cotton costs more to produce as it requires greater care. Egypt has cheap labor and can compete successfully in spite of transportation rates.

The prosperity of Egypt fluctuates with its cotton, the most important crop. It is believed by people who have observed conditions that the government manages this goose which lays the golden egg with utmost care. When cotton prices go low, Egypt restricts the area to be planted the next season, until prices climb up again. When they go high, the government attempts to peg the price by buying in the market and doling it out in wise quantities.

Whatever blame may attach to Egypt, it must be remembered that it is a country that has to maintain itself on artificial water supply because it practically never rains. It must exercise great economy to bring comparative economic comfort to the 14,000,000 people that crowd the narrow valley of the Nile. Although the area under Egyptian rule is over 300,000 square miles, only a little over 12,000 square miles is arable.

It is always possible to increase this farm land by more extensive irrigation, limited of course by the amount of water the Nile can supply. Thousands of years before the time of Christ, and back in the days of Tutankhamen, irrigation was practiced in Egypt. Practically the same old system was used until recent times, and under the rule of Great Britain it was developed to its greatest heights.

The Nile is a great artery that keeps Egypt alive. It begins in the heart of Africa at Victoria Nyanza and flows almostdue north to the Mediterranean, a total distance of about 3500 miles, or farther than from New York to San Francisco. In about the last 1000 miles of its vast journey it is not augmented by a single tributary stream.

Although the most selfish methods of Egypt could never bring on an economic crisis in the United States, still they could cause a temporary discomfort in manufacturing fields. If the boll weevil should be conquered at some future time, the fine long Sea Island cotton might again be grown in the Carolinas as it once was.

Bringing cotton to the United States is like carrying coals to Newcastle, but it is, as has been said, a matter of the kind of cotton. China, India, Peru and Mexico also send us some of their cotton, which finds its way into blankets, wool mixtures and cheap yarns.

BENDING OF RADIO WAVES CAUSES "FRFAK" TRANSMISSION

Bending of the radio waves in the upper atmosphere, in somewhat the same way as a beam of light is bent when crossing a hot stove or highly heated ground, is responsible for many of the curious and apparently contradictory effects observed in radio transmission with short waves, according to William G. Baker and Chester W. Rice, of the research laboratory of the Genoral Electric Company. Just as the bending of light waves over a desert sometimes brings into view objects far beyond the horizon, and produces a mirage, when the radio waves are bent it may be possible to hear sigmals from a distant station though nearer receiving sets cannot detect them.

"Experiments in short-wave (i. e. 60 to 15 meters) transmission made during the past two years have definitely brought to light many peculiarities which were entirely unexpected as extensions from our many years of long-wave experience," said Mr. Baker. "Until recently any announcement of long-distance short-wave transmission was put down as an unexplained freak by the average radio man, and dismissed from his mind. As the number of such reports increased, we could no longer be content to dismiss them as freaks. We were forced to abandon our preconceived notions as to what normal short-wave transmission should be.

"As a typical example of the peculiarities of short-wave transmission, let us describe the experience obtained with a 5 kw., 30 meter transmitter. Here the signal strength rapidly decreases as we leave the transmitter and reaches the lower useful limit at about 70 miles. This short range is what might be called the unexpected value as viewed from our long-wave experience. If now we continue to greater distances the signal remains out until we reach approximately 450 miles, where the day signal unexpectedly becomes strong again.

"Continuing to greater distances we find the signal gradually falling off in intensity and reaching the limit in the vicinity of 4500 miles by day. On a summer night the signal does not reappear after the 70 miles extinction until we are approximately 2000 miles from the transmitter, after which the signal falls off gradually to a very low value at 7500 miles."

These effects, which vary in amount according to the wave length and power of the transmitting station, are explained by the investigators as being due to the presence high up in the atmosphere of a layer of free electrons, of which the atoms of matter are supposed to be made. Nearby receiving sets hear the transmitting station by the direct waves as these go out in all directions from the aerial, but these waves that rise in the air enter this electron layer, and are refracted so that they are bent downwards again. However, the waves which ascend almost or entirely vertically are not refracted, and so are not brought back to the earth, and the 450 mileday limit represents the line reached by the waves which have just been far enough from the vertical to be refracted. At night time the layer of free electrons is at a greater altitude and so the nearest return of the "sky wave", as it is termed, is farther than in the day.

Fading, the bane of the broadcast listener's existence, may be caused when the sky wave comes back to earth within the limit of the ground wave, causing interference between the two. However, as the work of Mr. Baker and Mr. Rice has revealed some of the laws which govern the short waves, it may now be possible to design sets which will give the best transmission between two particular points.

BODY MAY PUT UP WITH DEFECTIVE DIET

Evidence that the bodies of men and animals are not quite so exacting in their protein food demands as biochemists had supposed is obtained from important experiments in nutrition performed at the University of Illinois, by Drs. William C. Rose and Gerald J. Cox.

The experiments resulted in successful use of an artificial product to replace histidine, which was previously thought to be one of the 20 building stones of protein essential for the growth and development of men and animals.