughout the Colony. Whatever precautions may be taken at the Quarantine station, there is a very disagreeable probability of the infection being carried by convalescent patients from place to place, and the consequent outbreak of disease of the epidemic type among the population of our towns. It is not only the fact that the Mongol, the Carnatic, and the Scimitar have had a large number of cases of measles and scarlet fever during the passage that is so disquieting to the public mind (though in itself sufficient reason for very grave apprehension); but the manifest want of care on the part of the immigration agents of the Colony at Home which precludes the hope that these pest ships will prove exceptional instances and ships bringing healthy immigrants will be rule.

North Otago Times on March 10, 1874. Page 2

PORT CHALMERS.

8th June.
The s.s. Atrato, Captain Husband, from London, 59 days at sea, has arrived. She called at the Cape to coal and provision. She is now in quarantine. Six cases of measles, and 33 deaths—all but one were infants. There were no deaths from infectious diseases, but there were six from convulsions, nine of bowel complaints, 17 from croup. She has 762 souls on board, 189 for here, the rest for Canterbury. There has been 120 cases of measles, all very mild.

PORT CHALMERS. 8th June. Evening Post, 8 June 1874, Page 2

PORT CHALMERS.

5th September.
The Parsee, ship, from Glasgow, brings 444 souls, equal to 332½ statute adults, who are the first batch of Mr James Adams’ selection. The ship had a great deal of trouble on voyage. There were about 200 cases measles, besides diarrhoea and other troubles, which commenced 14 days after leaving. There were 14 deaths (two of which were adults) and three births.

PORT CHALMERS. 16th October. Evening Post, 16 October 1874, Page 2

WELLINGTON.

October 23.
The ship Douglas, with immigrants, was towed in late last night and placed in quarantine. She had a rough passage, and there was much sickness amongst the children. Thirty-one deaths, chiefly from measles and whooping-cough. There are still twenty cases under treatment.

WELLINGTON. October 23. North Otago Times, 24 October 1874, Page 2

The first clipping on this page is a letter to the editor by a reader called Sanitas. What are the arguments of the writer?

The other newspaper clippings on this page indicate that many ships were arriving into the ports of NZ with measles, on board, before the measles outbreak in Otago.
FACT SHEET SET 2: SCARLET FEVER / SCARLATINA

Before the 20th century Scarlet Fever was a much-feared disease often resulting in death for young victims or life-long debilitating after effects. Scarlet fever involved isolation for families suffering an outbreak and the burning of all clothes, bedding and other items that the victim may have been in contact with. A delightful story that students may like to read is The Velveteen Rabbit by Margery Williams (1922) – a small boy, contracts scarlet fever and his toys are to be burned including a velveteen rabbit, the child's favourite toy. Characters in Little Women by Louisa May Alcott (1868) and in By the Shores of Silver Lake by Laura Ingalls Wilder (1939) also contract Scarlet fever with sad results.

In the series of oral history reading booklets published by Lands End for schools and written by Lyn Rasmussen (1994), Max Weigel mentions in his memories of “School days at Apiti” that both he and his mother caught Scarlett Fever when they were shifting to another area of New Zealand. This resource will be available in many primary schools.

For further student inquiry:


The newspaper clipping that tells of the scarlatina outbreak in the Waikouaiti that devastated the Sutherland family lays the blame with arrival of the immigrant ship the Robert Henderson. Have students look at the resource packet for Quarantine Island and let them speculate on possible connections between the dates of arrival of the Mongol into quarantine at Otago and the outbreak of scarlatina some 6 years later in Dunedin in 1877.
This beautiful and heart-wrenching tombstone can be found in the Palmerston Cemetery north of Dunedin. Four children have their deaths recorded on the same day and a baby 2 weeks later.

The inscription on the Sutherland Family tombstone provides the following information:

<table>
<thead>
<tr>
<th>Name</th>
<th>Date of Death</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>William Sutherland</td>
<td>6th April 1871</td>
<td>6 years 8 months</td>
</tr>
<tr>
<td>Davidina Sutherland</td>
<td>6th April 1871</td>
<td>5 years 6 months</td>
</tr>
<tr>
<td>John Sutherland</td>
<td>6th April 1871</td>
<td>3 years 4 months</td>
</tr>
<tr>
<td>Henrietta Margaret Sutherland</td>
<td>21st April 1871</td>
<td>1 year</td>
</tr>
<tr>
<td>John Sutherland</td>
<td>15th July 1905</td>
<td>76 years</td>
</tr>
<tr>
<td>Ann wife of above</td>
<td>30th December 1911</td>
<td>76 years</td>
</tr>
</tbody>
</table>
Fact Sheet 2B: A Scarlet Fever Epidemic

Newspaper clippings: the Waikouaiti Scarlatina outbreak 1871- Causes

The Evening Post.

