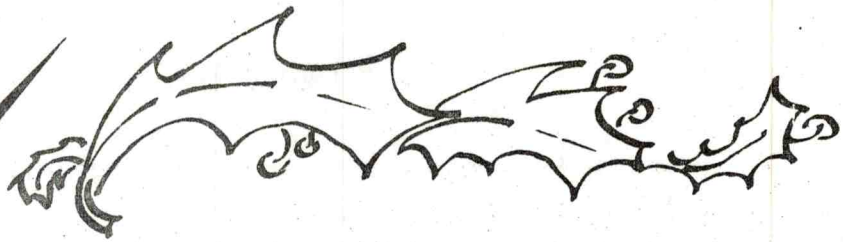


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NEWSLETTER

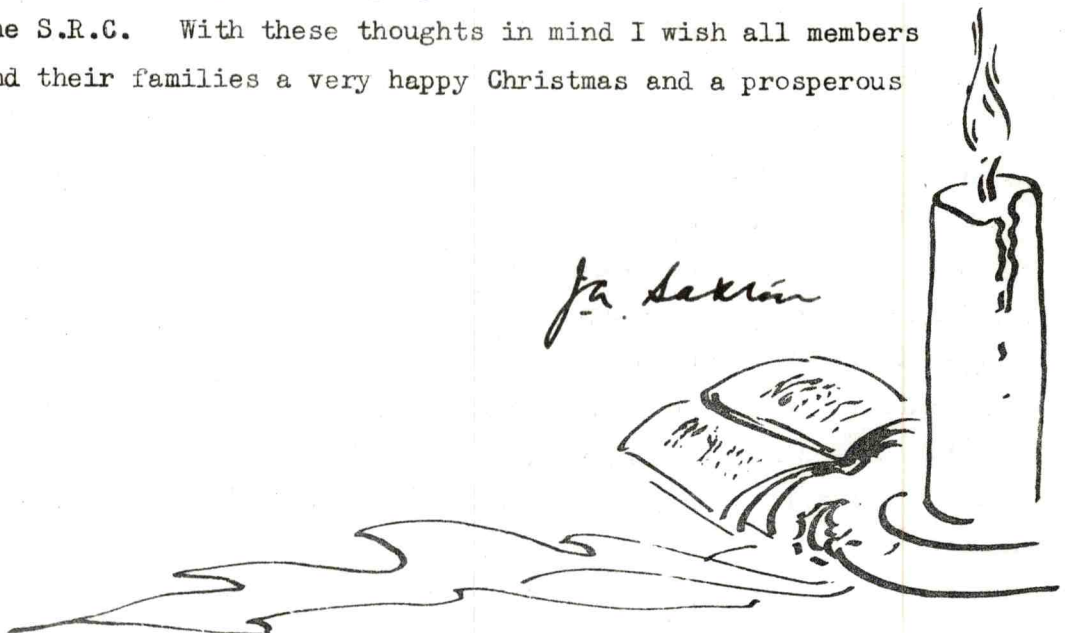
No. 115

December 1970

Once again we look back over the achievements of the past year and look forward with hope and anticipation to a new one. 1970 has been a year of steady progress in most of our activities, even though there may have been no really spectacular events to record.

It seems clear that in the changed political climate there will be ever closer scrutiny of the justification for research carried out in Government departments, and this will include R.S.R.S. As staff will know, quite apart from any change in Government policy, a Review Panel has been considering the role of the Station in the S.R.C. and the scope of its future work, and the Panel's report is expected to be presented to the R.S.R.S. Committee, the ASR Board and the Council during the early months of next year. We may well see changes in due course, but I believe that R.S.R.S. will continue to have a challenging and stimulating part to play within the future overall programme of the S.R.C. With these thoughts in mind I wish all members of the staff and their families a very happy Christmas and a prosperous New Year.

