COMING OF AGE

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The Art & Science of Ageing

Great North Museum: Hancock

12 January – 2 March 2011

Foreword

Newcastle University's vision for the next decade is one of a world-class research-intensive university which also plays a major role in the social, cultural and economic landscape of the city, the northern region, and the nation: a civic institution with a strong international profile.

As part of the University's commitment to channelling its research towards addressing the global issues facing society, the theme of ageing and health was launched in 2010 with a national campaign aimed at challenging negative perceptions of ageing. This 'Changing Age' campaign is helping to bring about a fundamental change in the way society views our ageing population. The Coming of Age: The Art and Science of Ageing exhibition has been designed to portray some of these vital issues through the medium of the visual arts.

As Professor Tom Kirkwood, Director of the University's Institute for Ageing and Health and one of the world's leading experts on the ageing process, explains elsewhere in this catalogue, increasing life expectancy in the UK is one of the greatest changes to affect our society in the last two hundred years.

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1. Henry Moore, *The Seven Ages of Man: The Infant*, lithograph on paper, 1982, Tate: Presented by the Henry Moore Foundation 1986. Reproduced by permission of The Henry Moore Foundation
2. Henry Moore, *The Seven Ages of Man: The Justice*, lithograph on paper, 1982, Tate: Presented by the Henry Moore Foundation 1986. Reproduced by permission of The Henry Moore Foundation

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Changing Age aims to engage with the public to demonstrate the achievements in increased life expectancy and the challenges, opportunities and responsibilities that this brings. While the programme has been led by the Faculty of Medical Sciences, the University believes that a multi-disciplinary approach, blending science and arts research, can help the public to understand many key societal issues. The Coming of Age exhibition thus represents part of the contribution from the Faculty of Humanities and Social Sciences to this campaign.

Alongside an exploration of the way in which artists throughout the ages have responded to the passage of time and the process of ageing, described here by Lucy Jenkins, the exhibition's curator, three artists have been working over the last few months in conjunction with the Institute for Ageing and Health. Andrew Carnie, Annie Cattrell and Jennie Pedley have been observing the work of several University scientists and have responded to this experience by producing a number of newly commissioned artworks. We are especially grateful to the Wellcome Trust, Arts Council, England, The Rayne Foundation and the Catherine Cookson Foundation for their generous support of both the exhibition and the substantial accompanying programme of workshops, readings, lectures and other activities. We hope that Coming of Age will contribute to the public's understanding of the important concepts around ageing and encourage greater recognition of the positive contribution that older people make to society as a whole.

Professor Eric Cross, Dean of Cultural Affairs, Newcastle University

3. Henry Moore, *The Seven Ages of Man: The Pantaloon*, lithograph on paper, 1982, Tate: Presented by the Henry Moore Foundation 1986. Reproduced by permission of The Henry Moore Foundation
4. Henry Moore, *The Seven Ages of Man: The Last Scene*, lithograph on paper, 1982, Tate: Presented by the Henry Moore Foundation 1986. Reproduced by permission of The Henry Moore Foundation

The need to look afresh at ageing

A quiet revolution
The ongoing increase in human life expectancy is one of the greatest upheavals affecting humanity in the 21st century. Although we all know that people are living longer, there are many surprising aspects of this development and there is so much that we need to learn. What we need most of all is a new way of looking at ageing itself – a process so familiar that we like to think we know and understand it. The truth is very different.

Although the average length of life has increased steadily over the last two hundred years, it is only over the last decade that some of the most startling aspects of change have become clearly apparent. Previously confident demographic forecasts of an imminent ceiling to life expectancy are being exploded. Among the wreckage of these earlier 'certainties', actuarial forecasters within government, the pension industry and health service are now in a state of considerable confusion. How far will life expectancy rise? Will the health span rise as fast as the life span, or do we face more years of age-related ill health? How can society cope with the greatly increased numbers of older people in our midst?

The general mood is disturbingly negative, as we collectively worry over the 'ticking time bomb' of the 'new demographic'.

At the same time, new scientific insights are revealing the ageing process to be much more malleable than used to be thought. The failure of the old broken forecasts is that they were based on the idea that ageing is fixed – an essentially immutable part of our biology. But the current increase in life expectancy is proof that the old idea is wrong. The chief reason that life expectancy did not hit a ceiling is that something new began to happen: people began to reach old age in better biological condition than previous generations. Yes, it really is true that 80 is the new 65. The driving force of the life expectancy increase as we entered the new millennium is the tumbling death rates of those who are old already.

So, most of what we thought we knew about ageing is turning out to be wrong. To manage positively the inevitable transition to an ageing population it will be necessary to learn much more about ageing itself and to revise our attitudes towards it. Art and science are natural partners in this endeavour.

The roots of old age
'Old age is the most unexpected of all things that happen to a man,' said Leon Trotsky. It shouldn't be, of course, because nowadays we know that the overwhelming majority will reach considerable old age. But even though we cannot help but recognise that ageing lies in our personal future, we do our best to deny it. In our everyday perception, old age begins always fifteen years beyond our current age!

If we think about it at all, the most common explanation offered for why ageing occurs is one of simple biological necessity. Animals, including us, need to die to make way for the next generation, and thus allow life to continue. The logical consequence, or so it seems, is that the ageing process is programmed into our bodies, to cause our death when our use-by date is up. The first thing we need to establish if we are to understand ageing itself is that this idea is as completely wrong as a theory can be.

In nature, animals as a rule die young. They die from any of several causes – famine, infection, cold, predation, accident or disease. Extensive field research by naturalists has shown that the pressure of mortality in the wild is such that it is extremely rare for an animal to live long enough to show the signs of ageing, unless it is kept in an artificially protected environment.

What this means is that there is neither reason nor opportunity to evolve a genetic programme to make us age. The grim reaper does not need ageing to help it thin the ranks of the living, and there would be little cause for natural selection to fashion a programme that, in the natural world, would so rarely have the opportunity to be used.

Instead biologists now understand the reason why ageing occurs differently. If animals die in such numbers that life in the wild is truly 'nasty, brutish and short', it is relevant to ask what level of effort our genes should invest in keeping the body in good working order. Clearly the body needs to be in sound condition as the animal grows and raises its first offspring. Maintenance is costly but there is no point in building a body that falls apart too quickly. On the other hand, if, as has been shown for mice in the wild, over 90% of the population is dead before its first birthday, it is a waste to invest in a body that might last forever. For the genes of a mouse, maintenance good enough to keep the body in prime condition through a little more than a year – say 15 to 18 months – is likely to be plenty. It just does not matter if by cutting down on maintenance the mouse body begins to show signs of deterioration thereafter.

What is true for mice was also surely true for our ancestors, but over a different timescale. We cannot be sure of human life expectancy thousands of years ago when our biological life span would have evolved. However we do not expect it to have been above 25 years. Some individuals will of course have lived longer than the average, but even so it must have been rare to survive much past 50 or 60 years. Thus, the durability we required in the evolution of the human life history was merely to have a body that could keep itself in prime condition for around 30 to 40 years.

This evolutionary logic of ageing explains not only why ageing occurs – under pressure of natural selection it was a higher priority to invest in growth and reproduction than in a body that might live forever – but it also gives us insight into how the ageing process unfolds in our cells, tissues and organs.

As we live our lives, our cells, with their good but less than perfect maintenance systems, accumulate faults. The faults are individually small – a little damage to DNA here or a broken membrane there – but, as time goes by, the faults accumulate. In short, science now understands ageing to be the result of the gradual, lifelong accumulation of random molecular damage.

The science of travelling hopefully

Although it might incline us towards depression to know that we are condemned to age and die because our genes did not place the same value on our long-term maintenance as might we, had we been in a position to choose, the message from science is actually very positive.

Ageing is not programmed. True, longevity runs in families but only to a limited extent. Around a quarter of what determines the length of an individual human life is genetic. The much greater component isinfluenced by the way we live our lives. The genes that confer longevity do not set a clock that measures our span of years – they set the potency of our maintenance systems. It appears that we can work with our genetically endowed capacity for cellular maintenance and repair to boost our chances for a healthy old age.

