HISTORY GROUP NEWSLETTER

News, views and a miscellany published by the Royal Meteorological Society's Special Interest Group for the History of Meteorology and Physical Oceanography

Issue No. 1, 2021 **May 2021**

News

Julian Mayes, Secretary / Newsletter editor

History Group News

– please see page 13……

Membership news

New members: Vladimir Jancovic (Chairman) and Robert Naylor, both University of Manchester. Robert has written an article for this newsletter on J. S. Forrest, one of the founders of *Weather*.

We are sorry to report the death of two members: Thomas Fitzpatrick and Sir Arnold Wolfendale. The latter was formerly Astronomer Royal and Professor of Physics at Durham University. Joan Kenworthy (formerly St. Mary's College, Durham University) commented *'Arnold is a great loss to cosmic ray studies, to Durham University and to all his friends'.* https://en.wikipedia.org/wiki/Arnold_Wolfendale

New additions to the Occasional Papers on the history of meteorology series

Members will be aware that the History Group runs a long-established series of Occasional Papers. Two submissions have recently been published:

1. Joan M. Kenworthy *How Europeans experienced and observed the climate of the Kenya highlands before the establishment of the British East African Meteorological Service in 1929.*
2. Brian J. Booth. *None but the brave: the story of the men of the wartime weather ships.*

These are both available at https://www.rmets.org/occasional-papers-meteorological-history

Thanks to Dr Howard Oliver for editing submissions to the series. Enquiries about possible future submissions should be made to the Group or via RMetS.

Historic patterns of global salinity paper announcement

History Group committee member Dr John Gould has just had a major study on historic patterns of global ocean salinity published. Dr Gould, of the National Oceanography Centre, Southampton, co-authored the study with Prof. Stuart Cunningham of SAMS, Oban.

The findings were originally discussed by John at a History Group joint meeting on 21st November 2018.

John has written a summary of their findings for the newsletter – page 12.

John's research was also highlighted in a recent *Weather Eye* article in *The Times* by Paul Simons.

Book announcement – biography of Reginald Sutcliffe

Reginald Sutcliffe and the Invention of Modern Weather Systems Science **by Professor Jonathan Martin.**

From a mailing circulated to ICHM members by Prof. David Schultz…….

I am pleased to announce that a 6-year project of mine has finally reached its completion – on March 15 (March 30 outside the US) my biography of Reginald Sutcliffe - *Reginald Sutcliffe and the Invention of Modern Weather Systems Science* - will be published by Purdue University Press. The book is widely available from many online book sellers including Indie Bound at: https://www.indiebound.org/book/9781612496368

Few would disagree that our science is now old enough that we should be telling the stories of its pioneers. It is my hope that shining a light on Sutcliffe's life and work will inspire a renewed appreciation for the human dimension in scientific progress and the rich legacy bequeathed to societies wise enough to fully embrace investments in education and basic research.

Jonathan Martin

Future meetings

The history of climate science ideas and their applications
RMetS National meeting arranged by the RMetS SIG on Climate Change with reference to the History Group.
This meeting will now take place on 12th March 2022 at the Army and Navy Club, London.
The programme can be found at https://www.rmets.org/event/updated-history-climate-science-ideas-and-their-applications

Historic Scottish weather observations and how to access them A joint meeting with the Scottish Centre of the RMetS. Originally planned to take place in Edinburgh, September 2020. New date to be announced.

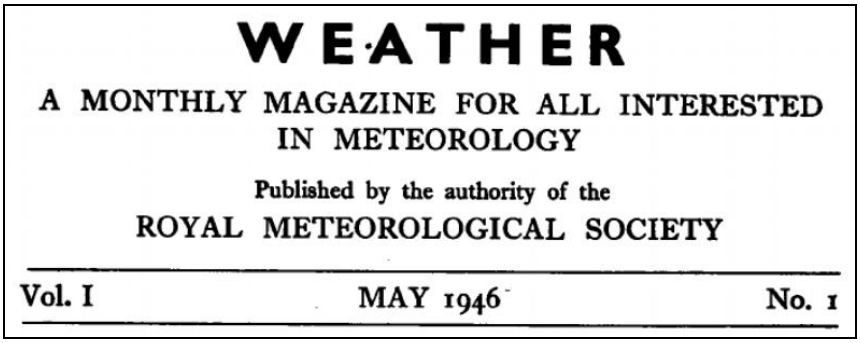
Meetings of associated organisations

Past, Present, and Future of the History of Meteorology, online on 15th Sept 2021.
To celebrate the 20th anniversary of the ICHM, The International Commission on the History of Meteorology, organised by Robert Naylor. The Call for Papers can be found at: http://meteohistory.org/2021/call-for-papers-past-present-and-future-of-the-history-of-meteorology/
The deadline for abstracts of 250 words is July 15, 2021.

