

The Concept

In 2006 the UK Resource Centre for Women in Science, Engineering and Technology embarked on a very exciting and rewarding project that set out to celebrate the exceptional achievements of women from science, engineering and technology.

With just 24.1% of employees in SET professions being women, the UKRC aimed to make women in Science, Engineering and Technology more visible as role models and an inspiration to others. The Women of Outstanding Achievement in SET photographic exhibition was born and little did we know that it would enthuse and capture the minds of so many people, all of whom who we are proud to recognise as ambassadors of the exhibition.

Three years on, we are delighted to add a further 6 portraits to the collection. Respected photographer Robert Taylor joins us once again to capture the essence of 6 amazing women who are making an outstanding contribution in:

- > SET Discovery, Innovation and Entrepreneurship
- > Communication of SET with a Contribution to Society
- > SET Leadership and an Inspiration to Others

With your continued support we are establishing a collection that captures the individuality, essence and gravitas of inspirational women that creates a valuable legacy for future generations.



The Photographer

Robert Taylor has specialised in artistic portraiture for over 20 years and has pictures in several collections, including those of the National Portrait Gallery, the Victoria and Albert Museum, and the Royal Society.

“My main photographic interest has always been portraiture. I have worked with a wide range of clients and collaborators in boardrooms, prisons, universities, royal palaces, domestic environments, churches, and African villages, as well as photographic studios. Throughout my career my primary purpose has been the exploration and celebration of my subjects, wherever possible, giving them a voice by accompanying their images with short intimate interviews.

I came to photography via the Royal air Force, qualifying as a barrister, and several years in educational publishing. While photography remains my main interest I enjoy the occasional distraction such as photography related TV work, and an ongoing sustainable development project in Ghana.”

Robert Taylor Freelance Photographer

The Collection

“ Each year the UKRC’s Women of Outstanding Achievement in SET Photographic Exhibition acknowledges a group of highly gifted women and world leaders in their fields of expertise in science, engineering and technology, and this year is no different.

The proportion of women working in Science, Engineering and Technology rose to 25% in 2006 but to reach parity with men, women need increased exposure to the wider public through the media as well as further opportunities for promotion in industry and research.

The issue of the under-representation of women in SET is one that is increasingly in the spotlight. As the National Academy of Science, the Royal Society is keen to play its part in addressing this issue. Our work in this area includes the Royal Society Rosalind Franklin Award, which focuses on promoting women in SET, and the Dorothy Hodgkin Fellowship scheme, which supports excellent women scientists and engineers at an early stage of their career.

The Royal Society is proud to be involved with the Women of Outstanding Achievement in SET Photographic Exhibition, which will hopefully encourage future generations of women to enter a scientific career. The Royal Society is also very privileged to be able to display some of the portraits from previous years at our premises in Carlton House Terrace. ”

Professor Lorna Casselton

Vice President and Foreign Secretary of the Royal Society

For SET Discovery, Innovation and Entrepreneurship

Barbara Jones, FRSA
Founder and Director
amazonails

Empowering

“All the tutors were women which made me feel a lot more comfortable and confident. This made a big difference; I’m a strong advocate of all women classes. ”



For SET Discovery, Innovation and Entrepreneurship

Professor Linda Partridge, CBE FRS FRSE

Weldon Professor of Biometry and
Director of the UCL Institute of Healthy Ageing

Enterprising

“What I try to do is show that you can
be a successful scientist and have a
rounded life.”



For Communication of SET with a Contribution to Society

Dr Carolin Crawford MA PhD FRAS
Senior Outreach Officer
Institute of Astronomy
University of Cambridge and
Fellow of Emmanuel College

Ground-Breaking

“ I would say don't be afraid to try
new challenges. ”



For Communication of SET with a Contribution to Society

Dr Jenny Gristock, BEng MRes DPhil

Research Fellow in Neuroethics

SISSA, the International School for Advanced Studies

Distinctive

“Me? Give up? Well that wasn't going to happen.”



For Leadership and Inspiration to Others

Ann Budge

Founder and Former Chief Executive
Sopra Group

Supportive

“I would definitely encourage women to enter SET sectors as there are such a wide variety of opportunities available.”



For Leadership and Inspiration to Others

Professor Lynne Frostick, BSc PhD FRGS C Geog FGS C Geol
Professor of Geography
Department of Geography
University of Hull

Vibrant

“Science is central to me as a person and through it you can contribute to society in a very direct way.”





