

# ENVIRONMENT

## Our Environment

Christchurch City Council's Environmental Newsletter

### NEW PARTNERSHIPS UNDERPIN ARANUI RENEWAL PROJECT

Aranui is about to undergo major physical and social changes as a result of a ground-breaking community renewal project.

The Christchurch City Council, Housing New Zealand and the Aranui community are joining forces "to enhance Aranui as a good place to live". The three-way partnership is a first in New Zealand and is expected to deliver major environmental, social and economic benefits for the struggling community.

Housing New Zealand plans to spend millions of dollars improving the quality and mix of housing in the area bounded by Breezes, Pages and Wainoni Roads, and the Avon River. In addition the project aims to improve:

- the physical environment including streets, parks and other amenities;
- social opportunities and the social environment, including boosting community pride, strengthening connections between individuals, business and community groups, and encouraging better services to the area;
- economic opportunities, including providing employment and work experience opportunities.

The Aranui project reflects the City Council's new triple bottom line philosophy where decision making and planning should consider social, environment and economic impacts in order to create a sustainable city.

The partnership was effectively launched last year with the signing of a memorandum of understanding between Housing New Zealand and the City Council. "It's the partnership with Housing New Zealand that is new," says Council project manager Ian McKenzie. "The political environment has allowed that. Both organisations feel they can make a difference by getting organisations and groups to work together."

Aranui had been targeted for housing renewal by Housing New Zealand and the Council. HNZ has a high concentration of housing in the eastern suburb, including some properties which are expensive to manage and increasingly obsolete. The Council owns 24 units in two elderly persons housing complexes.

In addition, Aranui ranks among the most deprived 10 per cent of localities nationwide, based on the findings of the

to P2 



Improvements are planned in Wainoni Park

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### CONTENTS

Aranui renewal project

All go at new bus exchange

Studying our water

Climate change

Exploring the Heathcote

Century-old trees

S.Michael and All Angels

Contraceptive for possums

'No Advertising' stickers



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Degrees of Deprivation Study released late last year. With the city's highest unemployment rate and the lowest median income level it faces additional problems from low educational and health outcomes.

While Housing New Zealand has earmarked significant sums to upgrade its housing stock in the next four years, the City Council is still scoping its involvement and financial commitment.

The Council is looking at developing a programme to improve streets, parks and public facilities to complement work being undertaken by Housing New Zealand. Funding has already been earmarked for youth amenities and Wainoni Park children's play equipment.

George Watson, who has been appointed Community Consultation Co-ordinator, is based in the new Community and Housing Information Centre in Marlow Rd. Community consultation began in March with a hui attended by more than 150 people, including children and youth. The point was made that the Council and Housing New Zealand must deliver on this

project because similar ideas were not followed through five years ago.

Local people have spelled out that they want a say in what the community will look like and they want to be listened to. The community has a strong voice on the Aranui Community Renewal Committee which has now been formed. Two representatives are on the project's steering committee comprising the CEO and other senior officials of Housing New Zealand, the Council's Housing Working Party and the Chair of the Burwood-Pegasus Community Board.

Some local community groups and the area's four schools have been approached for their comments on the renewal project. Focus groups will also be used to tap community views.

Ian McKenzie says the project involves co-ordination and collaboration across central government agencies, the Council, community organisations and private sector agencies. The Council will play a key role in effectively co-ordinating these groups.

**Jennie Hamilton**

## THUMBS UP FOR NEW BUS EXCHANGE

A "big red" heads towards the inner city Bus Exchange at 8am on a freezing Monday morning. Inside the centre, the real-time electronic screen indicates that the Merrin (via University) bus is about to arrive at platform B1. Passengers, mostly students, leave their seats in the warm waiting lounge and queue near the door. Within two minutes they have all boarded and are en route to Ilam.

Meanwhile, the screen shows that the Redcliffs bus is three minutes away and the Templeton and Brighton buses will arrive at their designated platforms in four minutes. Each arrival is announced twice over the speaker system. Apart from platform doors not opening later in the morning due to one driver not lining up his bus correctly, everything is running smoothly. Bus drivers and passengers appear quite at home with the system that only became fully operational on 1 April this year.

