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### **An unusual cluster of babies with Down's syndrome--was it caused by the Windscale fire?**

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*We may shorten letters to the editor unless the authors specifically state that we may not. This is so that we can offer our readers as wide a selection of letters as possible. We receive so many letters each week that we have to omit some of them. Letters must be typed with double spacing between lines and must be signed personally by all their authors, who should include their degrees. Letters critical of a paper may be sent to the authors of the paper so that their reply may appear in the same issue.*

*Correspondents should present their references in the Vancouver style (see examples in these columns). In particular, the names and initials of all authors must be given unless there are more than six, when only the first three should be given, followed by et al; and the first and last page numbers of articles and chapters should be included.*

## An unusual cluster of babies with Down's syndrome—was it caused by the Windscale fire?

SIR,—Dr Patricia M E Sheehan and Professor Irene B Hillary speculated that radiation released by the Windscale fire on 10 October 1957 might have been partly responsible for a cluster of births of babies with Down's syndrome (all trisomy-21) to six women who were all at one school in Dundalk, Ireland, in 1957 (12 November 1980, p 1428). Subsequent correspondence left the significance of this finding unresolved (14 January, p 146). Three points must be addressed: (1) Might this cluster of babies with Down's syndrome have occurred by chance? (2) Did any radiation from the cloud reach Ireland? (3) Is radiation known to increase the incidence of aneuploidy—for example, trisomy-21—in man?

Dr W H James (14 January, p 147) suggested that the cluster could have occurred by chance, but the data available to him were incomplete. The number of babies with Down's syndrome was ultimately reported as eight (14 January, p 147), and the number of births to girls who were at the school in 1957 was less than 400. Since none of the women was over 32 at the time of the birth of their child with Down's syndrome the expected incidence is approximately 1 in 1200.<sup>1</sup> Fewer than one in 60 million groups of 400 births would be expected to contain a cluster of more than seven babies with Down's syndrome so this is certainly a significant cluster.

Dr A P Brown (14 January, p 147) raised contemporary reports suggesting that it is unlikely that any radioactivity from Windscale reached Ireland. The only way in which remnants of the cloud might have reached Dundalk is by a very roundabout route. Meteorological reports show that the airstream which arrived over Ireland on 15 October 1957 could have originated a couple of days earlier over the South of England (personal communication from W G Callaghan, Irish Meteorological Service), where iodine-131 ("the only material of biological significance" in the cloud<sup>2</sup>) from the Windscale fire was recorded. Of course by 15 October the radioactivity would have diffused greatly. The Irish Meteorological Service received a request from the advisory committee on nuclear radiation in de Bilt, the Netherlands, for the filter papers exposed daily at Dublin and Valentia, Kerry, during 10-16 October 1957. Detailed analysis of their radioactive contents by  $\gamma$  ray spectrometer showed no important amount of iodine-131 (personal communication from W G Callaghan, Irish Meteorological Service).

Finally Bond and Chandley have concluded that in man "for aneuploidy induction by irradiation, the data would indicate that the risk of inducing trisomy is very small,"<sup>3</sup> and there is no evidence relating to the suggested

interaction between a low level of radiation and viral infection (12 November, p 1428). In conclusion, there is no evidence that radiation from the Windscale accident might have reached Ireland and the only factor implicating it in the causation of these genetic accidents is the coincidence of timing. The cluster did not occur by chance but requires an alternative explanation.

PAUL M SHARP  
DAVID J MCCONNELL

Department of Genetics,  
Trinity College,  
Dublin 2

<sup>1</sup> Smith GF, Berg JM. *Down's anomaly*. Edinburgh: Churchill Livingstone, 1976.

<sup>2</sup> Chamberlain AC, Dunster HJ. Deposition of radioactivity in north-west England from the accident at Windscale. *Nature* 1958;182:629-30.

<sup>3</sup> Bond DJ, Chandley AC. *Aneuploidy*. Oxford: Oxford University Press, 1983:117.

## Can nocturnal emergency surgery be reduced?

SIR,—All surgeons will be interested in the findings of Mr D J Sherlock and others (21 July, p 170), but I suggest that it is widely appreciated, although rarely admitted, that most emergency operations are performed at night for convenience rather than necessity.