The rate at which ageing occurs is determined by the rate at which damage builds up, which in turn is influenced by things like nutrition, lifestyle and attitude. If we eat unhealthily, smoke or drink to excess, we accelerate the onslaught of damage and we age faster. On the other hand, healthy foods, like those 'greens' our granny made us eat, and exercise, can enhance the body's natural systems for cellular maintenance, so the damage accumulates more slowly.

It is the kinder conditions of modern life that are thought to lie behind the fact that most of the population is now reaching old age in improving bodily health. This is a trend we should seek to continue, at the same time that we strive to avoid losing ground to the age-accelerating effects of the epidemic of obesity and increasingly sedentary lifestyles.

Although science will have its hands more than full to discover the extraordinarily complex processes that contribute to intrinsic ageing, as well as to age-related disease, the journey is well begun. We need to travel determinedly and with hope in our hearts.

The coming of age

Although there are abundant reasons to be cheerful about the continuing increase in life expectancy, it is astonishing how deeply rooted our negativity seems to be. We mostly view our personal old age through the distorting lenses of denial and fear. Old people are marginalised – perhaps because they remind us too powerfully of what our own future might hold – and with this marginalisation a self-fulfilling prophecy about the more miserable aspects of growing old is all too easily fulfilled.

No rational person could deny that there is much that is unwelcome about the physical losses that ageing brings in its train. There are, however, important gains in insight, experience and the simple joy in being alive, despite the limitations that slowly begin to intrude. Beauty (and ugliness) is in the eye of the beholder. There is much that is beautiful in ageing if we change the lenses through which it is seen.

Negative attitudes to ageing are often promulgated most vociferously by those who know least about what it is like to be old. It is important therefore that Newcastle University took an early decision to make itself home to internationally leading research on ageing and health. In a major current project – the Newcastle 85+ Study – the University is investigating in great detail the health and wellbeing of those in the city who were born in 1921. A telling statistic is that despite the fact that no one recruited to the study was without at least one age-related illness in the year they turned age 85 (and most had four or more), four out of every five of them rated their health as good, very good or excellent.

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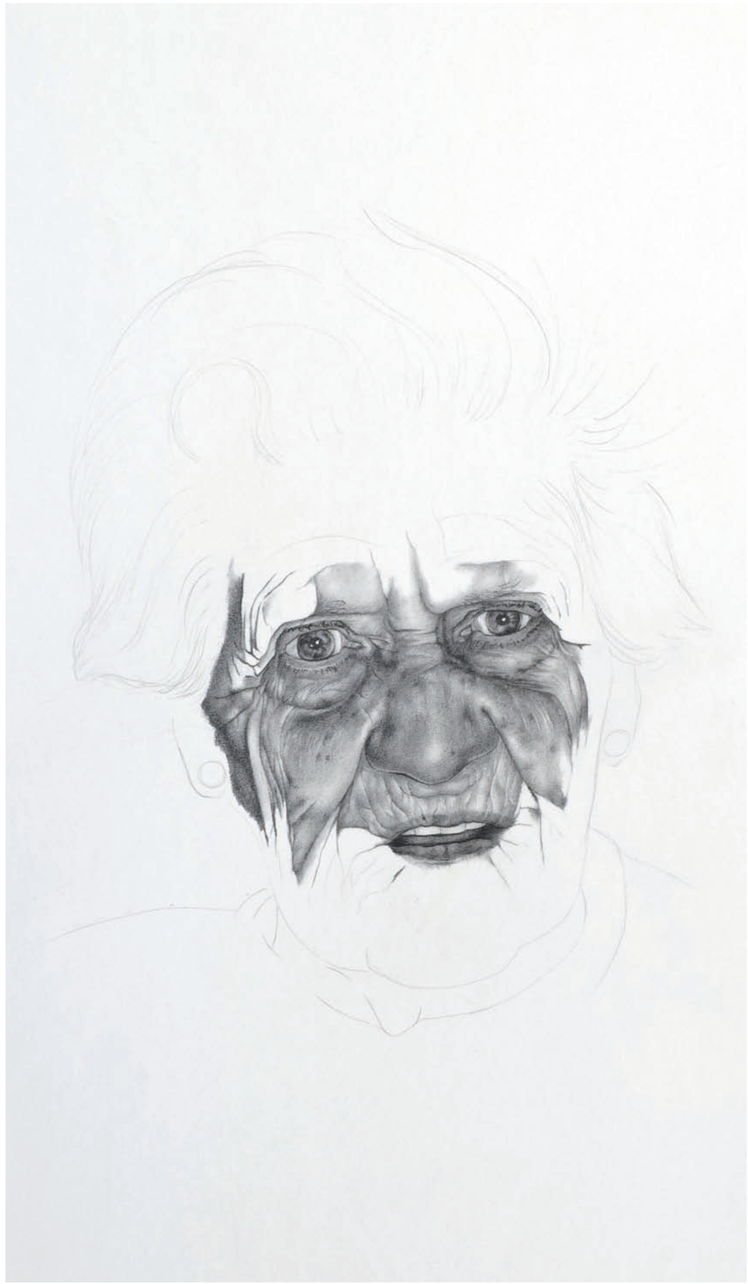
Science is opening our eyes to new ways of seeing ageing as a process that is intrinsically malleable and which can, with effort and ingenuity, be made better in the years to come. Art is opening our minds to new ways of representing and understanding what it means to grow old, a process that begins for each of us when we are still in our mother's womb. There is beauty and stark reality in both – in the images of cells that are damaged by ageing and in the wasting of muscles, bones and brains as they yield to the slow, corrosive onslaught of damage. There is hope and excitement too.

It has been an exciting journey of mutual discovery for the Newcastle University researchers and the artists who have interacted in the preparation of this exhibition as part of the Changing Age initiative. The exhibition opens the next phase of Changing Age as it moves beyond its launch year of 2010 to become a permanent theme for the university in 2011 and beyond. We hope visitors to the exhibition will find inspiration that will help them to look afresh at what is yet to come.

Professor Tom Kirkwood
Director, Institute for Ageing and Health
Newcastle University

1. Henry Moore, *Dorothy Hodgkins' Hands,* pencil, 1978, Royal Society, London. Reproduced by permission of The Henry Moore Foundation



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1. Carla Bromhead, (born 1987), *Untitled II,* pencil, courtesy of the artist

Coming of Age

The passage of time and the ageing process have long fascinated creative artists. Even in the 16th century, when many more people died young, the physical and mental processes of ageing provided compelling subject matter for artists like Baldung and Dűrer. Paintings depicting 'the ages of man' (or woman) were then poignantly concerned with the brevity of life and the futility of earthly trappings such as wealth and fame.

Shakespeare perhaps most famously expresses it in *As You Like It,* as a succession of 'Seven Ages'. The progression of mewling and puking infant, whining schoolboy, jealous and quarrelsome soldier, to the final stage 'sans teeth, sans eyes, sans taste, sans everything', is adroitly captured in Henry Moore's series of lithographs, presenting a rather mournful picture. Nevertheless it emphasises that ageing is a lifelong process, which science has now proved begins in the womb.

The works of art brought together for this exhibition collectively consider a wide range of aspects of ageing from both philosophical and scientific perspectives. They broadly fall into three groupings: the biology of ageing; the vulnerability associated with ageing; and a celebration of the achievements, wisdom and vitality of older age.

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A biological march through time

American photographer Nicholas Nixon has spent the last 33 years minutely capturing the slow process of ageing through his ongoing series of images of the Brown Sisters. Nixon has photographed his wife Bebe and her three sisters annually since 1975, using a large 8"x10" view camera at eye level. They are always identically juxtaposed, creating a compelling record of portraiture and the passage of time. We see the women ageing, accumulating small physical changes. The images also hint at their varying relationships, as life shapes and alters the bond between them.

