Briscoe, Armstrong College, Newcastle-upon-Tyne (December 6). A full-time secretary of the Institute of Physics—The President, Institute of Physics, c/o Royal Institution, Albemarle Street, W.1 (December 14). A junior assistant in the engineering department of the National Physical Laboratory—The Director, National Physical Laboratory, Teddington (December 15). A live-stock officer and 7 assistant inspectors under the Ministry of Agriculture and Fisheries—The Secretary, Ministry of Agriculture and Fisheries, 10 Whitehall Place, S.W.1 (December 20). A professor of pathology and a professor of bacteriology in the University of Cairo—Sir H. J. Waring, 37 Wimpole Street, W.1 (December 23). A physicist to the Dominion Laboratory, Wellington, New Zealand—The High Commissioner for New Zealand, 415 Strand, W.C.2 (December 24). An organiser of agricultural education for the county of Wilts—The Clerk of the County Council, County Offices, Trowbridge (December 28). A director of tubercular research in the University of Melbourne—The Agent-General for Victoria, Victoria House, Melbourne Place, Strand, W.C.2 (February 1). A senior lecturer in natural philosophy in the University of Melbourne—The Registrar, University of Melbourne, Melbourne, Victoria (February 14). A head of the electrical engineering department of the St. Helens Municipal Technical School—The Secretary for Education, Education Office, St. Helens. A lecturer in pharmacy and chemistry at the Portsmouth Municipal College—The Secretary, Offices for Higher Education, Municipal College, Portsmouth. An assistant dairy bacteriologist at the University of Bristol—The Registrar, The University, Bristol. An assistant instructor and lecturer in dairying at the British Dairy Institute, Reading—The Registrar, The University, Reading. A junior assistant chemist under the Directorate of Explosives Research of the Research Department, Woolwich—The Chief Superintendent, Research Department, Woolwich, S.E.18.

Our Astronomical Column.

COMETS.—The following ephemeris for 0^h of comet Comas Sola is from Mr. G. Merton's elements :

	R.A.	N. Decl.	log r.	log Δ.
Dec. 7	$2^h\ 28^m\ 41^s$	$9°\ 32'$	0·2931	0·0351
,, 11	2 26 36	10 4	0·2909	0·0411
,, 15	2 25 17	10 41	0·2886	0·0484
,, 19	2 24 36	11 20	0·2864	0·0564

The comet crosses the meridian at about 9 P.M. at a considerable altitude.

Mr. G. Neujmin gives the following ephemeris for 0^h of his comet in *B.Z.* No. 41 :

	R.A.	Decl.	log r.	log Δ.
Dec. 7	$11^h\ 44{\cdot}8^m$	$5°\ 40'$ N.	0·159	0·078
,, 11	11 56·5	3 48		
,, 15	12 8·2	1 53 N.	0·141	0·056
,, 19	12 19·8	0 4 S.		
,, 23	12 31·4	2 3 S.	0·135	0·017

Prof. G. van Biesbroeck, assisted by Mr. O. Struve, has made a fine series of cometary observations at the Yerkes Observatory. Comets Orkisz, Borrelly, Faye, and van Biesbroeck were all observed for several months in 1926. The prolonged observation of Orkisz will settle the question of its deviation from a parabolic orbit (*Astr. Jour.*, No. 872).

SPIRAL NEBULÆ.—Dr. G. E. Hale contributes an interesting article to the September number of *Scribner's Magazine*, entitled "Beyond the Milky Way," in which the character of spiral nebulæ is discussed. The conflict between the distances of these objects suggested, on one hand by van Maanen's measurements of internal motion, and on the other by Hubble's observations of Cepheid variables, is described, but no final conclusion is drawn. The distances indicated are respectively of the order of 3000 to 30,000 light years and 1,000,000 light years. With regard to the possibility of systematic error in van Maanen's measurements, Dr. Hale says: "As van Maanen is unsurpassed in his skill in measurement, there can be no doubt of the existence of some form of displacement. It is difficult to conceive of systematic photographic or instrumental differences between the old and new plates which would always give an outward motion along the arms of a spiral, and the question remains whether the displacements can be accounted for by some other obscure source of error. As matters stand, van Maanen's conclusions as to the distance and dimensions of the spirals are radically different from those of Curtis and Hubble, and much work may be needed to clear up the discrepancy." In the concluding paragraphs of the article, reference is made to the suggestion of Millikan and Jeans that the recently discovered penetrating cosmic rays may originate in spiral nebulæ.

SOLAR RADIATION AND WEATHER FORECASTING.—An article bearing this title is contributed by C. F. Marvin and H. H. Kimball, of the U.S. Weather Bureau, in the September number of the *Journal of the Franklin Institute*. Methods of observing the solar constant are first given, and the various forms of pyrheliometers are described, including the pyranometer, an instrument developed by the Smithsonian Institution in 1920, which, in combination with the bolometer, has proved most successful. The observed values of the solar constant are then discussed, especially from the point of view of the probable errors of observation. Two graphs are given to show that the probable variation of the determinations has decreased from ±1·3 per cent. (earliest efforts ±3·0 per cent.) to ±0·5 per cent. after the introduction of the pyranometer. From the nature of the scatter of Calama observations, it is concluded that it is impossible to determine whether solar variability, atmospheric variability, or errors of observing are the predominating cause, in fact that "such solar variability as exists is submerged in the errors of determination." As regards forecasting, the important question is whether an apparent fluctuation in the sun's total thermal energy of less than 0·5 per cent. can constitute a scientific basis for short- or long-range weather forecasting. The authors give their reasons for believing that the weight assignable to solar variability as a factor in the making of the weather is almost vanishingly small. H. H. Clayton's forecasts made with the help of solar constant values do not, they claim, show a marked increase in prevision in the forecasting of temperatures for New York, as compared with those made at the Weather Bureau from a superficial examination of weather maps alone. While at variance with the conclusions drawn by Dr. Abbot from the Smithsonian observations, the authors comment upon the great importance of his contributions to the subject of solar radiation and atmospheric absorption.

It may be recalled that a recent paper of Dr. Abbot's, dealing with the observations of the solar constant and their correlation with sunspot data, appeared in the *Monthly Weather Review* for May 1926 (see also NATURE, August 21, p. 280).