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Foreword

Welcome to the second edition of Exposure Magazine the official
publication of the Nuclear Community Charity Fund.

The NCCF is the only organisation providing research and
support to the entire nuclear survivor community. More than
just a Veterans organisation the NCCF cares for those people the
Veterans care about: Wives, Children, Grandchildren and Great
Grandchildren.

In this issue, we continue to bring you news of all projects we
are delivering and the lives we are changing. We have also been
approached by veterans and descendants enquiring about placing
articles in the magazine so they can tell of their experiences and
to contact old comrades. We are honoured to be able to do this and
if anyone wants to submit articles for the next edition please send
them to the editor.

We are also excited to share the news that the NCCF Trustees have
decided to waive membership subscriptions for the first 1000
applicants for the next three years! Yes, you can be an associate
member of the NCCF and continue to receive our flagship
magazine completely free until 2021. More details inside..

We hope you enjoy the range and quality of articles we bring you
with each edition, by splitting the magazine into editorial sections
we ensure you get full coverage of all the important developments
in our community.

If you have any suggestions or comments please do not hesitate to
contact the relevant editorial team.

You can also visit the Exposure Online Magazine at
www.exposure.press

exposure

August 2018

The combined magazine for the nuclear community

Exposure



The Porton Down Experiment

Read Richard Bonas's fascinating story about his time at Porton Down.

P04

exposure

The NCCF



What if I need help

If you or somebody you know needs help, read how to apply.

P16



CHRC



Genetic & Cytogenetic Study

Read how the study is progressing

P26



Obsiven



Jean- Luc Sans

Read Jean-Luc's presentation to an international audience

P35



Exposure Online

See the magazine website at: www.exposure.press



The Porton Down Experiment

In 1957, nineteen-year-old Richard Bonas volunteered for a “course” at Porton Down, the Ministry of Defence Chemical & Biological Research Establishment. Sixty years on, he tells his story here.

During 1957 whilst serving as a Regular soldier at 39 Base Workshop REME¹, Bicester, Oxfordshire, I read a special notice on Part Two Orders concerning a forthcoming Physiological Gas Course to be held at RAMC² Porton Down, Wiltshire, lasting one week.

Volunteers for participation in this Course were invited to register their names in the Company Office forthwith. 'Special conditions' were offered, plus an extra 28 shillings (£1.40p) pay and a 48-hour pass at the end of the Course as incentives.

I volunteered immediately just to get away from Bicester for a week, as it really was a bad place to be stationed. And there were some fourteen others from Bicester Garrison who had managed to get their names down in time. They were REME Craftsmen, RE³ Sappers, and some RAOC⁴ storemen. "What does physiological mean?" asked one.

On arrival at Porton Down we discovered to our joy that the food and catering arrangements were excellent. The restaurant was clean and pleasant, there were no long queues of men at meal times, and we had two female cooks who catered for us only! These ladies were such a welcome change from the sour-faced Army cooks we had become used to, and this place so different from Nissen Hut Cookhouse at Bicester with its poorly cooked rations. These ladies would greet us at with a smile at breakfast, asking how did we like our eggs cooked. hard or soft boiled? And we were allowed more than one egg each!

There were separate tables for four set with clean table cloths, cutlery and condiments. Tea was served to us in cups and saucers instead of the undersized potties we normally used.

There were no parades, no guard duties or fatigues to spoil the dream. We had a Television Room (my family didn't have a TV until 2 years later) and a smart Snooker Room which would have normally been the Officers' Mess. Luxury!

So these were the 'special conditions' promised to volunteers - and very welcome they were too. But why on earth was the Army being so kind to us? What was so special about this course? We didn't have to wait to find out.

We were put into humid 'Hot Rooms' with temperatures of eighty degrees Fahrenheit, and made to step up and down onto wooden benches for ten minutes. Then we had to stop for five minutes then start stepping up and down again for another ten minutes. This went on and on. Doctors and staff from the Royal Army Medical Corps were present, monitoring our rates of perspiration and heart rates and so on.



Richard Bonas - 1958

Then Mustard Gas was applied in small drops to the inside of our forearms, which immediately caused blisters to form. These were noted by the ever-present doctors. I still have the scars.

On the second or third day we were split into two groups. I was in the second group. The first group were put into a sealed gas chamber whilst a "nerve gas" (as we were told), was pumped in over a period of about two hours. The effects of this gas on the men inside was observed from the outside of the chamber by a group of doctors and students looking in through a large window at the front of the gas chamber.

Later that day the second group, with me in it, had our turn. This time the same amount of “nerve gas” was pumped in but over a much shorter period of about twenty minutes. Its effect on us was immediate and dramatic. On taking my first breath of this gas I found I couldn’t breathe. It was as if a steel band had been clamped around my chest. The RAMC Lieutenant Colonel in with us, who wore a respirator, came over to me as I fell to my knees.

He said that the choking effect was only temporary and that it would pass. (Almost sixty years later, I still choke in panic – how temporary is “temporary”, I wonder?)

We were permitted to do anything in there except smoke. We played cards with the pack provided and very quickly began acting silly – laughing at nothing and behaving very foolishly, as if suddenly quite drunk. Never a gambler, I was losing money but thought it all very funny. I felt exhilarated, light-headed, and couldn’t focus my eyes properly. Looking round I could see the Lieutenant Colonel at a desk writing notes in a ledger, and as if through a mist I could see the faces of the onlookers outside peering in at us.

What was in that gas which made disciplined soldiers behave in such a way? Not until 2004⁵ did I discover that we had been subjected to Sarin gas. Sarin is a chemical-warfare agent, a substance considerably more deadly than cyanide. It’s the gas used to great effect by terrorists on the Tokyo underground railway in 1995, when twelve people died and more than 5000 were injured, some 2500 of them needing immediate hospital treatment.

The gas ruined our eyesight for several days afterwards. (In my case, it has affected my eyes ever since.) The pupils of our eyes shrank to pinhead size and stayed like that for three whole days. Exposure to light caused intense pain and discomfort.

To strike a match and light one’s own cigarette was impossible, so we endeavoured to light each other’s fags by turning our heads away, shutting our eyes tightly, then striking the match and holding it at arms length to avoid its horrible glare. The other fellow screwed his own eyes shut, put the cigarette in his mouth and puffed hopefully in the direction of the lighted match.

We made jokes about our plight as soldiers do, but there was nothing funny about it. It was quite frightening not to be able to focus your eyes, and any light hurt them. We weren’t capable of doing much after this but we had good food and comfortable billets so we made the best of it. (At Bicester we lived in damp Nissen huts.) On the last day a civilian doctor spoke to us, thanking us for volunteering for the Course and saying that “they” (the medical people) wouldn’t be able to carry out experiments or do any proper research without men like us – “Well done!” etc. Then we were taken back to our Units with a plaster on each arm, a weekend pass, the promise of an extra twenty eight shillings, and eyes over-sensitive to light. Mine still are.

© Richard Bonas

If you have a story to tell why not send it to us and we will publish it in exposure.

Email: editor@exposure.press

or post to:

Exposure
PO Box 8244
Castle Donington
DE74 2BY

¹ REME = Royal Electrical And Mechanical Engineers

² RAMC = Royal Army Medical Corps

³ RE = Royal Engineers

⁴ RAOC = Royal Army Ordnance Corps

⁵ In 2004 the Coroner’s Court in Trowbridge, Wiltshire returned a verdict of “unlawful killing” caused by the “application of a nerve agent in a non-therapeutic experiment” on Leading Aircraftsman Ronald Maddison. LAC Maddison was a twenty-year old airman who died at Porton Down in 1953, an hour or so after the application of Sarin to his arm in a gas chamber.

South-East Point. Paddy, me, and the Nuclear Bomb site

We had endured the agony of Christmas Island for ten months now, and still had another two to go before the full year was up when we would be posted elsewhere, Me to Malaya, and Paddy back to UK.

It would have been in October 1959, exactly one year since the last H Bomb Tests had been carried out at South East Point* that the information declaring this Bomb Site to be an Open Area and safe to visit was contained in Part Two Orders and displayed for all to read. It was compulsory to read "Orders" daily, and God help any man who didn't!

So, one evening soon after, Paddy and me took a truck up to this safe area to have a look at what H Bombs could do. Arriving at South East Point and looking around there wasn't much TO see really, except some rusting twisted scaffolding poles, the remains of what had been some sort of platform and a burnt out generator or two and Army vehicles in a similar condition.

I did notice however that the whole area was slightly "dished" with low ridges running out from the centre of the dish. Rather like as if a giant's hands had scraped out a shallow depression and leaving small ridges where his fingers had scraped outwards from the centre point Strange. Also, any small bushes left were stunted and blackened as if from fire. More interesting to us as we walked around dressed in boots, socks, shorts and floppy hats, was the variety of strangely misshapen pieces of rock with unusual colours of metallic greens, blues, yellows etc. which we in our innocence picked up and studied closely, saying things like "Look at this one, see what a funny colour it's gone". "Cor, yes, so it has". And so on.

There were no notices to warn the unwary. There was no concrete covering of the area, and the site was not fenced off. It was an Open Area and safe to walk on. Part Two Orders had said so hadn't they? Who were we to question Orders? Of course we knew that "Radiation" was bad and could make a man sterile - there were plenty of jokes about that on the Island. But we were told that the doses were so small as to be "quite harmless" and we believed it. So much so that it wasn't until the late 1970's whilst talking to an experienced senior member of The Royal Observer Corps, whose main task would be to measure radiation and nuclear fallout in the event of a nuclear war, that I began to realise the enormity of what Paddy and I had done.



Left to right: Paddy, Richard Bonas, Sam Moir

The picture was taken after the C.O.'s inspection of the new wooden billets 1959, we had lived in tents prior to this. Problem, full of bed bugs! The tents were not as bad.

Many others too, no doubt. I then related these events to the solemn-faced ROC officer who listened carefully and replied, "You must have had a massive dose of radiation, Richard".

What does this Bomb Site look like now? Is it fenced off? Are there warning notices erected to keep people away? Is the whole area under several feet of concrete as it should be? I for one would be very interested to know!

Sorry, but I cannot now recall Paddy's surname, but I do recall he was an Ulsterman and about my age of 21.

Richard Bonus, ex REME.

If anybody can identify Paddy, please let us know and we will pass the information onto Richard.

Email: editor@exposure.press

or write to:

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Where Else Does Your Copy of Exposure Go?

That ISSN number is a clue. The International Standard Serial Number (ISSN) is a register of published magazines and periodicals used to provide a unique identifier to the publication. In the UK ISSN's are managed by the British Library.