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1. Nicholas Nixon (born 1947), *The Brown Sisters, 1975,* gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco
2. Nicholas Nixon, *The Brown Sisters, 1977,* gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco
3. Nicholas Nixon, *The Brown Sisters, Marblehead, MA, 1979,* gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco
4. Nicholas Nixon, *The Brown Sisters, Ipswich, Massachusetts,1982,* gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco
5. Nicholas Nixon, *The Brown Sisters, Chatham, MA, 1987,* gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco
6. Nicholas Nixon, *The Brown Sisters, Brookline, MA, 1999,* gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco
7. Nicholas Nixon, *The Brown Sisters, Truro, Massachusetts, 2010,* gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco

Sibling relationships also provide the subject for Susie Rea's powerful and uplifting photographs for *Super Vivere,* a study of siblings over 90 by the Genetics of Healthy Ageing partnership. These nonagenarians provide highly important reservoirs of genetic, lifestyle and belief knowledge that hold the secrets to successful ageing. Susie Rea's photographs ask the viewer to pause, engage, and piece together the story within each frame. The often overlooked details of lives are given a presence and focus. The sitters give their own narrative explaining their survival into greater age. Sarah, aged 92, recognises that she is getting older but feels no different, crediting keeping in touch with people and with the news for her long life. Her brother William talks about kindness and the support of a large and close family. Gertrude, also 92, talks about music helping her, whilst 97-year-old Italian grandmother Virginia believes she has survived because she has been happy and loved.

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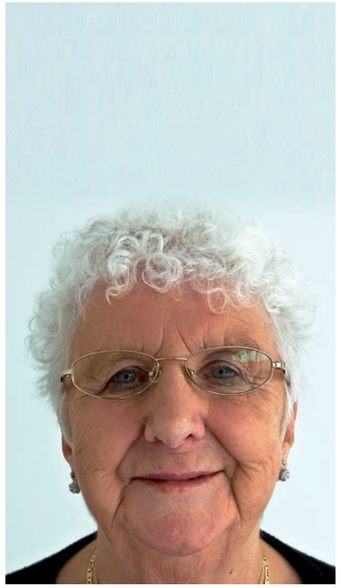
1. Susie Rea, (born 1977), *Eileen and Gertrude,* C-Type Print, 2009, courtesy of the artist
2. Susie Rea, *Sarah,* C-Type Print, 2009, courtesy of the artist
3. Susie Rea, *Kelvin,* C-Type Print, 2009, courtesy of the artist
4. Susie Rea, *Joyce and Thomas,* C-Type Print, 2008, courtesy of the artist
5. Susie Rea, *Adelma,* C-Type Print, 2008, courtesy of the artist
6. Susie Rea, *Virginia,* C-Type Print, 2008, courtesy of the artist

Linda Kosciewicz-Fleming's four-piece video, *Transformations: Life Portraits* also responds to ageing-related research. Fleming deliberately evokes the clinical environment of a laboratory, in which four people perform a sequence of movements accompanied by a 1936 version of Billie Holliday singing *Pennies from Heaven.* The participants are all members of the 1936 Lothian birth cohort who took part in a ground-breaking IQ test in 1947 and who are now being studied by psychologists at Edinburgh University to try to determine why some people age better than others. The videos show how movement and facial expressions reveal the ageing process, and suggest the link between keeping physically and mentally fit. Now in their seventies, all four subjects stay fit through dancing and walking.

Wear and tear

Inevitably we are increasingly vulnerable to the wear and tear of time. Our hands and faces perhaps show the first outward signs: wrinkles, changes in skin tone, reduced elasticity. Carla Bromhead's intricately detailed drawings and prints document these changes in close-up. Her exploration of particular features reveals the beauty in wrinkles, the intensity of darkened eyes. The partial faces, deliberately withholding information, challenge assumptions of how much surface features can tell us about a person.



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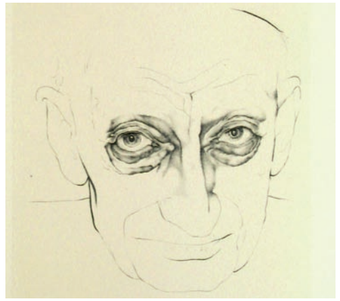

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1. Linda Kosciewicz-Fleming (born 1960), *Transformations: Life Portraits,* video installation, 2010, courtesy of the artist
2. Carla Bromhead, *Untitled 1*, pencil, courtesy of the artist
3. Carla Bromhead, *Albert*, lithograph, courtesy of the artist

Increased vulnerability means our bodies may also encounter debilitating diseases that affect our senses, mobility and our very sense of identity.

The painter Edgar Hillaire Degas suffered problems with his vision from a relatively early age. His eyesight began to decline when he was 36 and he complained of difficulty in distinguishing colours, sensitivity to light, and scotoma, all of which suggest retinal disease which was then untreatable. His sight loss coincided with an increasingly abstract style, and though undoubtedly influenced by aesthetic choices and stylistic development, his reduced vision probably contributed. *Ballet Dancers,* produced when Degas was in his sixties, is typical of works from this period, with less detail and definition in the faces of the dancers and a more blurred effect in the costumes and background. Despite his visual impairment, Degas is renowned for the great work that he produced in his sixties, seventies and eighties. Fellow artist Renoir said of Degas, '*had he died at 50, he would have been remembered as a good, competent artist, nothing more*'. Instead today he is celebrated as one of the great painters, with works produced during his later years amongst the most acclaimed.

Renoir himself suffered from a disease most commonly associated with ageing. Severe attacks of rheumatoid arthritis from around 1892 left him in considerable pain and caused his hands to become deformed, limiting his movement. An acute attack in 1912 left his arms paralysed.

Unable to paint, Renoir turned to sculpture using a young artist, Richard Guino, to fashion the clay according to his directions. *Mother and Child* was produced in this way when Renoir was 75 using a painting of 1885 as a basis and is a testament to enduring fortitude and resilience.

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1. Pierre Auguste Renoir (1841–1919), *Mother and Child,* Bronze, circa 1916, Tate: Presented by Sir Thomas D. Barlow, 1929
2. Edgar Degas (1834–1917), *Ballet Dancers,* oil on canvas, © The National Gallery, London

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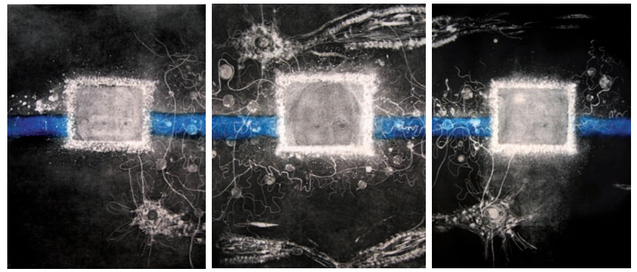

Both Henry Moore's drawing of *Dorothy Hodgkins' Hands* (see page 10) and Maggie Hambling's Portrait of Frances Rose graphically show the effect of arthritis on the hands. Frances Rose, Hambling's next-door neighbour in Battersea, suffered from rheumatoid arthritis in her eighties. Hambling's compelling portrait shows her gnarled and distorted hands. This sensitive and sympathetic image of ageing shows the devastating effects of deteriorating health whilst retaining the resilience and vitality of the sitter's personality.

Dementia represents probably the most feared aspect of ageing. So fundamental are our memories to our sense of self that as they disappear so perhaps does our identity. Susan Aldworth's etching *Triptych* shows three women with Alzheimer's. Their portraits fade as the associated tangles and plaques, depicted in the background, encroach on areas of the brain associated with memory. The faces seem almost shrouded as the individuals' essential character retreats from view and the atonality supports this sense of loss. The only colour running through the works is the strong line of blue which Aldworth calls *'cerebral blue... a colour which many patients say they associate with brain trauma*'.

Valerie Laws is Writer in Residence at Newcastle University's Institute for Ageing and Health, producing poetry in response to scientific research, including explorations of dementia. *Senior Last Moments* is a moving description of the process: 'Your brain's shutting down, beleaguered, defeated'. Yet it reminds us that the essential person remains inside and that it is important not to lose sight of this. Valerie's poems, one of which changes visually as its subject's dementia progresses, also reflect her experiences with older people, in particular her mother's dementia.

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1. Susan Aldworth (born 1955), *Triptych: Dissolution I, II and III*, etching and aquatint, courtesy of the artist
2. Maggi Hambling (born 1945), *Portrait of Frances Rose*, oil on canvas, 1973, Tate: Presented by the Friends of the Tate Gallery 1994, copyright courtesy of the artist

Slices of brain

Third anniversary of my mother's death from dementia,
And I'm looking at slices of brain, stained pretty pink,
The neurones purplish, their nuclei clear as strawberry pips.

Like a magician in his many-coloured coat of patches, motley
Bow tie, hair like wild dendrites in a frenzy of thinking,
The pathologist initiates me into what death has revealed.