FRIDAY, APRIL 14, 1871.

Our readers are no doubt fully aware that scarlatina has made its appearance in various parts of Otago, and has in a considerable number of cases been attended with fatal results. So late as yesterday information was received that the disease was spreading in the District of Waikouaiti, where alone eight deaths from it had occurred during last week. It was imported to Otago some months ago by the ship Robert Henderson, on board which it broke out at sea, and, although the vessel was placed in quarantine on arrival, and the ordinary precautions taken in reference to the passengers and crew, yet the measures employed to prevent infection were evidently not stringent enough, as the disease began to spread shortly after the ship was discharged, and the passengers, allowed to mix with the rest of the population. In Otago, as may naturally be supposed, a very uneasy feeling prevails, especially among large families, and regret is felt that more care was not exercised in the first instance; but of course regret is unavailing, and no amount of care will now be able to confine the disease to narrow limits. It is earnestly to be hoped that the mortality will not be extensive, but still it has arrived at a stage when it begins to concern other portions of the Colony as well as Otago. Scarlatina is exceedingly contagious, and the duration of vitality in its poisonous germs must be great, as it is supposed that it found its way into Otago through the medium of unfumigated goods, as much as through the persons or personal effects of the passengers by the Robert Henderson; and, such being the case, the question arises, is it not possible that it may, through the same medium, find its way to Wellington, or even further.

Above: FRIDAY, APRIL 14, 1871. Evening Post, 14 April 1871, Page 2

Evidence of a widespread epidemic is found in the newspaper clipping in the next column. THE SCARLET FEVER. Otago Witness, 11 March 1871, Page 1

THE SCARLET FEVER.

A few months ago the ship Robert Henderson arrived in this port with a large number of immigrants on board, but scarlet fever having broken out among them during the voyage, and several cases still existing, the vessel was placed in quarantine. After being two or three weeks on the Quarantine Island, during which time the ship and the clothes alike of the crew and passengers were to be fumigated, the latter were allowed to land, it being believed that all fear of infection was past. Shortly afterwards, however, it was announced that a case of scarlet fever had occurred in a family that had arrived by this ship, and at intervals since then up to the present time we have been informed of the occurrence of other cases. At Dunedin, Port Chalmers, the Quarantine Island, Green Island, Invercargill, and Switzers, the disease has made its appearance, and in more than one case, we regret to say, has terminated fatally. In every case, we believe, the infection has been traced primarily to passengers by the Robert Henderson. The questions, therefore, arise—
Fact Sheet 2C: A Scarlet Fever Epidemic

Scarlet Fever Dunedin 1875 - 1878

A major scarlet fever outbreak occurred in Dunedin towards the end of 1875. There were few ways for authorities to manage this contagious disease, from which death was a frequent outcome, other than to isolate patients. In the first newspaper cutting an attempt to have the hospital admit scarlet fever patients was turned down by the hospital authorities. In the second clipping the Post Chalmers town council wrote to the government, nearly two years later, asking if patients could be isolated at the Quarantine Station. They were also turned down.

**THE OUTBREAK OF SCARLET FEVER**

Superintendent’s Office,
November 38th, 1875.

Sir—I have the honour to acknowledge receipt of your letter, No. 3287, of the 24th inst., reporting cases of scarlet fever in the house of Mrs Walden, in Maitland street, and requesting that the patients should be removed to the Hospital without delay.

At a meeting of the Central Board of Health held this day, it was resolved that the Hospital is not the place to receive patients suffering from such an infectious and contagious disease as scarlet fever, and that the removal of the persons suffering to the Hospital would be the means of spreading the malady. Further, that the house should be placed in quarantine, as the easiest way of isolating the disease.