Barbara Jones

Nominated by Roger Livesey
freelance SET PR consultant.

Barbara overcame a number of barriers present in a male-dominated working environment to realise her ambition of becoming a carpenter 25 years ago. She has now built an international reputation as an innovative pioneer of strawbale building. As an entrepreneur and educator, Barbara is truly an inspiration for future generations of women in SET.

After setting up the first women's building collective and becoming one of the first women to get a City and Guilds carpentry qualification, Barbara set up her own all women roofing company 'amazonails'. In 1994, she heard about the revival of strawbale building in the United States and decided to take a year out and travel round the world to find out more about this and other environmentally friendly building methods; after a two day workshop in California, she was hooked!

Barbara returned to the US on a Winston Churchill Travelling Fellowship to learn more on a three month intensive study tour. Through the Fellowship, she was interviewed on Radio 4's Woman's Hour and received a barrage of enquiries. She then began work on developing techniques to incorporate all natural materials as well as improving details for European climates.

'amazonails' is now a not-for-profit design, construction and education business which continually develops and teaches strawbale building, lime and clay plastering. Recent developments include foundations which use neither of the two major pollutants, cement or plastic, and a combination of materials that can create an affordable building with a less than zero carbon foot-print.

Barbara's inspiration?

I'd always been drawn to practical work but never considered it as a career until a member of staff at the children's home I worked at encouraged me because her father was a master craftsman.

After being demoralised in a male dominated woodwork class, I discovered the first ever women's workshop in Lambeth and enrolled on a carpentry and joinery class - it was such an inspiration. All the tutors were women which made me feel a lot more comfortable and confident. This made a big difference; I'm a strong advocate of all women classes.

Do you think there are any barriers to women in SET? How do you think they can be overcome?

A male dominated working environment and culture can be limiting because of a value system not based on cooperation and encouragement. Barriers I have experienced tend to be a perceived lack of confidence in my ability to carry out manual work. But there are always solutions for lifting heavy timbers like leverage, using lifting gear and helping each other.

Disciplines traditionally seen as 'male', such as building, can be adapted and developed so they are empowering and anti-discriminative, such as the strawbale technique. Its ecological credentials and collaborative approach means that it attracts many women at all levels.

What has been your biggest achievement?

Developing designs for extremely affordable housing using the strawbale building technique. John Prescott laid down the gauntlet for construction companies to get the cost of building a house down to £60k and we're nearly there with our thermally efficient designs.

Do you value the idea of being a role model?

Role models are important because they make you see what is possible. When I was young it never crossed my mind that I could be a carpenter and I wish I had realised it sooner.

How do you feel about being chosen as a Woman of Outstanding Achievement?

I'm honoured to be involved. You just don't see pictures of remarkable women on the walls of public buildings but the UKRC are changing that. I was pleased to be depicted naturally as a real person in the photograph.



Professor Linda Partridge

CBE FRS FRSE

Nominated by Dr. David Gems of the Department of Genetics, Evolution and Environment, University College London and Dr. Sally Leivers of RCUK, Lincoln's Inn Fields

Linda's contribution to evolutionary biology means that she is recognised as one of the world's leading scientists working in the exciting new field of ageing. Through her sharp and creative intellect, enormous energy, and great skill as an organiser, she has led work leading to a long chain of important discoveries.

Throughout her career Linda has taken time to advise, motivate and mentor junior scientists, acting as an outstanding role model. As Weldon Professor of Biometry and Director of the Institute of Healthy Ageing at University College London (UCL), she brings together scientists working on the basic biology of ageing with those working on diseases of human ageing such as Alzheimer's and cardiovascular disease to understand one of the great challenges to science in the hope of radically improving the health and happiness of older people.

Most of her studies employ the fruit fly *Drosophila* as a model for ageing in all organisms, including human beings, which has led to discoveries about the genes and biological processes that control the ageing process. Manipulation of these factors can slow down ageing, protect against disease and increase lifespan not only in fruit flies but also in rodents.

Linda was recently asked to become Founding Director of a newly formed Max Planck Institute for the Biology of Ageing in Germany.

Linda's inspiration?

I went to an all-girls' school so there was no pressure to leave science to male classmates. I was inspired by all of my excellent teachers but particularly my A Level Biology teacher, Mr. Dick Shaw.

My parents had no academic background but they gave me a great deal of encouragement, particularly when it came to biology and natural history, giving me my own section of the garden and taking me to interesting places to watch birds.