The donor's name is on the slides, their memorial, evidence
Of how memory escaped them. Alzheimer and his mates
(Lewy Body, Parkinson, Vascular, alone or in cahoots)

Miss no tricks. Tau Proteins strangle and swamp, cutting off
The synapses, keeping the thoughts corralled in tangles,
Scribbles of barbed wire around the nucleus, sometimes

Killing the cell like a rubber band round a lamb's balls,
So a ghost tangle is left, guarding empty space.
(Are there ghost memories inside?) Ameloid proteins

Lag the axons, the dendrites, the outreaching fronds
Which pass torches of thought, until
There's a plaque, like a fingertip print

Stubbed on the connections. Scattered booby traps,
You have to look out for them. Cortical, hippocampal
Layers, like lagoons and sandy beaches, slide after slide,

Pebbled with tangles, wracked with plaques,
In a shrinking brain losing weight and substance,
Because there's 'vacuolation', holes where words were.

And it happens, we don't feel it, until it's noticed by our friends,
And called a senior moment, until there are too many moments
To be funny any more.

Valerie Laws

Personal experience informs much of Sharon Bailey's work. She has worked with older people as an artist in care homes or sheltered accommodation over many years. Her photographs give them a voice and express some of their fears and concerns. She blends their words with poignant motifs or symbols of their lives, from the knitted doll who witnesses the condensing of a life into the single room of a residential home, to the visible confusion of the man suffering dementia who knows he loves the woman before him but cannot recall her name. It is however essential to remember that despite the prospect of increased frailty, or vulnerability, age also brings many benefits.

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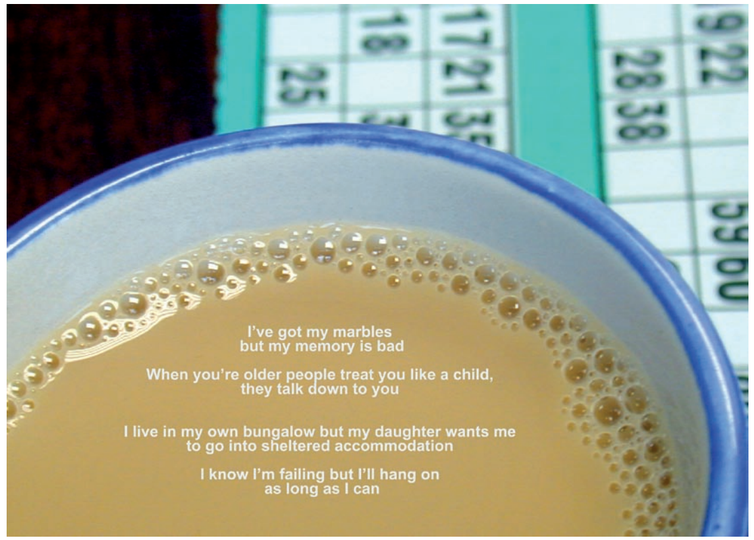

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1. Sharon Bailey, *Elsie Wardle,* photograph, courtesy of the artist
2. Sharon Bailey, *Marbles,* photograph, courtesy of the artist

A joyful lust for living

There is much to be celebrated. With age, comes wisdom. Age often also brings with it greater confidence, compassion and tolerance. Older people are often pivotal role-models for younger generations as grandparents, mentors or friends. Susan Hiller's work *Sentimental Representations: In Memory of My Grandmothers* is the first of a two-part work commemorating her grandmothers, both named Rose. The work made from dried rose petals is a demonstration of dedication and affection – its creation a painstaking and time-consuming process. It reveals the relationship between generations and between past and present and how these relationships facilitate the passing on of memory, knowledge and wisdom.

Western society associates beauty with youth and deems the older person unattractive. Yet with more older bodies around us, attitudes to what constitutes beauty are changing. Older bodies may not have the elasticity and smoothness of youth. They look beautiful – just in a different way.

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1. Susan Hiller (born 1940), *Sentimental Representations : In Memory of my Grandmothers (Part I for Rose Ehrich),* petals, acrylic, ink and photocopies on board, 1980–81, Arts Council Collection, Southbank Centre, London, copyright courtesy of the artist

Melanie Manchot's Liminal Portraits question this accepted notion of beauty which hides the older body. The photographs of the artist's mother are taken in a range of private and public locations. There is a simplicity to *With Mountains I* and *With Mountains II* that radiates quiet beauty. The compositional echo of the historical forms of the nude and the sublime landscape backgrounds articulate the idea of beauty with raw simplicity and dignity. There is a sense of calm acceptance – this is a woman at the fullness of life rather than in decline.

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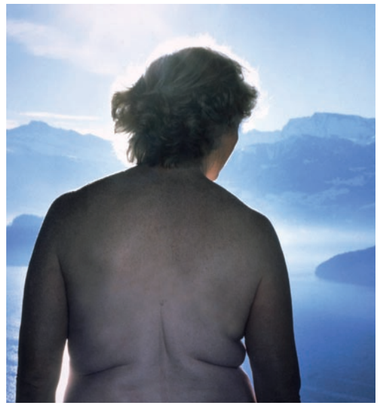

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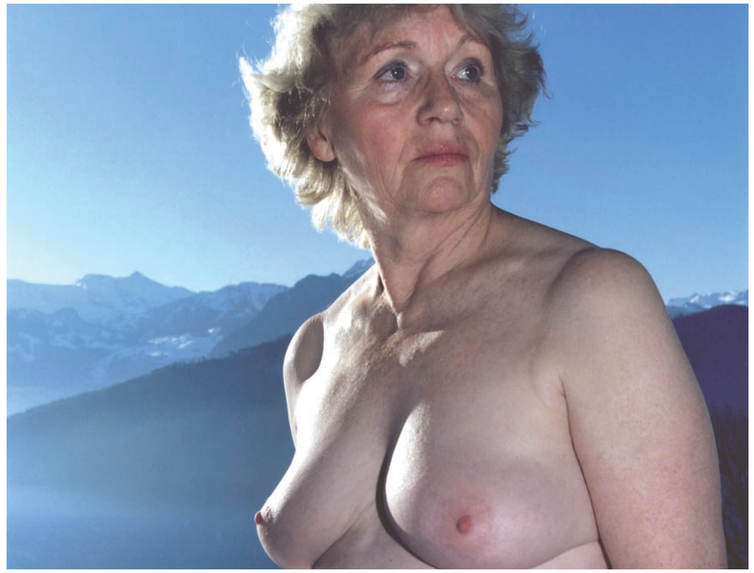

1. Melanie Manchot, (born 1966), *With Mountains II,* photographic print, 1999, courtesy of the artist
2. Melanie Manchot, *With Mountains I,* photographic print, 1999, courtesy of the artist

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3. Melanie Manchot, *The Dunes,* photographic print, 1999, courtesy of the artist

John Coplans' large-scale images of his own headless naked body perhaps hint at gender differences in their approach to older nakedness. The lyrical beauty of Manchot's works is replaced by a fierce defiance of what constitutes good taste and acceptable revelation, yet there is an underlying honesty, vulnerability and humour. Coplans' own career defies the idea that age limits our achievements. A writer and curator, at 60 he sought to establish himself as a photographer. His sole subject matter was the older naked form – his own. In an exhibition of 2001 he wrote *'The principal thing is the question of how our culture views age: that old is ugly... Just think of Rodin, how he dealt with people of all ages. I have the feeling that I'm alive, I have a body... I can make it extremely interesting. That keeps me alive and vital. It's a kind of process of energising myself by my belief that the classical tradition of art that we've inherited from the Greeks is a load of bullshit.'* Both Manchot and Coplans challenge stereotypes, suggesting that exposing ageing naked flesh is not embarrassing but empowering.