The weather, measur'd: 400 years of meteorological instrument technology

A joint meeting between the Worshipful Company of Scientific Instrument Makers, the Scientific Instrument Society and the Meteorological Observing Systems SIG of the RMetS. The programme and full details can be seen at: http://www.scientificinstrumentsociety.org/news/2020/3/2/sis-agm-and-history-of-meteorology-symposium-13-june-2020
If you are interested in attending, you can register your interest there (rather than at the RMetS website, please) and you will be sent further information in due course once the new date is known.

Weather reaches 75 years!



WEATHER

A MONTHLY MAGAZINE FOR ALL INTERESTED IN METEOROLOGY

Published by the authority of the

ROYAL METEOROLOGICAL SOCIETY

Vol. I MAY 1946 No. 1

Weather celebrates its 75th birthday this month. It is worth recalling the case for starting a popular journal then, described here by the then Society President, Gordon Manley in his characteristic style……Weather Vol. 1, No. 1, p. 1. ……

The Society accordingly has decided that the increasingly widespread interest in the science of weather manifest in an air age justifies the production of a new monthly magazine for the exchange and dissemination of information by means of articles, notes and correspondence. It is hoped with the aid of this magazine to reach not only the many Fellows who have expressed a desire for comments on current events, but also the wider public which nowadays increasingly demands some subject of universal interest as a recreation for the mind. Foreigners have often pointed out that in Britain no subject fulfils this requirement better than the weather, whose vicissitudes are always with us to give us food for thought.

Nowadays of course, that issue is available online, free to all Society members – access to the archive of all Society journals is now an integral part of your Society membership. It is good to see that the current issue has a historical theme, including a fascinating array of weather memories from people who will be well known to many History Group members.

Why not read it online now, before your print edition arrives later in the month…..?
https://rmets.onlinelibrary.wiley.com/toc/14778696/2021/76/5

It is fitting that first article in this newsletter, over-page, is a review of the career of J. S. Forrest, one of the founder-Editors of *Weather*.

John Samuel Forrest: The Power Engineer Who Helped Found *Weather*

Robert Naylor

Centre for the History of Science, Technology and Medicine, University of Manchester

In the history of meteorology, it is important to remember the contributions of non-meteorologists to the shaping of the discipline. One of the foremost among these was the power engineer John Samuel Forrest, who was elected a fellow of the Royal Meteorological Society in 1942, playing a role in starting the journal *Weather* as one of its founder-editors in May 1946, 75 years ago this month.

This short piece will describe how a power engineer came to hold such an important role within the post-war meteorological establishment, providing a snapshot of the wider historical relationship between British meteorology and the users of weather information in the process.

John Samuel Forrest's obituary portrait for the Royal Society (Allibone, 1994, p. 2)

After graduating from the University of Glasgow, Forrest took a job at the UK's Central Electricity Board in 1930. The project to build a national grid had only been started in 1926, and Forrest was part of the effort to extend the network of high voltage 132kv power lines. It was here that Forrest first 'encountered' the weather, as he noticed that foggy, polluted conditions caused the insulators on these power lines to 'flash over' (a sparking caused when the voltage is high enough to overcome an insulator's resistance). Forrest used a direct and experimental approach to tackle the problem, constructing his own test grid to measure the effects of various weather and pollution conditions. This experiment became

the basis of his own laboratory, which would later become a major centre for electricity research in the UK (Allibone, 1994; Forrest, 1936; Hannah, 1979).

The Second World War brought diverse industries and scholars together, both as a by-product of the planned economy and as a necessity to solve war-orientated problems. One of the notable collaborations between the UK electricity and meteorological communities was outstandingly successful Operation Outward, where free-flying balloons were drifted over to Germany to disrupt power lines, and one of Forrest's obituaries suggests that he may have been involved.