I have to commend the above to the consideration of the Local Board of Health, which has power under the Act of 1872 (section 18) to place the house in quarantine, which the Central Board suggests should at once be done.—I have, &c,

J. Macandrew,
Superintendent; and Chairman of Central Board of Health.

**PORT CHALMERS TOWN COUNCIL**

Sanitary matters were again introduced by a letter from Mr. Monson, notifying to the Board of Health that one of his daughters was suffering from scarlet fever. The letter was ordered to be received, and a discussion followed upon the best means to be adopted to check the progress of the fever in the town. Upon the Innes and the interference of the Chairman. It was also resolved, on the motion of Mr. Graham, to supply the town water gratis from any open tap to all who needed it, and that water should be carried when necessary to fever-stricken houses. Also, that such houses should be distinguished by the exhibition of small yellow flags in front of them.

With the probability before them of the fever spreading, the Council discussed the advisability of establishing a sanatorium, and it was resolved, on the motion of Mr. McKinley, to telegraph to the General Government at Wellington for permission to occupy the Quarantine Island.

Otago Witness, Issue 1343, 25 August 1877,

Generally stricken families were confined to their own homes for the duration of the sickness.

This was not always easy and at one stage special officers were appointed to ensure families did remain in isolation.

Unable to leave the house to work these families were doubly hit when they were charged for the quarantine officer’s time.
An extremely poignant and heart-wrenching tombstone can be found in Dunedin’s Northern Cemetery. This heavily moss covered stone is lying on its back at Block 44 Plot 16 but is still easily read. Thomas Mitchell was a painter. The family lived in Castle Street at the time of the children’s deaths.

The inscription on the Mitchell Family tombstone provides the following information:

In memory of
the beloved children of
Thomas and Catherine Mitchell.

<table>
<thead>
<tr>
<th>Name</th>
<th>Died</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>James Mc Dougald</td>
<td>28 February 1877</td>
<td>7 years and 1 month</td>
</tr>
<tr>
<td>Robert Ewing</td>
<td>10 March 1877</td>
<td>8 years 9 months</td>
</tr>
<tr>
<td>Thomas Symington</td>
<td>12 March 1877</td>
<td>13 years 2 months</td>
</tr>
<tr>
<td>Ellison Ewing</td>
<td>14 March 1877</td>
<td>3 years 2 months</td>
</tr>
<tr>
<td>Isabella McDugald</td>
<td>21 March 1877</td>
<td>1 year 2 months</td>
</tr>
</tbody>
</table>

Thomas Mitchell
who departed this life
26 February 1890
Aged 49 years

Mitchell Family gravestone is located in Block 44 Plot 16. See over the page for the cemetery map location. All three headstones are in close proximity to each other.
Above: Another fallen headstone records the deaths of the Hendry Family in Block 44 Plot 2.

In an adjacent plot to the Mitchell plot lies the Hendry Family. What is noticeable among the four deaths recorded is the death of little George Hendry on the 26 March 1877 when he was aged 3 years and 6 months.

Left: The Turner Family have nine members of the family listed on the headstone next to the Hendry headstone.

Again what is noticeable is the death of little Alexander Turner aged 4 years in March 1877. The Turners, like the Mitchells, lived in Castle Street at the time.
DUNEDIN.

11th April.

A public meeting, attended by 300 people, was held last night to consider the advisability of continuing the Fever Hospital on the Town Belt. Resolutions were carried affirming the necessity of such a hospital, and recommending that steps be taken to get the sanction of Parliament for its continuance in its present position. The Health Officer has informed the City Council that there are a great many cases of scarlet fever in Dunedin at the present time.

DUNEDIN. 10th April. Evening Post, 11 April 1877, Page 2

The infectious diseases of measles and Scarlet Fever were widespread throughout New Zealand.

CHRISTCHURCH, March 8.

At a meeting of the Board of Health, held yesterday evening, stringent measures were taken for the prevention of the keeping of pigs in the suburbs within two and half chains of any house. Pigs are not allowed to be kept in the city at all. The Chairman of the Board said seven new cases of typhoid fever, six of scarlet fever, and two of scarlating, had been reported within the past fortnight.

TELEGRAPHIC NEWS, West Coast Times, 9 March 1877, Page 2

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A CURE FOR SMALL-POX.

AND ALSO FOR SCARLET FEVER

It will also cure scarlet fever. Here is the receipt as I have used it, and cured many children of scarlet fever. Here it is as I have used it to cure the small-pox, when learned physicians said the patient must die:—

Salpitate of zinc, one grain; fox-glove (digitalis) one grain; one-half a teaspoonful of sugar, mix with two tablespoonfuls of water. When the above has been thoroughly mixed, add four ounces of water. Take a teaspoonful every hour. Either disease will disappear in twelve hours. For a child, smaller doses, according to age. If the authorities would compel physicians to use this, there would be no need of pesthouses. If you value advice and experience, use this for that terrible scourge."