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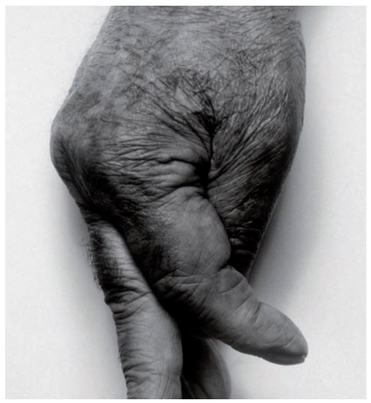

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1. John Coplans, (1920-2003), *Self-Portrait (Frieze No.2, Four Panels),* print on paper, 1994, Tate: Presented by the American Patrons of The Tate Gallery 2001
2. John Coplans, *Self-Portrait, Fingers,* silver gelatin print, 1999, Ferens Art Gallery, Hull Museums

Coplans' expressions of what keeps him alive and vital are also addressed in *Cactasia!*, Jordan Baseman's whimsical video portrait of Gordon Rowley, the eccentric former president of The British Succulent Society and Spike Milligan aficionado. Reviewing his life, Rowley maintains that his life-long interest has been the driving force in keeping him going. Aged 83, he has few regrets and imparts a strong impression of happiness and vitality, maintaining that there are many things he still wants to do. This gentle and humorous film forces us to question the focus of life and what constitutes a fulfilled and meaningful existence.

The new artworks which have been commissioned for this exhibition demonstrate the role of art in facilitating dialogue between different disciplines, engaging people with science in a new and meaningful way. Andrew Carnie, Annie Cattrell and Jennie Pedley have all spent time during the last year with scientists at Newcastle University's Institute for Ageing and Health. Their new work sheds light on the scientists' day-to-day practice as well as their findings. It gives us an insight into the minute workings of our bodies that influence ageing as well as the wealth of detailed study taking place in laboratories and clinics.

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Art has a wonderful capacity to illuminate subjects to provide different interpretations or alternative perspectives. Its often subtle but penetrating examination may make an immediate impact but also can continue to filter through our consciousness long after the initial viewing. The works in this exhibition are hugely diverse, with some only tangentially concerned with ageing. However, clustered around that theme, they pose questions about both individual and collective attitudes. We see how age offers new opportunities for exploration and discovery, and we are reminded that ageing is a lifelong process. Barring accidents, we will all become old. Our definition of 'old' may differ from earlier generations', but it is our responsibility now to ensure that we reach old age in a world that fully embraces older people as valued and essential members of society.

Lucy Jenkins, Curator, Coming of Age

1. Jordan Baseman (born 1960), *Cactasia!,* video, courtesy of the artist and Matt's Gallery, London

Annie Cattrell

Tell us about the work you have produced for Coming of Age.

The art work Memory I have made has come about as a result of dialogues with the scientists and nursing staff centred around the three-dimensional anatomy of the Hippocampus and Amygdala (as seen in autopsies and in MRI/CT scanning techniques). Both form part of the Limbic system, a set of structures which support the functions of emotion and memory (Latin translation of Limbic = border or edge). The Hippocampus can be damaged as a result of the onset of Alzheimer's and therefore this small section of the brain is crucial to the overall well-being of the effected person. Some of the symptoms of the damage can be loss of memory and disorientation in the patient's behaviour.

I have used three-dimensional anatomical data from within the brain and outer scans of the surface of the brain/skull to reveal the shape, orientation and volumes of these crucial physiological areas within the brain.

Memory could be described as essentially a reaction of our perception of an experience/ situation, it recreates that event from our own personal perspective. Therefore memory is in effect who we are and what we physiologically have become through our life time.

The matter within our brains creates 'pathways' of memory. It appears that the stronger the memory/experience the more substantial the neurological network becomes. Partings are portrait drawings made using silver gilding techniques onto thick circular glass sheets. The back/top of the heads of silver haired people is all that can be seen from this angle, therefore highlighting the potential anonymity or facelessness of the ageing in our society. However the stance is also one of definance and could be understood as the ageing person looking elsewhere, away at something more engaging or important.

How have you worked with scientists in producing the new artwork?

The artworks have been informed by the dialogues and information that was shown to me during visits to Newcastle's Institute for Ageing and Health. For example Dr Sabine A S Lange who works on the effect of nutrition on the aging process. Dr Satomi Miwa whose research deals with aspects of functionality of aging mitochondria. Dr Johannes Attems Reader in Neurodegenerative Pathology and Sharon Keers (technical specialist) allowed me to watch them perform a brain autopsy. Later Johannes showed me a series of brain matter slides made of thin slices of the Hippocampus (stained to show different aspects of anatomical and cellular structures).

The slides were shown using a state of the art electric high magnification microscope linked to a PC monitor. It was possible to take high resolution photographic images that revealed the miniscule damage and seemingly subtle alterations in the brain matter that occur in Alzheimer's patients. Professor Tom Kirkwood expanded on the overall ageing project and discussed the 'Mental Capital Through Life' Government paper he was involved with regarding strategies towards the ageing in society. Nurse Karen Davies explained how the 85+ project has developed and the processes used (ie questionnaires etc) to ascertain the quality of life for this particular age group study. She also alerted me to Hadley Cantril's Ladder, The Pattern of Human Concern (1965), an academic paper still referenced today as a scale to measure the life satisfaction in the ageing population. As a result of an ongoing collaboration, Professor Morten L Kringelbach from Oxford University Department of Psychiatry provided the brain scan data that contributed to the physical making of Memory.

What processes are involved in making your work?

The two sculptures that comprise Memory are made using visual (rather than numerical) brain scan data. This data, in the first instance, comes in the form of voxels (three-dimensional pixels). The voxels (for this purpose) when combined relate to the anatomy of the interior space within the human skull/brain and the anatomy, shapes and location of the hippocampus and the amygdala. This virtual 'sculpted' data was refined and then made as rapid prototyped 'real' models in a process called SLA.

The models then are cast into a solid aggregate that resembles onyx. The hippocampus/ amygdala is surfaced with silver. The silvered quality reflects light and whatever is around it, therefore alluding to their function of memory.

How does science practice differ from or complement artistic practice?

I can only speak for myself... the empirical scientific research allows a fuller picture or understanding of the fundamental issues about what it is to be human. This can extend and balance the experiential and philosophical comprehension of the body and mind. I find the subtleties of where art and science begin and end challenging and fascinating.

Have you learnt anything from studying ageing research that will alter your lifestyle or attitudes?

It has probably reinforced the importance of daily care and attention to a healthy exercise and dietary regime. Also that subtle improvements made immediately and over time can make a big difference in later life to overall well being.

1.

2.

3.

1. Annie Cattrell, *Memory I and Memory II*, Onyx cast resin, SLA r.p silver plated, 2010
2. Annie Cattrell, *Memory I and Memory II*, Onyx cast resin, SLA r.p silver plated, 2010
3. Annie Cattrell, *Memory I*, Onyx cast resin, SLA r.p silver plated, 2010

4.

What particular aspects of the research into ageing have particularly interested you?

The sociological and physiological aspects. It continues to astound me how 'forgotten' and excluded the elderly are in our society. In many ways that is why I was very interested in taking part in this exhibition. Having first-hand experience of my mothers' health declining over a long period of time and the consequent caring issues arising, I think the more that can be done to highlight and improve the status and importance of the ageing in our society the better. It would be useful to remember how the experience/wisdom of a mature person can potentially inform and contribute massively to the younger generations.

What impact has ageing (in yourself or others) had on you?

It is the difference between theory and practice... it is hard to imagine what it is to become old(er) when you are young but when it begins to happen you know for sure!

Experience of life, as a result of getting older, can be wonderful, it makes making decisions simpler. You are what you have experienced in many ways.

What about getting older do you fear and what do you look forward to?

It is inevitable realistically, there is little point in fearing it. I prefer to live in the moment!

Were science to make a breakthrough that freed humans from ageing altogether, what sort of impact do you think this would have on society?

Anything that contributes to better health when ageing would be an improvement... I think 'altogether' is unimaginable.

Can you suggest one thing that society could do to address issues of an ageing population?

Treat older people with more respect and value their experience, points of view and perspective on life as a whole. Listen.

4. Annie Cattrell, *PARTING I*, Glass cut circle with silver leaf and paint, 2010

Jennie Pedley

Tell me about the work you have produced for Coming of Age.

'a is for ageing', is a film showing silhouettes of scientists in their laboratories, researching the biology of ageing seen alongside the silhouettes of my elderly relatives carrying out their own daily routines. Significant moments within the films are captured as stills and exhibited as layered prints.

How have you worked with scientists in producing the new artwork?

Following several meetings to enable me to grasp the basics of their work, I persuaded the scientists to suspend a semitransparent shadow screen in their laboratories and I filmed them re-enacting their research activities behind the backlit screen.

I have also collected ideas about ageing, in the form of an A-Z, from various scientists, academics and from elderly relatives and their friends.

