work at York is completed and the largest mediaeval cathedral in Britain is saved from the danger of collapse. The appeal fund of £2 million, based on what was necessarily only an approximate estimate of the restoration, is planned to be spent by 1975. With luck, this amount will cover the work, but in 1967 estimates of the cost ranged up to £2·6 million. The obvious answer—that the Church Commissioners support the appeal—seems to be out of the question. Although the Church Commissioners make grants towards the pay of the clergy and lay staff, they are forbidden by statute to contribute to the maintenance of the building itself.

Sheffield Honours Chapman

PROFESSOR SYDNEY CHAPMAN, the geophysicist, is 80 this year, and to mark the occasion Sheffield University last week awarded him the honorary degree of Doctor of Science. To add to the celebrations, the university held a three day conference attended by Professor Chapman, by many of his friends and by more than 100 space scientists. The theme of the conference was the solar-terrestrial environment, and the eight topics covered were chosen to reflect Professor Chapman's interests over the years. Study of interactions between the Sun and the Earth has during the past few years developed into a major

Professor Sydney Chapman.

field of research, chiefly because of the way the upper atmosphere can now be investigated by rockets and satellites, but the inception of the subject owes as much to Professor Chapman as to anyone. Nevertheless, the conference was rarely retrospective, and the papers presented gave an insight into the research which is now being carried out.

The work going on in the space sciences at the University of Sheffield was, of course, well represented. This is chiefly concerned with the theory of the ionosphere, radar observations of meteors and ionosphere and very low frequency investigations from rockets and satellites. Some of the results reported by the Sheffield groups were of very low frequency radio noise measured by the Sheffield experiment on Ariel 3.

Not all the papers read at Sheffield described positive results, however. J. F. Kerridge of Birkbeck College, who summarized the recent rocket and satellite attempts to collect samples of interplanetary dust, said the experiments had been thwarted by contamination problems. This means that the notion that the Earth is surrounded by a substantial dust cloud—which seemed quite likely a few years ago—is in fact not the case. At lower levels, Dr D. W. Parkin has for some years now carried out searches for particles of interplanetary dust which may have drifted down in the atmosphere. Dr Parkin said at Sheffield that the metal fragments and black magnetic spherules collected from nylon meshes exposed to the wind at a site in Barbados, and earlier described as extra-terrestrial, are contaminants introduced by handling. This lack of information on the rate of influx of minute particles of interplanetary dust is just now one of the uncertainties in estimates of the accretion of extra-terrestrial material by the Earth.

Feeding before Birth

NUTRITION of the foetus and the newly born was the theme of the 202nd meeting of the Nutrition Society held on July 12–13 at the School of Anatomy, Cambridge University. The meeting was well attended, and the papers were followed by constructive discussion, but the overall impression was that much remains to be done.

On the first day—with Dr E. Kodicek, director of the Dunn Nutritional Laboratory as chairman—Dr Elsie M. Widdowson set the pace with a talk on the way the foetus is fed. She discussed the passage of various substances such as potassium, sodium, phosphorus and calcium across the placenta, and added that active transfer has been invoked as a likely mechanism, especially in view of the fact that potassium, calcium and phosphorus attain a higher concentration in foetal plasma than in maternal plasma. Although the gradients across various parts of the placenta are not fully understood, it does seem that the placenta can alter certain substances during their passage through to the foetus.

This was followed by a physiological basis for assessing protein requirements during pregnancy, put forward by Dr D. J. Naismith, who referred to the parasitic relationship of the foetus to the mother. He proposed a scheme for the endocrine control of protein metabolism of the maternal organism which ensures a continuous supply of amino-acids for synthesis of foetal protein; the adrenal corticosteroids and oestrogens seem to be particularly concerned.

During the afternoon Dr Heather J. Shelley and Dr G. A. Neligan talked about carbohydrate metabolism in the foetus and the newly born, and hypoglycaemia in the newly born baby. According to Dr Shelley, glucose of maternal origin passes freely across the placenta and is both the main metabolic fuel in the foetus and the principal substrate for fat and glycogen synthesis. Most species, including man, accumulate glycogen in the liver and skeletal muscles during the last part of gestation and these stores are utilized immediately after birth. The ability to degrade amino-acids and synthesize glucose from three-carbon compounds does not develop until after birth, but the activity of the enzymes involved rises above that of the adult during the suckling period. The rapid utilization of liver glycogen after birth and the small capacity for gluconeogenesis at birth is probably responsible for