

R. R. S.

Newsletter

(For the use of R.R.S. staff only)

No. 47

March, 1965

RADIO REGULATIONS AND ALL THAT

The International Telecommunications Union (I.T.U.), which celebrates its centenary this year, is an organization set up to regulate the conditions under which telecommunications, of which radio is a part, can develop in an orderly manner. Its findings, in the radio field, are enshrined in a volume known as the Radio Regulations*, containing the rules of the game and also the allocation tables showing which frequencies should be used by which types of radio service. Meetings are held about every ten years to take account of new developments and to revise the regulations accordingly. These meetings are known as Ordinary Administrative Radio Conferences (O.A.R.C.), the last of which was held in Geneva in 1959. It was then recognised that rapid developments in the exploitation of space could introduce frequency allocation problems which could not wait another ten years for their solution, and arrangements were made for holding an Extraordinary Administrative Radio Conference (E.A.R.C.) in 1963, principally to deal with space topics, but radio-astronomy was given more attention than had previously been possible, and secured improved status. The E.A.R.C. was held in Geneva in 1963 and the amendments then proposed have just come into force (1st January, 1965).

The deliberations of the administrative conferences cover a wide field, of which the technical characteristics and requirements of radio services form only a part. Although some members of the national delegations are technical experts, it is impracticable for the conferences to become involved in detailed technical studies. This work is done by technical committees, of which that dealing with radio is the International Radio Consultative Committee (or C.C.I.R., from its French title) whose function it is to advise the I.T.U. on technical radio matters. Plenary assemblies of this committee take place every three years, the last (10th) being in 1963 in Geneva*. All findings of the C.C.I.R. are important to radio engineers but some have more general interest. As examples, the characteristics

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*Relevant documents in R.R.S. Library

of magnetic tape recording systems are laid down in C.C.I.R. recommendations, and it will soon be necessary for a C.C.I.R. opinion to be expressed on the technical merits of the various proposed systems for colour television to enable further developments to take place under internationally agreed arrangements.

The work of the C.C.I.R., although restricted to technical radio subjects, still covers a wide field, and it is apportioned between fourteen study groups. The Radio Research Station has a particular interest in six of these in which propagation is a substantial element. They are No. IV Space Systems and Radio Astronomy, No. V Ground Waves and Tropospheric Propagation, No. VI Ionospheric Propagation, No. VII Standard Frequencies and Time Signals, No. IX Radio Relay Systems and No. XIII Tropical Broadcasting. Our former director, Dr. Smith-Rose, is international chairman of Study Group V.

With the continued expansion and increasing complexity of radio systems, the C.C.I.R. Plenary Assemblies threatened to become very large and protracted. The 1953 Assembly in London, for example, consumed more than six tons of paper. It has therefore become necessary for some of the study groups to hold interim meetings about one year before each Plenary Assembly, to carry out a large part of the detailed work and so to pave the way for speedy acceptance of the findings at the main meeting. The next Plenary Assembly is in Oslo in 1966 and a series of interim meetings has just started. Four study groups recently met in Monte Carlo, and the writer was in the U.K. delegation to Study Group IV (Space). Other interim meetings will be held later in the year and Mr. Lane is planning to attend that of Study Group V in Geneva. The Station will be represented at Study Group VI, also in Geneva, if the topics on the agenda make this desirable.

Within this country the Post Office is the Department responsible for I.T.U. and C.C.I.R. matters, including the formation of the delegations and the preparation of technical documents which, together with those from other countries, form the raw material from which the C.C.I.R. compiles its reports and recommendations to the I.T.U. There is a General Purposes Committee to supervise all the national work, and the writer is the D.S.I.R. spokesman on this. Technical committees are formed, corresponding to the international study groups, and the Station is represented on those for Study Groups IV (Space), V (Troposphere) and VI (Ionosphere). Mr. Lane, as national chairman of Study Group V, is also on the General Purposes Committee.

The close association of the Station with C.C.I.R. affairs has existed for many years. A substantial number of the documents which the U.K. has submitted for international discussion have originated in the Station, and much of the material has found its way into the Proceedings of the General Assemblies. These are used not only by the I.T.U. in formulating its policies, but also by government and private organizations throughout the world, as a guide to good technical practice in the radio field. By the reciprocity theorem, participation in C.C.I.R. work has helped to keep the

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Station well-informed on the problems which require further scientific investigation, particularly those involving propagation, and many of our programmes have been stimulated by operational needs.