The revolutionary bus system required changes in bus routes and four new peripheral terminals - where buses start and end their journey - as well as the state-of-the-art exchange in The Crossing. "Generally it's operating very well," says Dave Hinman, Central City Policy Leader at the City Council. "Many passengers have made positive comments about the high quality of the lounges and easy access to buses."

Buses using the nine internal stops enter and depart from Lichfield Street. Passengers waiting for buses at the other six stops on either side of Colombo Street can still wait in the exchange, which has entrances off all three streets

bounding it.

"With the real-time information system, people have quickly become used to watching for their bus on the screen and listening to announcements of bus arrivals," Dave Hinman says.

The exchange's proximity to shops and other facilities is a plus for many passengers, and local businesses have reported an increase in business since the opening of the facilities. The introduction of more super-low buses has boosted the service's image.



However, there have been complaints about the increased number of buses using Colombo Street and passing through Cathedral Square - the result of the peripheral terminal system. The Riverside terminal at the corner of Rolleston Avenue and Cashel Street is overloaded and this is impacting on the residential and cultural area, according to residents. On the other hand the new routes mean that Christchurch Hospital is now accessible for more people.

"We're looking at providing some further stops, other than in Rolleston Avenue, and ultimately relocating some routes away from there," says Dave Hinman. "More through-routing, relocation to other peripheral terminals and the restoration of two way traffic in Lichfield Street would allow the hospital terminal to be on the other side of the river."

Passengers milling beside the Colombo Street stops causes crowding at peak times but this should be partly alleviated by seating in the ramp area leading into the covered part of the exchange.

Dave Hinman says the City Council and Environment Canterbury will continue to introduce improvements aimed at weaning more people off their cars and onto the buses.

In the last financial year ending 30 June, city buses carried about 10.5 million passengers, 9.5 per cent more than the previous year. Now that the new system is up and running Environment Canterbury and the City Council hope to at least equal this growth rate this year.

**Jennie Hamilton**

# OUR WATER

Water – a most precious resource. When studying water it's important to think not just about what comes out of the tap, but also what runs through the city in our many waterways - rivers, streams, creeks and drains.

The city's water facilities, waterways and wetlands provide a wonderful context for delivering your water topic in terms of education *in, about* and *for* the environment – the three dimensions of environmental education. There are great opportunities for out-of-the-classroom-experiences when you are studying water whether you are focusing on water supply, wastewater, or looking at the plant and animal life that exists in our waterways and wetlands, and the impact we as humans are having on these valuable ecosystems.

Sumner School's Year 4 students discovered the wonders of the Avon-Heathcote Estuary during a visit to McCormack's Bay last term, organised through the Council's *Environmental Education Programme for Learning Experiences Outside the Classroom*. With a focus on "How people's activities can have a damaging effect on natural and cultural features of the environment" (Social Studies, Place & Environment, Level 2:1.3) the estuary, an important feature of their local environment, provided the perfect context for their unit of study.

In the classroom students had looked at what an estuary is, the special nature of estuarine water and identified plants and animals that live in this type of environment (EE Aim 2). In preparation for the visit the class was taken through an activity to look at 'How to be great visitors to the estuary', considering

the environmental impacts they could have as visitors and how to reduce or eliminate these on the day (EE Aim 1).

The hands-on focus of the visit gave students the opportunity to learn safe sampling techniques in the water and ways to investigate life in the mud with minimal disturbance to the 'residents' (EE Aims 1 & 4). 'Catch' of the day included estuarine prawns and anemones, chitons, limpets, fan worms, barnacles, cockles, whelks, mud snails and crabs. To round off the experience the Catchment Activity had students tracing the path of the city's water from the mountains to the sea, looking at what goes into our waters along the way and thinking of great ways they can improve the environment for life at the estuary ... and then picking one and doing it! (EE Aim 5)

Here's what a couple of students thought they could do:

