The Role of Gradients in NMR
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Conference report by M.R. Symms

The NMRDG Christmas meeting traditionally has a good attendance, but this meeting proved to be a big draw, the numbers being swelled by many representatives from NMR imaging laboratories. Chaired by S.C.R Williams, the day was more than "just an imaging meeting"; the talks covered a wide range of situations where the NMR signal is affected, or can be modified, by magnetic field gradients. Some of the talks brought together concepts from both spectroscopy and imaging.

J.H. Keeler started proceedings with a review of "The use of gradients in high resolution spectroscopy" and gave some ingenious examples of how gradients can be used to enhance resolution or to simplify spectroscopic experiments. M.A. Horsfield discussed some of the problems involved in using NMR to extract useful data from rock bores for the oil industry, and focused on relaxation measurements made in the presence of internal gradients. While the previous speaker and others addressed the matters of NMR in the presence of undesirable gradients, P. Kinchesh gave a state-of-the-art overview of "Magnetic resonance imaging in stray fields" where one such "free" gradient can be used to great effect. P. Gibbs, stepping in at the last minute for S. Blackband, rounded off the morning with an interesting account of high resolution imaging in two situations: a purpose-built machinery for microscopy of single neurones, and modifications to a clinical whole-body scanner for high resolution imaging of extremities.

Following a traditional Christmas lunch, R J. Ordidge returned to the problem of internal gradients with an excellent talk that described methods to remove susceptibility effects in the MRI of a human brain. J.A.B. Lohman returned to the subject of gradients in high resolution spectroscopy, but in his talk he discussed radiofrequency field gradients, their similarities and differences to static gradients and gave some novel examples of their application. T. A. Carpenter gave the final talk of the day, and discussed some aspects of gradient design as applied to diffusion-weighted and functional MRI.