F. Horner

Soviet Scientists at Ditton Park

The President of the U.S.S.R. Academy of Sciences visited the Radio Research Station on Friday, 19th February. The President, Academician M. V. Keldysh, was in England as a guest of the Royal Society. He was accompanied on the visit by Academician N. N. Bogolyubov and Professor N. F. Krasnov.

Results of experiments into the characteristics of the lower regions of the Ionosphere, carried out by means of Skylark rockets fired from Woomera were examined. The topside sounder results, data processing system, and some of the radio meteorological experiments, were also examples of the Station's work seen by the visitors.

Communications in Unusual Media

Part II of the article by H. K. Bourne will be published in a future issue.

'The Venice of the East'

Thailand or Siam is north of Malaya and in places less than 100 miles from North Vietnam. Its capital is Bangkok. This is a large sprawling city of more than two million inhabitants not all of whom are Thais for, as is common in a city in the Far East, quite a large number of the population is Chinese.

Bangkok stands on the left bank of the Menam river. On the opposite bank is Dhonburi which was for a short period the capital after the Burmese in 1767 sacked the then capital at Ayudhya fifty miles north of Bangkok. Air travellers land at the modern Don Muang Airport about twenty miles from Bangkok which is linked to Malaya by rail, and it is also possible to travel there by ocean going ships as the Menam is a broad river.

Bangkok has wide streets lined with modern shops, flats and hotels, but it also has older, narrower streets and tiny passage ways between timbered houses. But in all parts of the city the streets are full of traffic. At one time Bangkok was known as 'The Venice of the East', because it possessed an extensive systems of canals (known locally as Klongs). Most of the canals have by now fallen into disrepair and become half choked with vegetation and silt. These are being filled in and made into roads in an effort to ease road congestion. How one travels in Bangkok is a matter of choice. There are several 'bus companies operating a wide variety of vehicles which are invariably packed. The blue uniformed conductors of these vehicles signal the driver by means of a whistle and issue tickets from a device resembling a roly poly pudding tin. There is an antiquated tram system of yellow and brown single

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decker coaches which trundle along the side of the streets at little more than an easy trotting pace. Taxis are plentiful, especially a three-wheeled model in which the passenger sits in a sort of covered cage at the back. These are a cheap form of transport, but the passenger is exposed to dirt and dust, and to the danger of other traffic as the tiny vehicle splutters and bounces along the not always smooth roads.

Bangkok is a popular tourist centre and this is shown by the number of shops selling souvenirs. Thai silk is on sale in many shops at prices far below those in the U.K., but duty makes many other articles as expensive as they are here; Bangkok is not regarded as a cheap place to live.

Bangkok is probably most famous for its numerous temples. There are more than 300 in the city but naturally the tourist visits only the most spectacular or unusual ones.

The most beautiful temple is probably the Emerald Buddha Temple in the Royal Palace Grounds. The exterior walls and pillars of this temple are covered by gilding and glazed coloured porcelain. Around the edge of the roof hang many tiny bells that tinkle gently in the breeze. The Buddha is situated towards the back of the temple and set high up. It is about two feet high and carved from jade. It is dressed, and its dress is changed with the commencement of each of Bangkok's three seasons. Arranged in front of and lower than the Buddha are many other objects of religious significance. Near the temple are several other buildings and towers and the whole area is enclosed by a high wall which effectively shuts out the noise of the outside world giving the spot a very peaceful and tranquil atmosphere. At a gateway in the wall twenty feet high colourful statues of fierce warriors or demons stand guard.

Beside this temple area is the Grand Palace with its imposing throne hall which, oddly, was designed by an English architect.

About ten years ago efforts to move a large statue of Buddha in a Bangkok temple resulted in a piece of plaster being knocked off it. It was then discovered that beneath the plaster had been hidden many years ago a statue of solid gold. This Buddha, which is about ten feet high and weighs five tons, is housed in a small and externally plain temple known as Wat Traimit. It is hoped, when sufficient money has been collected, to move the Buddha to a more suitable spot.

Two other temples often visited by tourists are a temple commonly called Wat Po and another known as the Marble Temple.

Inside the somewhat dark interior of Wat Po is a Reclining Buddha. This is about 150 feet long and 40 feet high. Followers of the Buddhist faith have stuck on this statue (and many others as well) many small pieces of gold leaf. The feet of this enormous statue are covered in designs worked in mother-of-pearl incorporating birds and animals. In the large grounds of this temple are many solid towers and beneath one of the tallest of these are buried the remains of the Siamese king who featured in the film "The King and I". I believe that the Thais did not like the film.

