

# R. S. R. S.

## *Newsletter*

No. 52

August 1965 ✓

### From Mont Blanc to Red Square (and back)

The R.S.R.S. News has in recent months contained several absorbing accounts of visits made by members of the staff to various parts of the world and the only excuse offered for this further addition to the series is the Editor's plea for copy and his insistence that there must be some comment of general interest one can make on a visit to the U.S.S.R.

A first visit behind the Iron Curtain is a memorable experience in many ways and in my case the impact of the Moscow scene was made all the more vivid by the fact that the visit followed immediately a short stay in the cosmopolitan atmosphere of Geneva, where during June several Study Groups of the International Radio Consultative Committee held Interim Meetings in preparation for the Eleventh Plenary Assembly. Mr. Horner, in a recent issue of the Newsletter, has described the organization and function of the C.C.I.R. and little need be added here regarding the recent meeting. The United Kingdom submitted nine documents to Study Group V, which deals with tropospheric propagation, and our delegation played a full part in preparing new study programmes and reports for consideration by the national administration in the next few months. The main topics of immediate interest to Study Group V are propagation factors affecting the reliability of space communication systems, and a start was made in Geneva on reports intended to provide some assessment of the effect of scatter from rain in the planning of radio-relay services, the screening effect of hills near an earth station, absorption of centimetre and millimetre waves in rain, and thermal noise in the troposphere. As has happened in previous C.C.I.R. meetings, it fell to the United Kingdom to act on many occasions as diplomatic go-between, reconciling the opposing views of the French and American delegations on controversial issues. However, the situation at this Interim never got out of hand, mainly because several of the key figures left after five days for Moscow, where - as we soon discovered - both Anglo-Saxons and Latins were required to exercise diplomacy of a rather different kind.

The Moscow meeting from 15th-22nd June, was a colloquium on the fine-scale structure of the atmosphere, organized by the U.R.S.I.-I.U.G.G. Inter-Union Committee on Radio Meteorology. It was the intention of the Chairman, Professor Bolgiano of Cornell University, to have an informal meeting of not more than 30 people discussing particular topics in working parties. However, for the first three days our Russian hosts instituted a more formal atmosphere by requesting review papers which were presented to an audience of 70-80 people, including 30 or so observers from the University of Moscow (where the meetings were held) and several Russian research institutes. Later, the Chairman's original ideas were implemented and many stimulating exchanges took place. Technical points of interest raised in the proceedings have already been reported elsewhere and it is sufficient in this note to record a few general impressions. Russian theoretical work on scattering, wave propagation in a turbulent medium, scintillation, and the spectral properties of a turbulent medium is of a high standard, and in discussions of these topics Tatarski, Chernov, and Oboukhov were prominent. Their experimental techniques, however, are less advanced. Some radar soundings of the atmosphere are in progress, but they reported no refractometer measurements nor did we see any evidence of laser work on scattering or scintillation. There was no great enthusiasm, we felt, on the part of our hosts, to question what they regarded as established theory. Nevertheless, they showed great interest in recent U.S. and U.K. work on fine structure and pressed for details of recent R.S.R.S. refractometer and radar experiments. These results were frequently raised by many speakers and, although the theoretical implications remain open for further work, several specific suggestions for definitive experiments were advanced during the meeting. One particularly stimulating working-party session was held on board a steamer (the "Maxim Gorky") as it cruised along the Moscow river.

The technical visits were, with one exception, disappointing. At the Institute of Atmospheric Physics in Moscow we were shown nothing of the research now in progress in upper or lower atmospheric physics or optical studies. One felt this was not the fault of our colleagues in the Academy of Sciences, who were always most helpful, but was probably the result of a decree by higher authority. At the Institute of Applied Geophysics, 50 miles from Moscow, we did however see work in progress on cloud physics, fog formation, and turbulent structure in the first 1000 ft. Here a spectacular demonstration was provided by enclosing all 30 visitors in a cloud chamber, 60 ft. high and 50 ft. in diameter, and then enveloping them in a "pea-soup" fog produced in a few seconds by a combination of steam jets, water-sprays and adiabatic expansion. Our hosts were obviously delighted with the effect their display produced on the visitors, who emerged very impressed if distinctly damp.