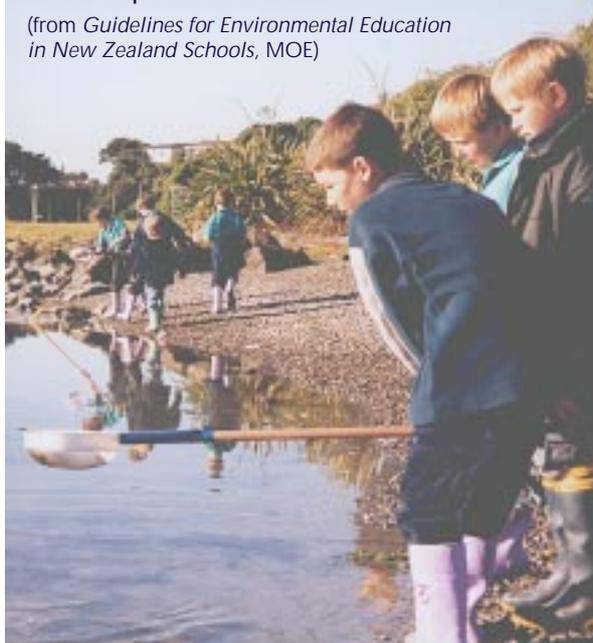
"I think I can help the estuary by not washing cars with soap."

"Next time I go to the estuary I will pick up lots of rubbish."

Try using the five aims of Environmental Education when planning activities for your next environmental topic.

1. Awareness and Sensitivity
2. Knowledge and Understanding
3. Attitudes and Values
4. Skills
5. Participation and Action

(from *Guidelines for Environmental Education in New Zealand Schools*, MOE)



A beautiful winter's day provides perfect conditions for students to do a bit of sampling in the waters of the estuary

## Water-related Environmental Education Programmes

for Learning Experiences Outside the Classroom

### Sites Available for Visits

#### Water Supply and Wastewater

Main Pumping Station – Colombo St  
Wastewater Treatment Plant – Pages Rd, Bromley

#### Waterway & Wetland Experiences

Avon-Heathcote Estuary & Brooklands Lagoon

The Groynes }  
Styx Mill Conservation Reserve }

Bexley Wetland  
Travis Wetland

### Sample Learning Contexts

Water Supply & Conservation.  
Wastewater Disposal – where it ends up!

Water Pollution, Human Impact on Estuaries and Plants and Animals of an estuarine environment

Water Pollution, Human Impact on our Waterways and Aquatic Life Surveys – a close-up look at what is lurking in a fresh-water environment!

Importance of Wetlands, Human Impact on Wetlands, Plants and Animals of a Wetland.

All programmes are led by experienced educators and provide hands-on experiences. Bookings are essential!

To make a booking for:

- Water Supply and Wastewater visits phone 381 5870 (Rochelle) or 381 5728 (Raelene)
- Waterway and Wetland Experiences contact the Parks and Waterways Unit on 372 2840 and ask for the Ranger in that area.

# CLIMATE CHANGE – A PROBLEM AND AN OPPORTUNITY

Increasing emissions from industry, agriculture, motor vehicles and electricity generation, as well as deforestation and other human activities have led to a build-up of greenhouse gases in the atmosphere. The effect of this build-up is described as climate change.

Our climate has undergone many changes over millions of years – from ice ages to tropical heat and back again. Natural changes have generally been gradual, allowing people and other species to adapt or migrate, although some prehistoric climate changes may have led to mass extinction of species.

Over the past 50 to 100 years, the process of change has sped up because of the growing build-up in the atmosphere of trace 'greenhouse' gases – carbon dioxide (CO<sub>2</sub>), methane and nitrous oxide. We are now undergoing, as a result of this build-up, the most rapid change in global temperatures for ten thousand years. Because of the inertia in the climate system, there's not much we can do to mitigate changes over the next few decades. We appear to be already committed to global warming that exceeds more than twice the warming that occurred during the twentieth century.

While we cannot say with certainty what the worst climate change effects will be, nor how severe they will be, scientists expect more extremes of weather such as floods, droughts and violent storms.

## International efforts

The New Zealand Government is part of international efforts to reduce greenhouse gas emissions and to contribute to international research. We have signed and ratified the United Nations Framework Convention on Climate Change (UNFCCC), which came into force in 1994 and has been ratified by more than 170 countries. Under the Convention, countries are committed to helping avoid climate change and to monitoring and reporting on their emissions of greenhouse gases from all major sources as well as the absorption of gases (eg, by forests).

The Kyoto Protocol to the UNFCCC was adopted internationally in 1997. For industrialised countries – those which have been mostly responsible for increases in greenhouse gases since the mid 1800s – the Protocol established legally binding targets to reduce emissions.