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HOKITIKA STATE SCHOOLS.

Owing to the prevalence of Scarlet Fever, the above Schools will be CLOSED until further notice.

D. W. VIRTUE, Chairman.

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Tuapeka Times, 14 March 1877, Page 3

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A CURE FOR SMALL-POX. Otago Witness, 7 April 1877, Page 19
FACT SHEET SET 3: TYPHOID FEVER

For further student inquiry:

Typhoid Fever [http://en.wikipedia.org/wiki/Typhoid](http://en.wikipedia.org/wiki/Typhoid). Have students find out about what Typhoid fever is and its causes, the history of Typhoid fever, transmission of the disease, prevention, and how typhoid fever is treated today.

To visit any early New Zealand township or city would have been an assault on the nose of a modern visitor when one reads about the sanitation practices in 19th Century New Zealand in the local newspapers. Poor sanitation was normal practice. And much was written about the need to clean up “nuisances”. Cholera and Typhoid are directly related to poor sanitation.

However students might like to read about “Typhoid Mary” on the above Wikipedia page and find out about healthy carriers of typhoid. Have students look at the resource packet for Quarantine Island and let them speculate on possible connections between the dates of arrival of the Charlotte Gladstone into quarantine at Otago and the outbreak of the particularly virulent typhoid fever epidemic in Cromwell.
Fact Sheet 3A: A Typhoid Fever Epidemic

The Scally family Old Cromwell Cemetery

One of the moist poignant tombstones in the Old Cromwell Cemetery is that of the Scally family. Six family members died in close to two years with four children dying within 12 days of each other.

The Scally family inscription reads as follows,

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Sacred  
to the memory of the beloved children of Daniel and Ellen Scally

<table>
<thead>
<tr>
<th>Name</th>
<th>Died</th>
<th>Aged</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matilda Margaret Scally</td>
<td>30th April 1873</td>
<td>11 months 3 days</td>
</tr>
<tr>
<td>John Scally</td>
<td>27th March 1874</td>
<td>7 yrs 3 months</td>
</tr>
<tr>
<td>Mary Scally</td>
<td>2nd April 1874</td>
<td>5 yrs 2 months</td>
</tr>
<tr>
<td>Sarah Scally</td>
<td>7th April 1874</td>
<td>6 yrs 3 months</td>
</tr>
<tr>
<td>Daniel Scally</td>
<td>7th April 1874</td>
<td>3 yrs 7 months</td>
</tr>
<tr>
<td>Ellen Scally their mother</td>
<td>1st April 1875</td>
<td>29</td>
</tr>
</tbody>
</table>

In death as in life united
suffer little children to come unto me and
stay them not for such is the kingdom
of heaven. Mark X.14
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FEVER AT CROMWELL

From the report of Dr. Coughtry's visit to Cromwell appearing in the "Argus," that gentleman states that he had no doubt at all that the character of the fever which has been so severe at Cromwell was typhoid, and of a pure type; while there could be as little doubt that it arose from the bad sanitary condition of the town. He had gone carefully into the matter, seeing everything for himself; allowing himself to be influenced in no wise by the opinions of others. And he was sorry to say that things from a sanitary point of view were in a deplorable condition. The drainage and water supply were matters needing immediate attention. In an examination into these matters showed him facts and circumstances in connection with an instance a privy was really within two feet of the race. The earth was of an exceedingly porous nature, and the matter from privies warmed its way into the water-race from which the town was supplied. Then the tanks put in at different parts of the race by private parties were in a very dilapidated and unsatisfactory state. From the side of one of these he could positively scrape horse or cow manure. Others were nearly as bad; the lids were broken and make-shifts made which allowed all kinds of filth and rubbish to get into the tanks. The race at a Chinese garden outside the town also recurred a quantity of deleterious matter; and generally along its whole course it was open to all kinds of impurities. The water, however, was not the primary cause of the epidemic, but no doubt helped it on. The drainage was what he would most particularly call attention to. From most of the houses the sewage ran underneath the building, thence into a gutter running alongside, thence across the pavement into the open street-gutter, and thence down to the bridge. Along the bank of the Kawaran, the soil was full of animal matter; and the infiltration had gone on to such an extent, that the soil was now overcharged, and could not be removed more. He believed the council had a set of byelaws in existence. But through some legal informality, they could not be put into operation. Something should be done to this end at once. The inhabitants must resort to earth-closets; that was imperative. There was sure to be a return of the epidemic else. The earth used should be of a loamy nature, and the boxes should be cleared frequently. It would be almost necessary to employ a man to see that those directions were fully carried out. Everywhere about the town, he saw a great quantity of rubbish; old cloth, straw, old boots, and so forth. This should all be collected, and burnt. The excrement of the sick and their linen should all be burnt at some dis-
their linen should all be burnt at some distance from the town; beyond the cemetery, for instance. The water used by the town should be purified. Another assisting cause of the fever, he might mention, was the dryness of the climate. A French Commission, in 1845, appointed to inquire into the causes of a very severe typhoid epidemic which had swept over France, noted that in dry weather typhoid was more markedly prevalent. If there were plenty of rain, soaking the ground and causing the growth of plants, Nature had a chance to relieve herself. It was a theory in regard to the origin of cholera and other diseases that excrement and such matter, being thrown out becomes dry and is carried in the air, giving rise to an immense amount of disease.