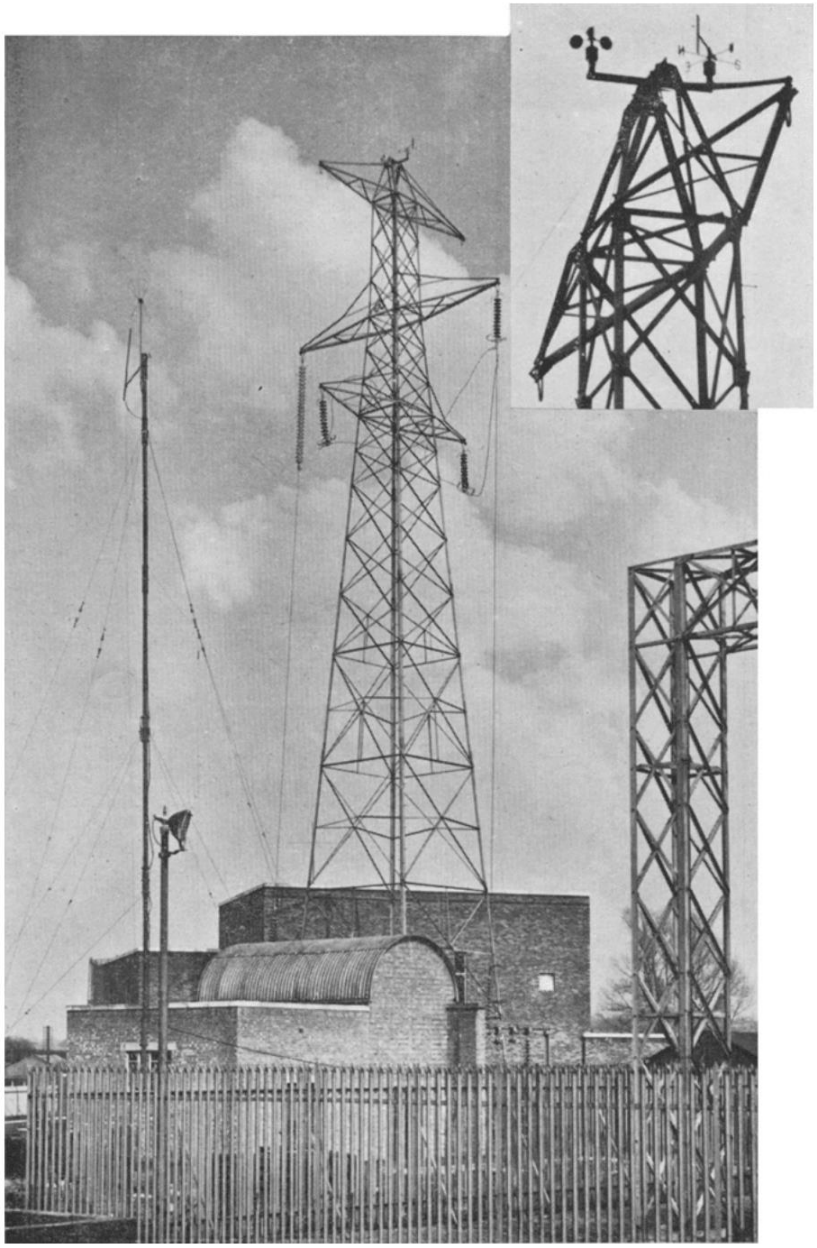
In 1942, Forrest made his first contribution to meteorological literature, publishing an article in the *Quarterly Journal of the Royal Meteorological Society* describing a practical radio method for determining the location and frequency of thunderstorms. Forrest would remain interested in thunderstorms – a key threat to electricity infrastructure – for the rest of his working life (Drapeau, 2011; Forrest, 1943; Morford, 1994).

From the very start of his career, Forrest was an institutional shaper and leader, and in 1945 he organised a joint meeting of the Institution of Electrical Engineers and the Royal Meteorological Society. Forrest gave the opening address, outlining the diverse weather-needs of the electricity industry. As well as using weather information to forecast potential threats to the system, the electricity industry was increasingly using weather information to forecast domestic electricity demand, helping improve efficiency in a time of post-war shortage.

Forrest worked to strike balance between the meteorological and electricity research communities during the conference, having two power engineers and two meteorologists deliver the opening remarks. Likewise, the discussion was overwhelmingly constructive, with power engineers informing the meteorological community about their specific requirements, and meteorologists informing the power engineers about the capabilities and limitations of weather forecasts at the time (Forrest, 1945).