What is the best thing about working in SET?

These days it's about working with young people. It's the best feeling when someone you work with gets their first Fellowship or Lectureship.

What has been your biggest achievement?

Gaining a PhD because it's the most difficult thing I've ever done. You go from having information thrown at you to having to uncover new things, sometimes independently. It's not just conducting experiments but setting priorities and convincing the world that it's worthwhile and exciting.

Do you value the idea of being a role model?

Certainly. Young female students in particular need senior women to relate to, especially at the difficult beginning of their research careers when they are deciding if it is really for them. What I try to do is show that you can be a successful scientist and have a rounded life.

What would your advice be to SET employers for attracting women to the sector?

Labs differ in atmosphere and it is possible to create a positive, cooperative and open environment without unhealthy internal competition. It is also important to introduce flexible working practices. For example, I never call meetings first thing in the morning or at the end of the day unless I know that the person involved does not have family constraints.

How do you feel about being chosen as a Woman of Outstanding Achievement?

I am delighted and think the UKRC is a terrific organisation. What I like most about the project is being photographed as a person and not a scientist in a lab coat. I hope it helps in creating stronger role models for young female scientists.



Dr Carolin Crawford MA PhD FRAS

**Nominated by Dr. Esther Haines, Project Officer
with the University of Cambridge Women in Science,
Engineering and Technology Initiative**

Carolin's dedication to communicating astronomy to wider society has seen her become a regular on national and regional radio. Combining outreach work with a career as an active and successful researcher, and a teacher at both under-graduate and post-graduate level, she is committed to the progress of women in SET.

As an astronomer and outreach officer at University of Cambridge, Carolin now spends half of her time on her scientific research and teaching undergraduate mathematics as a Fellow of Emmanuel College, and the other half as Outreach Officer at the Institute of Astronomy (IoA) at Cambridge. She is also a member of the X-ray astronomy group at the IoA and was one of a team who recently published a letter in *Nature* – known as one of the most prestigious science journals.

Carolin personally delivers a large number of presentations each year about astronomy to a diverse audience, and she is responsible for weekly observing evenings held at the IoA. Carolin's outreach work sees her collaborate with artists, musicians and performers to explore innovative ways of interpreting and presenting science and engaging a wider audience, including astronomy-inspired creative art workshops for families.

Her media work includes *In Our Time* and *Home Planet* on BBC Radio 4, and discussions on *Woman's Hour*. She also gives regular interviews with other local radio stations, including BBC Radio Cambridgeshire.

Carolyn's inspiration?

I have always loved watching the night sky, and as a young girl I remember looking at sky maps in books, and then wanting to find out more. In the 1970's the first close-up views of Jupiter and Saturn from the Voyager satellites just blew me away.

What is the best thing about working in SET?

It's the buzz I get when I have given a talk about astronomy and someone comes up to me afterwards and says 'I never understood that before'. It is very motivating to hear people excited about astronomy - it is easy to get blasé about the things you work on every day, so it is refreshing to see it again through someone else's eyes.

What has been your biggest achievement?

One of my proudest achievements professionally is discovering that I was good at communicating science to people. The work I have done since then has led to so many other amazing career highlights. Looking forward, I'd like to take on the challenge of writing accessible science books.

What would your advice be for other women thinking of starting a career in SET?

Don't be afraid to try new challenges. I never thought I would be a communicator but I had an opportunity to do a regional radio interview. It was out of my comfort zone but I gave it a shot - and realised I was good at it! I would also say that women should not be afraid to change their life plans as they go along.

What would your advice be to SET employers for attracting women to the sector?

I think employers should be proactive about seeking a diverse range of applicants. Offering training is vital; employers who offer training programmes for their staff will be more likely to have a loyal workforce.

How valuable do you think the UKRC is as a resource for women in SET?

The UKRC is a great place for women, at all stages of their careers, to find advice, services, encouragement and much more.



Dr Jenny Gristock

BEng MEng DPhil

**Nominated by Mike Witchell, Assistant Chief Subeditor,
South Wales Evening Post**

As a prolific newspaper science journalist and science policy researcher, Jenny has touched the lives of tens of thousands through local, national and international media.

Jenny has a special interest in technology policy and ethics, particularly neuro and communications technologies. Amongst other things, her research has changed the name of a journal, informed the work of Nokia Research and been used in reports for the Economic and Social Research Council and NESTA, the National Endowment for Science, Technology and the Arts.