The British Library

Every issue of Exposure Magazine is placed with the British Library which serves business and industry, researchers,

academics and students, in the UK and worldwide

Each year six million searches are generated by the British Library online catalogue and nearly 400,000 visit their Reading Rooms.

The main building of the British Library is just along Euston Road from St Pancras station. It is the largest public building constructed in the UK during the 20th century with basements extending to a depth of 24.5 metres and a total floor area of over 112,000 sq metres spread over 14 floors – 9 above ground, 5 below.

The British Library receives a copy of every publication produced in the UK and Ireland. Their collection includes well over 150 million items, in most known languages with 3 million new items added every year.

Holding manuscripts, maps, newspapers, magazines, prints and drawings, music scores, and



The British Library London

© Iain McCallivray - Shutterstock

patents alongside a Sound Archive of sound recordings from 19th-century cylinders to CD, DVD and MD recordings. The Library also houses some 8 million stamps and other philatelic items.

- All this requires over 380 miles of shelves, and grows by 7 miles every year!
- If you read 5 items every day, it would take you over 80,000 years to see the whole of their collection!

The next time you visit London why not make some time to visit this great national treasure house.

The House of Commons Library

Every copy of Exposure is also placed in the House of Commons Library. This independent research and information service gives politically impartial briefings to MPs of all parties and their staff.

Their experts publish research and analysis on topical issues and legislation using the resources of the library.

The Library is also 'open to the public' through their online presence you can access and read many interesting, topical, factual and unbiased articles.

<https://commonslibrary.parliament.uk/Insight/articles>

Insights give timely, need-to-know information on current issues. They get you up to speed quickly, and give you an impartial and authoritative take on the latest research and statistics.

Research briefings

These comprehensive, detailed publications give in-depth information, without political bias. Research Briefings cover topical issues and major legislation.

Dashboards

Their interactive dashboards allow you to find statistical data on constituencies and local areas. Covering a range of topics including employment, housing, demographics and election results.

Who writes these briefings?

The House of Commons researchers are experts in a massive range of topics, from international affairs to bees. You can see the topics they cover in the menu on their homepage. Their research team includes economists, lawyers and statisticians and subject specialists.



Westminster Palace / The House of Commons

© Fesus Robert - Shutterstock

Terry Washington

When the editorial team at Exposure Magazine approached former National Standard Bearer Terry Washington for permission to use an image of him at the Manchester Memorial in the new magazine he had no idea that it would feature on the front cover of the Premiere edition.

“

I opened the envelope and was completely taken aback, It was me! I am so proud I really wish my father could have seen this”

Terry Washington

Terry recounted the moment he saw himself on the cover of exposure magazine to Nigel and Steve on a recent visit.

The communications project led magazine's first edition was well received and many of you have signed up to continue receiving the publication.

In fact there have been less than 15 people deciding to opt out of future editions!

To celebrate the launch of the magazine BH Associates have produced a poster sized copy of the front page. The first person to receive one of these limited edition prints was Terry Washington, Nigel and Steve visited Terry at his home on a lovely summer morning to present the framed print in person.

We spent a few hours visiting Terry and looked through the many items of memorabilia of his families long military association. Terry is rightfully proud of the service given to the nation and also to have stood beside those veterans who have passed between the two dedications of the Manchester Memorial.



Terry Washington holding his framed magazine cover

© BH Associates

Can Serving on a nuclear testing site ever be fun?

Sir Arthur G Lawrence FBE FIBA

The answer is yes – sometimes.

I served with the RAF as Inventory Officer for the Combined Services Nuclear Testing Unit at Maralinga Range from 1958 to 1960. I was fortunate enough to have a Commanding Officer whose finely tuned sense of humour and capacity for getting into laughable situations often relieved the boredom of the relentless desert heat.

My journey out from RAF Lyneham also provided a great deal of fun. The transport was an old Lancaster bomber. No soundproofing ; no air conditioning. It broke down three times; in North Africa, Ceylon (now Sri Lanka) and Singapore. Spare parts had to be obtained from Germany! Thus it took me seven weeks to get to Australia.

I had great fun in Ceylon where on my second day I acquired a manservant for nine old pence per day. A meticulous chap with good English and an infectious giggle. We went to most parts of the island and the greetings from the locals were often hilarious. Three weeks and then on to Singapore another breakdown and another three weeks delay. Here the first big laugh was that my quarters were amongst those being refurbished and redecorated, so I was billeted at the Britannia Hotel in the centre of town.

I may have been unlucky not to get the Raffles which had recently been gutted by fire. There was an afternoon Tea Dance daily at the Happy Garden. Ten cents a dance to dance with a friendly pretty girl; but I do mean dance only. Good fun though.

My tour of duty at Maralinga was set at twelve months; but with the Squadron Leader reluctant to let me go I actually served sixteen months. One Nuclear Test ; and the only protection I got was being told to turn my back, expect a loud explosion and wait for the all clear siren. Little was understood of the effects of radiation in those days.

Despite many humorous experiences with the Squadron Leader I have to say Maralinga was an unpleasant experience and was influential in my decision to leave the RAF when my regular service was completed.

In “civvy street” I worked as a Senior Executive for three of the largest PLC’s in Europe. Later I formed my own companies in the property, security and film industries. In 1992 I was awarded Title.

In my retirement I have enjoyed writing. I have been fortunate to be a published author. My second book “Maralinga Man. Tales of

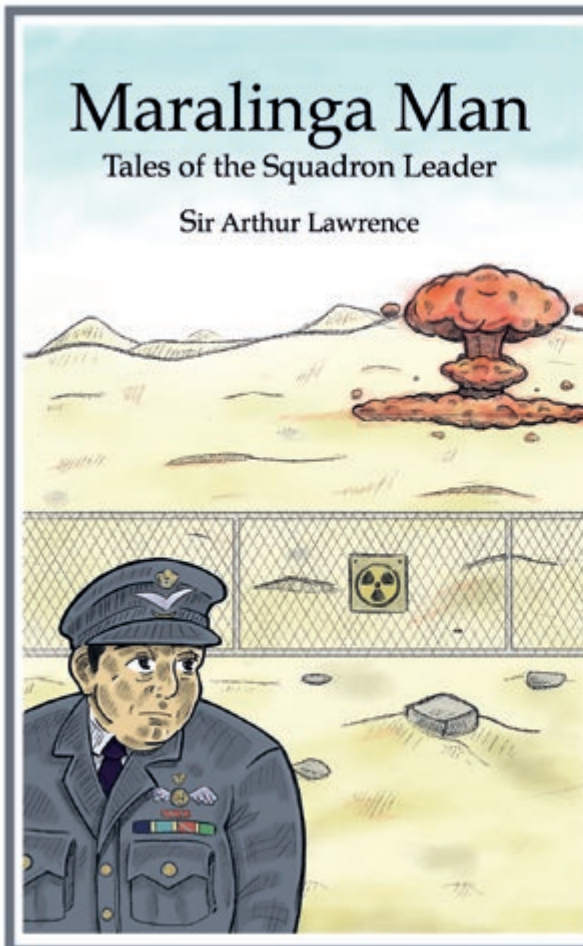
the Squadron Leader” is a series of anecdotes connected to my service before, during and after Maralinga.

Late in life I developed Skin Cancer; which was attributed to my service on Maralinga Range. The Veterans and Service Personnel Agency were understanding and helpful and awarded me compensatory sums. But they are handicapped because most of the medical records of personnel at Maralinga have been destroyed we are told. This should never have happened. Many of my peers will tell you that Christmas Island and Maralinga also should never have happened.

Sir Arthur’s new book **Maralinga Man: Tales of the Squadron Leader** is available from Rowna Vale Books:

<https://www.rownavalebooks.com/book/maralinga-tales-of-the-squadron-leader>

Or all good bookstores
ISBN: 978-1-911240-78-5



This collection of humorous anecdotes is set in the nuclear missile testing Range at Maralinga, South Australia during the 1959 to 1960 test series.

The central character is Squadron Leader Folly, a five foot 30 stone ex Second World War hero. The Squadron Leader's only friend is Johnny Walker Black Label whisky, of which he consumes more than a bottle a day.

The stories are told by the Squadron Leader's long suffering young second in command Flight Lieutenant Gooner, who hates the Squadron Leader but is destined to become his best friend.

Some very strange Royal Air Force personnel appear and disappear. Farce and chaos reign. Through it all the Squadron Leader, with his strict discipline and wicked humour, looms very large indeed.

Paperback £ 7.99

Available from Rowanvalebooks.com/store, Amazon, Waterstones and all good bookstores.

Project 360 Appeal for veterans

Were you in any of the UK armed services for one day or more, including national service, reservists or active in the merchant navy, aged 65 or over, and live in Wales? If yes, then we would love to hear from you.

Project 360° is an innovative partnership project between Age Cymru, veteran's charity Woody's Lodge and Age Alliance Wales to improve services for older veterans across Wales. To ensure that older veterans are at the heart of this process we want to talk with veterans to understand what they need to improve the quality of their lives, and what barriers they may currently face to access the services they need.

We would really appreciate if you could spare some time to complete our online questionnaire to help us improve services for older veterans across Wales. We can also come out to speak to you, or your local group or organisation in Wales to talk further about the project and gather your views. Please get in contact to invite us along.

Contact Project 360°

Email: Project360@agecymru.org.uk

Tel: 029 2043 1575

Project 360° is funded by the Aged Veterans Fund initiated by the Chancellor using LIBOR money.

The questionnaire can be found at:

<https://www.surveymonkey.co.uk/r/project360veterans>



Make Sure You Continue to Receive Your Exposure Magazine – With Our New Free Subscription

The new General Data Protection Regulations mean that we need your approval to keep sending you our magazine.

The NCCF is fully compliant with these regulations.

If you have not already sent an 'Opt-In' form to us then this will be the last magazine you will receive.

What do you need to do to ensure you keep receiving both Exposure Magazine and Information from the NCCF?

If you are on-line or have a relative who can get on-line for you the easiest way is to type the following web address into a browser and complete the form www.thenccf.org/join

When you complete the form you have a number of options where you can select to receive free news and information direct from the NCCF, You can also elect to subscribe to the NCCF to receive your copy of exposure magazine.

If you are not on-line simply write or call us and we will send you the form needed for your free subscription.

Write:
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PO Box 8244
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DE74 2BY

Or call:
0115 8883442



The NCCF need your details so that we can contact you direct especially about community events we may be organising in your area or additional support that may be available to you from other charities engaged in the Aged Veterans Fund.

Make your choice 'OPT-IN' and be a part of our fantastic community.

