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

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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.

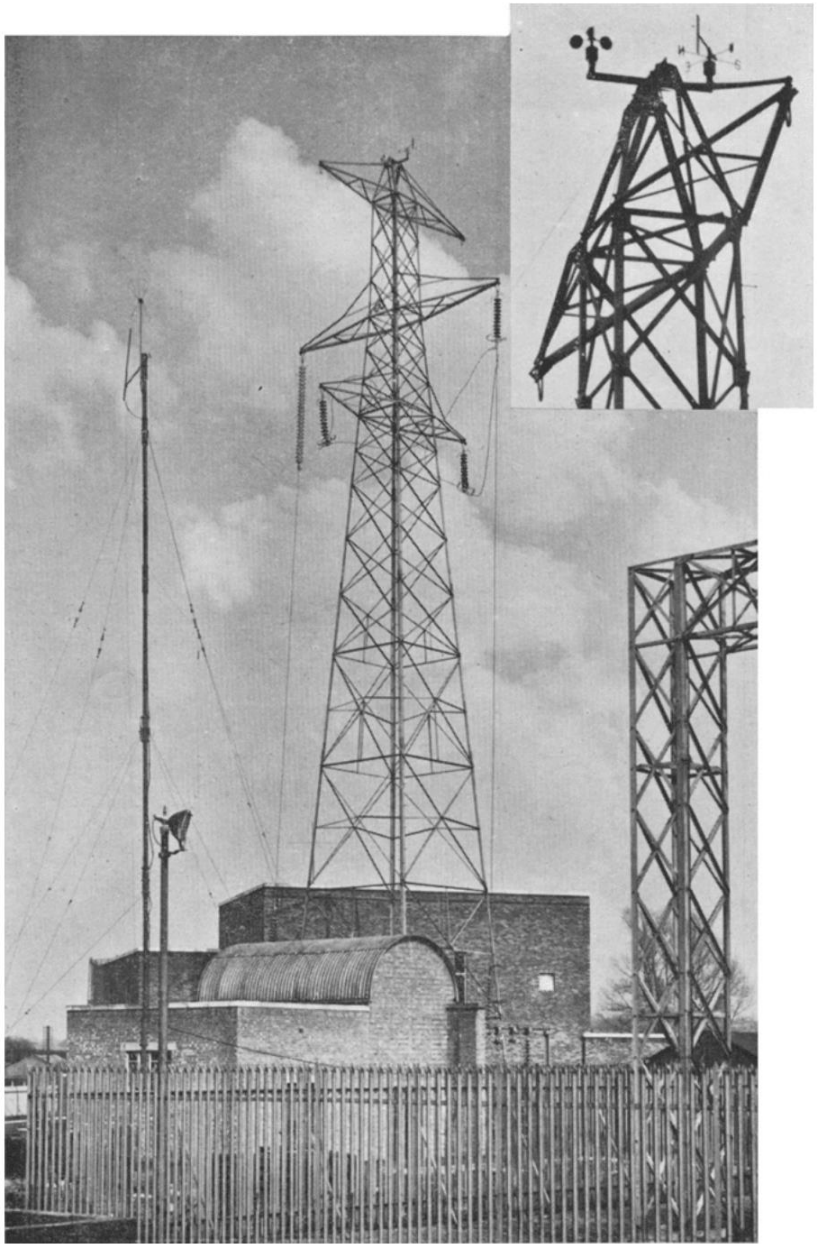
In 1942, Forrest made his first contribution to meteorological literature, publishing an article in the *Quarterly Journal of the Royal Meteorological Society* describing a practical radio method for determining the location and frequency of thunderstorms. Forrest would remain interested in thunderstorms – 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).

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