The New Zealand Government aims to ratify the Kyoto Protocol next year. When the Protocol comes into force New Zealand will be obliged to reduce its greenhouse gas emissions to 1990

levels on average in the 2008-2012 period, or take responsibility for any emissions above that level.

The Government has said that it wants New Zealand to be, and to be seen to be, an environmentally responsible world citizen. Compared with some countries New Zealand makes an insignificant contribution to the climate change problem – we emit about 0.2 per cent of global greenhouse gases. However, the risks to our communities and our economy are significant and we need to play our part in international efforts to deal with a problem that many international political and business leaders see as the most critical issue facing the world.

There is no one simple solution to meeting our international obligations. The Government will need to decide on the most appropriate mix of options to achieve results in different sectors and with different greenhouse gases. For example, the energy and industrial sectors, which produce most of New Zealand's growing carbon dioxide emissions, are quite different from the agricultural sector which produces most of our methane and nitrous oxide emissions. Energy emissions, especially from transport and electricity generation, have risen significantly since 1990; agricultural emissions are roughly the same as in 1990.

## New Zealand's response

Climate change policy is the responsibility of a group of ministers convened by the Minister of Energy, Pete Hodgson. It involves a number of other ministers, government departments and agencies.

Policy advice is provided by working groups comprising officials from government departments. The work of these groups is coordinated by a steering group of senior officials. The groups work through issues ranging from transport fuel efficiency to



## Further information

To help those interested keep in touch with the work under way in the New Zealand Climate Change Programme, the Ministry for the Environment has a regular newsletter, *ClimateWise*. If you would like to receive this newsletter, contact Brenda Wallace, phone (04) 917 7510 or email [brenda.wallace@mfe.govt.nz](mailto:brenda.wallace@mfe.govt.nz)

The Ministry has also developed a website, [www.climatechange.govt.nz](http://www.climatechange.govt.nz). To navigate the site start with [www.climatechange.govt.nz/sp](http://www.climatechange.govt.nz/sp) click on resources and then go to resource kits.

There are 2 levels. The basic level fact sheets cover:

Global Warming: Coming Soon to a Planet near You - The greenhouse effect, climate change and global warming

Climate and Weather: Always Together? - Differences between climate and Weather

Check Out the Greenhouse Effect - How the Greenhouse effect works

Climates Long Journey - How climate has changed in the past

Climate Detectives - How scientists learn about climate change

EI Nino Adventures - Causes and Effects of EI Nino

Can we change the Climate? - How the things we do can effect the climate.

What's the Big Deal? - The potential impacts of climate change

We Can Make a Difference - what people can do to reduce emissions

Buying Cool Stuff - How buying decisions can affect the climate

abatement of agricultural emissions, from the legal framework for emissions trading to carbon sinks, to better systems for monitoring and reporting emissions.

The Government aims to make decisions in principle on details of New Zealand's policy response to climate change later this year. There will be public consultation as part of the Kyoto Protocol ratification process in October and November, with legislation planned for introduction early next year.

A range of discussions with targeted groups of stakeholders has already taken place, primarily to gather information for input into policy development. Consultation in late 2001 will be on the policies the Government will be proposing.

### Energy efficiency

The National Energy Efficiency and Conservation Strategy is expected to play a key role in achieving reduction in carbon dioxide (CO<sub>2</sub>) emissions.

Though agricultural emissions still make up most of our total emissions, these are at present below 1990 levels, while emissions of CO<sub>2</sub> are still rising.

The draft National Energy Efficiency and Conservation Strategy was developed by the Energy Efficiency and Conservation Authority (EECA) in conjunction with the Ministry for the Environment, interest groups, stakeholders and members of the public.

The draft strategy represents a concerted effort by government to encourage innovative thinking about energy use throughout the country. It aims for a 20 per cent improvement in energy efficiency by 2012 across the government, residential, transport, energy supply and industrial sectors. The final strategy will be released by 1 October 2001.

Latest report on emissions

New Zealand is required under the United Nations Framework Convention on Climate Change to submit a greenhouse gas inventory report each year.