Dr. Coughtrey concluded by saying that he would be wanting in his duty if he failed to give expression to his opinion that proper steps had not been taken by the Corporation to avert or remove the source of disease. Piggeries and slaughteryards should have been removed, and the water-race cleared out long ago. Cromwell was not alone in its suffering from this epidemic; Auckland was affected in a similar way, and well deserved to be so.

A REMEDY FOR TYPHOID FEVER.

In the same article of Alice's mention is made of the fact that typhoid fever has broken out in the city. The following is a simple but certain preventative for typhoid:—

Let all mothers of families give their children rectified spirits of turpentine in the undermentioned quantities every night on going to bed; Three to 12 years old, four to eight drops in a half-teaspoonful of sugar; about 12 years, eight to 10 drops. It destroys the typhoid germ, and much suffering may be prevented by this simple and cheap remedy. If a child is seized with typhoid repeat the dose five or six times a day, and let no solids or meat in any form be given.

Article titled DIPHTHERIA. Otago Witness, 1 May 1890

Left: FEVER AT CROMWELL. Tuapeka Times, 16 May 1874, Page 3
Fact Sheets 3D: A Typhoid Fever Epidemic

Notes about the typhoid epidemic.

Dr Millen Coughtrey arrived in Otago in 1874 having immigrated as a ships surgeon and interested in a position advertised at the new Otago Medical School. He was asked to report on the virulent outbreak of Typhoid fever in Cromwell. After his damming 1874 report on the town’s insanitary condition, he was to become a strong advocate of public health and improving sanitary conditions.

- Between February and April 110 people of a total population of 376 had suffered from typhoid or enteric fever – this was 31% of the population.
- Of the 77 deaths that had occurred in the past 6 years from all causes 22 had occurred in the previous 10 weeks – 29% of all deaths that had ever occurred in Cromwell had occurred in the 10-week period prior to Dr Coughtery’s visit.

Dr Coughtrey considered in his report that the disease had developed spontaneously from the insanitary conditions of houses, soils and water and had then spread by contagion. Houses were cramped and badly ventilated. Drainage was crude. The contents of gutters lay exposed, refuse was thrown too near houses and excrement had accumulated for years in cesspools which were situated too close to houses and water races (Wood p.168). The question to be asked is, were social and living conditions any worse in Cromwell than elsewhere at the time?

The different ways that contagious diseases were spread was not understood at this time. Only five years before this report the medical professional had separated typhus and typhoid from the general category of ‘fevers.’ Today we know that Typhoid is transmitted by the ingestion of food or water contaminated with faeces from an infected person.
Occasionally students might come across the word Phthisis (see Old Cromwell Cemetery information). Phthisis is a Greek term for tuberculosis. The disease has been part of human existence since early times. TB has been discovered in prehistoric human remains and in Egyptian mummies and remains a community health problem to this day both in third world and medically more advanced countries.

For further student inquiry:
Tuberculosis http://en.wikipedia.org/wiki/Tuberculosis. Encourage students find out about what tuberculosis is, why the disease was often called consumption, its causes, the history of tuberculosis, how the disease is transmitted, prevention, and how tuberculosis is treated today.