Also in 1945, Forrest was elected to the Royal Meteorological Society's Council under the presidency of Gordon Manley. It was in this position that Forrest became a founding co-editor of *Weather* in 1946, and Manley's introduction to the first issue suggests why Forrest would have been involved. *Weather* was intended as an outreach publication, connecting meteorologists to interested non-meteorologists, making Forrest a natural fit as one of the founding editors (Manley, 1946).

After his stint on the Council ended in 1947, Forrest became ever more consumed with leading the research drive within the newly nationalised electricity industry, but he still made time to support collaboration with the meteorological community. In September 1951, Forrest unexpectedly extended an invitation to one of the Royal Meteorological Society's earliest meteorological vacation courses (short programmes aimed at non-meteorologists) and hosted the attendees at his laboratory, showing off the many weather-related aspects of electricity research (Lacy, 1951; Walker, 2015).



Wind vane and anemometer topping the 120ft tower at Forrest's laboratory (Forrest, 1951)

However, until very recently, it seems that the level of open collaboration between the electricity and meteorological research communities never quite reached the heights of the immediate post-war period. As two examples, there was no meteorological representation on the Electricity Council's working group for lightning protection in 1973, and not a single meteorologist appears to have attended the *Lightning Protection 92 - Buildings, Structures and Electronic Equipment* conference in 1992. There are several reasons for this. Firstly, the main provider of weather information to the electricity boards, the Met Office, underwent rapid commercialisation in the 1950s, meaning that the electricity research community became more of a customer than a collaborator. Secondly, the maturing electricity research community expanded its remit into weather-related areas, having its own working groups for weather-based demand forecasting and lightning protection. Fundamentally, as wartime control of the economy thawed, incentives for collaboration decreased between research

communities with diverging corporate interests (Electricity Council, 1973, p. 92; ERA Technology Limited, 1992; Hall, 2015).

Forrest's illustrious career in research and administration led to him being elected a fellow of the Royal Society in 1966, and he became the Royal Society's Vice President from 1972-75. He died in 1992, on the same month that his laboratory was closed down during the process of privatisation. He received kind obituaries from the organisations that he was involved in, including the Royal Meteorological Society that he clearly saw as his second home (Allibone, 1994; Morford, 1994).

Funding

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On the death of Robert FitzRoy

Alan Heasman, Aldbourne, Wilts.

'*Yesterday morning a painful feeling of regret agitated the whole of the officials of The Board of Trade, on assembling at Whitehall, when the melancholy news of the suicide of Vice-Admiral FitzRoy[1], the chief of the meteorological division of that department of the Government, became known. He cut his throat at his residence, Lyndhurst House, Norwood, on Sunday morning April 30 1865'.*

So ran the headline on Page 7 of *The Times* newspaper on Tuesday May 2nd, 1865. Remember that in those days the front and lead pages of *The Times* carried advertisements etc. but not 'news', so appearing on Page 7 was still quite newsworthy especially just a few days after the assassination of President Abraham Lincoln. Robert FitzRoy, age 59, had begun his naval career in 1819 and progressed to be Captain of *The Beagle* from 1828 until 1836, the period which included his most famous 'passenger' Charles Darwin during FitzRoy's circumnavigation of the world 1831 to 1836.

During a spell ashore, he was elected M.P for Durham in 1841 but soon was appointed Governor of New Zealand in 1843, He returned to the U.K in 1846 and spent the next nine years in various, rather minor roles in the Navy. In 1854, just after his second marriage, he was appointed to be the Head of a new department, the Meteorological Department, in the Board of Trade. His task was to establish consistent and improved methods of recording weather on sea-going vessels, both to improve safety and the knowledge of the weather on the routes frequented by trading ships. For the next nine years or so, he worked feverishly at this task, almost singlehandedly at times, to bring vast improvements in the application of meteorology, not only to sea-going matters but also general weather knowledge. His dedication to his work, probably combined with a family trait of depression, took their toll on his mental health in the early 1860s and reached a peak in the spring of 1865. Some of these matters were considered in the inquest held shortly after his death.