The latest report shows that overall New Zealand's greenhouse

gas emissions have increased 5 per cent in the period 1990 to 1999. Decreases (relative to 1990) in the agricultural and waste sectors have partially offset emissions growth in the energy and industrial processes sectors, and from other sources.

We have more up-to-date data on energy sector greenhouse gas emissions. Overall New Zealand's gross carbon dioxide (CO<sub>2</sub>) emissions from the energy and industrial sectors have increased by 22 per cent between 1990 and 2000. This compares with 20 per cent growth from 1990-1999. Carbon dioxide is the most important greenhouse gas around the world, though it's less than half New Zealand's total emissions.

Our significant increase in carbon dioxide emissions since 1990 is the most prominent climate change issue facing this country. If we continue with "business as usual", our greenhouse gas emissions will continue to grow. They will be more costly and difficult to deal with the longer we delay action.

### Potential benefits

Energy Minister Pete Hodgson says that New Zealand could also reap significant benefits from an effective response to climate change. He says that the costs of allowing global warming to continue unchecked include more frequent extreme weather events, erosion and saltwater intrusion from rising sea levels, biosecurity threats from the spread of sub-tropical pests and diseases, and a delay in the recovery of the ozone layer.

On the other hand, potential benefits could come from our "Kyoto forests". By 2008, 850,000 hectares of plantation forest is expected to have been established since the Protocol's benchmark year of 1990. If international carbon trading begins, and international negotiations regarding sinks are resolved to the advantage of New Zealand, these are likely to be worth at least \$1 billion in sink credits.

Important gains can be made from the boost to technological innovation and business competitiveness provided by a commitment to tackle climate change. The Kyoto Protocol could be a major spur to innovation and efficiency improvements in our use of energy and natural resources, Mr Hodgson says.

One sector where innovation could earn good money for New Zealand is agriculture. Methane emissions account for almost half of New Zealand's total greenhouse gas emissions. Research into livestock digestion and pasture composition could potentially deliver the double benefit of reducing methane emissions while improving the efficiency of the animals' conversion of food to bodyweight. New Zealand Climate Change Programme officials will continue to work with the agricultural sector to assess the different options for agriculture.

*Information provided by the Ministry for the Environment*

#### Advanced Fact Sheets:

What is Global Warming? - A primer on Climate Change

How about this Climate we're Having? - The difference between climate and weather

The Greenhouse effect - What is it? How does it work?

What the Experts say about Climate Change - Scientists are making some important projections

How do we take the Earth's temperature? - How temperature trends are measured

Long-term Climate Change - How has climate changed over time?

El Nino Southern Oscillation - Causes and effects of El Nino

Weird Weather - Summer of recent extreme weather events.

Are Humans Changing Climate? - How human activity may be affecting the climate.

Why Should we Care? - The impacts of global warming may be serious

What Can we do about Global Warming? - Everyone can do something

Earth Smart Shopping - How you can save money and improve the environment

#### For more Information - Where you can go to learn more

Teachers and students should also check out the Kids and Educators site which has a range of games that help kids wrestle with the topic.

## EXPLORING THE UPPER HEATHCOTE

E nga mana, e nga reo, e nga karangataha maha o nga hau e wha tenei te mihi ki a koutou, ki nga tipuna kua haere ki te po, haere, haere, haere atu ra. Ki te hau kainga, Waitaha, Ngati Mamoe, Ngai Tahu he mihi, he mihi, he mihi. Ki Ngai Tuahuriri te kaitiaki o te awa he mihi.

Usually I work at Hillmorton High School teaching science, horticulture, Te Reo Maori and working with whanau students. This year I had the good fortune to be awarded a Royal Society Teaching Fellowship. This has given me a year's sabbatical and time to pursue two interests, the natural world and taha Maori. I have concentrated my research on the Upper Heathcote River and its environs because this is where I live and work. I want to get an understanding of the natural processes and human activities that have changed the landscape.

Maori have a long association - over 1000 years - with the Upper Heathcote River. A number of settlements were established beside the river because it was a source of fresh spring water, it was a mahinga kai resource producing eels, mud eels, native trout, aruhe (fern root) and kiore (native rat), and it was a pathway to Lake Waihora. The river meandered through large swamps where harakeke (flax), toetoe (sedge grass) and raupo (bullrush) grew in abundance. These plants had a myriad of uses but one interesting use unique to the South Island was the manufacture of reed crafts or boats called mokihi. In fact the Ngai Tahu name for the Upper Heathcote was Waimokihi, the river of reed boats.

