SONE

Supporters of Nuclear Energy

Newsletter

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The Daily Telegraph and Morning Post

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4 A.M.

ALLIES INVENT ATOMIC BOMB: FIRST DROPPED ON JAPAN

2,000 TIMES THE BLAST-POWER OF R.A.F. 11-TONNER

ENEMY THREATENED WITH "RAIN OF RUIN" FROM THE AIR

The Allies have made the greatest scientific discovery in history: the way to use atomic energy. The first atomic bomb has been dropped on Japan. It had:

Over 2,000 times the blast power of the largest bomb ever before used, which was the British "Grand Slam," weighing about 11 tons; and

More power than 20,000 tons of T.N.T.

EFFECT ON WAR AND PEACE

EMPIRE SCIENTISTS HELP

TEST FLASH WAS SEEN 350 MILES AWAY

Impact Vapourised Steel Tower

'THIS TERRIBLE MEANS OF MAINTAINING LAW'

MR. CHURCHILL'S WARNING TO JAPAN

'INVENTION MAY REVOLUTIONISE INDUSTRY'

RESEARCH PROBLEMS

GERMANS' NORWAY PLANT WRECKED

BLOW TO 'HEAVY WATER' OUTPUT

ATOM-SPLITTING MEDIUM

MEN WHO MADE IT POSSIBLE

JEWESS FOUND CLUE

EXILED BY HITLER

SMALLER THAN 4,000-POUNDER

"CAN REMOVE TOWN"

PRESIDENT TELLS CREW

CHEERS ON AUGUSTA

SCIENTIST FLOWN TO BRITAIN

OUTWITTED HITLER

BRITAIN'S No. 1 SECRET

NEW CABINET MEETS TO-DAY

BEIS replies to SONE Chairman on behalf of PM

Last month Neville Chamberlain wrote to the Prime Minister, as reported in Newsletter 256. The reply that came back from the Ministry repeats what is already in the public sphere.

> *"New nuclear has a crucial role to play as we seek to transition to net zero greenhouse gas emissions in 2050. It is the only technology that is currently proven and can be deployed on a sufficiently large scale to provide continuous low-carbon power. However, we have always been clear that any technology must provide value for money for consumers and taxpayers."*

They seem to be in a dither, trying to please everyone and doing nothing. At least they know that they are likely to hear from SONE again.

"The Future of Nuclear Power" with the Cambridge Centre for International Research

A recent interview exploring personal perspectives and advice for the students of tomorrow https://www.youtube.com/watch?v=UvmPEsjf-eI&t=233s

Encouraging news from Czechia

The UK Government should follow the example set by the Czech government. It is providing a loan to underwrite the investment in a new nuclear power station. https://www.power-technology.com/news/czech-republic-government-provide-loan-for-cez-nuclear-power-station/

A major cost of SizewellC lies in the provision to cover uncertainty compounded over many years. By providing confidence and leadership governments can sweep aside such uncertainty and take a long view, as France did in the 1970s and the UK should now.

Reactor goes critical in the United Arab Emirates

The first of the four Barakh Korean APR1400 reactors has achieved criticality and the construction of the second is complete. https://world-nuclear-news.org/Articles/UAEs-first-power-reactor-achieves-criticality When completed the plant will deliver 5.6 GW. The UAE is the first country in the Arab world, and the 33rd nation globally, to develop a civil nuclear power programme.

And in China this month

China put its 49th reactor unit in operation. With a installed power of 5490 MW, Tianwan is now the second most powerful nuclear power plant in China. In the world, it's now on 9th place.

A provocative new lecture by Bret Kugelmass – food for thought

SONE Members are invited to watch the following presentation given at John's Hopkins University. https://www.youtube.com/watch?v=Rb7tAwNIvUs

His style may raise temperatures, but many of the points he makes are sound, I suggest, and worthy of serious consideration. The demand for contracts and jobs in society has a more powerful influence than the pursuit of truth and the common good. In particular, it has inflated, both the cost and the public perception of nuclear energy.

When Nuclear Phobia was born

While Nuclear Energy began with the universe in a very large explosion 13.8 billion years ago, Nuclear Phobia was born in two much smaller explosions 75 years ago this month. The Daily Telegraph of the 7 August 1945 makes an interesting read. It is remarkably factual and scientifically correct – not hyped by the ignorant unscientific distortion that afflicts much newspaper reporting today. To mark the occasion I wrote the following article, "Hiroshima Reconsidered". It failed to attract interest from the news media, so I posted it online where it has attracted positive comment, including from an IAEA contact and another at Ofgem.

https://www.researchgate.net/publication/343450598_Hiroshima_reconsidered

printed below.

