

RADIO RESEARCH AT DITTON PARK VII

Recent Years

The new laboratory buildings which had been under construction in 1955 were completed by 1st June 1956. During that week the contents of the old buildings were moved to the new accommodation, and work started in our present surroundings. In the months that followed some of the wooden buildings which had been built as extensions of the earlier laboratory, were dismantled and re-erected on other sites in the park. Here they provided extra room for those experiments which needed to be spaced well apart from one another and from the main building. A few of the older structures remained, including the original laboratory which, in its day, had been such an improvement on the scattered huts which formed the Station during the first eight years of its existence.

It was fitting that the establishment of a new and permanent building for the Radio Research Station should be marked by some ceremony; accordingly on 20th June, 1957, a formal inauguration took place. This was performed by Sir Edward Appleton, a most apposite choice, not only because of his great contributions to ionospheric research, but also because of his long association with the Department and with our laboratory. On this occasion, and on the two days following, the Station was open to several hundred visitors. This inaugural ceremony assumed an extra significance in view of the events which took place shortly afterwards, during the International Geophysical Year which lasted from 1st July 1957 to 31st December 1958.

At the beginning of the 'fifties a number of international organisations were considering the possibility of a period of special co-operation dedicated to the study of our environment. The International Polar Year of 1882-83 had been followed, half a century later, by a similar venture in 1932-33, in which, it will be remembered, apparatus and staff from R.R.S. played a significant part. These two events had both taken place near sunspot minimum; now, after a period of twenty-five years, a further investigation was planned. This was to be a greatly enlarged and extended programme of geophysical observation and experiment, not confined to polar regions only, but extending over the whole globe during a period of sunspot maximum.

Thus within two weeks of being officially opened, the Station and its outstations were committed to play a most important part in this enterprise. One of the four World Data Centres for the collection and exchange of ionospheric information was established at Slough. The activities of R.R.S. now ranged from Singapore and Nigeria to South America and the Antarctic.

On the 4th October an event occurred which made an impact far beyond the confines of the laboratory; the first artificial earth satellite began to orbit the earth, being sometimes in, and sometimes above the main regions of the ionosphere. Here was a completely new tool for investigating the earth's environment, and though to some it appeared as 'a prodigy of fear and a portent', to the Ditton Park workers it was an opportunity for a quickly contrived experiment in which bearings were taken on the satellite's transmitter. The apparatus used was the cathode ray direction finder, a device whose development through the years owed much to the efforts of RRS staff. These results for 5th October were published in the report of work for 1957.

So it came about that the new Station, inaugurated in July was, by October, involved in advanced techniques of space research. It is true to say that ever since about 1894, when Lodge used 'Hertz wave' methods in an attempt to detect long wave emission from the Sun, radio workers have been concerned with events outside our immediate atmosphere. Thus all the ionospheric work, and the Solar noise experiments of 1948 have all, in a sense, made space science

no new thing to Ditton Park. What was new was the ability to place apparatus actually within these regions, far away from the earth's surface. Even when the I.G.Y. had finished, much effort was needed in analysing and interpreting the many and varied observations which had been made. The earth satellite programme increased rapidly and a most important factor in this progress was the building up of a prediction service based on positional observations made at Slough. Interferometer techniques gave improved position findings and negotiations were begun with the National Aeronautics and Space Administration of the U.S.A. for the setting up of one of their Minitrack high precision interferometer and telemetry receiving stations at a site at Winkfield near Windsor.

The influence of these events was shown by the remarks in the Radio Research Board's report of work; 'We are convinced of the importance of space research the Station must pay increasing attention to the results obtained from measurements aloft and should devise its own experiments for flying in rockets and satellites'. The Direction Finding committee was dissolved; 'research work in this field is no longer carried out by the Station'. These two statements seemed to underline the change in emphasis which the new techniques required.

Nineteen sixty; forty years had elapsed since the first site at Ditton Park was manned by two workers carrying out certain direction finding experiments. The staff now numbered more than 170 and in recent years the average yearly output of papers published numbered about 35 and covered a variety of work much more diverse than those earlier contributions which Admiral Jackson had so carefully scrutinized. The list of activities is impressive. Space research. Ionosphere studies. Radio transmission conditions. Tropospheric propagation. Radio noise. Measurements and standards. Semiconductors and ferrites.

This then was the Station's work when in September 1960, Dr. R.L.Smith-Rose retired from his appointment as Director of Radio Research to become President of the International Scientific Radio Union. His successor, our present Director has long been eminent in the field of ionospheric physics, and in the words of the Board 'comes to the post with a keen desire to expand the activities of the Station in space research'. The last eighteen months have shown us all how many and varied are the possibilities contained within this field of work; work still very much in keeping with the Board's terms of reference in 1920 'To direct any research of a fundamental nature that might be required'. In continuing to fulfil this directive this establishment has at once increased our knowledge of the processes of nature and 'done the state some service'.

