
Concluding Remarks

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Concluding remarks

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Over the past two days we have seen a remarkably wide sweep of work, all within the scope of nuclear magnetic resonance in intact biological systems. The subjects have ranged from n.m.r. studies of molecular processes, to cellular processes, to the metabolism of whole organs, to the examination of body fluids, to n.m.r. investigations of whole animals and to the exploration of the structure and tissue discrimination in live human hands and arms, human heads, chests and abdomens, altogether covering a ratio of some 10^{28} : 1 in mass, from specific molecules to man. At each level, n.m.r. spectroscopy has been able to contribute new information not readily obtained by other techniques, demonstrating its unique power of non-destructive investigation of materials and systems of all kinds.

The first ten contributions were concerned primarily with the use of high resolution n.m.r. as a means of investigating molecular processes in living systems, while the remainder were mainly concerned with n.m.r. imaging and the display of biological structure in intact living systems. Nevertheless, we have seen some examples of integration of these two lines of development with advances in the imaging of the spatial distribution of specific molecular species. With the advent of high resolution n.m.r. magnets of still larger working volume we can expect further exciting developments in the near future.

From the latter set of papers there are clearly medical potentialities in the discrimination of pathological tissue and behaviour. We are just at the threshold of clinical trials of n.m.r. tomography and it will take several years to assess just how valuable this newcomer to medical imaging will be in daily hospital practice. Medical physicists are already aware that here is yet another branch of physics that they must now learn about!

Finally, I know that everyone will wish me to express our thanks to the Royal Society for sponsoring this timely meeting on a subject of such topical interest and for providing the opportunity to bring together scientists of a very wide range of disciplines to discuss it. We are most grateful to the staff of the Royal Society for the efficient and friendly way in which they made the detailed arrangements. We are particularly grateful to the authors of all the stimulating papers that have been presented, to those who have contributed to the discussion and to all of you who have attended, in such good numbers, and have contributed to the success of this meeting.