The Marble Temple, which was completed in 1910, is one of the more modern temples, and is smaller and neater than many other older temples. Its white marble walls, stepped roofs of dark orange and green tiles and gilded door and window frames give it an imposing appearance. Behind the temple is a courtyard of polished marble and a gallery around this provides shelter for many statues of Buddha, and a quiet place for students to study. In any temple may be seen the monks in their bright saffron coloured robes. It is customary for each man to enter a monastery for a period of three months during his life. The Thai King is no exception to this custom.

Many visitors to Bangkok find the early morning boat trip to the floating market one of the highlights of their visit. Tourist launches leave a riverside hotel at about 7 a.m. and go down the wide Menam before leaving the river to pass along a quiet palm-lined canal. Before long the first of the boats laden with fruit and vegetables from market gardeners is seen. Gradually the palm trees thin out to give way to wooden houses on stilts on the canal banks. At this hour people are refreshing themselves with a bathe in the canal, the water of which is dirty and not very inviting to western eyes. Its appearance doesn't seem to worry the local people, especially the children who, naked, happily plunge in the water and then stand waving and smiling at the passing tourists.

The floating market is held in this village and, as its centre is approached, the canal becomes increasingly congested with craft until, in the centre near an old temple, the waterway is practically covered by the boats of buyers and sellers. Some of the produce is bought by the local people for their consumption, and some for resale in Bangkok. The boats with their cargoes of bananas, coconuts, papayas and other eastern fruit and vegetables are usually paddled by one or two women wearing large straw hats resembling lampshades. These women have always to be on the watch for large passing craft whose wash sets their tiny boats rocking wildly. The bright colours of the people's dress, the sight of strange fruits and the noise of many argued sales combine to make a very exciting scene.

Later a stop is usually made at a souvenir shop to buy locally made objects, which include Thai silk. Sometimes it is possible to see the silk thread being spun in the open behind the shop and also to see the silk being woven on wooden hand operated looms in a shed.

From the floating market area the tour proceeds along more canals past dwellings, warehouses and barges to emerge on the Menam to go upstream to see the Royal Barges and other exciting barges in the Royal Barge boathouse.

The two Royal Barges are known as the Golden Swan and the Seven Head King Serpent. Each barge derives its name from its high figurehead. The barges are about 160 feet long and richly carved and gilded, the bow being particularly impressive. The barges are only used on rare state occasions or royal ceremonies. At these times the barges carry the King and Queen of Thailand and each barge is manned by some fifty red uniformed oarsmen. In the boathouse

the barges are placed out of the water on trestles; visitors can walk past them on a series of nonc-too-secure planks, but such craft can be seen at their best only when afloat and dressed in full regalia.

The tour is concluded by a visit to Wat Arun or the Temple of the Dawn. The outstanding feature of this riverside temple is the 300 foot high solid tower set in the centre of a square formed by four towers of about half that height. The sides of all the towers are carved and partially covered by thousands of pieces of glazed pottery said to have been taken from a sunken Italian ship. A near vertical flight of steps enables the energetic to climb about half-way up the central tower to obtain a wide view across the river of Bangkok on the opposite bank.

No visit to Bangkok would be complete without a visit to an exhibition of Thai dancing. This is an extremely graceful art in which much information is conveyed by a number of traditional movements of the hand. The costumes are very elaborate and colourful and the dancers are accompanied by an orchestra of traditional Thai musical instruments. Of a somewhat contrasting nature are exhibitions of Thai boxing in which it is perfectly fair to knock out an opponent with a blow from a foot or joint as well as from a fist.

A different kind of fighting takes place in the open during March and April. During these months there is a strong breeze and kite fighting is a popular sport. The fights take place between a 'male' kite which is about six feet high and known as the Chula, and a smaller 'female' kite known as the Pokpao. The 'male' kite carries barbs with which to snag the 'female' and haul her to the ground in his territory. The 'female' carries a loop with which she tries to drag the 'male' into her territory. Each kite requires several people to handle it and this battle of the sexes is watched with great interest by many spectators.