Whilst one might expect that the news of his tragic death would have appeared in *The Times*, it is interesting to note how quickly the news travelled farther afield, mainly by the news telegraph. For example, it appeared in the North of England *Shields Daily News* on Monday 1st May barely a day after his death, albeit at that stage just the single line '*Admiral FitzRoy died yesterday'*. Similarly, it merited a brief mention in the late afternoon edition of the *Dublin Evening Mail* on 1st May, just above an article about President Lincoln who had been assassinated on 15 April. Closer to home, still on Monday 1st May, the *Maidstone Journal and Kentish Advertiser* added some of the first details to the story with '*Admiral FitzRoy, the great weather prognosticator, committed suicide yesterday by cutting his throat with a razor'.*

Next day, May 2nd, the *Sun (London)* newspaper devoted several column inches to praise his achievements and to record how it had taken its toll on the Admiral's health, as often it did with those of a *'……higher mind, impressed with a sense of duty to their work….'*. On that day, many regional newspapers gave coverage to FitzRoy's death, reflecting the general great esteem in which he was held. In particular, *The Scotsman* newspaper devoted many

column inches to his career, both at sea and more recently in his meteorological role and mentioned his telegraphed warnings of storms to shipping which '….. *met with serious opposition in some quarters…at one period from shipowners whose crews refused to go to sea on observing the portentous drums or cones…*'. Similarly, those regional newspapers based in coastal areas also highlighted his contribution to safety at sea. For example, the *Dundee Advertiser* wrote '*Admiral FitzRoy…has earned the gratitude of all interested in our mercantile marine by his improvements in meteorological science and his valuable system of storm warnings…*'.

Gradually the sad news spread around the world though it took considerable time to reach areas not yet in contact by telegraphic cable, for example Australia. Thus, it was not until July 22nd that the *Brisbane Courier* reported the Admiral's suicide. The news reached more remote parts of Australia as late as August 12th.

The *London Daily News* of May 2nd, was amongst the first and few to add rather more 'sensational' detail in its report: '*The unfortunate gentleman had been….in a very low state but nothing particular was apprehended by his friends… On Sunday morning, about half-past nine o'clock, he went to his dressing room, for the purpose, it was supposed, of getting ready for church. He, however, was absent longer than anticipated and upon some of the household going to ascertain the cause, they found the door of his dressing-room locked from the inside. This as might be expected created some alarm. A low gurgling noise was heard as if the gallant admiral had been seized with a fit. A forcible entry was made when he was found with his throat cut in a frightful manner, and close by him was a razor smeared with blood. Medical assistance was at once sent for and everything possible was done but he survived only two hours*'.

The inquest into his death had been opened in the evening of Monday 1st May but, because of the understandable absence of his wife, was adjourned but only until Wednesday 3rd May. Mr Frederick Farrer, solicitor, was present at the Inquest to watch the proceedings on behalf of the family. The inquest was held in the White Hart Tavern in Norwood, S. E. London which can still be found at the junction of Church Road and Westow Street. It was often the case in the nineteenth century that inquests were held in taverns, inns etc. as convenient and well-known establishments. FitzRoy had lived about 500 metres away at Lyndhurst House, now (normally) believed to be 140 Church Road. The building, now divided into flats, has a plaque to his memory on its wall. He was buried in All Saints Church, just a little further down Church Road. The nearest train station was (and still is) Crystal Palace from whence FitzRoy would have travelled to and from central London and his office in Whitehall.

A full report of the inquest can be found online via the website www.rockvillepress.com/TIERRA/TEXTS/FITZROYSUICIDE but the following extracts cover the main aspects. The principal witness called was Dr. Frederick Hetley, the doctor who attended at the scene. He had found the Admiral lying on his back with his head close to a sponge-bath (a small basin). The doctor '*…noticed that he had received an injury in the throat. He was alive. He appeared to recognise me but did not speak. I attended to him…I saw nothing indicating that any person had caused the injury but himself. I anticipated death'.*

In response to questions from the Coroner, the doctor explained that he had been consulted by FitzRoy only earlier in April, found him to be in a very low state both physically and mentally and advised the Admiral that he should suspend his work immediately or preferably give up his work entirely because he was incapable of following his profession'. However, the Admiral had *'…begged him…*' to allow him to answer several letters he had received and in reply the doctor had told him that he was in no physical state to do so. The Coroner then asked ' *Looking at the act itself and the character and position of the wound, is there any doubt on your mind that he has taken his own life?*' The Doctor replied '*None at all. My opinion is that he was led to the commission of the act by a power over which he had certainly, at the time, no control…*'. The Coroner then asked '*…but are you sure the act was done when the mind was not in a condition to render him responsible?*' The Doctor replied '*Decidedly so'*.

FitzRoy's grave, All Saints Church, Norwood.