Ja. Sakin



THE POLAR AURORA - PART 1

Although with predictable, mundane, inevitability, it has consequently become the name of two trivial townships in the U.S.A., the word 'aurora' once had the more grandiose task of being the handle of the classical goddess of the dawn. To any gods-fearing ancients she was pictured as driving out of the east every morning in a two-horsepower winged chariot, bearing a pitcher (the other kind) in each hand, with which to dispense the dew. It therefore fell naturally to Europeans (and specifically to Gassendi around 1621) when finally the dark ages had successfully been survived, to name the distinct luminosity, most often seen towards northerly locations as the 'aurora borealis' or northern dawn. Intrepid navigators discovered a similar occurrence in the southern hemisphere which was naturally called the 'aurora australis'. The two phenomena, obviously somehow linked, were then subsequently more satisfactorily deemed the aurora polaris, shortened these days by workers studying the phenomenon to aurora which, in the light of better knowledge can be seen to be a philological mistake. Incidentally, only very recently has a one-to-one congruence in the appearance of the aurora (at the conjugate points in the earth's magnetic field lines) been established coincidentally in both hemispheres by direct observation.

The late Professor Sydney Chapman in the introductory paragraph to his article in the illustrious Encyclopedia Britannica states for the benefit of the completely unlearned that the aurora "is not a reflection, like the rainbow". This is a hint of the controversy that raged in the eighteenth and nineteenth centuries (and is thoroughly described by S.C. himself in his review articles on the subject in the specialized press), between those who maintained that the aurora was merely a reflection of the sun from the polar ice, and those who proposed more interesting atmospheric origins for the light. Many famous names and eloquent arguments were ranged on either side, but as time went by, as we know the burden of evidence went against the reflectionists. Neither side was helped by some of the misleading reports on the aurora that were published. For instance De Mairan, whose treatise, the first devoted to the aurora, was published in 1733 by the French Academy of Sciences obtained inaccurate descriptions of the aurora from French explorers who claimed to have seen it when rounding Cape Horn, an unlikely geographical location for sighting the aurora anyway. De Mairan was ahead of his time in suggesting that aurora related to the solar atmosphere. It is also a shame that some other natural philosophers of the period who held advanced theories of the aurora, did not draw attention to them. For example, Halley had

guessed by 1716 that the auroral rays lie along the earth's magnetic field lines, and for an auroral display which was overhead at London in 1719, he even estimated the apparent radiant point of the rays as 14° S of the zenith, in agreement with the local direction of the field lines. Also Cavendish in 1790 obtained an amazingly accurate estimate of the height of the aurora of 84-114 km while there yet exist accounts published even into this century of it being seen below clouds or in front of mountain tops! It was not until 1910 when Störmer began a long series of systematic height determinations by triangulation that the height range of aurorae was definitely established.

Amongst the non-scientific public even in this, the space and pill age, the lack of elementary knowledge on even such a well known geophysical phenomenon as the aurora is appalling. A short while ago I heard a famous M.P. (during the radio programme "Any Questions") publicly declare his belief in the 'reflectionist' theory, albeit as an aside during a debate on something of far greater importance (what it was now slips my mind!). A belief in this scientific dinosaur does not give me confidence in its owner in his chosen job of leading this country to the scientific millenium.

G. Webb

STATION NEWS

Six Petrel rockets were due to be fired at South Uist during December and January. The first rocket was fired in very suitable conditions but unfortunately failed. Future Petrel firings have now been suspended pending a review of safety measures by the Ordnance Board.

Mr. Addison attended a Management Training Course at the University of Strathclyde, from 23 November to 11 December.

Dr. Martin attended a Management Training Course at the Civil Service Department College, Sunningdale, from 30 November to 18 December.

STAFF NEWS

Congratulations to:

Ian Greenan	now S.E.O.
Tim Bevan	now E.O.
Paul Vanzeebroeck	now Exp. Wkr III

Peter Barber on his gaining a Ph.D. for his work on particle physics at University College London

STAFF NEWS (Contd.)

Welcome to:

J. B. Kitt	Leading Draughtsman
Miss L. M. Norwood	C.O. (Winkfield)
J. E. Coles	S.A.
Mrs. C. G. Fisher	P/T Cleaner
J. Fraser	Skilled Labourer

Resignations:

F. G. Hardie	A.E.O. (Termination of 3 year contract F.I.)
Miss V. M. Lovell	E.O.
C. W. de M. Corbett-Singleton	S.A.
Mrs. M. Nicholls	C.O. (Winkfield)
R. H. Slater	S.O.

Other Changes

Miss M. Thompson	S.A. transferred from Div. 6 to Div. 5
Mrs. A. Colclough	P/T C.A. Regraded P/T C.A. from Typist Grade II
A. J. Rogers	S.S.O. transferred from Div. 6 to Div. 5

SPORTS AND SOCIAL CLUB NEWS

The Christmas Dance was attended this year by 140 people, all of whom seemed to enjoy the merrymaking. Mr. and Mrs. Wilkins and Mr. and Mrs. R. Edmonds were guests of the Station for the occasion.