These lists broadened my own perspective from the biology of ageing to the experience of living as an older person. I am currently using these lists to structure the film footage. The A-Z is a format from our childhoods, which brings out a humorous, light-hearted element in the work.

How does science practice differ from or complement artistic practice?

Most of these scientists work with visual material such as microscopic images or brain scans. Many of them are also keen photographers and film enthusiasts. They had exciting ideas about how their research could be filmed in silhouette and would run off to get trolleys full of beautiful glassware.

I think artists and scientists have similar levels of enthusiasm, experimentation, moments of inspiration and emotional involvement.

1.

1. Jennie Pedley, still from *the film 'a is for ageing', 'c is for cells, affected by ageing'* - Glyn Nelson cares for human skin cells in order to observe their ageing process

Have you learnt anything from studying ageing research that will alter your lifestyle?

The research has backed up what I knew already as I am a qualified physiotherapist, that the benefits of exercising and eating healthy food throughout your life will be felt in old age. Muscle fibres are lost as we age, so it is important that the remaining fibres are kept strong, so I try to walk and cycle for most of my short journeys. The cells of our bodies need vitamins and minerals from fresh food, otherwise their struggle to find these resources has an effect like premature ageing. I eat loads of fruit and vegetables and just a few fatty, sugary treats.

What particular aspects of the research into ageing have particularly interested you?

I have developed a particular fondness for mitochondria, which use oxygen to create energy for our cells. However, the by-products of energy production are the oxygen radicals which cause damage to our genes and cells, contributing to the ageing process. The issue of side effects of energy production on a world wide scale is so much in the news that it is interesting to see similar problems in our own cells.

Satomi Miwa extracts mitochondria from different tissues to study their ability to produce energy using different food derivatives and oxygen. Mitochondrial function can deteriorate with age, becoming less active or overproducing oxygen radicals. Satomi states that *'Maintaining the optimum functionality of mitochondria is important for health'.*

I was initially inspired by Glyn Nelson's time lapse microscopic films of living cells with fluorescent fusion proteins, lighting up focal points of genetic damage. You can see the glowing damaged areas disappearing as they are repaired more quickly in the younger cells in some of Glyn's beautiful footage incorporated into my shadow films.

What impact has ageing (in yourself or others) had on you?

I had my first child when I was 39, and I really appreciate being a parent, knowing how easily I could have missed the experience. Now in my forties, I find that I am enjoying life more than ever, I am more confident and am lucky enough to be working in a field that I love. My parents and my aunt, who feature in my films, are in their eighties and are busy gardening and doing all their own DIY and decorating. My mother had a heart attack last year and received prompt surgery on the NHS to put in stents – tubes to keep the blood supply to the heart flowing – and she is now very active once more.

1.

What about getting older do you fear and what do you look forward to?

I look forward to doing more of what I enjoy, including being creative and watching my son grow up.

My father says that he feels 'useless' since retiring from work, even though he is busy with a domestic life, holidays and hobbies. I am hoping that a career as an artist need not end suddenly at a particular retirement age.

I have worked as a physiotherapist with elderly people in a mental health hospital. They were confused and depressed and it was hard for them to keep control of their lives and make choices about their care and their future.

My grandfather lived until he was 102, long after all of his friends had died. He didn't enjoy the last ten years, he was anxious and felt powerless. I think his life was artificially prolonged by his pacemaker and by treating chest infections with antibiotics, when maybe it would have been kinder to let him go.

Were science to make a breakthrough that freed humans from ageing altogether, what sort of impact do you think this would have on society?

It would be a disaster in terms of overcrowding and world resources, particularly with climate change threatening our food supplies.

Can you suggest one thing that society could do to address issues of a growing older population?

We need to address climate change and growing food locally in order to have enough basic resources for a growing population.
The people who are elderly now experienced rationing during the Second World War. Some of them have skills that we need, how to grow your own food and cook from basic ingredients rather than living on convenience foods.
We would be more healthy and less reliant on energy sources that are dwindling fast.

1. Jennie Pedley, still from the film *'a is for ageing'*, 'o is for osteoarthritis and for optimism' - Valerie Ransome works on a tapestry

2.

2. Jennie Pedley, still from the film *'a is for ageing'*, *'e is for energy, produced by mitochondria'* - Satomi Miwa prepares to extract mitochondria

Andrew Carnie

Tell me about the work you have produced for Coming of Age.

I have made a time based work, based on the cellular biology of ageing. In the research for the project there was always a sense of flux, of change over time in what I was hearing from the scientists. Mitochondria were changing as a result of the reactive oxygen produced as they make energy in the form of ATP, telomeres were shortening through cell replication. So a varying time based work made sense.

The work is a slowly developing piece. Images dissolve onto semi-transparent screens that sit between two projectors; one image is projected from one side at a time, as this image fades the image on the other side rises. For this work there are two units of two projectors and a set of three voile screens between each set of two projectors.

The slide sequence is based around an image of a human figure that is male but is meant to represent 'any' person. The figure becomes the site in which some of the activity that I have explored at Newcastle takes place; the outline of the body becomes the membrane of the cell. At points the figure watches some of this activity from the other screen. A dialogue occurs between the figure and the cells he is made of.

The slide sequence outlines the ten or so processes that eventually lead to the demise of the cell in ageing. During the research I have learnt that cell ageing in effect starts from before we are born. This process, leading to individual cell death or cell 'lockdown', apoptosis or senescence, leads also to disruption of the wider body processes like neural transmission, blood renewal or elasticity of skin.

How have you worked with scientists in producing the new artwork?

Since I decided quite early on in my work I wanted to look at some of the factors that lead to cell senescence or cell death, I did not just work with one scientist. I spoke to a number of scientists for shorter periods of time at the Institute for Ageing and Health to get a broad introduction to the work of various labs.

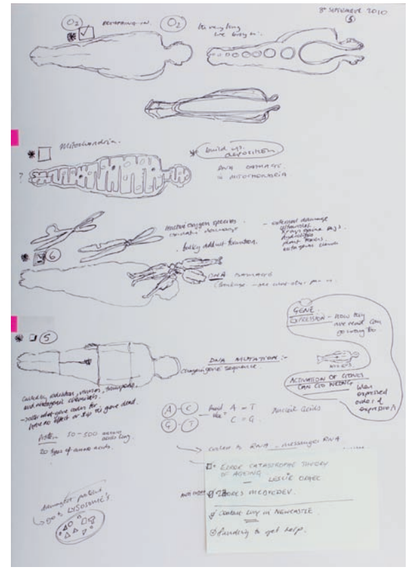
Later I had more extended conversations with Prof. Tom Kirkwood, Prof. Thomas von Zglinicki, Dr. Glyn Nelson, and Dr. Satomi Miwa, when I needed to clarify aspects of my work.

How does science practice differ from or complement artistic practice?

Science looks at what already exists, it is uncovering things about the world as it is. Making a work of art can take the viewer somewhere else into a world that hitherto has not existed. Technology often binds the two, giving the tools that allow scientists to look further into the world and artists to see new and different things. In some of my work I take the data, the evidence from science, and build something else from it, putting the information into the human arena in some way, transcribing it, using it to say things about the 'human condition'. I think of the science as the 'subject' of my work, it is the starting point. The science and its data change the sense of who I am. I hope that the art I make gives the audience time to think about the implications of the science.

Have you learnt anything from studying ageing research that will alter your lifestyle?

I wish I had. I have learnt quite a lot but am not sure I will be able to incorporate it in to my lifestyle. I have been telling my children though, so maybe it will mean they make more significant changes. Dietary restriction seems important, though it would seem that scientists need to find when it has best effect and for what groups. Plus I guess I should eat more fruit and antioxidants to stop all the oxygen in the body being available for 'bad' reactions!



1.

What particular aspects of the research into ageing have particularly interested you?

What has particularly interested me is the sense of complexity in the cell, the sense in which the cell has to balance its survival in terms of delivering energy to the body, but also dealing with the dangerous by-products of the reactions involved.

There is in a sense an extraordinary audacity in life and in living. There is a real sense of equilibrium – how remarkable it is we stay alive, how much could go wrong, how much does go wrong and how fascinating are the systems in the cell that correct the countless mistakes that occur. In a sense the body is in an ongoing battlefield, damage being done and repairs being made all the time. 'In the body, there is always a hurricane going on and we are always mending the breaches in the river bank' as Prof. Tom Kirkwood told me. Ultimately we lose the battle and we are overwhelmed.

