



Vol. III]

MARCH 1935

[No. 9

CONTENTS.

	PAGE
A Scheme of Broadcast Development for India ..	393
The Royal Institute of Science	395
Nationwide Broadcast Development in India ..	396
Structure of the Nucleus	407
North Bihar Earthquake of January 15, 1934 ..	409
Some Recent Advances in Indian Geology ..	412
Letters to the Editor:	417-431
The Photo-dissociation of Single Crystals of Potassium and Sodium Nitrates under Polarised Light. By K. S. Krishnan and L. K. Narayana-swamy; Absorption Spectra of Sulphur-Chlorides and -Oxychlorides in the Vapour State. By R. K. Asundi and R. Samuel; On the Ratio of the Temperature Coefficients of Surface Tension and Density. By L. Sibaiya; Anomalous Magnetic Rotation of Uranyl Nitrate. By P. L. Kapur and Mulk Raj Verma; The Optical Rotatory Dispersion of α - and β -Pinenes in the Ultra-Violet. By R. Padmanabhan and S. K. Kulkarni Jatkar; Pasteur's Principle of Molecular Dissymmetry: The <i>dextro</i> - and <i>levo</i> -Camphoric Acids. By Bawa Kartar Singh; The Diamagnetic Susceptibility of Water Polymers. By L. Sibaiya; Free Phenolic Group in Lignin. By Pulin Behari Sarkar; Fumeless Digestion of Nitrogen. By Y. V. Narayanayya and V. Subrahmanyam; The Occurrence of <i>Choanephora cucurbitarum</i> (B. & Rav.) Thaxter on <i>Cassia Tora</i> Linn. By H. P. Chowdhury and R. S. Mathur; Observations on the Systematic Position of <i>Ficus Krishnae</i> . By K. Biswas; The Morphology of the Bulbils of <i>Globba</i> sp. By S. Ghose; Specificity of Parasitism by <i>Eublemma amabilis</i> . By P. M. Glover and P. S. Negi; Enteropneusta from Krusadar Island. By S. G. M. Ramanujam; Occurrence of the Pelagic Gastropod <i>Recluzia</i> (Petit) in Madras. By S. G. M. Ramanujam; The Age of the Deccan Traps. By Cyril S. Fox; Reply by Dr. B. Sahni; A Note on the Origin of the Kaldurga Conglomerates, Mysore. By C. S. Pichamuthu.	
Microchemical Test for Protein Grains in Plant Cells ..	432
Fertile Pedicelled Spikelets in Sorghum ..	433
Abnormal Fruits—Viviparous Germination in <i>Coccinia indica</i> W & A	434
Cause of Formation of a Heterocœlous Vertebra in Bird	435
Irrigation Research in the Bombay Presidency ..	438
Research Notes; Science Notes; Academies and Societies; Reviews; Errata ..	439-454

[All rights reserved.]

A Scheme of Broadcast Development for India.

ELSEWHERE in this issue of *Current Science* appears an article on the development of nation-wide radio broadcasting in India to serve as a most valuable tool for national reconstruction on the only possible basis of the renaissance and reconstruction of the village and village life. An examination of the development and present status of broadcasting in such typical countries as France, Germany, Great Britain and Russia in Europe, Canada and the United States in Northern America, and China and India in Asia, leads to the irresistible conclusion that the fundamental cause of the deplorable absence of any progress in India is the apathy and the lack of appreciation by the public and the governments in India of the value and potentialities of broadcasting as a matchless universal propagandist instrument for the promotion of the welfare and happiness of the community and for safeguarding its interests.

The reasons usually put forward for the present pitifully backward condition are unconvincing and really not correct. It is said that the contributory factors are the size of India and its huge population, the pronounced racial, linguistic and religious divisions, the enormous disparity in cultural development between the various sections of the people and chronic poverty and mass illiteracy. But these are not peculiar to India alone; each and every one of them has been and continues to be a striking characteristic of Russia and Russian life. Yet these undoubtedly serious difficulties and disadvantages did not prevent the builders of modern Russia not only from putting Russia on the radio map of the world, but achieving for it a position in the front rank in the radio world in the short space of some half a dozen years. Nor is it correct to say that the severe political unrest and the economic troubles of recent years have stood in the way of Indian radio development. Many other countries, notably, Austria, Germany, Italy and Russia have passed through or are still in the midst of acute political and social turmoil and severe economic distress. Yet they are noted for extensive broadcast development. Even Mexico and China are ahead of India in this respect. Further, it is not clear if

the conduct of the broadcast service from the Bombay and Calcutta stations and their programme composition are based on any well-defined policy with a clear understanding of the main objectives. There is none so poor in the world as India in the matter of broadcasting.

But the budget allotment of 20 lakhs of rupees for broadcasting by the Government of India, their decision to put up a 25 kw transmitter at Delhi and the highly commendable procedure of the Government of Madras in putting forward a worthwhile scheme for the whole presidency after detailed examination of the question by a competent radio engineer, appear to indicate that India has started on the road towards having a satisfactory system. The question arises if behind these there is a well-considered comprehensive plan of development for the whole country in regard to (a) organisation, finance and programme policy; (b) number and powers of stations and their location; (c) the interconnecting wire network; (d) receiver distribution; (e) manufacture in India of the necessary apparatus; (f) development and research in regard to all matters of technique, materials, apparatus and operation; (g) the training and recruitment of the necessary personnel of all grades; (h) relations with the press, the state departments and foreign broadcast administrations; (i) the important question of television and allied matters. A *laissez-faire* policy will be thoroughly wasteful in men, money and effort, besides causing confusion and inequitable and non-uniform development in the country. Any worthwhile development plan has to be based on a thorough examination and critical study of the world situation in broadcasting in all its aspects. And that can be done only by sending out a competent and fully authorised commission of inquiry as advocated at the end of the article. Will the Government act on the suggestion?

