stars seems to depend more on a good choice and correct identification of stars than on extreme accuracy in estimating fractional distances. In the afternoon session, several observers described their own methods for improving the accuracy of observation, and gave their listeners many new ideas for proceeding along the arduous road "towards one minute of arc".

NUTRITION

New Protein Foods

by a Correspondent

THE current problems in protein nutrition were discussed at a symposium organized by the Food and Nutrition Section of the Royal Society of Health jointly with the Institute of Food Science and Technology and the Food Group of the Society of Chemical Industry and held at the Royal Society on Thursday, October 17.

Dr A. E. Bender (Queen Elizabeth College) dealt with human aspects in four stages; the public health problem (establishing the extent and severity of any deficiency), the nutritionist's problem (providing adequate sources of nutrients), the food technologist's problem (converting these into acceptable foods) and the marketing problem. He showed that the protein shortage applies almost solely to infants and nursing mothers, and to a lesser extent to pregnant women and children, and that there is no shortage of protein as such for the adult population of any of the developing countries but rather a general food shortage.

At least twenty protein-rich mixtures are available in various countries, the latest being "Strongarm" biscuit produced in Great Britain by the United Biscuit Co., but so far the most difficult problem to overcome is that of marketing.

Dr M. Head (University of Surrey) discussed animal feeds. The availability of synthetic amino-acids has allowed the use of supplemented feeds of lower protein levels, but only 5–10 per cent of the protein can be replaced in this way.

Ruminants deal equally well with proteins of any biological value, but the newer methods of intensive feeding can result in some protein digestion in the small intestine where biological value does become a matter of importance even to these animals. The new sources of "factory-made proteins" offer the advantage of more constant composition.

Mr C. A. Shacklady (British Petroleum) discussed the use of yeast protein grown on hydrocarbons. Purified hydrocarbons are a more expensive raw material than gas-oil, but yeast grown on the latter must be extracted to remove unmetabolized products. Yeast supplemented with synthetic amino-acids has a biological value as high as 90 and has been tested on broiler chickens, egg production and pig production over prolonged periods. Diets containing 10 per cent yeast protein are as good as those containing 10 per cent fish meal, but at levels above this the BP protein is slightly inferior to fish meal.

Professor Arnold Spicer (Lord Rank Research Centre) discussed the conversion of starch to fungal protein and the advantages of this process over bacterial protein. Although the latter yields a richer protein product and grows faster than fungi, it contains 13–14 per cent nucleic acids and dries to an amorphous powder which is difficult to incorporate into foods.

The basic aim is to produce a material with an unsupplemented biological value of at least 70, for, apart from any differences in metabolism of added amino-acids, there is the danger that they may suffer during processing.

The product has good water absorption, gelatinization properties, fat binding and viscosity properties, so that, apart from its use as a foodstuff, it also has technological uses. Although there is much work yet to be done, it can be incorporated into cereals and has good baking properties and can be textured to flakes or puffed.

Professor Spicer, referring to the need for industrial cooperation in this field discussed earlier by Dr Bender, said that his own company regarded this project as one of top priority so far as investment is concerned.

MEDICINE

Medical Get-together

CHELTENHAM in autumn was the perfect setting for the eleventh Annual Clinical Meeting of the British Medical Association, held on October 24–26. Leisurely and sedate, it reflected the mood of the meeting which, in spite of the full and diverse programme, seemed to be as much of a social event as a serious "work-in".

The opening address in the afternoon of October 24 was given by Lord Todd, who spoke about the role of the doctor in a changing world. "Change," he said, "has characterized the whole history of mankind"; since the industrial revolution and as a result of technical innovations "the rate of change has been continually accelerating". It was during the second half of the nineteenth century—a period when scientific medicine really began to get under way—that the rise in specialties occurred, leading to a widening of the gulf between the general practitioner and the hospital physician or surgeon. Referring to the Royal Commission on Medical Education of which he was chairman, Lord Todd said that any reform of medical education should be aimed at preparing the doctor to live with change. The general practitioner, he added, must continue as the "cornerstone" of the medical services, for the family doctor is perhaps more necessary now than in the past. He nevertheless made it clear that the days of a single-handed practitioner working as a private entrepreneur are over and that, in future, practitioners will have to operate in large groups based on fully equipped health centres or clinics with adequate ancillary staff. This in turn would call for complex organization, lack of which would result in the system becoming something "bureaucratic and impersonal".

The first session on Friday was on biological organization. Although this might at first seem a rather unusual choice for a medical audience, as Professor D. V. Hubble, the chairman, pointed out, doctors should be concerned with what is going on in biology. Professor J. A. Davis, who organized the sessions, added that in addition to healing the sick, doctors should also aim to understand the human race, and that a biological model would serve to bring about such an understanding of social organization. Dr W. G. Fry (Anglesey) considered individuality and organization in multi-