Letters to the Editor

Stillbirth rates around the nuclear installation at Sellafield, UK

From ALFRED KÖRBLEIN

Sir—Although Dummer et al.\(^1\) report a highly significant increase of stillbirth rates in the 15–20 km zone north of Sellafield between 1950 and 1959, they concluded that there is no evidence that proximity to Sellafield increases the risk of stillbirth.

The authors must know that there was a severe accident at this nuclear installation in 1957. Radioactive emissions from the plant are released into the Irish Sea 2 miles offshore via a long pipeline. From there the prevailing currents flow northerly, and so radioactivity from the plant is likely to be washed ashore some distance north of Sellafield. The prevailing winds from

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Authors’ Reply

From HO DICKINSON, L PARKER and TJB DUMMER

Sir—Dr Körblein raises two separate questions: (i) whether the fire at Windscale (now known as Sellafield) on 10–11 October 1957, from which radioactive releases were almost exclusively airborne\(^1\) may have increased the risk of stillbirth and (ii) whether the discharges from Sellafield to the Irish Sea may be responsible for the observed excess 15–20 km north of Sellafield during 1950–1959.\(^2\)

As suggested, we have considered the risk of stillbirth in the years 1958–1959 immediately following the Windscale fire. It is apparent from Figure 5 of our paper that there was no excess of stillbirths in Cumbria in these years, either within or outside 25 km of Sellafield. Nevertheless, we further considered the stillbirth risk during these 2 years by sector (north-west, north-east, south-east, within 25 km of Sellafield). There was no significant excess in any of these sectors (O:E = 59:58.4, 5:6.1, 1:4.4 respectively). Logistic regression analysis of births during 1958—1959 throughout Cumbria showed no indication of a trend with proximity to Sellafield (modelled as before using the inverse of distance), either overall or within any of these sectors (\(P > 0.4\) in all cases). Within the limitations of statistical power, there is no evidence that the 1957 fire increased the risk of stillbirth in the surrounding area in 1958–1959.

Dr Körblein draws attention to discharges from Sellafield to the Irish Sea. Although these peaked in the 1970s\(^3\) and the excess stillbirths 15–20 km north of Sellafield occurred in the 1950s, we have reanalysed the data by distance of the mother’s residence from the coast, using the same methods as before,

the sea might well dry out the sludge and blow the radioactive dust into homes of people living near the coast. The observed highly significant increase of stillbirth rate in the northwest sector from Sellafield and in the 15–20 km zone, where the town of Whitehaven is located, could thus be explained by releases to the Irish Sea rather than by airborne radioactive pollution, the only hypothesis considered in the above paper. To test this suspicion, I highly recommend analysing the stillbirth data of the years following the accident, i.e. 1958 and 1959.

Reference


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Figure 1 Cumbria showing the distance bands used for analysis (0–2.5 km, >2.5–5.0 km, >5.0–7.5 km, >7.5–10 km, >10 km from the coast) and areas adjacent to Irish Sea compartment zones (A—Irish Sea northwest, B—Local Compartment, C—Cumbrian Waters).\(^5\)