The Public Health poster at left is available from the Timeframes website at http://timeframes.natlib.govt.nz Search term “Tuberculosis”.

Consumption was very common in the list of recorded causes of deaths for the Waitati Cemetery as can be seen from the following graph. Have students investigate how the growing problem of consumption was managed especially after the Great War.

Students can compare information about consumption from the poster pictured at left from the 1920s with the current information about managing TB. Download the brochure http://www.healthed.govt.nz/uploads/docs/HE7023.pdf
The cause of death is recorded for just over 120 of those interred at the Waitati Cemetery between 1869 and 1899.

Students can compare the numbers of deaths due to tuberculosis that occurred at Waitati and Cromwell. They can also compare the numbers of deaths due to typhoid at Cromwell and Waitati.
The effect of tuberculosis on families is poignantly told in these three commemoration plaques.

James and Janet Adams, early settlers to the Waitati area, lost three young adult children to tuberculosis in the 1890s and early 1900s. These plaques have been placed in the cemetery by descendents of a surviving brother of the three siblings.
FACT SHEET SET 5: DIPHTHERIA

For more information about Diphtheria see http://en.wikipedia.org/wiki/Diphtheria

Prior to immunisation diphtheria was a major scourge and childhood killer. There was an epidemic in Dunedin in early 1890 that occurred at the same time as the opening of the Dunedin Exhibition. An article in the Tuapeka Times accused the Dunedin newspapers of keeping the news of an epidemic very quiet in order to continue to encourage county people to attend the Dunedin Exhibition. There may be some truth in the claims as information about this outbreak is very hard to find.

Diphtheria is an upper respiratory tract infection of the nose throat and upper air passages that can be fatal. It is a contagious disease spread by either direct physical contact or breathing the droplets from the coughing or sneezing of an infected person. According to newspaper articles of the times people believed that outbreaks of diphtheria were caused by both cats and unclean milk. A remedy from 1890 is printed in one of the following fact sheets. In fact soon after the outbreak that claimed the lives of the Sillars children in Millers Flat, Emil von Behring developed an antitoxin serum to neutralise the toxic poison build up in the body of diphtheria sufferers. Emil von Behring was to become the first winner of the Nobel Prize for Medicine (1901) for his ground-breaking work in reversing the scourge of diphtheria.

For more information about Emil von Behring see http://en.wikipedia.org/wiki/Emil_von_Behring
The Burton headstone in the Roxburgh Cemetery in Central Otago records the following...

In affectionate remembrance of the beloved children of Jabez and Jane Burton,

John Sydney aged 1 year and 5 months
Also
Catherine Mary Aged aged 3 years 11 months
Who both died of diptheria on Sunday morning 30th December 1883.

Even so, Father: For though it seemed good in thy sight.
XI Matthew 26\textsuperscript{th} Verse.

Note: It is very unusual to find the cause of death from disease recorded on the headstone in this way.

ROXBURGH

From an Occasional Correspondent

Christmas is past, and things are but little changed from what they were. Roxburgh has not within my remembrance experienced so dull a Christmas. No doubt there are various reasons which combine to depress the spirits of the people. In the first place, money is not so plentiful as it used to be; in the second place, the weather has been very severe—more like winter than summer; and in the third place, sickness is very prevalent throughout the district, nearly everybody having colds; and what is far worse than all, diphtheria has made its appearance amongst us, and is doing its deadly work, as already four little children (two of Mr Wm. Courtier's, of Coal Creek, and two of Mr Burton's youngest children) have succumbed to the fatal malady. Several others, both adults and children, are also suffering from the same disease.

ROXBURGH. Tuapeka Times, Volume XVI, Issue 1004, 5 January 1884, Page 3
Fact Sheet 5B: Another Diphtheria Epidemic

The Sillars Family - Millers Flat Cemetery Central Otago - 1890

The gravestone records...

- John, husband of Jane Sillars, died 13th July 1916 aged 88 years
- Also his wife Jane, died 1st Sept 1934 aged 76 years
- Margaret Sillars, died 14th Sept 1889 aged 18 days
- Susan, died 6th April 1890, aged 5 years 11 mths
- Thomas Samuel, died 7th April 1890, aged 2 years and 10 mths

DEATHS.

Sillars.—On 6th April, at Millers Flat, Susanna, youngest daughter of John and Jane Sillars, aged 5 years 10 months. Deeply regretted.

