SCIENCE NEWS

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THE NATIONAL NETWORK FOR TELEVISION

PLANS for an expanding nation-wide network of coaxial cables, which may be supplemented by radio relay systems for carrying both television pictures and telephone conversations, were reported recently by Harold S. Osborne, chief engineer of the American Telephone and Telegraph Company.

He pointed out that the coaxial cable system has been successsfully tested for distances up to 800 miles, and that the radio relay system is now under development. A continually expanding program of construction has been undertaken in which these systems will link cities up and down the Eastern Seaboard, across the continent and from the east to Chicago, St. Louis and intermediate points.

Mr. Osborne stated that "A fundamental feature of the coaxial cable system from the standpoint of economics is that the cable is its own power transmission line. Another method of providing long distance television transmission which looks promising is the radio relay system. Approval of the Federal Communications Commission has already been obtained for . . . a development trial of such a system between New York and Boston, and work will proceed as soon as relaxation of war demands makes this possible."

If radio beams are found to have undesirable characteristics a super-high frequency system using wave guides may be employed. These wave guides are simply hollow pipes which serve to isolate a little section of space and thus guide the transmission of very high frequency waves, and also to protect them against interference. Such wave guides are now used extensively for short distances in ultra-high frequency work.

A comprehensive and highly trained maintenance force is necessary for the continued satisfactory operation of both systems. In the case of the coaxial cable system, the things to be maintained for a single television transmission circuit include terminal equipment at the ends, amplifier equipment and sources of power at intervals of 50 to 80 miles, simple amplifier equipment at intervals of about five miles without sources of power, and the cable itself throughout the entire distance. In the case of the radio relay system, terminal equipment at both ends and repeater stations with sources of power and antennae structures at intervals of 30 miles have to be kept in working order.

ITEMS

SCIENTISTS in the United States are collaborating with their Latin-American colleagues in making available files of journals for new and active institutions where the lack of adequate library facilities has greatly impeded research. Already the libraries of two such institutions have been assisted by the addition of journals. The Committee on Inter-American Scientific Publication, headed by Dr. Harlow Shapley, director of the Harvard Observatory, is now collecting journals for a number of other Latin-American institutions. Those who have unused files of journals which they are willing to contribute are invited to communicate with the Comité Interamericano de Publicatión Científica, Harvard College Observatory, Cambridge 38, Mass.

DDT, synthetic chemistry's most potent weapon against insects, bids fair to become a regular ingredient of interior paints and wall finishes, as a means of automatically ridding houses of flies and other pests. Experiments indicating this as a practical possibility are reported in a communication to *Nature*, by two British paint chemists, G. A. Campbell and T. F. West. Tests were first made with wire-screen cages, in which were placed plywood panels that had been coated with an oil-bound water paint containing 5 per cent. of DDT. Flies confined in these cages were all killed. Repetitions of the test after two months showed that the DDT-loaded paint was still lethal to flies. Further tests were made on a larger scale by painting the walls of small rooms with the same material, except that the mixture was by accident made only one-tenth as strong in DDT—0.5 per cent. instead of 5 per cent. Despite the greater dilution, the DDT in the paint killed 90 per cent. of the flies that roosted on the walls and ceilings overnight. Harder finishes, like ordinary oil paints and synthetic varnishes, have thus far not proven successful as carriers of DDT.

THAT more than a million new organic compounds may be produced in the future from petroleum and natural gas, was reported by Dr. Gustav Egloff, of the Universal Oil Products Corporation of Chicago, at a recent meeting of the Los Angeles section of the American Chemical Society. "Petroleum refining," he said, "is becoming more and more a chemical industry." Natural gas and petroleum are veritable treasure troves of paraffin, olefin, acetylene, cyclo-paraffin, cyclo-olefin, and aromatic hydrocarbons that open vast vistas in chemical research which have been only faintly explored. Individual compounds, such as isopentane, isooctane, triptane, isobutylene, butadiene, toluene, and styrene, and chemical compounds such as phenols, cresols, organic acids, resins, plastics, explosives, synthetic rubber, and many other derivatives are being produced from petroleum. Dr. Egloff stated that the industries based on the newer petroleum chemistry, involving aliphatic hydrocarbons as base materials, have infinitely greater possibilities than the industries based on coal tar chemistry, even though it is estimated that coal tar has served as a source of about 500,000 derivatives. Coal-tar hydrocarbons are mainly aromatic in character, and this limits the number of derivatives which can be produced from them.