1. Andrew Carnie, *Preparatory drawing for Fray: coming away at the ends,* 4 projector slide dissolve work, 2010

The life history of the mitochondria is also fascinating. These small energy generators of the cells, where the ATP is produced, fuel the body. They can multiply by splitting themselves and at other times engulf the portion that has split away. Mitochondria originated as independent bacteria but over time they have been incorporated into the eukaryotic cell body, the complex cells that make us. This hypothesis, know as endosymbiotic, proposes an extracellular origin for mitochondria.

I am also interested in the idea that we are ageing from before we are born. There is no perfect state of harmony in our bodies from day one. As soon as we are replicating cells, producing energy we are doing damage to ourselves. Oxygen – so necessary for our survival – when released in the process of energy production in the mitochondria can become such a damaging element. We are in a sense dying from the very thing that helps us to live.

What impact has ageing (in yourself or others) had on you?

I would have liked my parents to have lived a little longer to see that what I took on as an artist has been to a small degree appreciated and valued by a wider audience, they mainly got to see the struggle.

I can feel myself ageing now, I have been slowing in the last years since my dad died – less confident, less strident, more cautious on my mountain bike! I am more scared of falling off now, especially coming down steep hills.

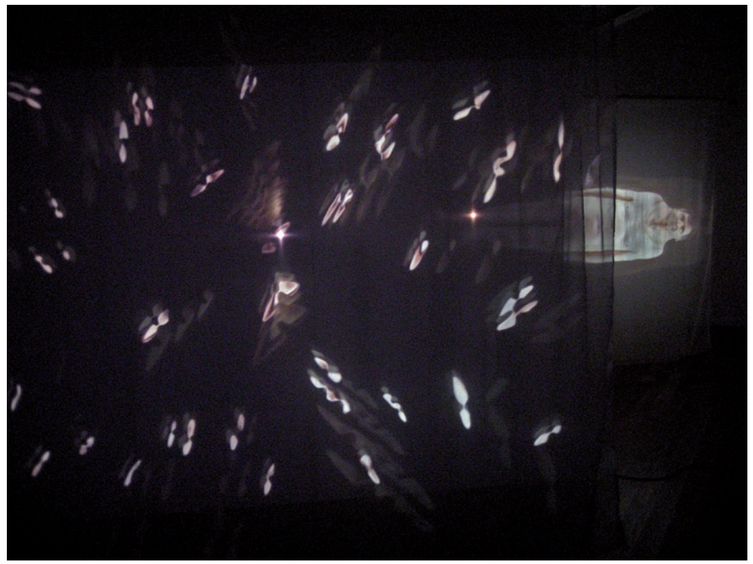
What about getting older do you fear and what do you look forward to?

I will miss the incredible energy I had – the cycling I did, the working, the running around. I was lucky I was strong and determined; I had health. So it has given me experiences to look back on as I get old. Old age is not going to be too easy. The profession of being an artist has not really provided any pension. So I don't look forward to the money bit, though this might spur me on and keep me going! I do look forward to carrying on making artwork and reflecting on the extraordinary exposure to really interesting research that I have had through projects such as this.

Were science to make a breakthrough that freed humans from ageing altogether, what sort of impact do you think this would have on society?

I personally would be a bit horrified. I think 65 plus a few years is good enough, I find stuff, life, difficult at times, though I do love the world and am very excited by it. I was kind of dancing in the streets when the snow fell on one of my visits to Newcastle for the project. Life is quite a struggle and being an artist is pretty hard work – I need a rest. I think if the research gives everyone a better quality of life that would be good.

1.



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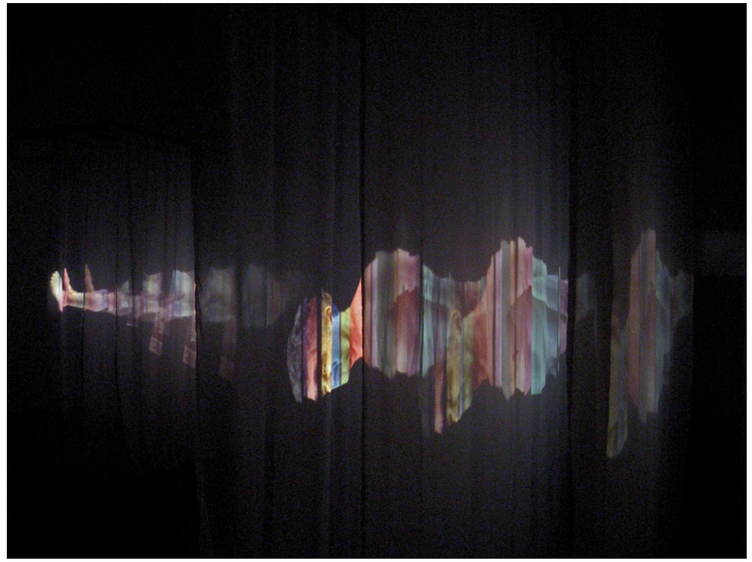

1. Andrew Carnie, *Fray: coming away at the ends,* 4 projector slide dissolve work, 2010
2. Andrew Carnie, *Fray: coming away at the ends,* 4 projector slide dissolve work, 2010

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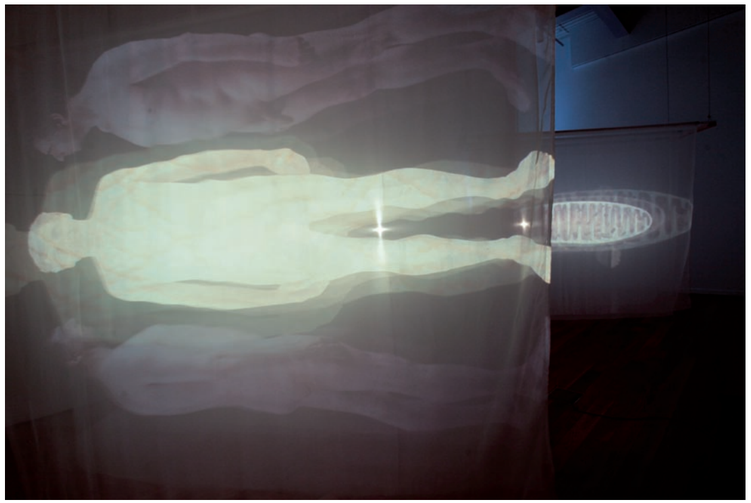


There are all sorts of environmental issues too. I think it important that we have more equality across the world and everyone in each country should live more of a natural life span first. I heard someone say on the radio that it wasn't natural just to make everything twice as long, doubling the length of an opera or a book or a life would not necessarily benefit it.

When would we bear children? Would we have extended adolescence, extended childhood, extended old age?

Can you suggest one thing that society could do to address issues of an ageing population?

I would like everyone in old age to have security – proper homes and warmth. I think there is not enough equality in this country and many others, and the 'poor' elderly suffer.
I think we should treat older people a lot better. Knowing what cells have struggled through in their lifetime suggests to me they should have a lot more respect.

We need more social forums where people can mix; we need more integrated society, more of a mix in education of young and old and in many other settings.