FREE SUBSCRIPTION

Meeting at the end of July, the NCCF Board of Trustees reviewed the proposed 2019 introduction of a £10 per year membership fee.

We are pleased to announce that this fee is waived for the first 1000 subscribers!

Not just free for the first year but free for the next three!

That's no membership subscription for the first 1000 members until at least 2021.





The Nuclear Community Charity Fund

What is the NCCF / BNTVA

We answer your many questions.

P14

The CWI Fund

What happens if I need help?

P16

New Reviews & Appeals Officer

Read about our new Review and Appeals officer

P18

The Nuclear Community
Charity Fund



Making that difference

What is the NCCF / BNTVA?

Over the last six months we have answered many enquiries about the formation of the NCCF. Why there are two magazines. Are the organisations joined? Is it still part of the BNTVA? We decided to publish some of the main questions.

How was the NCCF created?

The Nuclear Community Charity Fund was created by the original BNTVA Charity to manage the Phase I Aged Veterans Fund projects(grants made available from the government). Constituted as a sub-committee of the BNTVA, the NCCF delivered the first 12 months of projects with the approval of the AVF.

Why did the old BNTVA split into two organisations?

At the 2017 Gateshead AGM, members were given the opportunity to vote to close down the old BNTVA and to create both the NCCF and BNTVA as completely new organisations operating under Foundation status as Charitable Incorporated Organisations (CIO) This provided the opportunity for a major organisational change within the BNTVA. During the bid process for Phase II funding, the AVF requested that the NCCF should become an independent charity in its own right.

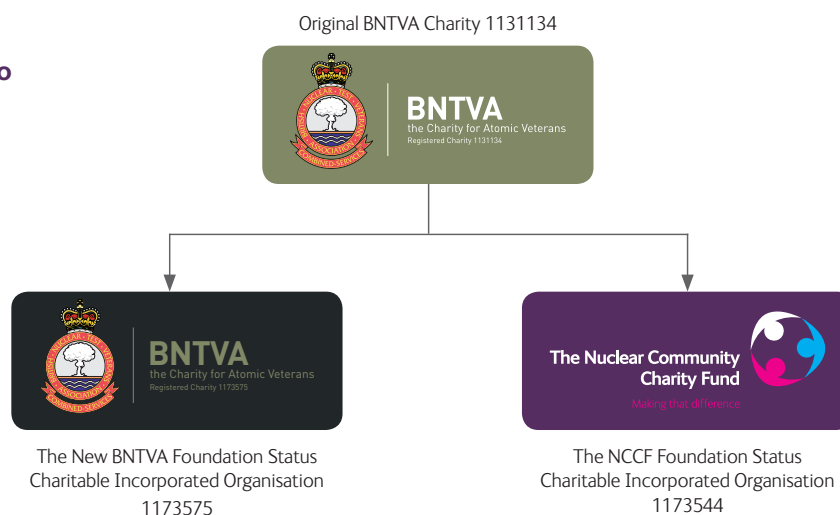
Why a CIO Charity?

A Foundation status CIO's membership is only open to people who become Trustees. They are the only people who can attend the CIO AGM and vote on matters. In effect, they hold the foundation in trust for its beneficiaries. All other people who join the CIO are Associate Members, and may be afforded privileges such as access to copies of magazines etc. CIO's are the preferred structure by the Charity Commission and provide clear accountable management for the charitable purposes.

How did the change happen?

In September 2017 the conference motion was achieved and the two new organisations were fully in place to begin operation. All the resources of the old BNTVA were vested to both the new organisations to enable them to discharge their charitable purposes. This process is now fully complete, and the old BNTVA will be de registered in due course. The finances were distributed to ensure the NCCF was provided with all the funding from the AVF grant and the new BNTVA received all the other funds from the old organisation. Other assets were similarly distributed; The BNTVA crest was vested to the BNTVA, The NCCF logo to the NCCF. The details of the members of the old BNTVA were passed to both new organisations to enable them to contact their potential beneficiaries, to fulfil their charitable purposes.

How the old BNTVA split into two separate organisations?



Why are there 2 magazines?

The BNTVA were going to have an independent editorial section in the Exposure magazine as part of the Nuclear Community Communications Project. This would have been completely free of charge with all design, print and mailing costs being met by the NCCF for the next 3 years. At the very end of the proofing process at the point of sending the artwork to print. The New BNTVA trustees decided they would prefer to produce the magazine themselves. The NCCF respected this decision and passed the artwork of the completed BNTVA section to the New BNTVA to help them with production of that edition. The New BNTVA has since continued to publish Campaign magazine as an 'in house' production. This is the reason why there are two separate magazines.

Independent Charity?

The NCCF became a completely independent charity and has no charitable association to the New BNTVA. The NCCF has continued to flourish, representing and caring for the entire British Nuclear community - Veterans, Spouses, Widows and all the subsequent generations. The NCCF has given Care Wellbeing and Inclusion support to many members of our community regardless of their membership in any other organisation or none.

Will I Have to pay two lots of subscriptions?

To be an Associate member of the BNTVA currently starts at £20 per year. The NCCF Board have taken the decision to waive fees for the first 1000 members of the nuclear community who subscribe. Not just for this year but for the next three at least!

So the NCCF is free?

Yes, the Board of Trustees took the decision to waive fees so that members would not be confronted with two organisations competing for their money and being forced to make a decision of which organisation to join. This is no longer a problem. Join the NCCF and get involved in our activities across the community and we are sure you will stay with us.

How has the NCCF engaged with the Nuclear Survivor Community?

We have contacted all the old members of the BNTVA and many of them have opted to receive information from the NCCF. With the publicity raised by media mentions of research, new members are finding their way to the NCCF through the The centre for Health Effects of Radiological and Chemical Elements (CHRC) at Brunel University London, and the NCCF Board have launched a number of approaches to ensure further penetration into the British Nuclear Survivor Community. There are potentially 140,000 members in the UK.

Who is running the NCCF?

The NCCF Board has a core of trustees who's experience successfully managed the old BNTVA for many years. If you look at the Trustee page most of you will recognise these members and know that the organisation is in safe experienced hands. We are currently supplementing this core with new trustees, bringing specialisms that will benefit the future activities of the organisation.

What projects are the NCCF delivering?

We are the only organisation delivering projects to the entire nuclear community backed by almost £6 million in government funding.

Through CHRC we are sponsoring and engaging in all aspects of research into our community.

The CHRC is a National centre of excellence and a reference hub for all research into our community and its issues. This will eventually feed out through Brunel University's STEM Centre (Science, Technology, Engineering and Maths) which aims to engage children of all ages engendering them to education.

The NCCF is also caring for the Nuclear Veteran memorials across the UK with both the NMA and Leeds memorials being refurbished and rededicated this year. We take the role of custodian of the nuclear communities heritage as a very special charge.

What about the future?

The NCCF has a clear vision for the future. A future where the needs of veterans' offspring will become the most important issue in our community. The Care Wellbeing and Inclusion Fund are already receiving almost as many applications from offspring as from the veterans themselves.

The Remembrance and Communication projects are fully funded for three years and we have plans in place to extend them beyond this period. The CWI Fund has an endowment invested that will provide its working fund for at least the next 15 years and we have planned for the continuation of the organisation to be able to meet our charitable purpose throughout this period.

Our mission statement is

'Making that Difference'

and you can be assured that the NCCF will be around for many years, doing just that.

The CWI Fund

- What happens if I need Help?

When we have talked to members of the Nuclear Survivor Community about the Care Wellbeing and Inclusion Fund one of the main questions we are asked is how does the system work? How are our applications considered?

First and foremost anonymity, only the Application Manager knows the identity of the applicant's, This prevents favouritism and discrimination, ensuring every application is considered on its own merits.

If you need help, even if you are not sure what can be done for you simply get in touch. Nigel & Steve manage the applications process and are happy to advise, they can even arrange trials of equipment and, in the more complex cases, a full review by an Occupational Therapist.

To make an application we send you a form which you complete to the best of your ability. The form gives us most of the information the Grant Panel will need to make a decision.

When you return the form along with any additional documentation it is scanned into our system where it is held in a secure and encrypted format. The paper documentation is shredded. Working from the information provided in the application a completely anonymous case is created for the panel. The case is presented on a standard form that enables the panel to consider the application in accord with the NCCF CWI Fund criteria.

The fund was created to alleviate suffering and increase wellbeing and every application is considered against the following criteria:

- Does the applicant qualify for the fund?
- What issues does the applicant suffer?
- What measures does the applicant need to address the suffering?
- Is it within the applicant's gift to fund those measures?
- Is the provision of those measures within the scope of the CWI Fund?

Does the applicant qualify for the fund

To become a beneficiary of the fund applicants must be UK residents who are Nuclear Test Veterans who have served in the British forces, their spouses or their offspring (of any generation), this also includes spouses and offspring of deceased veterans.

What issues does the applicant suffer

Suffering can be caused by many things, it is not just a case of physical condition, Mental health and even anguish at a situation causes suffering. Social isolation, not being able to pop to the shops or visit friends causes suffering. Many veterans worry not about themselves but about health issues with their offspring.

When developing your application we try to identify all the factors affecting your suffering.



What measures does the applicant need to address the suffering

This is where the fund can become very creative, there are many ways to address suffering, it is not just a case of a Mobility Scooter or Stairlift, it could be a short break, adaptations to the kitchen or bathroom, a course of therapy.

As we have progressed over the last three years managing applications we have gained a lot of experience in identifying measures to address suffering and will often make suggestions to applicant's. Through Our website you can access the 'asksara' online OT Assessment, this is a great tool as you respond to the questions about mobility, access and your general physical abilities and 'asksara' will create an OT Assessment for you which will also identify equipment and measures that may address your needs.

As we have said before, we may also conduct an 'in home' assessment using a qualified Occupational Therapist. Their reports are very useful and we provide you with a copy for your own use.

Is it within the applicant's gift to fund those measures

Because the fund has a limited budget each year, we have to consider how best to address as many people's needs as possible. To do this we have identified suffering caused by need of measures to address. If it is easily within the financial ability of the applicant to purchase the things identified to address the need and reduce or remove the suffering then the fund can not help them.

This may seem harsh but consider; we have two applicants who need stairlifts, both are suffering the same physical disabilities and both need to get up and down stairs for sleeping bathing and toilet needs.

The stairlift costs £3500, Applicant A has £200 left over each month after paying all their bills, putting some aside for clothes, holidays and property maintenance. Applicant B has £800 left each month after their bills and expenses.