About fifty miles north of Bangkok is Ayudhya the former Thai capital. Only the ruins of the large temples and palace are now visible. A new town has grown up close to the ruins, and it is possible to travel there by train from Bangkok. Bangkok and Ayudhya are in a rice growing area, and from the train the small paddy fields can be seen stretching away across the flat land, broken only by the occasional hamlets and temples. At this time of the year the rice has been harvested and the fields are scorched by a burning sun in a cloudless sky. In places where irrigation has made rice planting possible a splash of vivid green stands out against the dusty background. For many years the ruins of Ayudhya were hidden beneath dense undergrowth. This has recently been cut down and during subsequent excavations several hordes of treasure were discovered. Today scattered crumbling towers of small red brick, leaning arches, and half demolished walls are all that remain of the former capital. One of the temples has been rebuilt in its former style, and some other preservation work has taken place. In the town a small museum houses a collection of assorted items. Some were discovered in the locality

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and others belong to royalty. Amongst these is a brass bedstead of Victorian vintage. A trip to Ayudhya provides an interesting day in the open away from the bustle of Bangkok and also gives one a glimpse of the way of life of the country people.

Bangkok is generally hotter than Singapore. It has a rainy season during which more than six inches of rain falls each month. This lasts from the beginning of May until the end of October. So (bearing in mind the rainfall) should any of the R.R.S. staff who are in Singapore, or who are going there, feel they would like to visit Bangkok I advise them to go, for I'm sure they will have a very interesting and enjoyable holiday there -- I did.

M. Chivers

STAFF NEWS

Congratulations to:

Mr. and Mrs. Frank Venables on the birth of their son, Robin, on 19th February.

Welcome to:-

New Staff

Mr. J. C. Cole	T/A.E.O.
Mr. M. T. Oduah	T/S.O.
Miss P. M. Crush	Telephonist

Transfer

Mr. C. Clarke has transferred to R.R.S. from Headquarters

Resignations:

Mr. D. J. Hawkins	T/S.A.
Mr. L. A. Bonvini	E.O. transferred to G.C. Headquarters, Cheltenham
Mr. J. A. Clements	A.E.O.

SPORTS AND SOCIAL CLUB

Don't forget the Joint Dance
R.R.S. and A.C.O.

at R.R.S. on 26th March

Tickets from A. Lowe or J. Juleff

Chess

The next chess evening will be held on Wednesday, 31st March. Will anybody interested please sign the sheet on the main notice board.

A. B. Lowe

/Bridge Club

Bridge Club

Club evenings were held on 19th February and 12th March and the next will be on Tuesday, 23rd March. R.R.S. was represented by Dr. Bain and Dr. Bramley and Mr. and Mrs. Gordon-Smith in the fourth round of the N.P.L. League on 23rd February and was placed first.

R.R.S. are the hosts for the match against the Road Research Laboratory on 15th March; on 2nd April we go to Teddington for a match against the National Physical Laboratory's second team.

After the success of the Pairs Tournament held jointly with Roads on 29th January, we have arranged another joint Pairs Tournament to be held at R.R.S. on Monday, 5th April. I hope this will be well supported; prizes will be awarded as an additional attraction.

Jean Fooks

LETTER TO THE OUTSTATIONS

Dear Colleagues,

I should have known better than to jest at the snow gauges erected by those mindful of our care. True, the gauges did blow down, but they were speedily re-erected and within forty-eight hours of this being done, a blanket of snow, inches deep, covered the roof of Ditton Park, and most of the country for that matter. Seven days later it had vanished and one could walk, overcoatless, in spring sunshine. It was a sign; my doubts are stilled and I acknowledge that M.P.B.W. and Building Research KNOW BEST.

Returned in time to enjoy these transformation scenes came Messrs. Kift and Golton from Singapore. We are also pleased to see Dr. Kohl from the Max Planck Institut, Lindau, who is working at R.R.S. for a few weeks. Dr. Thomas is spending a year in U.S.A. and we trust he will have a pleasant and profitable time.

Mixed feelings - pleasure at their achievement and sorrow at the loss of old friends - accompanies the news of the departure of some of our staff. Chris Lovett and Tony Clements have left R.R.S. to work in medical electronics and industry respectively; Len Bonvini's valuable advice will now only be available to us if we can penetrate the security of G.C.H.Q., Cheltenham, where he is now an Engineer (Main Grade) and Frank Kift, who is to be congratulated on his appointment to Deputy Chief Radio Engineer, H.Q. Signals Command Medmenham, has now left to occupy that position. Outstation members will be pleased to know that each departure was marked by presentations and good wishes from all the staff.

One transfer has particular significance for your editor. It was Mr. Kift who restarted the Newsletter on a regular basis some years ago and ably edited it until posted overseas. I followed in his footsteps with some misgivings, and at the back of my mind had cherished the faint hope of lumbering him with the thing when he returned. Cold reason told me that he was much too good a tactician to allow this to happen, but, though faint, the chance was finite; now promotion and geography have quite removed it from,

Yours sincerely,

The Editor