

...then, Girton College, Cambridge; N. B. Cannar, Southampton Univ.; P. D. Cattani, Manchester Univ.; A. R. Clarkson, University C., London; K. B. Coonan, Liverpool Univ.; Miss S. Davies, King's C., London; D. B. Foskett, King's C., London; R. E. Glenister, Jesus C., Oxford; P. H. Goldsmith, Gonville & Caius ..., Cambridge; Miss E. J. Hindiev, Hull Univ.; P. D. King, King's C., London; E. J. Lawson, Trinity H., Cambridge; M. Lewis Jones, King's C., London; A. McDonald, Liverpool Univ.; R. W. Seymour, Christ's C., Cambridge; M. G. T. Stokes, Leeds Univ.; N. A. Stone, Exeter Univ.; B. Sutill, Leeds Univ.; C. G. Toomer, Pembroke C., Cambridge.
Gerald Moody Junior Exhibition: J. Irvine, Lincoln C., Oxford; D. Turner, Queen's C., Cambridge; J. F. Utt, King's C., London; D. Worsley, Emmanuel C., Cambridge.

Air Vice-Marshal Roy Scoggins, C.B., O.B.E., who died on Monday at the age of 61, was Director of R.A.F. Dental Services from 1958 to 1964 and a former honorary Dental Surgeon to the Queen.

Mr. Dwight L. Stocker Jun., the American businessman and publisher of the Brussels Times, died in Brussels on Sunday at the age of 38.

R. Hunt and Co. Ltd., Earls Colton and from 1951 to 1963 chairman of Ransome, Sims and Jefferie Ltd., Ipswich, died on Thursday at the age of 81. He was appointed a J.P. for Essex in 1929.

Mr. Walter Spencer Robertson Assistant Secretary of State for Foreign Eastern Affairs in the Eisenhower Administration, died in Richmond Virginia, on Sunday, at the age of 76.

Science Report

ASTRONOMY

Soviet observations questioned

Doubt has been cast on a series of Russian measurements which seemed to show that radio signals from certain cosmic sources are unusually variable. The Russian results were presented at a meeting of the Royal Astronomical Society a year ago, but it now looks as if in two cases at least the announcement might have been premature.

The point is that the Russian astronomers were recording wavelengths susceptible to interference caused by atmospheric influences. Two radioastronomers in Canada have pointed out that times when the Russian group say the signals were abnormally weak coincide

with occasions when the effect of the atmosphere was particularly high.

Radio waves from space have to pass through the ionosphere—the layers of charged particles beginning about 80 kilometres above the ground which are responsible for the radio communications over long distances—and signals at long wavelengths are particularly likely to be affected.

This is why radioastronomers have tended not to record the activity of cosmic sources at long wavelengths.

But astronomers are becoming increasingly aware that before a star or galaxy can be understood its emission needs to be measured at all wavelengths, and this has been the impetus behind the Russian work and similar activity in the United States and Canada.

Dr. A. H. Bridle and Dr. J. L. Caswell have been using a radio telescope at the Dominion Radio Astrophysical Observatory, British Columbia, which is similar to the Russian equipment and which ought to be affected by the ionosphere in the same way. Yet they find no evidence of variable radio signals other than variations that are due to the ionosphere.

The sources are the brightest radio star, known as Cassiopeia A, and an unusual galaxy. The

doubt about their variability must mean that the variability of a third source studied by the Russians is in question.

What seems to have happened, according to the Canadians, is that the Russians have not been able to take full account of the effect of the atmosphere. Dr. Bridle and Dr. Caswell say that even at times when the ionosphere does not seem to be absorbing radio waves it can be affecting the strength of the signal in other waves. For example, just as a beam of light is deflected in water, the ionosphere can sometimes deflect long wavelength radio signals so that they miss the telescope.

Nevertheless astronomers are saying the Russian work is a very creditable effort considering the difficulties involved in observing long wavelengths signals from space. Much of what they have done with a special radio telescope near Kharkov still stands.

Apart from the Canadian team, the only other group which seems to have ventured into this difficult branch of astronomy in a large way is at Maryland University.

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U.S.S.R.

August 1, 1969

Dear Sirs,

Prof. Braude asked us to reply to your letter of July 9, 1969.

Ionospheric scintillations at 12.6 MHz, as showed our measurements, have been rather essential, too. When measuring strong sources we have used a time constant which equals 30 sec, along with long constants. It is worth noting the variability 3C84 and 3C46I found by us is that of an average value of a flux density with a quasi-period about 3-4 months. The flux density value of these sources was determined by the averaging of 2 or 3 weeks records. The standard error of these measurements is 5-10%. Smooth and scintillative records were separately analysed; it showed that average value of both of them practically coincide (smooth records are slightly higher) but a standard error for scintillative records is thrice higher than for smooth ones. We should note that during 1968-1969 flux density variations of 3C46I were significantly lower than in 1966-1967. The variability nature of 3C144 differs greatly from 3C46I and 3C84. It has been found that a typical quasi-period for 3C144 is of the order of record duration or even less.

For refraction estimation there were made recordings of several sources in various declinations, as well as records by the virtue of one W-E array. It has been revealed that refraction