The river's role changed dramatically after Pakeha settlement. Some of the trivia I have collected and enjoyed so far:



- Did you know that in the 1880s Sunnyside Hospital would dispose of its sewage directly into the Upper Heathcote River? This effluent would float past Spreydon School which was then charged by the District Health Board to improve the infectious disease rate of its pupils!

- On Mondays the Heathcote River would run "blue". Women would boil the week's wash in their coppers and then rinse the whites in Rickett's Blue. This solid block of cobalt blue dye was encased in a little white cotton bag and slowly dissolved out into the rinsing water making the clothes 'whiter than white'. All the wastewater from the whole area then emptied into the Heathcote River.

- The water of the Heathcote River was not always polluted. The name of the bridge over the Heathcote River at Lincoln Road was Watercross Bridge. A John Leaf Wilson leased the Upper Heathcote mill from Cracroft Wilson and he was required to keep the race clear of watercross. When Cracroft Wilson

applied for permission to dam the river for his flour mill, he was required to erect a fish ladder.

- Kids in the 1930s would paddle in the springs at Lincoln Road and they loved to watch the cones of sand form above the springs. They would swim in the river and used kerosene tins as boats.

I have read a lot, learnt heaps and I am amazed that so many developments, such as the City Council's restoration projects, have gone unnoticed by me for so long.

Jacky Tonkin

## CENTURY-OLD TREES PART OF FAMILY'S LEGACY

A picturesque strip of woodland running alongside the Heathcote River in Beckenham is an enduring legacy of the Clark family.

Some of the trees in the Ernle Clark Reserve are at least 100 years old. They include a Spanish chestnut, English ash and oak which feature in the City Council's list of notable trees. So too do seven cabbage trees, their spiky foliage contrasting with exotic trees stripped down for winter. Young native plants also add a welcome touch of green.

The reserve is named after Christchurch aviator L. Ernle Clark (1906-1964) who received a hero's welcome from 20,000 people in 1936 after flying solo from England to New Zealand, only the second person to do so. He was later awarded the Distinguished Flying Cross by King George VI in 1941 for his role during World War II.



Ernle Clark was a grandson of Charles Clark who arrived in Lyttelton in 1856 on the *Egmont*. Six years later, Charles purchased the 20 hectare Thorrington estate – bounded by the Heathcote River, Colombo Street and Cashmere Road – for 2000 pounds. English woods were planted along the Heathcote River to the north of a spring-fed pond now overlooked on the southern side by large modern houses. The old Thorrington homestead, where Ernle Clark lived for many years, and the neighbouring Wairoa homestead built in 1905, have been demolished.

Ernle Clark Reserve is now the most tangible reminder of the Clark family and its links with Beckenham. The reserve is also an attractive route for strollers and joggers and a magical picnic spot in summer.

Jennie Hamilton

## S. MICHAEL AND ALL ANGELS CHURCH AND SCHOOL CELEBRATES ITS SESQUICENTENARY

Still standing on its original site in Oxford Terrace, the Church of S. Michael and All Angels and day school will celebrate its sesquicentenary at Michaelmas 2001. S. Michael's, founded in 1851, is Christchurch's oldest Anglican parish. From 1872 until 1881 the church functioned as the pro-cathedral of Christchurch. As such it was an integral part of the life and development of the Anglican settlement of Christchurch.

The present church, school and vicarage buildings occupy a site set aside by the Canterbury Association for ecclesiastical and educational purposes. Today it remains one of the few Canterbury Association sites that still functions entirely under its original inception. As a consequence this historic site, that of the pro-cathedral, Mother Church of the Anglican diocese, contains a number of significant heritage buildings.

The church of S. Michael and All Angels was designed by English architect William Fitzjohn Crisp and built in 1872. It stands on the site of the first church built in Christchurch, a rudimentary V-hut, built on the site in January 1851 by the first colonists of the Canterbury Association. It was replaced in the May of that year by a small colonial timber church which served as both a school and church.