Sillars.—On 7th April, at Millers Flat, Thomas Samuel, youngest son of John and Jane Sillars, aged 2 years 10 months. Deeply regretted.

Local and General Intelligence. Tuapeka Times, 12 April 1890, Page 2

Our correspondent writes:—Mr Sillars' two children, who just lately fell victims to the dreadful diphtheria scourge, were interred in the Millers Flat cemetery on Tuesday, the remains being followed by a very large number of people. All the residents in and around Millers Flat showed their sympathy for Mr Sillars in his affliction by swelling the cortege. The funeral service was performed by the Rev. Mr Telford, of Roxburgh, who delivered a very touching and impressive address at the grave. The sad event has cast quite a gloom over the place, Mr Sillars being a very old and respected resident, and his grief is in consequence shared by many. The eldest of the two children was a bright, intelligent little girl attending the Millers Flat school. Last Thursday afternoon (3rd instant) she went home from school, like most children, delighted at the prospect of the Easter holidays, and on the following Sabbath she was a corpse. The sudden death of two such promising children, while in the enjoyment of robust health, and in one family, too, is an event to make people thoughtful.
DIPHTHERIA.

“Health,” Dunedin, writes:—In last week’s Witness appeared an extract in “Alice’s Letter to her Readers” giving a cure for diphtheria by Dr Greathead, of Victoria. I was resident of Victoria when publicity was first given to the remedy, and do not know of any case in which it was used. However it may be a good remedy for the disease. At the same time I enclose a couple of cures taken from newspapers at various dates. The first of these is as follows:—

Put a teaspoonful of sulphur into a wineglass of water, and stir it with a finger instead of a spoon, as the sulphur does not readily amalgamate with the water. When the sulphur is well mixed it is to be given to the patient to gargle; and after gargling to swallow it, and in 10 minutes the patient will be out of danger.

When the fungus is too nearly closing to allow the gargling, the flower of brimstone should be blown through a quill into the throat, and after the fungus has shrunk to allow of it, then the gargling. If the patient cannot gargle, take a live coal and sprinkle a teaspoonful of flour of brimstone on it, let the sufferer inhale it by holding the head over the shovel, and the fungus will die. Brimstone kills every species of fungus in man, beast, and plant in a few minutes.

The following is an extract from the Australasian from a correspondent who has had great experience with her children when attacked by this fell disease:—

Take a lump of fresh lime about 8 lb weight and slake in boiling water; hold the child over the fumes for about three minutes, and make it open its mouth. This remedy was tried in four bad cases with marked success.

Article. DIPHTHERIA. Otago Witness, 1 May 1890
FACT SHEET SET 6: THE 1918 INFLUENZA EPIDEMIC

By far the worst disease outbreak to occur in New Zealand, was the influenza epidemic of October and November 1918. By the time the outbreak eased in December 1918 the death toll had climbed to over 8600.

It is now believed that the disease may have been brought into the country by returning servicemen from World War 1. For more information and especially oral history accounts of the 1918 Flu epidemic see http://www.nzhistory.net.nz/culture/influenza-pandemic-1918.
This area of Dunedin’s Anderson’s Bay cemetery was set aside for influenza deaths in 1918. The great majority of the graves in this area are unmarked.
Fact Sheet 6B: The 1918 Flu epidemic

Douglas Morris

The inscription reads as follows:

In Loving Memory
of
Douglas Morris
Late of U.S.S.C.
Died of Influenza
3rd Dec. 1918
(L. J)? East M/N
Erected by his sister
Len

Douglas Morris is located in Block 38 Plot 171. He was 24 years of age, a sailor in the Merchant Navy, and is located close to the following person.
Frank Denford remembers the past!

What about the great flu, remember at the end there was the great flu epidemic? Do you know anyone that died in the great flu?

FD: Ah, yes, yes… the FLU, when peace was declared on, what was it, November 11th 1918, we were right in the midst of a flu epidemic. The trams had ceased to run because there were so many of the staff, the conductors and drivers sick that the trams couldn't run and they, the place was semi-dead. I distinctly remember that I had to walk to town, we had walk because there was no tram service. There was no, celebrations at that moment because there were too many people sick and had even dying.

What sort of people were, was it young people, or old people, who were most affected by the flu?