1. Andrew Carnie, *Fray: coming away at the ends,* 4 projector slide dissolve work, 2010

List of Exhibits

Nicholas Nixon (born 1947), *The Brown Sisters, 1975,* gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco

Nicholas Nixon, *The Brown Sisters, 1977,* gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco

Nicholas Nixon, The Brown Sisters, Marbelhead, MA, 1979, gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco

Nicholas Nixon, *The Brown Sisters, Ipswich, Massachusetts,1982,* gelatin-silver print Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco

Nicholas Nixon, The Brown Sisters, Chatham, MA, 1987, gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco

Nicholas Nixon, *The Brown Sisters, Brookline, MA, 1999,* gelatin-silver print, Victoria and Albert Museum. © Nicholas Nixon, courtesy Fraenkel Gallery, San Francisco

Susan Hiller (born 1940), *Sentimental Representations: In Memory of my Grandmothers (Part I for Rose Ehrich),* petals, acrylic, ink and photocopies on board, 1980 – 81, Arts Council Collection, Southbank Centre, London

Susan Aldworth (born 1955), *Triptych: Dissolution I, II and III*, etching and aquatint, courtesy of the artist

Edgar Degas (1834 – 1917), *Ballet Dancers,* oil on canvas, National Gallery, London

Jordan Baseman (born 1960), *Cactasial,* video, courtesy of the artist and Matt's Gallery, London

Henry Moore (1898 – 1986), *The Seven Ages of Man: Man and Woman,* lithograph, 1982, Tate: Presented by the Henry Moore Foundation 1986

Henry Moore, *The Seven Ages of Man: The Infant,* lithograph on paper, 1982, Tate: Presented by the Henry Moore Foundation 1986

Henry Moore, *The Seven Ages of Man: The Schoolboy,* lithograph on paper, 1982, Tate: Presented by the Henry Moore Foundation 1986

Henry Moore, *The Seven Ages of Man: The Lover,* lithograph, 1982 on paper, Tate: Presented by the Henry Moore Foundation 1986

Henry Moore, *The Seven Ages of Man: The Soldier,* lithograph on paper, 1982, Tate: Presented by the Henry Moore Foundation 1986

Henry Moore, *The Seven Ages of Man: The Justice,* lithograph on paper, 1982, Tate: Presented by the Henry Moore Foundation 1986

Henry Moore, *The Seven Ages of Man: The Pantaloon,* lithograph, 1982, Tate: Presented by the Henry Moore Foundation 1986

Henry Moore, *The Seven Ages of Man: The Last Scene,* lithograph on paper, 1982, Tate: Presented by the Henry Moore Foundation 1986

Henry Moore, *Dorothy Hodgkins' Hands,* pencil, 1978, Royal Society, London

Pierre Auguste Renoir (1841–1919), *Mother and Child,* Bronze, circa 1916, cast 1927, Tate: Presented by Sir Thomas D. Barlow 1929

Maggi Hambling (born 1945), *Portrait of Frances Rose,* oil on canvas, 1973, Tate: Presented by the Friends of the Tate Gallery 1994, copyright courtesy of the artist

John Coplans, (1920-2003), *Self-Portrait (Frieze No.2, Four Panels),* print on paper, 1994, Tate: Presented by the American Patrons of the Tate Gallery 2001

John Coplans, *Self-Portrait, Fingers,* silver gelatin print, 1999, Ferens Art Gallery, Hull Museums

Carla Bromhead (born 1987), *Albert,* lithograph, courtesy of the artist and Hole editions

Carla Bromhead, *Untitled I,* pencil, courtesy of the artist

Carla Bromhead, *Untitled II,* pencil, courtesy of the artist

Melanie Manchot (born 1966), *The Striped Bathroom,* photographic print, 1999, courtesy of the artist

Melanie Manchot, *The Dunes,* photographic print, 1999, courtesy of the artist

Melanie Manchot, *With Mountains I,* photographic print, 1999, courtesy of the artist

Melanie Manchot, *With Mountains II,* photographic print, 1999courtesy of the artist

Susie Rea (born 1977), *Adelma,* C-Type Print, 2008, courtesy of the artist

Susie Rea, *Virginia,* C-Type Print, 2008, courtesy of the artist

Susie Rea, *Joyce and Thomas,* C-Type Print, 2008, courtesy of the artist

Susie Rea, *Eileen and Gertrude,* C-Type Print, 2009, courtesy of the artist

Susie Rea, *Sarah,* C-Type Print, 2009, courtesy of the artist

Susie Rea, *Kelvin,* C-Type Print, 2009, courtesy of the artist

Sharon Bailey, *Marbles,* photograph, courtesy of the artist

Sharon Bailey, *Doll,* photograph, courtesy of the artist

Sharon Bailey, *You Can't Go to Heaven,* photograph, courtesy of the artist

Sharon Bailey, *Tangles and Starbursts,* photograph, courtesy of the artist

Sharon Bailey, *Elsie Wardle,* photograph, courtesy of the artist

Sharon Bailey, *Kitty's Wedding,* photograph, courtesy of the artist

Linda Kosciewicz-Fleming (born 1960), *Transformations: Life Portraits,* video installation, 2010, courtesy of the artist

Valerie Laws, *Slicing the Brain:* Audio-visual animated poetry sequence (Installation, comprising projected text and recorded sound)

Jennie Pedley, (born 1966), *'a is for ageing',* an installation of shadow film and prints

Annie Cattrell, (born 1962), *MEMORY I*, Onyx powder, cast resin, SLA r.p silver plated, 2010

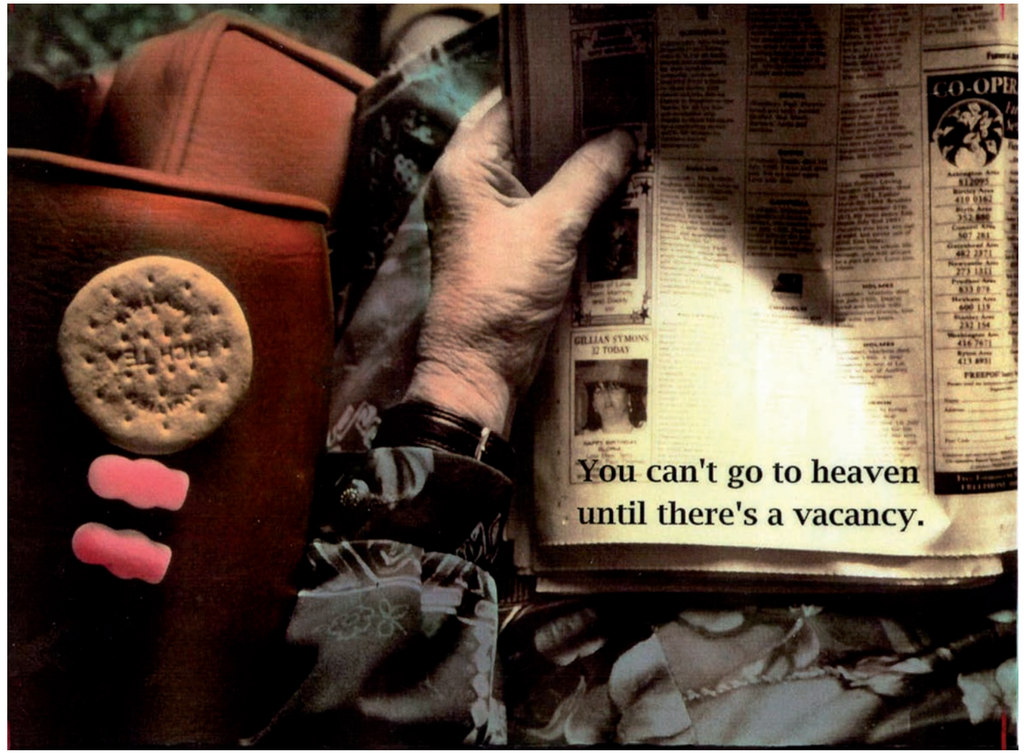
Annie Cattrell, *MEMORY II,* Onyx powder, cast resin, SLA r.p. silver plated, 2010

Annie Cattrell, *PARTING I*, Glass cut circle with silver leaf and paint, 2010

Annie Cattrell, *PARTING II,* Glass cut circle with silver leaf and paint, 2010

Annie Cattrell, *PARTING III,* Glass cut circle with silver leaf and paint, 2010

Andrew Carnie, (born 1957), *Fray:* Coming away at the ends, 4 part slide dissolve installation, 2010



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1. Sharon Bailey, *You Can't Go to Heaven*, photograph, courtesy of the artist

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The artists who have produced new commissions: Andrew Carnie, Annie Cattrell and Jennie Pedley together with **the artists who have also lent work**: Melanie Manchot, Carla Bromhead, Sharon Bailey, Jordan Baseman, Linda Fleming, Susie Rea and Susan Aldworth and the poet and author Valerie Laws, writer in residence at the Institute for Ageing and Health. Other artists have supported the catalogue production – Susan Hiller, Maggi Hambling and Nicholas and Bebe Nixon.

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Clockwise from top left: Edgar Degas, *Ballet Dancers,* © The National Gallery, London; Carla Bromhead, *Untitled;* Melanie Manchot, *With Mountains II;* Susan Aldworth, *Peggy.*

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