It would take both applicants a long time to save for the stairlift thus they are both unable to address the solution to their suffering. However, Applicant A has £28,000 in savings and Applicant B has £5000.

It now seems that both applicants have enough funds to buy a stairlift themselves. The panel would struggle to justify purchasing the items for them if this were the case, but further investigation shows Applicant B has no life insurances for themselves or their partner, so the £5000 is to pay their funeral expenses.

Now the panel can justify purchasing a stairlift for Applicant B as they clearly do not have the funds to address their need and the provision will thus increase their wellbeing.

These are not easy decisions and the Grant Panel have a duty to ensure the most needy of our beneficiaries are taken care of.

Is the provision of those measures within the scope of the CWI Fund

This consideration arises from the constraints placed on the fund by the terms of the Aged Veterans Fund Grant. The grant is what is known as a restricted fund which means that it can only be used for the purposes detailed within the original bid and the terms and conditions of the offer.

The most crucial of these conditions is that there can be no duplication of state funding. This means that if a measure is available from the local council or NHS no funding can be used.

We are not allowed to make cash payments direct to beneficiaries, this includes 'Financial Instruments' which are items that can be exchanged in lieu of cash. Postage stamps, block booking travel tickets and items of that nature fall into this category.

The fund can only be accessed by qualifying beneficiaries resident in the United Kingdom. The reason for this is that the fund purpose is to address shortfalls in UK provision for those people.

What Happens Next

The Grant Panel will arrive at one of four decisions:

Reject - The application is rejected. In this instance the panel will provide details of why an application has not been supported.

Defer - The panel feels they do not have enough information to make a fair and balanced decision. A deferral will be accompanied by a list of questions and tasks for the Application Managers to resolve with the applicant. Once these have been addressed the panel will review the application.

Agree in Principle - The panel may make this decision on an application that has not gathered all the facts for a formal decision. This is often the case where building works are required, the panel is confident they have all the other facts in place to approve but they need to ensure value for money and affordability of the provision before making a final decision.

Approved - The panel fully support the application and instruct the Application Managers to proceed.

My Application Has Been Approved

Congratulations, the Application Manager will write making a formal offer for you to sign, this is the agreement between the NCCF and yourself where you agree to the provisions to be made and the conditions of granting those provisions.

Once we receive your signed acceptance goods and services are ordered and contractors engaged. All invoices come to the NCCF for payment. In the case of building works, we do not release the final payments to the contractors until we receive confirmation from you that everything had been completed.

We work hard to make the fund work for you and are continually improving our process. Lots of work has been carried out on the way data is segregated and stored so that only officials with a genuine need can access the records. Under the conditions of the AVF grant, all data relating to expenditure must be retained for seven years, after this time it will be securely destroyed.

To apply write to the NCCF for an application form at:

NCCF
PO Box 8244
Castle Donington
DE74 2BY

Visit: www.thenccf.org/care
 or email: office@thenccf.org

New independent reviews and appeals officer appointed

Following the removal of Alan Owen from the NCCF Board of Trustees it was felt that a completely independent approach to Reviews and Appeals could reduce the future potential for conflicts of responsibility.

Richard Hyde is the newly appointed reviews and appeals officer. He is not a trustee of the NCCF nor of any charity that operates in the beneficiary pool as the NCCF, He does not sit on the Grant Panel and thus comes to each review or appeal with an untainted fresh view.



I am a retired Solicitor who became one in 1977. I specialised exclusively in litigation, working since 1972 in City of London firms, as a partner in a former firm in Ipswich which had offices across the country and for 6 years in a “high street” firm. Whilst my major area of work has been in personal injuries, both for those injured and the insurers of those causing the injuries. I dealt also with property based claims that involved understanding civil and structural engineering and other technical expertise.

The work in personal injuries covered accidents at work, industrial disease and road traffic caused accidents. This involved running major cases where the injured person died or was paralysed; many of the cases led to compensation that was well in excess of a million pounds.

Prior to retirement I was involved in the Atomic Veterans Litigation on behalf of the former service men including the appeal to the Supreme Court.

On a personal note, for my pains I am an Aston Villa fan. I currently live in Suffolk though born in Birmingham.”

Richard Hyde

The Reviews and Appeals officer can access all records relating to any application to the Care Wellbeing and Inclusion Fund. They can question both Trustees and contractors to establish exactly how an application has been processed, considered and managed. Then they produce a report detailing any issues or potential improvements that could be made. The report will be presented to the Trustees giving them the necessary information to make changes for a better service to our beneficiaries.

As well as reviewing cases Richard will investigate appeals from potential beneficiaries who believe the fund has not correctly processed their application, full details of the appeal process are given at the end of this article.

This is an essential independent role to drive continual improvement within the organisation to the benefit of the people we help.

Contact details:

**Reviews and Appeals
NCCF
PO Box 8244
Castle Donington
DE74 2BY**

CWI Fund Application Appeals Process

The decision on any application may be subject to an appeal by the applicant. To make an appeal the Applicant must write to the 'Appeals Officer' at the NCCF address within six weeks of the date of the decision letter. The Appeal letter must state the grounds for appeal.

Acceptable Grounds include but may not be limited to:

- Belief that pertinent facts have not been properly considered
- New facts or evidence is available
- The application and decision process has not followed correct procedure
- The applicant believes that some or all of the Grant Panel know them and that this created bias in their decision.

Appeal without actual grounds will not constitute an appeal.

The Review and Appeal Officer will examine all appeals and will be given access to all documentation held regarding the application. The Review and Appeals Officer may talk to the appellant and any or all members of the Grant Panel including BH Associates staff to progress the investigation of the appeal.

The Review and Appeals Officer can make the following findings:

- The Appeal is rejected: The Appellant will be informed of the findings in writing
- The Appeal is upheld: The Appellant will be informed and the Grant Panel instructed to reconsider the application including any new information and the Appeal Officers report.

The NCCF Care Wellbeing and Inclusion for all Nuclear Community Members

Remembrance Project - Leeds 2018

The NCCF were approached by members of the old BNTVA West Yorkshire Branch regarding their memorial and standard. We recently met with them at Leeds Minster to discuss the best way forward.

The Nuclear Veterans memorial is in the grounds of the Minster and was given to the care of the Minster by the Branch. We have proposed a thorough cleaning of the memorial and an application of special sealer that will inhibit future deterioration and mildew growth. There are also some minor changes to the foliage around the memorial.

There will be a ceremony at the memorial on Sunday 7th October 2018 at 16:00 hours where the memorial will be rededicated by the Rector, Canon Sam Corley. The ceremony will be followed by a complementary light afternoon tea within the Minster.

At 17:30 hours during the Evensong service the standard of the West Yorkshire Branch will be formally laid up in the minster.

The event is funded by the NCCF and is free but we would appreciate if anyone is wishing to attend they should advise the number in their party so that we can arrange the catering.

You can book your free places by calling the NCCF on: **0115 8883442**

Or writing to us at:
NCCF Remembrance
PO Box 8244
Castle Donington
DE74 2BY

Book on-line using eventbrite
<https://bhlink.at/LeedsNCCF>

Eventbrite



Brain Gay and his wife meet with the NCCF at Leeds Minster to discuss the rededication of the memorial.

Make your visit a full day out

As the afternoons activities do not begin until 16:00 visitors have ample time to visit some of Leeds other great attractions, in particular the Royal Armouries which is close by at Leeds Dock or spend an afternoon shopping in the city named the best shopping destination in the UK by the rough guide to Britain.

Brief History of Leeds Minster

Christians have worshipped in the area for well-over a thousand years. The earliest were probably a small group who settled beside a major crossing point on the River Aire in the 7th or 8th century.

By the 10th century they were wealthy enough to be able to erect at least five stone crosses, beautifully carved in styles known as Anglian and Anglo-Scandinavian, and referring to the Anglo-Saxon and then Viking communities living there. In 1086 William the Conqueror commissioned a vast survey of all his lands in England which states that Leeds had a church with a priest, a manor and meadowland. This church was altered, added to and rebuilt over the medieval period as the village grew into a busy market town.

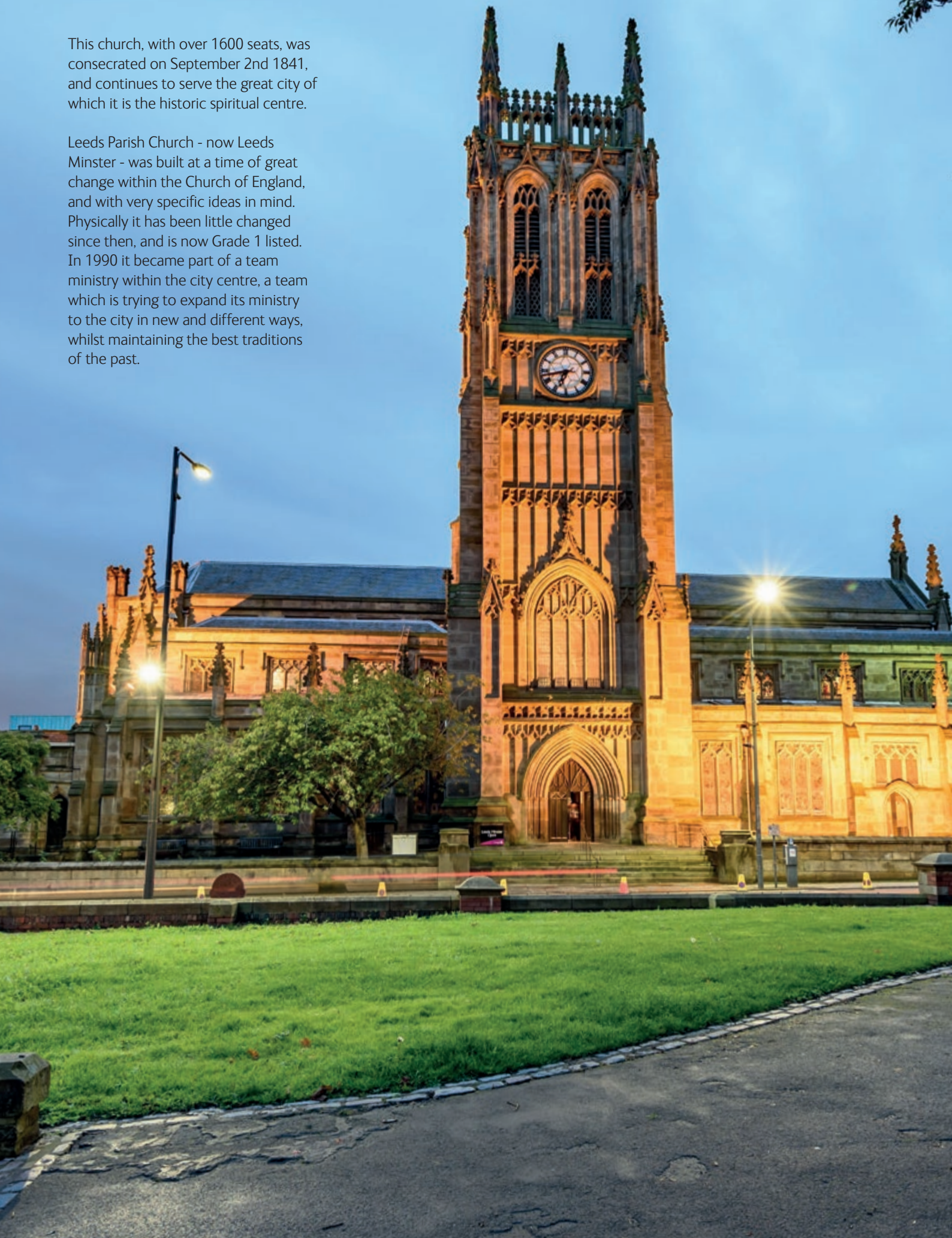
The town expanded westwards and two new churches were built, St John's opened in 1634, and Holy Trinity in 1727.