The present church, one of the largest timber Gothic Revival churches in the Southern Hemisphere, stylistically embraces the vernacular; that is it is constructed from locally available material, rather than the use of colourful brick and masonry as employed in English stylistic counterparts. The bell-tower, a Christchurch landmark and outstanding essay in the Gothic Revival style, was designed by the pre-eminent Gothic Revival Architect, Benjamin Woolfield Mountfort.

Though S. Michael's presents a restrained rather chaste architectural quality, it is considered one of the finest examples of colonial timber Gothic Revival ecclesiastical architecture in New Zealand. Of cruciform shape, the nave of the church has a central aisle flanked by two side aisles divided by columns each fashioned from a single matai tree. During a period of forty years (1872-1912) S. Michael's became the repository for some of the finest examples of Edwardian and Victorian commemorative stained glass in Canterbury.

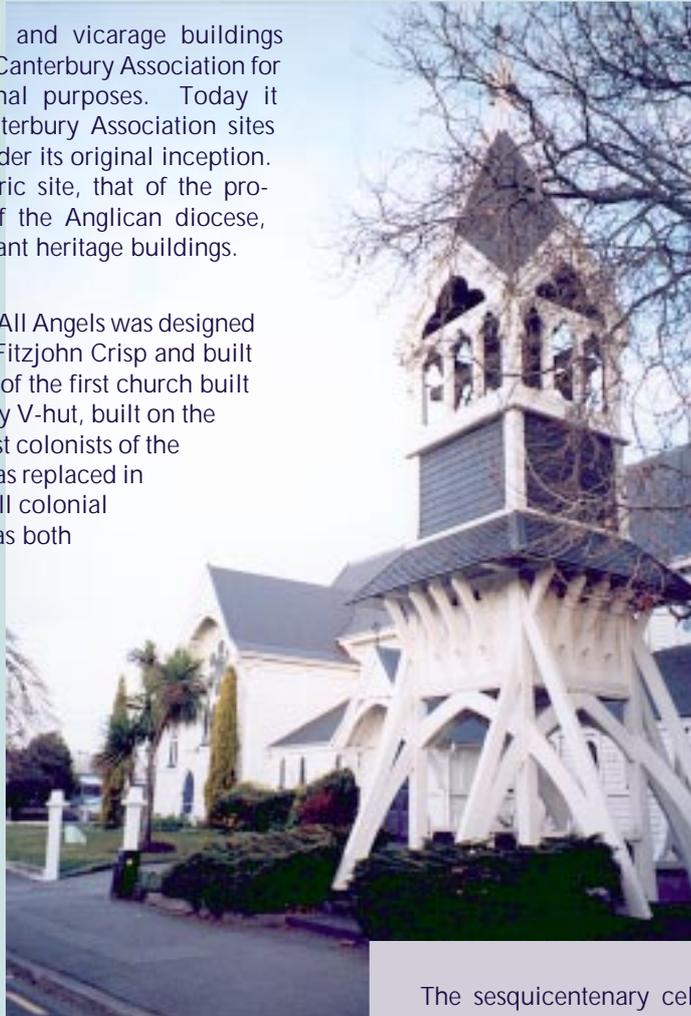
The school buildings form an integral part of the built heritage significance on the site. Until 1976 the school had Sisters from the Anglican Community of the Sacred Name as

part of its teaching staff and from 1937 to 1976 as Head Mistresses of the school. The school buildings include the stone school built in 1913 and designed by prominent architect of the period Cecil Wood, and the school hall, which was designed by the early Canterbury Education Board architect Thomas Cane in 1877. The architecture of

this timber structure carefully reflects the Victorian Gothic nature of the church and was originally built as a Sunday school.

The site has also always contained a vicarage and despite a number of alterations, the current imposing two-storey timber vicarage reflects the architectural style of the earlier Victorian Gothic buildings. Built c.1900, it replaced a much earlier vicarage of picturesque Gothic Revival stylistic convention. The heritage significance of the site is recognised by both the City Council and New Zealand Historic Places Trust Pouhere Taonga which list and register four of the buildings.