Even a brief consideration of the question of broadcasting *on a nation-wide basis* shows that low powers and short wavelengths for transmitters are out of question. There is really no satisfactory alternative to high power and medium wave policy, if the whole area of the country should be brought under adequate and reliable broadcast coverage as determined by daylight reception on an average type of receiver so as to be free from atmospheric disturbances at all parts of the year. Short wavelengths are

suitable for long distance reception during limited parts of the day and have entertainment value only with well-designed and rather expensive receiving apparatus.

The transmitting system as visualised in the article is an essentially conservative estimate of requirements. It will probably be found that the number of stations in each category may have to be doubled; the individual powers, particularly of the regional transmitters, may have to be increased by 50 per cent. A receiver per cent. of the population is an under-estimate but is a satisfactory objective to start with.

Community ownership of receivers and community listening were first started in Russia; in countries of high development such as Great Britain, Germany and the United States, this practice is a feature of schools and clubs of all sorts. There is no suitable alternative to this in India, at least for the present.

In regard to the organisations of broadcasting, the article is most emphatic on four basic requirements: (a) to retain the unreserved and whole-hearted trust and confidence of the people, the organisation should be completely above the slightest trace of suspicion of allegiance to party and sectional interests of any type; (b) the organisation should be an unqualified national monopoly, financed exclusively by the licence fee and public funds and existing solely for the education, enlightenment and entertainment of the community: private commerce should be rigidly excluded from any voice or control on policy or day-to-day conduct of broadcasting; (c) the organisation should be such as to ensure uniform broadcast facilities throughout the land and the maintenance of the highest standards of excellence in apparatus, methods and operation; and (d) each region should have and exercise the utmost possible freedom in all programme matters.

Organisation as a government department or as private commercial enterprise is both impracticable and intolerable. A highly centralised system such as the British Broadcasting Corporation which has made Great Britain so pre-eminent in broadcasting is wholly unworkable. A non-profit making autonomous public utility organisation with complete centralisation of all technical services and as complete decentralisation in all programme matters and of the type advocated in the article is the only solution.

It goes without saying that advertisement by radio should not even be thought of.

Everywhere and at all stages, the success or failure of a broadcasting system depends on the underlying programme policy and daily programme composition. The only criterion is entertainment and educative value as determined by variety, balance, utility and wide appeal to every section of the community in regard to age, sex, occupation and linguistic and racial grouping. Monotony, stiffness and heavy seriousness kill broadcasting outright. It is futile and shortsighted to design and put up receivers tuned to the local station. That is the finest way to create suspicion and repel the listener. Foreign station listening should be encouraged; it is of some educative value occasionally to hear completely unintelligible music and talk and the sounds of strange voices and instruments far away. And in any case, it is far sounder to make the daily programme so rich, varied, interesting and instructive and of such high entertainment value, that the rural listener, of his own accord, prefers it to others.

Of vital importance to broadcasting and the radio industry in India are the questions of the manufacture of radio apparatus, research and the training of engineers. It

is impossible and intolerable to be dependent for them on countries abroad. Distance, cost, natural differences in the conditions of working are all against it. In these matters, private commerce in India and the various educational institutions have a large and fruitful part to play on the basis of a carefully considered definitive formulation of a progressive and far-seeing broadcast development policy.

While the article rightly insists that the broadcasting system has to be built up it has not ventured upon any discussion on the first step to be taken. Such a discussion would have probably been useful though rather premature. But whatever its merits or demerits, it is based upon a careful study of the history and present status of broadcasting abroad and prolonged and earnest consideration of the possibilities and requirements in regard to India and Indian conditions. The article will have more than amply served its purpose if it helps "to create a correct perspective of the vast problem and provoke reasoned discussion on what is inherently a national question" and "to offer some concrete basis for such discussion".

R. E.

The Royal Institute of Science.

WE have received a copy of the second report of the Royal Institute of Science, Bombay, for the period 1926-1934, and we have great pleasure in congratulating the Principal and Professors of this Institution on their unremitting exertions in implementing its declared policy and in achieving great progress in the creation of an atmosphere of research in practically all the departments of science.

The Institute which was founded with the aid of public donations amounting to Rs. 30 lakhs, commenced teaching work in 1920 and was affiliated to the Bombay University for the B.Sc. degree courses in Mathematics, Physics, Chemistry, Botany and Zoology in 1926. In 1933 the then Governor of Bombay handed over the east wing of the Institute to the University to house the new University Department of Chemical Technology. All the scientific departments are well staffed and are fully equipped for the routine teaching work as well as advanced research work. The Library, which is one of the

best in the Presidency, contains six thousand volumes of periodicals and five thousand books, but the annual additions to the lending and reference sections of the library, which at the present moment amount to one hundred books and about eighty scientific journals, must naturally depend upon the grants available for the purpose. It seems to us that in view of the important position which the Institute occupies in the academic life of the Presidency and the high purpose which it is so worthily fulfilling, the great industrial magnates of Bombay will increasingly recognise the imperative need of placing the College above financial want; and once they are convinced that research, and not necessity, is the parent of invention as well as of industrial prosperity, their own enlightened self-interest will lead them to create ample endowment fund so as to ensure an adequate annual income to the Institute for post-graduate scholarships and expenditure on research departments.

A great industrial centre like Bombay