

I must express some confusion regarding the back-to-back obituaries, in the October 2001 issue, of Clifford Glenwood Shull (page 86, written by Ralph Moon and Robert J. Birgeneau) and Louis Néel (page 88, written by Jacques Friedel). When one reads both obituaries at the same sitting, it becomes clear that the scientific paths of these two men crossed during the course of their lives, but one is left confused as to the specifics.

The Shull obituary explains that among Cliff's accomplishments with neutron diffraction were that the "first direct evidence of antiferromagnetism came from determining the magnetic structure of manganese oxide" and that the "Néel model of ferrimagnetism was confirmed for magnetite." The ensuing Néel obituary describes how Néel in fact "developed the concept of antiferromagnetism" along with predicting susceptibility peaks at the "Néel temperature." Then, a somewhat confusing paragraph mentions contributions from Lev Landau and Cornelius Gorter to the theory of "antiferromagnetism," but these are apparently irrelevant for certain materials that involve a "magnetic wall of high energy." Without further clarification, that paragraph ends with this: "Using neutron diffraction, Harry Shull confirmed (in 1950) Néel's model."

First, who is Harry Shull? Second, just what did he confirm in 1950? The proposals about the Néel

temperature were "made in 1936 . . . [and] confirmed in 1938 on manganese oxide," according to Néel's obituary. Shull's obituary, in which he is consistently called "Cliff," says that Shull confirmed antiferromagnetism in manganese oxide, presumably after 1938 (after the "war ended") and confirmed the Néel model for ferrimagnetism for magnetite, probably around 1950, as I interpret it.

I hope you can see my confusion. Maybe people used to call Cliff "Harry." Maybe the development of the theory of "antiferromagnetism" for manganese oxide is so related to the theory of "ferrimagnetism" for magnetite that distinctions about what "Harry" confirmed, and when and how, are not so important. I wish I knew.

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FRIEDEL AND MOON REPLY: The reference to Harry Shull in the Louis Néel obituary was an unfortunate error. It was Clifford Shull who did the first neutron diffraction experiments confirming Néel's ideas on antiferromagnetism and ferrimagnetism.

Néel¹ originated the name antiferromagnetism in developing a theory of systems in which the magnetic interaction between atoms on crystallographically equivalent sites favored opposite orientation of the

Probability of Good Beer in Denmark

While attending a conference in Copenhagen, I noticed an interesting advertisement for the Carlsberg brewery on the side of a building facing Raadhuspladsen, (City Hall Square). Knowing that Carlsberg profits have supported the Niels Bohr Institute for Astronomy, Physics and Geophysics in Copenhagen, I'm wondering if the qualifying adjective "probably" is a subtle nod to the probabilistic nature of quantum mechanics!

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