**Jenny May**  
Senior Heritage Planner



The sesquicentenary celebrations of the Church will be held at Michaelmas, 29-30 September 2001, beginning with a Solemn Pontifical Mass at 10.30am on Sunday 29th followed by a Festival Luncheon. The school will hold events on the site at the end of the Carter Group Heritage Week at Labour Weekend. These will include an evening function on Friday 19th October, a breakfast for past pupils, parents and staff and celebration dinner on Saturday 20th and a celebration Mass at the church on Sunday 21st followed by a luncheon to close the festivities. The school will commemorate the 150th celebrations with the laying of a memorial stone.

For further information about the church celebrations ph 379 5236 or contact [smaa@clear.net.nz](mailto:smaa@clear.net.nz) For the school celebrations ph 379 9790 or contact [s.michael@clear.net.nz](mailto:s.michael@clear.net.nz)

# CONTRACEPTIVE BAIT A STEP CLOSER

Genetically-modified plants could hold the key to controlling New Zealand's burgeoning possum population.

Scientists from Landcare Research at Lincoln and Australia's Marsupial Co-operative Research Centre recently completed a contained laboratory trial using GM potatoes grown in the United States. Possums were fed pieces of potato containing part of a foreign protein from a bacterium.

Antibodies to the protein were later found in the possum's blood, gut and reproductive tracts, indicating that the antibodies had permeated throughout the possums' systems.

The successful trial is a boost for Landcare Research and the Marsupial

CRC's plans for a similar trial involving feeding possums carrots containing a protein called ZP3, derived from the coating of female possums' eggs. Scientists believe baits made from plants containing ZP3 will act as a vaccine that causes a possum's immune system to treat its own eggs as foreign bodies and make antigens against them. (This birth control method called immunocontraception, because it essentially immunises possums against conceiving, was described in the Autumn 2000 issue of *Our Environment*.)



Research leader Janine Duckworth is encouraged by the potato trial results. These indicate the considerable potential for the use of plants as a delivery system for a biological control agent for possums. Using immunocontraceptive baits after poisoning operations will slow the rate at which populations rebuild.

The plant baits themselves will be environmentally friendly. Plants will be processed so that they can neither grow nor spread genetic material to other plant life. Also, the parts of the possum protein contained in the carrots should be specific to marsupials, and should not affect any other animals.

The carrots are currently being grown in the United States and their importation and the trial has recently been approved by the Environmental Risk Management Authority (ERMA). Testing on possums will be carried out in strict containment during the current possum-breeding season.

The research is funded by the Foundation for Research, Science and Technology and the Marsupial CRC.

*Adapted from an article which appeared in He Kōrero Paihama Possum Research News, June 2001.*

# A GREEN LIST

## Pest control

Controlling pests in our homes and gardens without pollution is one of the simplest and most effective ways for us all to improve our immediate environment. If you are interested in finding out about the hows and the whys of environmentally-friendly methods of pest control, the library has many books available that will help you on your way.

**Dead daisies make me crazy: garden solutions without chemical pollution** by Loren Nancarrow (635.049 NAN)

**The economic importance of insects** by Dennis Hill (632.7 HIL)

**An illustrated guide to the common weeds of New Zealand** (581.65 ILL)

**Managing urban weeds and pests** by the New Zealand Plant Protection Society (632 NEW)

**Natural enemies handbook: the illustrated guide to biological pest control** by Mary Louise Flint (632.96 FLI)

**The natural garden: New Zealand guide to companion gardening, natural pest control and soil health** by Micheal Crooks (635.0484 CRO)

**Nature wars: people vs pests** by Mark L Winston (577.279 WIN)

**Pest control for home and garden: the safest and most effective methods for you and the environment** by Micheal Hanson (648.7 HAN)

**Pests** by Elizabeth and Crow Miller (635.049 MIL)

**Pests of the garden and small farm: a growers guide to using less pesticide** by Mary Louise Flint (632.9 FLI)

**What's that pest?** by Rob Lucas (632 LUC)

## 'NO ADVERTISING' PLEASE

The Keep Christchurch Beautiful Campaign has produced 'No Advertising Please' stickers. These stickers were created to combat the excessive junk mail hanging from mailboxes and often littering the ground and surrounding areas below.

The stickers adhere to your letterbox and indicate that you do not wish to receive advertising mail, apart from what you have listed in the spaces provided. To obtain your FREE sticker call into any Council Service Centre, Civic Offices or contact:  
Ingrid.lefevre@ccc.govt.nz



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