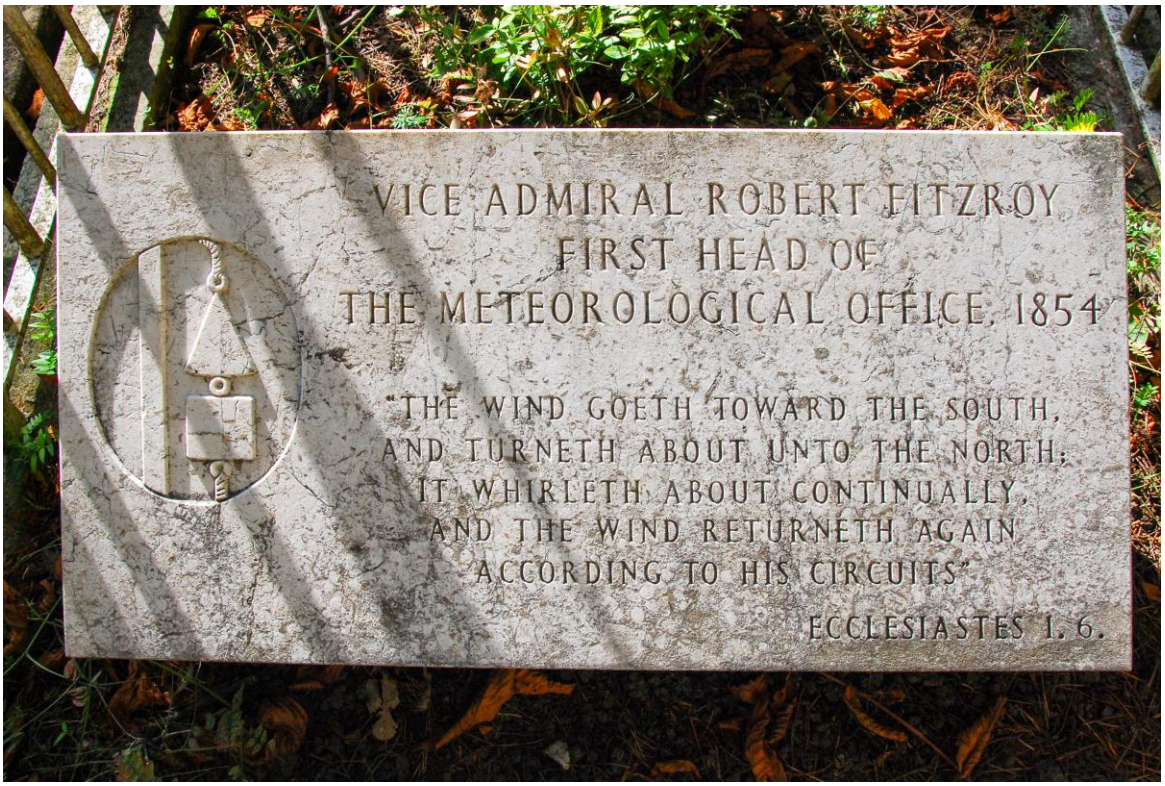
The Rev Francis William Tremlett also volunteered evidence. He said that Admiral FitzRoy had visited him on Saturday, the day before he died. Also present had been Captain (Lieutenant) Matthew Maury, the American who had been a prime mover in getting seafaring nations, especially America and Great Britain, to collaborate and standardize the gathering of weather reports and associated information at sea. Maury had become a friend of FitzRoy's and on that Saturday FitzRoy had been determined to see Maury who about to return to America. Tremlett told the inquest that after FitzRoy had left them, Tremlett remarked to Maury about the Admiral being in a bad way and that Tremlett's opinion was that Maury will never see FitzRoy in his senses again and that he (Tremlett) had often thought FitzRoy would become deranged.

The Coroner then asked the Jury *'….. whether it was necessary to carry the examination further into the deceased's responsibility*?'. The Jury, through their Foreman, replied

emphatically that '*… it was not*'. The Foreman and the Jury then confirmed their opinion that '*…the deceased destroyed himself by his own hand and that he was in an unsound state of mind at the time he did so*'. The Coroner recorded the verdict to that effect.

Thus, concluded the immediate enquiry into Admiral Robert FitzRoy's death. In later years, other writers have considered and speculated on other matters which had played on the Admiral's mind, such as his disagreement with Darwin about the latter's views expressed in his *On the Origin of the Species*. Also, there was the family background of the FitzRoys which predisposed them to depression etc. Whatever the full circumstances there is no doubt that Robert FitzRoy, during his hectic nine or so years in charge of the Meteorological Department (later to become the UK Met Office) of the Board of Trade, laid the basis of much of the improved knowledge of meteorology in the late nineteenth century and later, certainly in Great Britain, and arguable throughout the world.