HIROSHIMA RECONSIDERED

The world's demonic fear of nuclear energy dates from the nuclear bombs dropped on Japan 75 years ago this month. Today this clouds judgement at a critical point. The threats to world order are climate change and the coronavirus, not nuclear fission. The fear of nuclear energy should be exorcised and its unique ability to mitigate climate change recognised worldwide. The need is for confidence built on education in natural science.

My mother was neither scientific nor political, not a hoarder either, but this newspaper lay in her drawer until she died in 2016. Evidently the news of the nuclear bombs left a deep impression. She was not alone. The news dramatically changed society's perception of the world of science. Should our children and grandchildren inherit this view, or should they re-examine the story with a scientific eye to the future of the world that they themselves face today?

The inhuman consequences of war do not hang on any particular technology. The levelling of Syria since 2011, the destruction of Dresden, Tokyo, Berlin and Hamburg in World War Two – these used the blast and fire of conventional

bombs. The nuclear bombs of 1945 killed similar numbers by blast and fire, yet their political impact was greater and persists today.

What happened that August day in 1945 commanded instant awe. It was seemingly way above everyone's educational pay grade, but being impressed is not a step towards understanding. An essential part of natural science became sealed off in the public mind and labelled "to be feared and avoided", as if unnatural and intrinsically malign. It was not the first time in human history that the forces of nature had been deployed and demonised for military and political purposes. But mankind makes advances by exorcising apparent demons in nature, in nuclear energy as in fire or thunder and lightning.

During the Cold War the threat of a global nuclear holocaust haunted the public imagination. To the possible destruction of many cities was added the ghoulish horror of radiation, thought to cause widespread cancer and, worse, genetic abnormalities inheritable by later generations. These sincerely held beliefs were cloaked in apparent scientific respectability. Born in a period of espionage, secrets and fake news, this horror story sustained its own excitement, undeterred by all evidence to the contrary. Today any global threat from nuclear weapons depends on this public fear of radiation and those concerned to perpetuate it for ideological reasons.

For some three billion years life has survived moderate levels of environmental nuclear radiation, from rocks, from space, from within living cells themselves. If it had not learnt how to overcome this, we should not be here. Unlike a virus radiation does not change. Once biology had established a protective strategy – a combination of replacement, cellular design, active response and an ability to adapt – moderate doses of radiation no longer threatened.

The medical health of more than 86,000 survivors of Hiroshima and Nagasaki and their descendents has been followed ever since and compared to others not exposed. No evidence for excess genetic abnormalities has been found, and for half a century the records show less than twelve excess annual deaths from cancer. Many other studies confirm that the evolved protection works well despite the large energy disparity between radiation and the weak molecules of life. Less than fifty deaths from radiation at Chernobyl, and none at all at Fukushima, tell a similar story. But the most unequivocal accounts of the effects of radiation concern people and animals who are not predisposed to fear it. For example, quite large radiation exposures occur in diagnostic scans and even greater ones in cancer therapy. These have successfully prolonged lives since the work of Marie Curie a century ago.

Nevertheless, society genuinely needs drama and excitement, and enjoys Star Wars, murder mysteries and dramatized disasters, whether true or not. But in the real world how does nuclear compare to the global threats of the coronavirus and climate change?

A virus is contagious and can multiply rapidly by infection, but radioactive contamination cannot. Sadly, the public is not told that radiation is not contagious, and at Fukushima evacuees from the contaminated region were shunned. Although nuclear energy is not a physical global threat, fear of nuclear has gone viral and become an endemic social condition. If the world is to reach zero carbon, this "virus" has to be suppressed. We have the "vaccine", a short dose of basic science, but administering it effectively is challenging.

Before the Industrial Revolution mankind's needs were provided by the power of sun, wind and water, courtesy of the seasons and intermittent weather. The population remained small, and life was short and miserable. The arrival of the reliable and concentrated energy from fossil fuels enabled a vast leap in living standards. For two centuries world affairs were a question of who had access to these fuels, and who did not.

But no longer. The accelerating process of climate change is evidently already advanced and irreversible. But at least we should mitigate it by forgoing the use of carbon fuels within twenty or thirty years, as now seems widely accepted.

But reverting to weather-driven "renewables" is not a viable option, in theory or in practice. They are so weak that, to harvest enough energy, huge areas are appropriated at the expense of nature – flooded river valleys, solar and wind plants. Their description as "farms" camouflages the extent of their destructive impact. But more significantly, their output fluctuates randomly, with capacity between 22% and 37% in the case of wind. The only future for the fossil fuel industry is short term, covering for the unreliability of "renewables". This is witnessed by the enthusiastic advertisements of oil and gas interests in support of "renewables". But following fossil fuels cannot lead to zero carbon, obviously.