As well as bringing science to policymakers, Jenny has devoted much of her time to the communication of science through local media. She began writing about science and technology for the South Wales Evening Post in 1995, whilst still an undergraduate at Swansea University. At the last count, she had published over 700 articles about science in the local and national press. From 2003 she also hosted Brighton's Café Scientifique discussion forum on a voluntary basis (see www.jennygristock.org).

Jenny is Research Fellow at the Institute for Advanced Studies, in Trieste, and a Visiting Lecturer at the University of Sussex. She is looking for new opportunities to combine engagement with science policy in the UK and across Europe.

Jenny's achievements in science are all the more remarkable, because she gave birth to her son Finnian whilst still an undergraduate at Swansea University. She has two engineering degrees and a doctorate in Science and Technology Policy from SPRU Science and Technology Policy Research.

Jenny's inspiration?

My father, a manager in a firm that made solar panels. Thanks to him, I heard about the work of Michael Grätzel in Lausanne, who was creating a 'second generation' solar cell. In 1993 Prof Grätzel very kindly sent me some of his dye, so I could construct and experiment with different nano-films. Grätzel cells went into commercial production for the first time in 2007, in the UK.

What is the best thing about working in SET?

The intellectual journey - showing the interrelations between ideas from disparate fields, being part of an international community.

What has been your biggest achievement?

Changing the name of a journal; lecturing at the British Association; speaking at the 75th anniversary conference of the British Society for the History of Science; holding my son in my arms the day I was awarded my first degree; teaching him to read; catching his first performance in Shakespeare before returning to a conference in Rome; making a reader feel that I was 'talking, just to her'; helping to make Brighton's Café Scientifique a success; finishing my paper on cognitive enhancement and public engagement; and having a top scientist praise my 'distinctive voice' in a science-writing competition.

Do you value the idea of being a role model?

In my research, I propose that engagement in science should not be viewed as a process - whether upstream or downstream - but rather, as a system. Role models are important, but change comes when systems support diverse models of science communication, and become inclusive.

Have you ever experienced any obstacles to pursuing a career in SET as a woman?

Somewhere I have a letter from a grant-making body which says, "If you miss any lectures due to the birth, your grant will be reduced accordingly". For many months of my pregnancy I had no income at all. The state would help, but only if I signed a piece of paper to officially give up my degree. Me? Give up? Well, that wasn't going to happen.

How do you feel about being chosen as a Woman of Outstanding Achievement?

I was at a neuroscience conference in Aarhus when I heard. I haven't stopped smiling yet.



Ann Budge

**Founder and former Chief Executive of Sopra Group
Nominated by Jenny Tizard, Director of the Scottish
Resource Centre for Women in SET**

Ann has had an exceptional career in business and entrepreneurship where there have been precious few models for female success. Over the past 20 years, Ann has built up one of the fastest growing and most successful technology businesses in the UK. Determined to promote equality in the workforce, Ann is described by many as an inspiration to women.

After graduating, Ann entered what was then a very novel area for a woman and trained as a computer programmer with Scottish and Newcastle Breweries, eventually becoming their first woman to reach senior management grade.

Headhunted in 1981 to establish F International (now Xansa/Steria) in Scotland, she was soon leading operations nationwide.

In 1985 Ann set up Newell & Budge with business partner Alison Newell. In 2005 Newell & Budge was sold to the Sopra Group after becoming one of the fastest growing and most successful technology businesses in the UK.

Not only has Ann built up her own career and business but she has also made every effort to create a workforce that encourages and advances women. Ann is also an avid supporter of Equalitec - an organisation that promotes best practice in the IT industry for the recruitment and retention of women.

As an active member of the IT and business community, Ann also sits on the Board of the Scottish ICT trade body, Scotland IS, and Intellect. She works closely with the British Computer Society (BCS) and its Women's Forum.

Ann's inspiration?

My main inspiration has probably been working with Dame Stephanie Shirley at F International. I took many of the values that were at the heart of F International with me when I set up Newell & Budge.

Proudest achievement?

It has to be building up a successful business over the past 20 years. I was very much focused on building up a business for the long term and I then managed to sell it at a good time to an extremely good company. I am standing down as Chief Executive but looking forward to carrying on working with Sopra Group in a non-executive, advisory role.

Do you think there are barriers to women working in SET?

Maybe I have been lucky but I have not come across any barriers throughout my career. I think sometimes people can focus too heavily on looking for barriers that don't exist. However, there is evidence to show that there are still some barriers to women in SET.

