SOON TO COME?

Television broadcasts to the general public have been predicted for many years, but the corner around which commercial television was reputed to be has not yet been found. Lack of transmission channels, one of the great obstacles, can be partly rectified by the use of coaxial cables for intercity transmission. High cost seems to be the chief remaining obstacle.

way problems which are becoming more acute each year.

Coaxial cables will not be a cureall, but they will allow service to be increased to nine times the present volume with the existing cable ducts. After that —but the engineers have enough trouble already!

Television broadcasting has long been cursed with a problem even worse than that of the telephone engineer. Television needs a very wide band of frequencies for a single image. These wide channels are available only on the very short waves, whose effective range is limited to "sight distance" from the transmitter. Rebroadcasting of the same program from many stations, which is standard practice today in sound broadcasting, has heretofore been impossible in the case of television because there were no wire channels between broadcasting stations over which the television signals could be sent for rebroadcasting. The coaxial cable, although designed as a communication channel, and not specifically as a "television pipe" may speed the coming of television broadcasts and rebroadcasts because it *can* carry the frequencies necessary for television transmission.

Television's future is very uncertain. Undoubtedly, more and better television transmissions will be available in the future, but whether that will be in a few years, or a few decades, or a few centuries, the engineers will not predict. Ten years have already elapsed since television images were wired from Washington, D. C., to New York City. Great improvements have been made in the quality of the received image in that decade, but each improvement has necessitated a wider channel. Today, with modern technique, each line in the image requires as wide a channel as one telephone conversation. Hence, while a telephone conversation from New York to Philadelphia costs 65 cents in the daytime, a television conversation would cost $156.65, if the rates were based on the channel width used.

Cost, rather than anything else, will be the major factor retarding television development. Few people, for example, could afford to make a television call from New York to San Francisco at rates based on channel use. If, as, and when people want to see their friends while telephoning to them, the channels will be in readiness. It seems, however, that a visit would be very much cheaper than a television interview.

Telephone engineers are not satisfied with their million-cycle cable. Why not use the cable to its full capacity? Why not install new terminal equipment and repeaters capable of handling two million cycles—why not five million? In the various communication laboratories scientists are already making, testing, and improving repeater and terminal equipment to care for a band of two million cycles, which carry 480-line television images, 480 telephone or wirephoto signals, or 5760 telegrams.

If a 2½-million cycle band is made usable, television images eight inches high will have 65 lines to the inch, which will look better than the average newspaper illustration. Perhaps television will then become a pleasure, rather than a strain, to watch, and those who have the price can sit at home and observe activities anywhere in the world.

Science News Letter, March 12, 1938

ARCHAEOLOGY

Hill Feared by Natives Yields African Secrets

A HILL with a tongue-twister name has been yielding graves and other clues to South Africa's past.

This hill named Mapungubwe is on the bank of Kipling's "great, greasy, grey-green Limpopo River."

Awe-struck natives always said climbing Mapungubwe meant death. Their ancestors had buried treasures up there, and no one dared even to point to the sacred hill, in the wild region where it lay.

But five years ago, a group of white men located the hill and found what they hoped for—buried treasure. It was, in fact, a skeleton with numerous ornaments of gold plate.

Fortunately, the treasure hunters were educated men, and one reported the find to the University of Pretoria. From then on, Mapungubwe has been probed by eager scientists, seeking a long-lost chapter of prehistory.

In a big archaeological volume called "Mapungubwe," Prof. Leo Fouche of the University of Pretoria and other scientists give a progress report.

Excavations have dispelled native mysteries, showing that the hill was occupied by two separate peoples. After several centuries, they left. There was no fighting, no hasty departure, judging by lack of confusion in the ruins.

But before the people went down the hill for the last time, they apparently buried their sacred objects with their chief. One grave, nicknamed the Scepter Burial, contained a skeleton buried with a gold scepter in one hand.

This episode in African prehistory

happened in the Middle Ages, so the evidence mainly suggests.

Archaeologists are now puzzled to know what these early Africans were like. Skulls they have seen are not true Negro type. They may represent a mixture, even including distant foreigners.

Urging extended digging to north and south of Mapungubwe, Prof. Fouche declares that deeper knowledge of native failures and achievements in Africa's past may aid Britain in improving its relations with native subjects.

Science News Letter, March 12, 1938

BOTANY

Seeds Sleep 60 Years, Sprout When Houses Fall

SNOW-WHITE'S long slumber, before the Prince kissed her awake, is made to seem a brief cat-nap by comparison with the record of tobacco seeds accidently hidden under houses in Costa Rica. These tiny seeds have remained dormant as long as the houses stood—sixty years or more—and are aroused to germination and growth when the houses are knocked down by an earthquake or demolished by their owners.

The tale of the sleeping seeds was told by W. A. Archer, botanist for the U. S. Department of Agriculture, who has just returned after four years as a plant explorer in Latin America. Mr. Archer's special objective was to find new varieties of tobacco, but he has also brought back seeds of many other kinds of plants.

A couple of generations ago, he stated, a good deal of tobacco used to be raised in Costa Rica. In recent years the crop has been given up. But in the earth under the basementless houses are large numbers of tobacco seeds, and when a house is destroyed, rain and sun have a chance to make them grow. By collecting seed from these volunteer tobacco crops amid house ruins, Mr. Archer was able to save for experimental and breeding purposes a number of tobacco varieties long since out of cultivation.

Another find of possible importance to American agriculture (and circuses) consists of two or three varieties of giant peanuts that are at home in the Brazilian state of Matto Grosso. The kernels of these peanuts are bigger than the whole nuts, shells and all, commonly found on American peanut stands.

Mr. Archer pooh-poohed the notion that a plant explorer's life is one of romance and danger. It takes you into strange places, yes, he said. But that usually means merely that you have a hard time finding a place to sleep, an even harder time getting properly cooked food, and that you can't trust the drinking water—and even less the native alcoholic beverages. However, he added philosophically, you can always eat bananas. They may become monotonous, but at least they're dependable.

Perils of snakes he shrugged off. In the whole four years, he declared, he saw exactly three wild snakes. The real danger in the American tropics comes from insects that carry a variety of most ungodly diseases.

Science News Letter, March 12, 1938

London is seeking to lessen its famous fogs by a campaign against smoke.