Dr. Saxton welcomed visitors to the station and presented the Smith-Rose Cup to the South team. Dr. Horner presented Billiards and Snooker Trophies to G. Thomas, F. Hemmings and E. Bramley. Mrs. Saxton drew the raffle, which was won by Mr. Wilkins.

The Committee would like to thank all the non-committee members, particularly Mrs. Loudensack, Jack Savage, Paul Dickinson and the cleaning ladies, who so nobly assisted with preparations for the dance and with the clearing-up afterwards.

E. Carroll

HELP!!!

The Sports and Social Club are in urgent need of a piano. If anyone can help, please contact E. Carroll.

WINE CIRCLE

A film on glass making "Well, I'm Blowed" will be shown in the Board Room at 1 p.m. on 18 January.

SNOOKER FINAL

It was after work on a Friday. I had to break the reds. I always seem to get landed with that. At least I didn't go in-off this time. We had to play for just an hour. The reds went down with little scoring, and then in two glorious breaks I took all the colours. Well perhaps there was an element of luck The second frame started similarly (I had to break again, as I'd just potted the black in the previous frame). My commanding lead was being nibbled by Eric, and I did not get anything like all the colours this time. The second frame finished with me 11 up with five minutes left. We set up the reds again. The nibbling continued. With 20 seconds to go I was 1 up, and Eric kindly left me a red in the mouth of the bottom pocket. Walking round the table as slowly as "sportsmanship" would allow I managed to rattle the red in the pocket mouth, leaving Eric less than ten seconds before "time". He moved rather quickly, sank the red and missed the black. 71 all. A draw. In the absence of an umpire we had to decide what to do. We decided to finish the frame. This took 25 minutes during which I failed to score, except by Eric's occasional error, while Eric more than doubled his score. And so defeat is snatched from the jaws of victory.

P. H. G. Dickinson

LETTER TO THE OUTSTATIONS

Dear Colleagues,

There has been much ado with a pump, dried up moats, ponds, etc. over and around the A.C.O. True, the Admiralty, like the plumber, could retort 'So what, we're in the water business' but it's not quite like that. All the activity suggests, at first glance, a pre-occupation with dredging and deepening the moat, with counterscarp and glacis and all the other concerns of the old-fashioned military engineer fortifying against attack.

Should we propose a non-aggression pact; state formally that we have no territorial ambitions relating to the Stoke Poges Corridor; assure them that our dishes are only weather radar and that R.S.R.S. personnel seen on their property are but innocent lunch-time Wandervogel? Maybe so, but let's deal more doveish.

Could not the gentlemen in the Manor House just be trying to improve Nature's aspect in best eighteenth century style? After all hydraulics has bridged the cultural gap over the ages. The fountains of Versailles, the Waterworks of Georgian England - an aquatic entertainment this, not a public utility - not to mention examples from classical times; all bear witness to the role of water in art-science. The Univac pump may not quite rival the great machine of Marly, but it could be a start in leading to an outbreak of fountains and carp rather than the sap and scarp of our first fears.

Meantime back to the giddy round of pleasure at West Park - that's here if you didn't know. Last Saturday the season opened with the Christmas Dance. Very pleasant too and well supported. Already a considerable number of photographs of the 'so-and-so and friend enjoy a gay moment at the propagation laboratory ball' type have appeared. Thanks, however, to the skill and discretion of Paul Dickinson, nobody has been caught in an unduly compromising situation and all looks merry as a marriage bell - or that Merry Christmas and Happy New Year which is the wish to all of you from us all, including

Yours sincerely

The Editor

December 1970

List of Reprints

- J. E. Hall Ionospheric observations during the annular solar eclipse
of 20 May 1966. 1. Intensity and atmospheric absorption
of hydrogen Lyman- α radiation.
J.A.T.P. 1970, Vol. 32, 1849-1854
- R. A. Challinor The behaviour of the Arctic F-region in winter.
J.A.T.P. 1970, Vol. 32, 1959-1965

Internal Memoranda

- I.M./338 Bennett, F. D. G. and Hall, J. E.
Analysis of the radio experiment in Petrel rockets