In common with many other Yorkshire churches, the Parish Church of St Peter served a vast parish, covering some 34 square miles and including a number of outlying villages and their land, such as Headingley and Farnley. Some of these had their own chapels, but St Peter's remained the mother church.

By the 19th century, the church was large but dirty, cluttered and somewhat unsafe. The town had developed into a major industrial city, busy, smoky, smelly and very unhealthy. When a new Vicar of Leeds, Dr W F Hook, arrived in 1838 he soon realised that the building could not be adapted to his needs. He wanted to bring all the people, not just the wealthy few, into the church, and to offer worship to God in suitable surroundings. In his mind churches should be places of perfection where fine music enhanced dignified worship, surrounded by colour and good design. He told the architect, Robert Chantrell, to build a 'grand' building that would 'hold as many people as possible'.

This church, with over 1600 seats, was consecrated on September 2nd 1841, and continues to serve the great city of which it is the historic spiritual centre.

Leeds Parish Church - now Leeds Minster - was built at a time of great change within the Church of England, and with very specific ideas in mind. Physically it has been little changed since then, and is now Grade 1 listed. In 1990 it became part of a team ministry within the city centre, a team which is trying to expand its ministry to the city in new and different ways, whilst maintaining the best traditions of the past.



The NCCF Roadshow visits Weston-Super-Mare

In May the new BNTVA held a conference at the Grand Atlantic Hotel in Weston Super Mare.

Although the attendance was lower than previous years the event still presented a good opportunity for the NCCF to connect with veterans and their families to inform them of the different projects we are delivering within the British Nuclear Test Survivor Community.

Presentations were given to the BNTVA attendees on the Genetic and Cytogenetic research project carried out by Brunel University London along with other projects deriving from the Centre for the Health Effects of Radiological and Chemical Agents.

The research projects have only been made possible by the funding managed by the NCCF from the Aged Veterans Fund grants.

Aside from the presentations to the conference two exhibitions were made available to the guests. The first showcased the CHRC work allowing individuals direct contact with the researchers and CHRC staff. The second was the Care Wellbeing and Inclusion Fund, where visitors learnt about the many different ways the fund can help increase wellbeing amongst our beneficiary community.

The level of interest and enquiries about the fund made the event worthwhile and we have now made a number of grants to people who first contacted us at the event.

We were also really pleased with the response to Exposure from the visitors. We received many encouraging comments and congratulations about the content and quality of the magazine.

Visiting events like this is a good way for the NCCF to connect with potential beneficiaries and having secured funding for at least the next 15 years we will be around for many years to come.



Representatives of the American NAAV, the French Aven and the NCCF meet for the first Obsiven meeting.



Top left: Dr Rhona Anderson discussing projects currently being undertaken at CHRC, Brunel University London

Top right: CHRC Manager Julie Whittaker meets attendees at the roadshow

Second row left: Fred Schafer NAAV National Comander
 Second row middle: Keith Kiefer NAAV National Vice Commander
 Second row right: Tony Bristow

Third Row: Jeff Liddiatt, NCCF Chairman and left and Nigel Heaps, Portfolio Manager speak to attendees at the roadshow

Bottom: Nigel Heaps with attendees

NAVAD 2018 at the National Memorial Arboretum

On the 3rd of October 2018 members of the British Nuclear Community will gather together at the National Memorial Arboretum in Alrewas to witness the unveiling of the final phase of the British Nuclear Test Veterans memorial.

Under the Nuclear Community Charity Fund's Remembrance project two new wings are to be incorporated into the memorial, these wings have marble plaques mounted on them mirroring the main memorial. They depict the sites of the nuclear tests that British Service Personnel were involved in.

There are also areas on the rear of the new stones for brass remembrance plaques to be mounted. Initially, the plaques recovered from the old benches will be mounted but nuclear community members can have a veteran remembered with their own plaque.

For enquiries regarding plaques please contact "NCCF Remembrance, PO Box 8244, Castle Donington, DE74 2BY."

Guests should arrive from 1130 and the ceremony will commence at 12:00 hours. Following the ceremony afternoon tea will be served in the Marquee. We anticipate the event will be completed by 16:00 hours.

The dedication event is free to attend but the Afternoon Tea and reception, which is also free, requires pre-registration. Please reserve your place by contacting us:

NCCF
PO Box 8244
Castle Donington
DE74 2BY

Telephone: **0115 8883442**
Email: **office@thenccf.org**

You can also book online using eventbrite by typing the following link into your browser
<https://bhlink.at/navad2018>



Eventbrite





CHRC

Centre for Health Effects of Radiological and Chemical Agents

Genetic & Cytogenetic Study

Read how the study is progressing

P26

Exposure Worry, Ageing & Cognitive Functioning

The effects of worry and its effects in later life.

P28

Meet the Team

Meet the people directly involved in the research at the CHRC

P29

Genetic and Cytogenetic Study, well underway.

It has been just under six months since we hosted the CHRC Centre Day at Brunel University London, where we presented the various research projects underway and outlined our future plans to an audience of veteran families and scientists (for more information see Exposure, April 2018).



Dr Rhona Anderson - Director CHRC

At that time we reported that the 'Genetic and Cytogenetic study' had finally completed all the necessary regulatory and ethical permission processes which meant we could embark on sending letters of invitations to those veterans we have selected for participation in the study. We are very pleased with the response we have received so far and we are progressively moving towards our target of recruiting 50 test veteran and 50 control veteran family trios. We are also pleased to let you know that we are receiving blood samples from recruited families at Brunel and that analysis to look for any chromosomal and DNA mutation variations between the test and control populations is well underway. Information about this study is available in Exposure, April 2018 and on our website www.chrc4veterans.uk.

We would like to say a big thank you to all those families who are already participating. As a reminder, participation is through an invitation letter that we (the study team) send to you via your GP. We encourage all those who do receive such a letter from your GP to contact the study team vets@lshtm.ac.uk for more information.



Ms Julie Whittaker, Centre Manager, CHRC

In May a number of CHRC staff and researchers attended the BNTVA AGM meeting in Weston-Super-Mare. Mary Gilhooly, Professor of Gerontology and Health Studies from Brunel University London gave a presentation on 'Exposure Worry and Cognitive functioning' and Dr Rhona Anderson gave an overview of the 'Genetic and Cytogenetic Assessment of BNTV and their families' study. Amy Prescott and George Collett are PhD students in CHRC working on projects relating to Health & Wellbeing and Psycho-social aspects respectively, and they also attended the event and took the opportunity to meet veterans and their families. During the day George also held a discussion group to gain feedback from the 'Measuring Exposure Worry: A Pilot Study' questionnaire. Both Amy and George found this a rewarding experience that is helping them shape the design of their studies.

In the last edition of Exposure we announced Amy Prescott's PhD project 'Developing interventions to promote wellbeing around British Nuclear Test Veterans and their families'. We have had an excellent response to this with around 35 interested members of the nuclear community contacting CHRC to get involved, which means Amy has already reached her initial sample size target.

Expression of interest forms have been sent out to these potential participants with over 95% of these duly returned back. Over the next couple of months the selection and recruitment of participants will start to take place before Amy can commence with the next stage of her study. Look out for further updates on Amy's project in future additions of Exposure and on our website.

What's next?

In this issue, PhD student George Collett is looking for veterans to help with his project, 'Living with Exposure worry'. This is another exciting project that you may like to get involved with. If you think you may be interested, full details about the project, the project team and who to contact can be found on page 28.

Also in this issue Dr Alex Moorhouse has written an article for our continuing Genome Biology Series entitled 'techniques to study de novo mutations'. Alex's article describes the science behind the new DNA technologies that we are using as part of the 'Genetic and Cytogenetic study' and although quite detailed, is an interesting read for those wanting to understand more about the techniques we are using at CHRC.

Art to Education

Gary Bennett donates nuclear veteran art to CHRC to inspire students with the human story behind their studies

Official Artist to the Nuclear Community Gary Bennett has presented one of his thought-provoking pieces of fine art to the Centre for the Health Effects of Radiological and Chemical Agents.

On the 26th April 2018 Jeff Liddiatt, Chairman of the NCCF, presented the piece to Dr Rhona Anderson, Director of the CHRC.

The artwork is now proudly displayed in the CHRC offices of the Heinz Wolff building on the Brunel campus.

Jeff said, "This is a fitting tribute linking art and science, Gary's work formed the core of the exhibition that was used as part of the campaign that led not only to the recognition of the contribution of our Nuclear Veterans to world peace but, also to the funding and creation of the NCCF."

Gary's reputation in the world of military-related fine art continues to grow, heavily involved in the Sayle Gallery on the Isle of Man he has also exhibited with the prestigious Armed Forces Arts Society.

Starting with his work in support of the BNTVA Recognition Campaign Gary has been a stalwart supporter of the nuclear community and the Nuclear Community Charity Fund are privileged to have his support.



Dr Rhona Anderson - 'Genetic and Cytogenetic' Study & CHRC Director with Jeff Liddiatt - Chairman NCCF



Official artist to the Nuclear Community - Gary Bennett

Exposure Worry, Ageing, and Cognitive Functioning

George Collett and Mary Gilhooly

Centre for Health Effects of Radiological and Chemical Agents, Institute of Environment, Health and Societies, Brunel University London.

What is the aim of this project?