Several excursions were arranged for us in Moscow itself; to the Kremlin Palace, to two of Moscow's many museums, to the Bolshoi Ballet, and a reception in the Metropol Hotel. At the reception the atmosphere was initially somewhat formal; interpreters worked hard moving to and fro to promote appropriate,

innocuous small-talk between the many nationalities, and Professor Bolgiano and Professor Oboukhov exchanged fraternal greetings on behalf of Western and Soviet scientists. Later, however, following several toasts (drunk with the inevitable vodka or some of the excellent Georgian wine) all formality vanished. Fisherman from Colorado swapped fishing stories with veterans from the Caspian Sea; several young and not-so-young guests (including several of the Professors present) danced the Twist; and others gathered around the piano to exchange national songs of a varied nature. One of the Russian interpreters provided piano accompaniment in a most capable way, to John Brown's Body, the Marseillaise, and Auld Lang Syne. "Rule Britannia" had just been suggested when, rather fortunately for the U.K. delegation, the proceedings came to an end.

This evening's experience, coupled with brief opportunities to walk around Moscow, left a strong impression of a city and a way of life of strange contrasts. The drab uniformity of the very limited shop-window displays, the spectacle of elderly women driving tractors and laying grit for new roads, and the endless procession of lorries delivering gravel or concrete to the many building operations in progress, were all very marked to Western eyes. Statues and other exhortations on the theme of the "dignity of labour for the common good" were prevalent throughout the city. However, labour for the common good rarely seemed to produce any immediate response to simple requests (to one's hotel or Intourist - the State Tourist Agency) which in the West would present no problems. A change of air-line reservation or a change of hotel room required 24 hours (or more) of protracted negotiation punctuated at intervals with the statement: "It is very difficult, we will let you know tomorrow."

To be fair, however, all the visitors paid tribute to the kindness and hospitality of our hosts and interpreters. Like all Muscovites, they are proud of their city, their Metro and museums, their magnificent new concert hall in contemporary style (inside the Kremlin walls!), and - strangely enough - the relics of Czarist Russia preserved in an impressive display by order of Lenin himself. We also noted the fine swimming-pool with heated water, open throughout the year and, so we were told, used more in December than in July. Small gifts and souvenirs were pressed on us as we left and one sensed that this short opportunity to mix with professional colleagues from the West was a high-light in the life of many of our hosts. In some respects, their knowledge of the West was unusually extensive. One of the interpreters had read all of Shaw and Galsworthy and discussed with great authority the plays of John Osborne; however, the same interpreter enquired in all seriousness if any of the U.K. delegation had the title "Sir". The two Cambridge post graduates present, and the author of this article, endeavoured to explain the Honours List and the remote chances of any one of the three ever qualifying for said title, but it was difficult to dispel entirely the image of a largely feudal, aristocratic society which our interpreter associated with Britain.

For some visitors, the trip was not without its difficult moments. Mismé, of France, lost his return air-line ticket four days before the end of the meeting and spent several hours composing telegrams to Paris and in lengthy discussions with Intourist officials. Bean, of N.B.S., arrived separately from the main party and, having booked accommodation with Intourist (unnecessarily as it turned out) was whisked away to a separate hotel where the management was extremely reluctant to allow him to transfer to the main party the following morning. Our hotel was a 6-storey, new, but far from luxurious, building 4 miles from the centre. Its restaurant, open to local inhabitants, was the centre of what little night-life the suburb contained. This took the form of dancing to a raucous 4-piece band, which concentrated almost entirely on fox-trots of about 1940 vintage.