The traditional view of Hiroshima throws a negative light on the wholescale international adoption of nuclear energy. And the self interest of the powerful fossil fuel industry and the misguided idealism of many environmentalists agree. Yet nuclear fuel has a million times the energy density, a 24/7 availability, a safety record second to none and a negligible environmental footprint. The science is beyond doubt; only the "virus" of radiophobia obstructs the public

image. We should ensure that our grandchildren appreciate the real message of Hiroshima for today, the opportunity to mitigate climate change using nuclear energy worldwide. Those nations that invest in nuclear know how and public understanding in the next twenty years will be masters of the next industrial revolution, provided that their technical choices are based on sound natural science.

One more myth bites the dust

That no adverse health effects were incurred by witnessing nuclear tests has been confirmed in a new study of 114,270 participants over 65 years, published this July. https://www.forbes.com/sites/jamesconca/2020/07/16/atomic-weapons-testing-while-troops-looked-on--did-it-increase-their-cancer-risks/#2a07a90f3186 Many authorities have supposed that this was extremely dangerous. Not so.

All too often, when a dangerous exposure to radiation is assumed, the courts are persuaded to award huge sums in compensation. While the courts know nothing about radiation, those compensated have every reason to keep their mouths closed. As a result the phobia continues to spread unchecked.

For example, a*s of 6 July 2020, the Fukushima accident evacuees have received 8.31 trillion yen in personal and property compensation* - and the radiation casualties were zero. The risk of incurring such "costs" is debited against nuclear, of course. https://www.hiroshimasyndrome.com/fukushima-evacuee-compensation-payments.html

And another, the Plutonium story

After the bombing of Nagasaki the role of this totally new element added a special touch of mystery to the nuclear story. Initially there was some genuine uncertainty about its radiotoxicity, but that little detail did not stop Plutonium receiving the public accolade as "the most dangerous element known to man". Ralph Nader said that a pound of plutonium could cause 8 billion cancers, and former Senator Ribicoff said that a single particle of plutonium inhaled into the lung can cause cancer. There is no scientific basis for any of these statements, as Bernard Cohen showed in a paper in the refereed scientific journal Health Physics (Vol. 32, pp. 359-379, 1977).

The 26 workers who did the original plutonium research and development work at Los Alamos have been examined periodically over the past 50 years to identify possible health effects from internal plutonium depositions. Their effective doses range from 0.1 to 7.2 Sv with a median value of 1.25 Sv. By the

end of 1994, 7 individuals had died compared with an expected 16 deaths based on mortality rates of U.S. white males in the general population. When compared with 876 unexposed Los Alamos workers of the same period, the plutonium worker's mortality rate was also not elevated. [Health Phys. 73(4):611-619; 1997].

A new video that puts the fear of radiation in its place:

"No More Radiophobia"

A very professionally video that exposes the fallacies of Radiophobia. Recommended watching for the more stubborn cases of anti nuclear sentiment. Produced by Theo Richel from the Netherlands.

https://youtu.be/JpcUCo0ebNA?list=PLS8wCXNKfAm_5Q8nFuldK9i8qho5vYoR

And an American Nuclear Society review that criticises the fictional dramatisation of Marie Curie's life that appeared recently. Unfortunately the review will not get the box-office attention that the drama attracts. But SONE members at least should be aware of the distortion made to entertain, presumably.

"Melodrama trumps science in Radioactive portrayal of Marie Curie"

https://www.ans.org/news/article-412/melodrama-trumps-science-in-radioactives-portrayal-of-marie-curie/

Thankfully there are more respectful and faithful biographies such as this one. I can email the full pdf to any member on request.

Wade Allison
Honorary Secretary
21 August 2020.

Marie Sklodowska Curie: The Woman Who Opened The Nuclear Age

by Denise Ham

A new look at a revolutionary scientist's passion for truth, and how she inspired a generation of Americans.

In my quest to examine the life of Marie Curie, I had the good fortune to rediscover her life's work, particularly her discovery of polonium and radium, and her great discovery concerning the nature of the atom. In this journey, I was happy to become intimately aware that discovery itself, is an issue of passion. It surprised me considerably that my understanding of her work grew enormously, because I simply loved trying to understand that which she discovered. Since my formal education is more than bereft, especially in science, I think that I am fortunate in being able to discover in myself that very passion for knowledge which drives the creative individual to make critical discoveries that transform the physical universe. I have many people to thank for helping me in this project, which took more than a year; foremost, I wish to thank Madame Marie Sklodowska Curie, and say that her life is an inspiration which I have loved.

AIP Niels Bohr Library

Marie Sklodowska Curie (1867-1934) in her laboratory.

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