The aim of this PhD project is to examine factors associated with cognitive functioning. This is an important aspect of healthy ageing and quality of life. There is no current research on the cognitive/mental health effects upon British nuclear test veterans from witnessing nuclear tests, and more research is urgently required. However, this aspect is being explored with increasing priority for people elsewhere, affected by radiation effects from the Chernobyl and Fukushima incidents. A special feature of this veteran study is an examination of radiation 'exposure worry' and cognitive functioning in later life.

Specifically, we will be examining whether levels of 'exposure worry' predict cognitive functioning. We will also look to explore the mechanisms of 'exposure worry' and how it may develop after witnessing a nuclear test. Furthermore, we will examine whether employment history and education are related to levels of 'exposure worry' and cognitive functioning.

How will we conduct our research?

The overall project will invite members of the British Nuclear Test Veterans Community to participate and will involve data gathering via in-depth interviews, questionnaires, and cognitive assessments.

We are currently developing a questionnaire to measure 'exposure worry' in nuclear test-veterans. Before we can use our questionnaire in our main study, we need to ensure that our questionnaire is appropriate and that our questionnaire "works". In order to do this, we require around 120 test veterans to complete and return our questionnaire. If you would like to take part, you can contact us using the details below. We will then send you a 'pack' containing our questionnaire and information regarding the study. The pack will also include a stamped envelope which you will use to send your completed questionnaire back to us.

Why is this important?

This study would add to the growing body of research on the impact of life events on cognitive functioning in old age. The benefits from this research would be wide, because a deeper understanding of the factors that influence decline in cognitive functioning with age would be of interest to older people across society. The health services would also benefit from a better knowledge of the factors contributing to poorer cognitive functioning and dementia. The present study will also apply to the psychological effects of being exposed to chemicals such as Agent Orange and the Bhopal Gas Tragedy.

What do we already know about radiation exposure, worry, and cognitive functioning?

Recent studies suggest a link between radiation exposure (particularly after relatively high doses) and faster biological ageing, and as a consequence, to age-related diseases which may impact mental processes (known as cognitive functioning). Cognitive functioning includes memory, problem solving, and reasoning. There is evidence following Chernobyl suggesting that higher levels of radiation exposure in adults is associated with reduced cognitive functioning in later life, although the relationship between lower levels of radiation exposure and cognitive functioning is not clear. However, public health studies examining Hiroshima survivors did not find a link between levels of radiation exposure and dementia, nor a link between radiation dose and cognitive decline in later life.

Aside from the physical effects of radiation exposure, the World Health Organisation has argued that mental health impact is one of the biggest consequences following a nuclear incident. For example, widespread anxiety and depression in both contaminated and decontaminated regions surrounding the Chernobyl area have been observed.

Even in people who were exposed to very low levels of radiation, the psychological effects can be large and persistent. The term radiation-anxiety is used to describe the worry regarding the possible negative health effects of radiation exposure, as well as any perceived stigma relating to radiation exposure.

Research has suggested a link between poorer cognitive functioning and greater levels of anxiety in older adults. Although anxiety is not the same as stress, the two are closely related and both are associated with raised blood pressure. High blood pressure in mid-life has been associated with poorer cognitive functioning in later-life. Furthermore, anxiety is associated with health-risk behaviours such as smoking and heavy alcohol consumption, both of which contribute to poorer cognitive functioning in later life. It is possible, therefore, that besides any impact of potential exposure to radiation on cognitive functioning in old age, persistent worry about the potential damage to oneself and to one's children could also impact the cognitive functioning of test veterans.

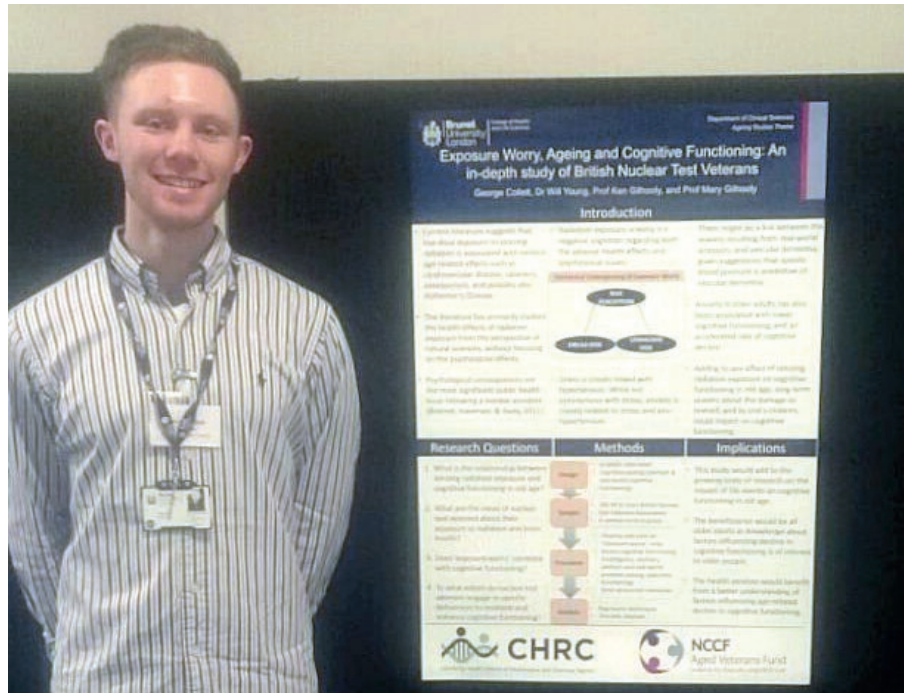
How can you contact us?

Centre for Health Effects of Radiological and Chemical Agents

Email: chrc@brunel.ac.uk or
Telephone: **01895 266018**

Meet the team

George Collett is a doctoral candidate with a full time scholarship in the CHRC at Brunel University London. His research focuses on radiation worry, ageing and cognitive functioning among British Nuclear Test Veterans.



George Collett MSc, BSc (Hons) - PHD Research Student

He holds a First Class Honours BSc in Psychology from Keele University and a master's degree, with distinction, in Social Psychology from Lancaster University. During his undergraduate degree, George also spent a semester abroad at Appalachian State University in North Carolina which led to George developing an interest in the psychology of cultural transitions when adjusting to a new culture and identity.

Prior to joining the CHRC, he worked as a domiciliary care worker supporting the elderly. George found his experience of working with older adults to be eye-opening and very rewarding. His time as a care worker also led him to develop an interest in dementia care and geriatric

psychology. He has found that one of the stimulating things about working with older adults is listening to the fascinating stories from an earlier era that they would share with him. After George completes his PhD, he wishes to continue working either in the area of public health and gerontology, or in the cultural identity field.

Outside of work, his keen interests include music, hiking, travelling, football, badminton and generally keeping fit. He also enjoys learning about wildlife and watching documentaries. George grew up near Guildford and he regularly returns to visit his parents and their dog.

Genome Biology: Techniques to study de novo mutations.

Dr Alex Moorhouse, Centre for Health Effects of Radiological and Chemical Agents, Institute of Environment, Health and Societies, Brunel University London.

Members of the nuclear test community identified some years ago a need for more research into the potential for genetic damage (changes to DNA) amongst nuclear test veterans, and the possibility of veterans having transmitted genetic alterations to their children. To address these questions, researchers at the Centre for Health Effects of Radiological and Chemical Agents (CHRC) are undertaking a cytogenetic (chromosomal) and genetic (DNA mutation) study to check if any genetic changes are found in a sample population of nuclear test veteran families and to compare this with veteran families with no association to nuclear test sites.

To support the community to better understand the potential outcomes of this work, we have created a series called 'Genome Biology' to provide background scientific knowledge relevant to different aspects of this project. The first and second instalments in this series (published in Campaign, summer 2016 and spring 2017) examined how chromosomes may become structurally altered and also, the techniques used to detect such chromosomal changes.

In the third of our 'Genome Biology' series we will look at the key techniques used to detect DNA mutations in human cells, and how we will employ this advanced technology in the 'Genetics' study. The rapid development of new DNA sequencing technologies during the last 15 years has fundamentally changed how we approach many scientific questions. The ability to deliver fast, accurate and affordable

DNA sequence data enables us to answer genetic questions in much greater detail than previously thought possible and to ask many new ones. Challenges and limitations remain, and a continued improvement of the different technologies involved is required if we are to shed light on the most complex and difficult scientific questions. Genetics and genome biology have come a long way over the last 50 years, and advancements within these areas continue at a rapid pace.

On the shoulders of giants

In 1953 James Watson and Francis Crick working at Cambridge University made a remarkable observation from an X-ray photograph produced by Rosalind Franklin and Maurice Wilkins at King's College London. They described two strands of a molecule running anti-parallel to one another forming a distinctive double helix with pairing of complementary bases (nucleotides) in the centre. Already known to be the hereditary material, the study of deoxyribonucleic acid (DNA) subsequently benefited from several further key developments. In the mid-1970s Frederick Sanger in Cambridge developed a method to determine the sequence (code) of nucleotides along a strand of DNA (Figure 1). During the 1980s a method for the targeted amplification (to make multiple copies) of specific regions of DNA, termed as the polymerase chain reaction (PCR), was developed from pioneering work by Kary Mullis in California.

Both Scientists were rewarded with Nobel prizes for developing these elegant and powerful new techniques.

These innovative advances enabled work on several challenging projects to commence in earnest, including DNA sequencing of the entire human genome, investigating genetic diversity among populations worldwide, sequencing ancient DNA from fossil remains, and the introduction of DNA fingerprinting in forensics. Indeed, genetic research on heritable human diseases, infection and immunity, evolution and biodiversity have all benefited from these technological advances.

What is Next Generation Sequencing?