To return to the meeting itself, all present endorsed the Chairman's conclusions that the organization of small, informal working parties to discuss specific topics and make recommendations thereon, was a feature which could well be used more in international meetings in place of more stylized presentation of papers. The contact between radio-meteorologists and experts in fluid mechanics was a novel experience for both groups but one which could with advantage be repeated from time to time.

J. A. Lane

#### Cambodian Journey - Part 1.

The sun had just risen as we moved slowly out of the watery city, and already many people were up and about, busy with their morning chores. Long, swiftly moving boats began to fill the canals, and were being loaded with a multitude of fresh vegetables for the markets.

I had boarded the early train out of Bangkok and was travelling eastwards, my aim being to try and cross into Cambodia and reach the famous ruins of Ankor. The chances of crossing the border from Thailand were all rather uncertain, owing to the variable political climate, and when some weeks earlier I had collected an impressive-looking visa from the Cambodian Consulate in Singapore, the Consul had been quite unable to tell me if the border was open. Even a few days before, when I obtained a re-entry visa from the Ministry of Defence in Bangkok, I was told to wait and see at the border; but such are the ways of the Orient. The latter visa by the way is most important, and should always be obtained before departure, otherwise the returning traveller may find himself stranded in no-mans land, resulting in no end of difficulties.

By mid-morning the train was moving at a steady 40 m.p.h. or so across the vast rice plains east of Bangkok, stopping now and then at little villages with names like Wathna Nakhon. The railway stations were spick and span and full of life, market produce being the main occupation. Everywhere children ran about, laughing and joking and full of the spontaneous fun so typical of the far east. There was no dining car on the train, nor was one needed, for one could buy food at the stations. Pretty Thai girls, dressed in

colourful sarongs and wearing the local Thai hats, called moa chowna, carried baskets of food and drinks up and down the platform. One helped oneself to rice and covered it with what turned out to be a very hot curry, pastries and a variety of fruits. Nor were the plates a problem for they were banana leaves, simply to be tossed away later.

The scenery was now getting noticeably drier, parched fields of rice stubble extending almost to the horizon. I learnt from a track inspector that this month, January was in the dry season. In April the monsoon rains would come and turn the fields into swamps; rice could then be planted, and the bored-looking water buffalo would once again have plenty of mud to wallow in.

Eventually we reached the border town of Aranya Padet, at 12.30 p.m. after starting at 6. a.m. and having travelled some 150 miles. A battered old taxi took me the mile or so on to the border post, and here the formalities were completed surprisingly quickly and with no difficulties at all. From here I could see the  $\frac{1}{4}$  mile stretch of road across no-mans land, with the border gate set on a bridge half way along. I walked quickly over this stretch, through the gate and into Cambodia. My immediate impression of the next border village, Porpet was of a sleepy sun-drenched village cut off from the rest of the world. At the immigration post an elderly epauletted gentleman, surely a remnant of French colonial days, handed me two cards to fill up. I had a choice of Cambodian or French. I chose the latter, guessing at half the questions, and then he majestically rolled a huge stamp over the cards and bid me Bon Voyage.

Although the rail track continued into Cambodia and on south to Phnom Penh, the capital, no passenger trains were running and the only transport appeared to be an old French bus which had obviously waited to meet the train. After a while this was started, by three men pulling on a rope around a pulley at the front, and we set off eastwards again. The track was rough at first but after a few miles changed to a tarred though narrow road. The bus hurtled along at top speed, stopping only now and again at villages to pick up anything from people to poultry; an almighty siren let everyone in the village and paddy fields beyond know that the bus was there. At one stop the roof was loaded with timber until the bus nearly touched the ground, but this was to be surpassed on the return journey by three live pigs being lifted on poles on to the roof amid terrific squealing. This was truly a country bus!