G. W. Gardiner

(concluded)

THE MANOR OF DITTON AND THE COMPASS DIVISION

Now we have reached the end of the current series on the history of the R.R.S., the following may be of interest concerning the previous "habitants" of Ditton Park.

First mentioned in the Domesday Book (1086) "the Manor of Ditton" was held by "William, son of Ansculf" and his brother Walter, and was valued at 30 shillings. Walter's descendants held the property for 400 years and one of them, Richard de Ditton, married Cecilia de Stoke in 1205, which probably accounts for the strange fact that the parish of Stoke Poges, six miles distant, has a long thin peninsula extending to include Ditton Park.

Operation Santa Claus

An attempt was made, during the month, to organise the production of two Christmas tape recordings, one for Singapore and one for Port Stanley, consisting of Seasonable Entertainment by talented members of the Staff, and short personal messages for each of our distant colleagues from their nearest and/or dearest in the U.K. Although non-members were also invited to assist, the number of supporters was not sufficient to guarantee a successful production and the matter was not taken further.

Morse Classes

Only one name has so far been received for the new series of morse classes, which ought soon to begin. Would anyone else interested please contact the Secretary.

VP8GO

A letter received recently from John Juleff, gives further details of his amateur activities in the Falkland Islands. At the time of writing he was still using a borrowed transmitter and has contacted 40 different countries since he has been there. Conditions have been very bad during their winter and the bands have been full of Spanish voices and a noise akin to frying eggs, but there were signs that things were improving, and one afternoon he worked a station in each of the Continents in 35 minutes, which is good going by anyone's standards.

His own transmitter is nearing completion. It consists of a Geloso VFO driving a pair of 6L46's, screen modulated by an EL84, which he thinks will give a mean carrier power of about 30 watts and a peak of 100 to 120.

He will be on the air Saturdays and Sundays from 1500-1800 G.M.T. on the 21 or 28 Mc/s amateur bands and our friend at Douai Abbey, the Rev. P. W. Sollom, G3BGL, will be listening out for him on our behalf.

John will soon be back in this country for mid-tour leave, so we may have the latest news from him in person by the time this newsletter appears. Fine business, OM!

G3RRS

Looking ahead a month or two to when our club licence is available, we must begin to think about constructional work again. Our top-band transmitter is virtually finished, apart from one or two "bugs", and we shall soon be starting on a single-sideband, suppressed carrier exciter for the H.F. bands. This should provide us with the sort of signal we shall need for anything useful during sunspot minimum, and offers of assistance will be welcomed.

73 de G3LTP

Camera Club

Thanks to the Club's unerring sense of topicality the first selection of B.O.A.C. photographs appeared on display the day after the publication of the Corporation's financial report. We are sorry but must disclaim any responsibility for their difficulties. Further aircraft pictures will be put on show next week.

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An exhibition of 'Trains' is planned for early November, and members are advised to photograph them while they are still running. Prints (preferably of 10" x 8" or 'whole plate' size) will be displayed on a date not affected by any decisions of the N.U.R.

Our new members are proving very active and the Club's Dark Room is being visited more frequently, but there is still 'room' for many more to make use of its splendid facilities - so why not join us?

W. S. Newman

CAR RALLY

NOVEMBER 25th 1962

Start Time

11 O'Clock

Watch Notice Board for

further details

Letter to the Outstations

Dear Colleagues,

Last Thursday Sir Edward Appleton visited the Station to deliver a talk called "Some Radio Reflections". He spoke in the Canteen before a large audience and described his early work, which confirmed the presence of the ionosphere for the first time, as well as some later work, using E-layer characteristics from Slough and Port Stanley, which showed how the ionosphere varies with the earth's distance from the sun. During the talk we were shown a photograph of Mr. Naismith digging a hole in Tromsø and treated to an anecdote about the effect of methylated spirits, taken internally, on Mr. W. C. Brown, who retired from this Station a few years ago after many years of service. A tape recording of Sir Edward's talk has been sent to Singapore.

We are currently in the throes of waiting for another high altitude nuclear explosion over Johnston Island, and the (apparently inevitable) confusions and postponements are once again with us. This is to be a sub-megaton bomb exploded, to our relief, at a height of "a few tens of kilometres".

We are glad to welcome Dr. Ken Davies from CRPL, who is to work here for a year and has already told us of the organisation and some of the projects of CRPL. A tape of his talk has also been sent to Singapore. John Lane has now left for the U.S.A., where we wish him an interesting and profitable stay.

The first topside ionograms from Alouette have proved to be of very high quality, and show some unexpected features. We hope to have a contribution from Dr. King on this subject in our next issue. We also hope, in our next issue, to hear from Dr. Bain who returned from the U.S.A. a few days ago after a visit of several months.

Best wishes to you all from your colleague at Slough.

Yours sincerely,

The Editor