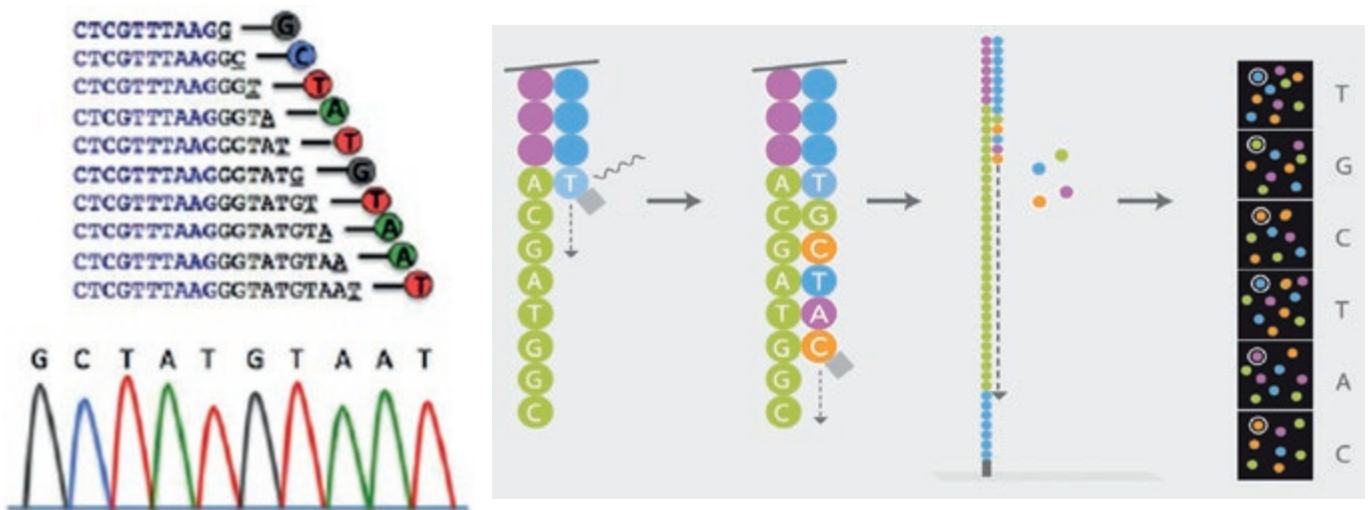
Following the turn of this century, new technologies for DNA sequencing have improved significantly. Several competing approaches capable of 'massively parallel' DNA sequencing increased data (information) output and reduced the cost of experiments substantially (Figure 1). Next Generation Sequencing (NGS) brings together developments in engineering, robotics, imaging, microfluidics and biochemistry. The more advanced of these instruments are today yielding over 6000 billion nucleotides (bases in the DNA code), equivalent to sequencing 50 human genomes within 2 days. These advances led to a series of ground breaking discoveries and ushered the field of genomics into a new era.

Next Generation Sequencing, also known as 'short read', or 'shotgun' sequencing, requires genomic DNA to be fragmented into many millions of smaller pieces before it can be sequenced. Because fragmentation causes DNA pieces to be jumbled up, data from NGS are like pieces of a jigsaw that need to be fitted together. To do this a reference DNA sequence is used, like looking at the picture of a jigsaw box.

DNA sequence 'reads' overlap one another and can be paired which helps them fit together correctly. Sequencing an entire genome using NGS produces tens of millions of sequence reads and piecing these together is a computationally intensive process requiring specially developed software. Once completed, it is then possible to compare genomes from different populations to detect any differences or 'variants'

between them. These differences might be single nucleotide variants (SNVs), variants that are short insertions or deletions (indels), or larger structural variants (SVs), such as gene copy number variants (CNVs), or more complex rearrangements. The two populations to be compared in the 'Genetic' study underway at CHRC are nuclear test veteran families and veteran families with no known participation at test sites.

Figure 1) The Sanger sequencing method (left) Next-generation sequencing (NGS) (right)



The Sanger sequencing method developed in the 1970s determines the sequence of nucleotides (or bases comprising the DNA code) along a DNA molecule. The DNA sequence can be determined because there are many copies of each possible length of the DNA molecule and because each copy terminates in one of the four fluorescently (different coloured) labelled bases. Detection is performed by a camera that measures the fluorescent colour signal as the molecules pass through a tube. Sequence lengths using this method are usually 300-1000 nucleotides. Next-generation sequencing (NGS) speeds up this process using new chemistry that allows the removal of the fluorescent coloured label after detection, thereby permitting successive cycles of base incorporation and detection.

The term 'massively parallel' derives from the sequencing of tightly packed clusters of molecules, where each cluster contains many single stranded copies of a different DNA molecule. Many millions of clusters can be sequenced simultaneously.

De novo (newly arising) DNA mutations

New DNA mutations contribute to the natural process of DNA variation and arise as a result of DNA damage. DNA damage occurs naturally throughout life and is usually corrected very efficiently by DNA repair processes. However, when damaged DNA is not correctly repaired then errors called mutations accumulate within the genome.

An excess of DNA mutations can occur when a cell's response to DNA damage is compromised or overworked, and when a cell is exposed to chemical mutagens or ionising radiation. A new DNA mutation that arises in a germ cell (egg or sperm) of one of the parents and which is then transmitted to the child or children, or in a fertilized egg cell itself, is called a de novo or newly arising mutation (DNM) (Figure 2).

In the study being undertaken at CHRC, we are looking for DNMs that may have arisen in the germline of British nuclear test veterans as a consequence of veterans participating at nuclear bomb test sites. DNMS are DNA variants present in the child but not in either of the parents' own genomes.

To do this we are using NGS technology to sequence the genomes of test veteran families in father-mother-child trios, and comparing what we observe with a sample population whose veteran fathers did not attend nuclear test sites. Although DNMs induced by ionising radiation may themselves be largely indistinguishable from naturally occurring DNMs, we can look

for deviations in the expected number and pattern of DNMs because we are comparing our data to a control group. Previous work has shown that DNMs arising from exposure to radiation may include more clustered SNVs and more CNVs, and that more DNA mutations may also occur at highly mutable repeat regions compared to the general population.

Figure 2) A new mutation

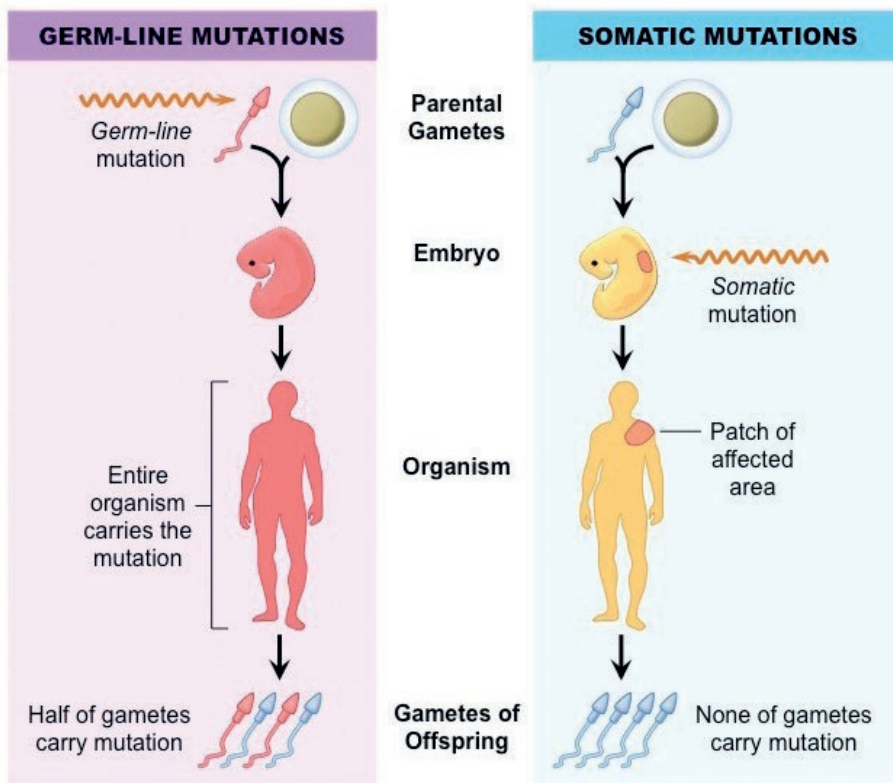


Figure 2) A new mutation that arises in a germ cell (egg or sperm) of one of the parents, or in the fertilized egg cell itself, is called a germ-line de novo mutation (DNM) and is present in the child's genome but not in either of the parents. Mutations also arise in non-germline cells, including those of developing embryos, these are called somatic mutations and are not transmitted to offspring.

Challenges and solutions

Remarkably good tools and techniques for sequencing and analysing DNA mutations have been developed over the last 15 years, although it is not yet possible to detect all mutations in the human genome with total accuracy. To mitigate against this we will sequence the entire genome of all participants in our study to a 'depth of coverage' of 30-35 times (where most areas of the genome have been read an average of 30-35 times), called 'high-depth' or 'deep' sequencing.

DNA variant detection software also has its limitations and can report false positive DNMs (where a mutation is reported, but turns out not to exist). We will therefore again follow standard practice by using multiple detection tools which learn to recognise sequencing errors, and we will apply additional stringent filters to help sift out false positives. To ensure we are successfully detecting true DNA variants, we validate (double-check) DNMs by manually inspecting all candidate DNA mutations, and by sequencing regions containing DNA mutations a second time to confirm that DNMs are present.

The techniques and processes described above are currently being employed for the detection and comparison of DNA mutation variants in nuclear test and control family trios, and will take approximately two years to complete. We look forward to being able to report our findings to the nuclear test community once we have published our findings in the peer-reviewed scientific press.

Dr Alex Moorhouse
CHRC



Obsiven

Jean-Louis Ferrer

The nuclear community mourn the loss of an old friend

P34

Jean-Luc Sans

Read Jean-Luc's presentation to an international audience

P35



Jean-Louis Ferrer

It is with sadness that we report the passing of Jean-Louis Ferrer, Vice President of AVEN. Those of you who attended the final AGM of the old BNTVA at Gateshead in 2017 may remember Jean-Louis who attended as part of the French delegation.



Jean-Louis Ferrer

Here he is remembered by AVEN colleagues, Arlette Dellac and Jean-Luc Sans.

“On the 1st of August at 2:30 pm at the church in the village where Jean-Louis Ferrer had lived, eleven veterans gathered under a scorching sun to stand beside the standard of ‘Tarn-et-Garonne’ in a moving tribute to our friend and AVEN vice-president. We came from the surrounding Départements: Tarn-et-Garonne, Lot, Tarn et de l’Hérault, all to pay tribute to Jean-Louis. Our President Jean-Luc had asked me to represent him and I read with great emotion the tribute he had written. Our friend was cremated so there was no following service at the cemetery. We have given a plaque and spray of flowers to be laid on his final resting place.”

Arlette DELLAC

“There are in life characters who deserve to be known. Jean-Louis was one of them. He was a child of the South and when it was time to do his apprenticeship, Jean-Louis chose to enlist in the Navy and to board the ‘Paul Bousquet’ training ship in Sète. He was later crew member on board the ‘La Bourdonnais’ ocean liner under the flag of the ‘Messageries Maritimes’ on the Indian Ocean line (Marseille via Suez, East Africa, Mascareignes).