(To be continued)

T. R. Golton

#### Symposium at the Radio and Space Research Station

A discussion meeting on the topside of the ionosphere and the results from the topside sounder satellites was held at the R.S.R.S. on August 3rd and 4th. Visitors came from Canada, France, Germany, the United States, Japan and from other research groups in the United Kingdom. At the meetings on 3rd August the

chairman was Mr. J. E. Jackson from the U.S. Goddard Space Flight Center and for the next day's proceedings Mr. Ratcliffe took the chair. Papers were presented for discussion at a series of sessions under the following general headings:-

The Ion Composition of the Upper Ionosphere; Electron and Ion Temperatures. World-Wide F2 and Topside Morphology; Diurnal Variations in the F2 Layer. Storms; Eclipses; Cosmic Noise; Magnetic Mapping. Polar Phenomena; Irregularities. Sheath Effects; Spacecraft Potentials. The Equatorial Anomaly (Observations and Theory). Ducting Phenomena; Resonance Phenomena.

At the final session of the Symposium, entitled 'Outstanding Problems and the Future' the papers presented included one on plans by the Max-Planck-Institut for a European Topside Sounder and also a survey by Dr. Chapman from D.R.T.E., Canada, of the major problems which could be investigated in future by means of topside sounder satellites.

This session ended on a rather unfortunate note. Mr. Jackson (chairman of the first day's proceedings) inadvertently slipped and fell into the river whilst measuring the temperature of the water at 10 p.m. Luckily he has suffered no harmful effects.

#### Professor Garriott

The previous Newsletter made mention of Professor Garriott's selection for training as one of a team of scientists who hope to go to the moon within the next decade or so. The following extract from a letter from him to Dr. Rishbeth will be of interest.

'I think cricket "on the fields of RSRS" turned out to be very good exercise. I look forward to more games and more long walks when I can arrange another trip to England. As I may have already told you, my next step is to spend 13 months in jet training in Phoenix, after which we will move to Houston for integration into the regular astronaut program. My time schedule is completely undetermined at this point, but I hope to know more about various alternatives within a week. After Phoenix, we should have a minimum of 50% of our time available for research activities. We have just sold our home (effective about the end of August) and a "leave of absence" status has been arranged at the University. Therefore, the next report may well come from Arizona.

Please give my regards to all of my friends at the station.

Sincerely yours,

Owen'

STAFF NEWS

New Staff

Welcome to:

Mr. D. Capper	T. S/A
Mr. J. Hendry	T. S/A
Miss H. M. Underhill	T. S/A
Mr. J. Hampson	T. S/A
Mr. P. J. Jones	T. S/A
Mr. R. M. Kerr	T. S/A
Mr. W. M. Morrison	T. S/A
Mr. C. D. Jones	T. S/A
Miss J. B. Dean	T. C.O.

Resignations:

Mr. J. C. Cole	T. A.E.O.
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R.S.R.S. Sports and Social Club

ACO/RSRS Competition Evening

The date of the A.C.O./R.S.R.S. Competition Evening has been set for Thursday, 19th August. It is hoped to arrange competitions in the following activities:- Cricket, Lawn Tennis, Table-Tennis, Billiards and Darts. Will anybody wishing to participate please contact the appropriate section representative. As stated in last month's Newsletter, the bar will be open to serve refreshments and drinks.

Whether a player or spectator, all will be welcome.

A. B. Lowe

LETTER TO THE OUTSTATIONS

Dear Colleagues,

You will be pleased to know that Mr. Shearman, formerly a member of staff here, has been appointed a Professor at Birmingham University. Those of us who remember him, are glad to know of this suitable recognition of his talents, and offer our congratulations.

In general, the Newsletter does not comment on future staff movements; exceptions exist to every rule, however, and the forthcoming move of two of our friends is such a case. Tony Legg has accepted an appointment in Woomera, and he and Sylvia leave for Australia in the very near future. All our good wishes to them, they have both been valued members of R.S.R.S. staff and will be much missed. I am particularly indebted to Sylvia for the major part she has played in preparing this Newsletter, her leaving means that your correspondent has to be increasingly in fact, as well as in script.

Yours sincerely,

The Editor