FD: The whole, people right throughout the community. Young and old. I had a bit of an attack of it. I felt pretty ill but of course I wasn't bad enough to, I don't even think that the doctor, but, where it hit our family was that my sister, I mentioned before with nursing, she was nursing at the public hospital here. She would be, what, in her second or third year of her training and she and her mate, were, when it struck the epidemic, they nursed till they literally fell on their feet.

Left: Eva Cooper is buried in Block 39 Plot 176 of the Anderson's Bay cemetery.

Right: COD cemetery database record showing the death of Eva Cooper.
Then, my sister she got the FLU to the extent so severe that they didn't dare tell her that her mate had died of it, they reckon it would have killed her and my sister was in a special ward in Nightingale ward, which has just recently been demolished, in the special there and she was delirious for weeks. She was literally blue with tubes in her back, draining off the fluid and they cut her hair off to save it being, having to try and do it, she was so ill. She told us that it had got to the stage that she was so ill and then one day she said, if I don't try and do something about it, I'm going to die and from then she [inaudible] so she stuck it out, gradually got better. She'd been that ill, they gave her six months leave of absence afterwards to get over it. Her mate, she was buried over in the Andersons Bay, she's buried over there. And my sister told me, not many years before she died, she died about seven years ago, that so dreaded was the epidemic that the authorities said that on no account were the graves of epidemic victims to be opened for at least 50 years. That's how the impact was seen as a serious result. This mate of my sister, Eva Cooper, her name is on a memorial with four others in the foyer of the old, of the nurses’ home down, the old section.

Sourced from http://caversham.otago.ac.nz/resource/oral/Caversham_NUDIST/1918_Flu_epidemic.txt This section of text is reproduced here because it is hard to locate in amongst other text.
<table>
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<th><strong>Glossary</strong> –</th>
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<td><strong>What do these words mean?</strong></td>
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| **EPIDEMIC** | Disease affecting many persons at the same time, and spreading from person to person in a locality where the disease is not permanently prevalent.  

_The word comes originally from the Greek “epi-”, “upon” + “demos”, “people or population” = "epidemos" = “upon the population.”_

Epidemic best describes the virulent outbreak of Typhoid fever in Cromwell, in which the Scally family were so badly affected along with over 300 others who also contracted the disease and the 103 deaths that resulted.  

Epidemic also best describes the Scarlett Fever Epidemic that began in Dunedin in late 1875 and continued almost unabated through 1876 and 1877 finally running its course by 1878. During this period a fever hospital was opened in the town belt to isolate victims and was closed in 1878.  

Epidemic also best describes the German measles epidemics that spread into Southland and central Otago. Many schools were closed. |
| **OUTBREAK** | A sudden breaking out, occurrence or eruption of a disease.  

This describes the Scarlet fever outbreak in which the Sutherland family in Palmerston lost four children – 3 in one day. There were a number of families in the Goodwood and Palmerston area badly affected but the disease did appear to die down.  

An outbreak also describes the 1883 outbreak of diphtheria in Roxburgh where 5 children died. By February 1884 the outbreak seemed to have run its course and the newspapers were reporting no further cases. |
| **PANDEMIC** | Where disease becomes prevalent throughout an entire country, continent, or the whole world; epidemic over a large area. This describes the 1918 Influenza pandemic. This serious outbreak was worldwide and New Zealand wide and many thousands of people fell victim to it in New Zealand. Worldwide, the mortality figure for the full pandemic is believed to stand somewhere between 30 to 40 million. |
| **ENDEMIC** | Means natural to or characteristic of a specific people or place; native; indigenous. Typhoid fever was very common in early Dunedin. Combined with the deplorable state of sanitation it could be said to be endemic to Dunedin through the 1860s and 1870s. |
Resources

TEACHING UNITS

  This is a teaching unit for Level 4 students available at the Social Studies Online website.

ONLINE RESOURCE SITES FOR STUDENTS

- Wikipedia sites have been recommended for students to explore the background for many infectious diseases that were devastating for so many families in the past.
- More 8-Year-Old Inductees [http://thekidshalloffame.com/CustomPage5.html](http://thekidshalloffame.com/CustomPage5.html) This is the story of James Phipps 8 years of age who was the first known person ever to be vaccinated.
- A factsheet designed for Years 7+ about the importance of vaccination. [http://www.teachingonline.org/lessonpdfs/immunisationFact.pdf](http://www.teachingonline.org/lessonpdfs/immunisationFact.pdf)

BOOKS