His grave at All Saints Church, Norwood has the usual inscription details on the head-stone but has a unique foot-stone. It features a symbolic representation of two of FitzRoy's gale warning signals, which were used at many British ports from the 1860s right through until the early 1980s and were so highly valued before the days of shore to ship communications etc. The symbols show a 'North Cone' (Gale probable…. from the Northward) and a 'Drum' (successive gales from various directions) which rather neatly illustrates the ups and downs of his later career. It also features the following biblical quotation from Ecclesiastes 1.6:
'*The Wind Goeth Toward the South and Turneth about Unto the North; it Whirleth About Continually and the Wind returneth Again According To His Circuits'.*



FitzRoy's footstone, All Saints churchyard, Norwood.

All very appropriate for 'the Great Prognosticator'- or indeed for any meteorologist.

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[1] FitzRoy's status in the Admiralty had been advanced from Rear-Admiral to Vice-Admiral in 1863 but commonly at the time of his death and subsequently and for the purposes of this article, he is referred to as 'Admiral'

Sources:
The British Newspaper Archive
www.rockvillepress.com

Acknowledgment:
Prof. Joe Cain, Professor of the History and Philosophy of Biology, UCL kindly gave permission for his images of FitzRoy's grave at All Saints Church, Norwood, to be used in this article.

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19th century ocean observations shed light on the earth's hydrological cycle

John Gould, National Oceanography Centre, Southampton

In the 1870s two ships, *HMS Challenger* and Germany's less well-known *SMS Gazelle*, circled the globe making some of the earliest, broadscale ocean observations. Among them were measurements of the seawater's specific gravity. In a new study these have been converted to equivalent salinity values. The care of those 19th century observers was such that not only do their measurements accurately reproduce features of the now well-known large-scale surface salinity field, they have been used to extend our knowledge of temporal changes in surface salinity.

Surface salinity can be regarded as providing a global scale rain-gauge. Several recent papers have shown that since the mid 20th century salty areas have become saltier and fresh areas fresher, implying a strengthening of earth's hydrological cycle. The Challenger and Gazelle data show a similar pattern of amplification between the 1870s and 1950s but, most importantly, that the rate of change was approximately half the post-1950s rate. This acceleration can be linked to increasing global temperatures.

The 1870s salinities were first shown at a joint RMetSoc/Challenger Society meeting in November 2018 (https://doi.org/10.1002/wea.3487) and the analysis by John Gould (NOC, Southampton) and Stuart Cunningham (SAMS, Oban) was published in *Nature Communications in Earth and Environment* in April 2021 (https://doi.org/10.1038/s43247-021-00161-3).

We have been keen to increase our membership and activities for some time. Coronavirus has obviously delayed these initiatives but we are now exploring how to 'reactivate'.

The Group has reactivated its presence on Twitter, with yours truly doing the hosting. We will soon be active on Facebook too (with Richard Griffith). Thanks are due to Catharine Bailey for setting both sites up a few years ago. Twitter is an excellent forum for publicising snippets of information of ours and related groups.

If you are already on twitter, please follow us at #RMetS_HistGroup. If you are not yet on twitter, just visit https://twitter.com/RMetS_HistGroup but I do recommend signing-up; it is easy (even I was able to do it). By retweeting announcements there to your followers, we can help to spread our message far and wide. The aim, of course, is to enlarge and widen our membership. Membership is free; it is essentially a mailing list and we wish it to grow. An 'advert' will be coming up in *Weather* soon.

As well collaboration in the conventional meetings listed at the start of this newsletter, we hope to start short virtual meetings via Zoom featuring a single speaker / subject. Suggestions for speakers / topics are welcome – please get in touch. Naturally, these meetings will be publicised through our social media channels and by e-mail to you.

We will, of course continue with our regular activities – Occasional Papers, Portraits of Presidents and Interviews (oral histories) with distinguished meteorologists. These will be publicised in *Weather* and/or social media as before.

Julian Mayes

Submissions for the History Group newsletter and enquiries about the Group can be made to Julian Mayes (Hon. Sec. / newsletter editor) at jcmwx515@gmail.com