Young Lewis Fry Richardson in Yorkshire

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Lewis Fry Richardson (1881–1953) was a meteorologist, physicist, mathematician and social scientist. He performed the first weather forecast by numerical methods (Richardson 1922), developed techniques for understanding turbulence, laid the groundwork for the concept of fractals, derived numerical methods for solving mathematical equations and devised a scientific approach to ending human conflict. From 1921 to 1924 he was an honorary secretary of the Royal Meteorological Society. Numerous biographies have been written about him (Gold, 1954; Ashford, 1985) and his contributions to science (Platzman, 1967; Wilkinson, 1980; Vreugdenhil, 1994; Hunt, 1997; Nicholson, 1999; Lynch, 2006).

Ashford’s (1985) Chapter 2 describes Richardson’s education at Bootham School in York. As that school is just minutes away from where one of us (Schultz) lives, we thought it was worth a visit to see the archives pertaining to young Richardson and seek to understand how his early life in Yorkshire influenced his later career.

Richardson was born in Newcastle upon Tyne on 11 October 1881 to Catherine Fry and David Richardson, their seventh and youngest child. His family were devout Quakers. Richardson’s passion for science developed early in life. At the age of five he became interested in electricity, and by ten he expressed an interest in chemistry, probably as a result of interactions with family friend Henry Richardson Procter, who worked in the production of leather and became head of the applied chemistry department at Leeds University.

In 1894, Richardson, like his father and three of his brothers before him, was enrolled in Bootham School in York, a Quaker boarding school (Figure 1). He studied there until 1898 and flourished in this environment of strong discipline and excellent teaching. One of his masters, James Edmund Clark, was an active member of the Royal Meteorological Society and co-edited its yearly phenological report on observations of spring leaf-budding and bird migrations.
from 1911 to 1925. Richardson commented that Clark gave us glimpses of the marvels of science (Gold, 1954, p. 218). Hugh Richardson, Lewis’s oldest brother, would later take over from Clark and eventually serve as a Councillor in the Yorkshire Philosophical Society (founded in 1822).

Bootham School had its own society, the Bootham Natural History Society, which was founded in 1834 and is believed to be the oldest school society in Europe: its student members entered observations of nature in their diaries. Richardson’s 1894 diary remains in the Bootham School Archives (Figure 2), and it contains his observations of insects and the weather. Two excerpts are presented in Figures 3 and 4 (another excerpt appears in Ashford (1985, p. 14)). The diary contains water colour images of plants and butterflies. Richardson describes a train trip to Crag Lough and Hadrian’s Wall (14 July), identifying the birds that he saw along the way. His journal rarely mentions the weather, and when it does the entry is usually quite brief. For example:

20 May: Snowed a little in the morning but did not lie. Frost in night.
26 May: Heavy showers of hail and rain.
12 June: Fine but showery in the morning (sic), rained hard in the evening.
14 July: Overcast and showery.

The diary was just one of Richardson’s accomplishments in natural history while at Bootham. In January 1897 he displayed an insect collection consisting of 167 species, for which he won first prize, and in May 1898 he won a Natural History Exhibition and a Leaving Scholarship to pursue two years of education at Durham College of Science. Among his many jobs later in life, he worked in the Meteorological Office as the Superintendent of the Eskdalemuir Observatory and, under W. H. Dines, was in charge of experiments to forecast the weather by numerical processes at Benson. Because of his Quaker principles, he left the Office when it was subsumed under the Ministry of Defence. He also taught at several colleges.

If a man can be summarized so simply, in experimental science and in life, Richardson’s message was morality...comes first (Ashford, 1985, p. 151). His pacifist convictions later led him to abandon meteorology altogether, and, as a result, he became somewhat removed from the mainstream scientific community at the larger British universities and research laboratories. Yet, despite lacking these connections, his strong self-identity and independence of thought, nurtured by his Quaker family and his Yorkshire education, enabled him to follow his own muse and he left us a tremendous legacy.

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References

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