We may have met in Moruroa during the nuclear tests as he served as quartermaster on the ‘Médoc’ base ship between 1971 to 1972. I was also there at that time but on another ship. Returning home, he chose to serve in the Gendarmerie and underwent his basic training in Berlin before he was appointed in the St-Laurent-de-Mure brigade. He then passed the entrance examination as an officer of the criminal investigation department and entered the Montpellier task force with the rank of Sergeant. He had completed his military career in La Grande Motte with the rank of Warrant Officer. After he had retired to the country, not far away from where he had grown up in Le Pignan, he continued to serve the public as a modest municipal Police Officer.

Aware of the fact that he had witnessed 5 nuclear tests in Polynesia, he was one of the first Veterans to join the Association des Vétérans des Essais Nucléaires (AVEN) when it initially formed. He became Department President, then a member of the Board of Trustees. His natural charisma and his pragmatism led me to ask him to join the executive board and assist me as the administrative Vice-President.

He was a man of dialogue with a keen intelligence. I appreciated very much his natural authority as well as his skills to manage conflicts and unexpected incidents. He was discreet and he smiled about monumental egos that are sometimes to be found in organisations like ours.

He never mentioned his gold medal from the Ministry of Defence nor made reference to his numerous commendations and congratulations from his official hierarchy. We were close comrades in the struggle and management of AVEN. Our similar ideas and common understanding of certain issues, whether broad or more intimate ones, the decency when facing illness, all lead us on the path of becoming very close friends. Unfortunately the “big clock” did not allow enough time for this.

Farewell to our comrade, Farewell to my friend, You are now on the path to eternal peace. Be aware that you belong to those that will not be forgotten.”

Jean-Luc Sans

Jean-Luc Sans - Presentation to representatives of British, United States and Australian Nuclear Veterans in May 2018.



Jean-Luc Sans

Dear friends,

We are all involved in telling the legacy of the worst and most destructive invention mankind has ever produced: the nuclear bomb. Our essential role is to inform and raise awareness with the public as broadly as possible about the destructive reality of nuclear tests.

International meetings between associations and the sharing of information are most important for us to achieve this role. As soon as we organise international meetings, we attract media attention, particularly in France as the media there are keen to cover nuclear issues.

This is why we have to work in solidarity and share amongst ourselves for the benefit of all. Each organisation has their own goals and methods but ultimately meetings at international level must continue. I am telling you this because in October I will come to the end of my mandate as a President and my 4th mandate as the administrator of AVEN, and I have decided to step aside from these roles.

Now everybody knows that when the head of an organisation changes, certain previous achievements might not be properly recognized. However, I believe strongly that international exchanges and sharing between associations must continue. This is by far, the best way of combating the tactics used by our respective governments to deny our progress.

I am leaving the AVEN Presidency with the satisfaction of having completed my duty. After 3 amendments of the compensation law voted in 2010, our nuclear veterans now enjoy at last a decent compensation.

Since September 2017 every civilian or military person who was affected by the fall-out, even at a minimal level, has been recognized as suffering from 1 of the 21 officially listed illnesses and as such has been compensated.

We have opted for compensation on an individual basis because of the large number of veterans involved. We thought the fairest manner of evaluating the amount of the compensation would be according to the damage suffered. Just to give an example: someone suffering a minor skin cancer is compensated with 20.000 euros while much more serious illnesses are compensated with up to 850.000 euros and in some cases even more. Whilst I'm leaving AVEN, I will still be working within the nuclear survivor community as the founding president of OBSIVEN. I will continue the international struggle on the health effects of nuclear testing not just between veterans but amongst all people and all generations affected.

I will be working closely within the OBSIVEN movement worldwide for all our futures.

Jean-Luc Sans

President AVEN
President OBSIVEN

Project Semaphore



Project Semaphore is a Royal Naval Association (RNA) initiative funded by the Aged Veterans Fund, to address the issue of digital isolation in older Veterans, which exacerbates loneliness and poverty.

Whilst we provide iPads, it is not an IT Project: it is a Project to provide friendship, support and practical help, with the outcome of better spiritual and mental health. A recent study equated loneliness in the elderly to the effect of smoking 15 cigarettes a day.



Shipmates who qualify for an iPad can make new friends, learn new skills and connect with their family and friends. Project Semaphore has been a huge success, to date, we have issued over 550 devices and the Project is ongoing. Mindful that many Veterans have a fear of technology, they feel overwhelmed at the idea of learning new skills, worry about their personal security and need help and support to realise the benefits of the financial savings offered online. Whilst an iPad is ideal, as it is lightweight and portable, they fear of breaking it by pushing the wrong button and therefore the support of our dedicated (and very patient!) Volunteers has been key to provide reassurance and encouragement.

We support Shipmates in their homes if they are unable to join a group or attend a Workshop, we cover the country from Inverness, Douglas IOM, Limavady and Holyhead, Liverpool to York, Kent, Plymouth and Cornwall.

Care Homes

The Royal Star and Garter Homes (Surbiton and Solihull), Pembroke House (Kent), The Royal Alfred Seafarer's Society (Surrey) have embraced the opportunity to offer iPads to their eligible Veterans to enhance the activities they deliver. Addressing isolation from families, as well as offering the opportunity to explore or develop interests and hobbies including photography, games, researching ships, naval and family history has proved most popular and improved the quality of family visits, sharing images and stories on the iPad and learning from IT savvy children and grandchildren!

Collaboration

In order to reach Veterans, we are delighted that our Project has been embraced by a range of organisation who offer complimentary support and include: The Royal Navy's Chaplain of the Fleet, Scottish War Blinded, Royal British Legion Industries, SSAFA, Marine Society and Sea Cadets, Apple Southampton, Association of Wrens, The Fleet Air Arm Association, WRNS BT, Merchant Navy Association, Bulwark, Albion & Centaur Association, RNA Welfare Officers, RNBT, Conference of Naval Associations (CONA), Royal Marines Association, Dementia UK, Improving Lives Plymouth, Cornwall Rural Community Charity as well as numerous RNA Branches who have promoted the Project, hosted Workshops and presentations.

“

The I-pad is a godsend for me, on New Year's Day, put a message on Raleigh Facebook page and had 248 responses. I talk to an old buddy every day, he is 86 I am a young sprig I am only 83. I also read the news from RNA Central Office.

iPadder

“

..a whole new way of being in contact with friends and Navy, I would not have known about. I wonder what I did without it.

iPadder

Further funding and support
We are delighted that RNRMC, Irish ex-Service Trust, Navy News, Greenwich Hospital and Royal Naval Reserves have recognised the complexity of this Project and provided financial and practical support in order that we can maintain momentum. Thank you.

Volunteers

We maintain regular contact with our 'A Team' of Volunteers, to express our thanks for their time and dedication...we couldn't deliver this Project without them! We share iPad tips and tricks and include their experiences and feedback to ensure our Workshops are relevant and pitched at the correct level. Volunteers provide advice and support both face to face, and online using secure and user-friendly technology: Facetime and Skype provide a window on the world, and it is a joy to watch arthritic fingers getting to grips with the concept of a touch screen.

We welcome IT savvy Volunteers who are willing to share their knowledge and contribute to changing the lives of fellow Veterans, we pay traveling expenses and in return Volunteers gain a sense of purpose, pride and the opportunity to impart their knowledge in a safe environment with like-minded people.



Other service Veterans

In the early stages of the Project, offering iPads in groups and in particular Care Homes to RN and RM Veterans only was divisive. However due to the success of the Project, the offer now extends to RAF and Army candidates who are part of a Veterans group. First to embrace this opportunity is the Princess Marina House, a centre in Rustington offering respite, care breaks for serving and former RAF personnel as well as a lunch club for Veterans.

Captain Paul Quinn RN (Retd)

The Royal Naval Association General Secretary said "Digitally isolated Veterans are blind to and invisible to the digital world. Bringing someone online is like throwing the curtains back in a dark room. Without doubt this is the project I have been involved with that has the biggest impact on individuals – I am so proud to be part of it".

Applications

Please get in touch for more information, to clarify the eligibility criteria, request an Application Form or to Volunteer:
julie@royalnavalassoc.com

“

The iPads are delivered to myself and I spend time unpacking and charging them ready to deliver them or some cases members have collect iPads from my home. The iPadder's meet up an hour before our monthly Branch Meeting, this has been very successful. Yes, we have head scratching moments but with the help of other we succeed those who come include Veterans who are not RNA which is very pleasing. We often spend a couple of hours setting up and sorting issues out, I have also visited homes of shipmates to help. It's good to see 95 and 96 years young members using the iPads. Yes, I think the Semaphore Project is excellent, to see those smiling faces when they have taken a photo and sent it onto family and friend abroad and received a reply. For me, to receive an email of thanks from a family member of an iPadder is very pleasing.

Project Volunteer

Gary Bennett – Official artist of the Nuclear Community

Gary first came to prominence during his association with the old BNTVA's successful Recognition Campaign. From a chance meeting between friends in common Gary teamed up with the then BNTVA Chairman Nigel Heaps and produced a series of fine art pieces inspired by the story of our Nuclear Test Veterans.

© Gary Bennett



One of Gary's latest piece's

The pieces were the central core of the 'Shadow of the Bomb' art exhibition that was used to raise awareness of the campaign. Touring Westminster, Oxford Street, The Isle of Man, Coventry and the Labour Party conference in Brighton the exhibition gave the campaign access to key political figures and was undoubtedly a major factor in securing Government recognition of the veterans and the creation of the Aged Veterans Fund.

Since touring with the Shadow of the Bomb, Gary has continued his artistic career and in 2017 was selected to join the Armed Forces Arts Society. In his first exhibition with the society at the Lighthouse Gallery in Glasgow, Gary was awarded a prestigious award by the "GreatArt" company.

Shortly after receiving the award Gary became the curator of the Sayle Gallery in Douglas, Isle of Man. Through the Sayle Gary is now curating exhibitions of esteemed original works by Picasso, Hockney, Gormley, Hodgkin, Blake, Hurst, Opie, Rego and even some of his own pieces.

The Manx Museum is currently in the process of assembling a permanent exhibition which will feature a significant amount of Gary's works and he is working on a new collection of paintings that have already attracted the attention of the new Knockaloe Museum. Knockaloe was a key internment camp during the First World War and the new museum is scheduled to open by November 2019.

Gary has an ongoing sculpture commission for the Royal British Legion on the IOM and has a number of fine art exhibitions planned throughout 2019.

Whatever Gary is doing you can be assured that he continues to champion the Nuclear Test Veterans and our community.

© Gary Bennett



Gary Bennett



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exposure

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