What would your advice be to other women thinking of starting a career in SET?

I have been lucky throughout my career and have been given some fantastic opportunities and worked with some extremely supportive colleagues. I would definitely encourage women to enter SET sectors as there are such a wide variety of opportunities available.

How do you feel about being named as a Woman of Outstanding Achievement?

I was extremely surprised and very proud when I was told I had been named as a Women of Outstanding Achievement. As I am involved in the commercial side of SET, as opposed to the academic side, I thought I was less likely to be chosen – especially when you look at the extremely impressive work carried out by the Women in previous years.



Professor Lynne Frostick

BSc PhD FRGS C Geog FGS C Geol

Nominated by Professor Gillian Greenway, Professor of Analytical Chemistry, University of Hull.

Known as Hull's environmental 'superwoman', Lynne specialises in two of the most impactful environmental problems facing the human race – water and waste. Through her roles as President of the Geological Society and Director of the Hull Environment Research Institute (HERI), it is clear that Lynne has a passion for raising the awareness of women in SET.

Since joining the University of Hull 13 years ago as Professor of Physical Geography, Lynne Frostick has had a monumental impact on the development of new research initiatives across both the University and the region. Lynne has played a vital role in the development of a large experimental multipurpose research flume at The Deep - an award winning submrium in Hull. She is also actively involved with major European network HYDRALAB and chairs the Government's expert group for Women in STEM.

Publishing over 100 papers and books throughout her career, Lynne crosses a range of disciplines including physics, mathematics and engineering.

Lynne demonstrates boundless energy and determination to carry out her ideas which is evident in everything she puts her mind to. She sees the wider picture, always aiming high and ready to argue her case at the highest level.

Lynne's inspiration?

Science itself. I have a very logical, scientific mind and numbers speak to me so I have always loved studying maths and science. Science is central to me as a person and through it you can contribute to society in a very direct way.

What is the best thing about working in SET?

I would definitely say it is the buzz that it gives you when you are investigating something that only you are working on. For that one moment in time you are the only person in the world that knows what you know. Then of course you have to communicate it to others. There is also such huge variety – so many different areas of research.

Proudest achievement?

Professionally, there are two things I am most proud of - the development of the Deep Flume Project in Hull, as I have seen it through from the initial ideas stage, to the research, to finding the team to work there. It has been great to see it succeed. The other thing I am extremely proud of is that I am only the second woman to ever be appointed as President of the Geological Society.

What would your advice be to SET employers for attracting women to the sector?

I think flexibility is the most important thing to offer as an employer. It is also really important to help keep women involved when they are on maternity leave – the industry moves so fast so it is difficult to catch up with the changes, even if you only take a couple of months off. I think employers are getting a lot better.

How valuable do you think the UKRC is as a resource for women in SET?

I think it is essential that there is a clear focus. When I first entered the industry, women in SET initiatives were not very coordinated. Now, through the activities of the UKRC, there is a definite focus and a place where women in SET can go.

How do you feel about being named as a Woman of Outstanding Achievement?

I did not believe it when I was first told! I feel incredibly humble – it is a huge honour.

Future vision

It has always been the UKRC's aim that the Women of Outstanding Achievement portraits find a permanent home with the finalist's employer, business, university or professional institute. This way we hope to build a legacy, provide inspiration for future generations and celebrate the achievements of women in these fields.

The UK Resource Centre for Women in SET would like to thank those organisations who have kindly offered to provide a permanent home for our past finalists:

- Wendy Sadler, Cardiff University
- Rebecca George, Deloitte
- Dr Maggie Aderin, Imperial College London
- Dame Jocelyn Bell Burnell
and Professor Averil MacDonald, Institute of Physics
- Professor Dame Wendy Hall, Professor Julia King and Joanna Kennedy
Royal Academy of Engineering
- Professor Ijeoma Uchegbu,
Royal Pharmaceutical Society of Great Britain
- Professor Frances Ashcroft, Professor Carol Robinson, Professor Dame Nancy Rothwell and Professor Uta Frith, The Royal Society
- Professor Ann Glover, University of Aberdeen
- Professor Julia Goodfellow and Professor Kathy Sykes, University of Bristol
- Professor Dame Kay Davies, University of Oxford, Dept. of Physiology, Anatomy and Genetics

The UKRC would be interested to hear from any organisation willing to offer a permanent home for this and future collections.