

RADIO

PROGRESS OF RADIO THROUGH THE YEARS

Wireless Research Began Long Ago, But Development Has Been Swift Lately.

Wireless research started many years ago, as far back even as 1827. Even the radio telephone is not a recent perfection; rather it is that introduction to the layman of the human voice and music has suddenly popularized something that wireless men had thought a pastime or amusement. Here is the chronological record of wireless:

1827—It was found that the magnetic discharge from a leyden jar would magnetize a steel needle.

1831—Electro-magnetic induction was discovered between two entirely separate circuits by Michael Faraday.

1837—Cooke and Wheatstone of London, England, and Morse of the United States take out first patent for electric telegraph.

1838—K. A. Steinhell of Munich suggested that a system of wireless telegraphy could be established after his discovery of the use of the earth return.

1840—Joseph Henry (U. S. A.) produced the first high-frequency electric oscillations, and stated that the condenser discharge is oscillatory.

1842—Wireless experiments were made by S. F. B. Morse by electric conduction through water across Washington canal and across wide rivers.

1843—A wireless system for transatlantic communication was suggested.

1845—Water was used as a conducting medium in wireless experiments across a wide river.

1849—Intelligible signals were actually sent across a river 4,500 feet wide in India, but the cost was found prohibitive for commercial use.

1867—The electric waves that are now utilized in wireless telegraphy and telephony were predicted in an

distance of 49 miles by radio signals.

1901—Radio communication started with five islands in the Hawaiian group. The first British ship is fitted with the wireless telegraph.

1902—Radiograph signals received aboard vessels at sea at 1,500 statute miles. Signals received from a distance of 2,000 miles.

1903—King Edward receives a radio message from President Roosevelt. High-power stations were ordered by the Italian government. First transatlantic radio message sent. Telegraphic news service for ships at sea is started. Marconi knighted in Russia.

1904—The first press message was sent across the sea.

1905—Patent suit started in New York between the Marconi and De Forest company.

Patent for horizontal directional aerial is taken out. This was a great step forward in long-distance work.

1906—International conference is held in Berlin, at which most of the countries of the world are represented.

1907—The use of steel disks for producing notes were successfully tested.

Radio stations in Ireland and Nova Scotia were opened for limited public service.

1908—Radio stations opened for unlimited public service between Great Britain and Canada.

1909—Steamship in collision with another off the coast of Florida succeeds in calling assistance by radio.

1910—Marconi receives messages 6,700 miles while on board ship going to South America.

Spanish radio company formed.

1911—Canadian government leased radio stations for 20 years.

1912—Radio distress signals from the Titanic bring assistance and save lives of 700 passengers.

1913—Tests were made between the Eiffel tower in France and the station at Washington. During the trip into Central Asia an explorer received his longitude and time signals from a distant radio station.

1914—Marconi and radio officials start test of wireless telephone between vessels of the Italian fleet. The test was continued between vessels on the high seas and voices were heard with clarity at a distance of 44 miles. One day radio telephone communication was kept up constantly for 12 hours. Great Britain declared war

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Sunday School Lesson

(By H. P. B. FERGUSON, D. D., Teacher of English Bible in the Moody Bible Institute of Chicago.)
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LESSON FOR MAY 21

HILKIAH'S GREAT DISCOVERY

LESSON TEXT.—II Chron. 34:14-33.
GOLDEN TEXT.—Thy word is a lamp unto my feet, and a light unto my path. —Ps. 119:105.
REFERENCE MATERIAL.—Deut. 6:4-9; Josh. 1:8; Col. 3:16; II Tim. 2:15; 3:16-17.
PRIMARY TOPIC.—How the Lost Bible Was Found.
JUNIOR TOPIC.—Hilkiah Discovers the Lost Bible.
INTERMEDIATE AND SENIOR TOPIC.—How to Make the Bible Our Own.
YOUNG PEOPLE AND ADULT TOPIC.—The Authority and Influence of the Bible.

About a hundred years elapsed between the reformation under Hezekiah and that of Josiah. Some time during this time the book of God's law had been lost. Two wicked kings had reigned in this interval. The Lord had given Hezekiah much wealth. His son Manasseh, coming into possession of his father's property, and being ungodly, would naturally neglect the Bible, if not purposely try to put it from sight. Those who do not obey the law of God, are usually interested in putting it out of sight.

I. The Book of the Law Found (vv. 14-17).

1. The Occasion (v. 14). It was while repairing the temple during Josiah's reformation that the law was discovered.

2. The Book Delivered to the King (vv. 15-17). Upon making a report to the king of work done, the king was told of the finding of the book of the law by Hilkiah, and the book delivered to him.

II. The Effect of the Reading of the Law (vv. 18-28).

Shaphan the scribe read the law before the king.

1. The King Rent His Clothes (v. 19). As the law was read before him he was led to realize more seriously the awful extent of the nation's departure from God. He knew that sin merited punishment. The function of the law is to reveal sin. The man who will honestly hear the demands of God's law will fall upon his knees before God and cry for mercy. The reading of the royal robes indicated that the king was penitently sorrowful.

2. The King Sent a Deputation to Make Inquiry of the Lord (vv. 20, 21). The king included himself in the guilt before God. "Go inquire for me and for them that are left, for great is the wrath of the Lord that is poured out upon us." His sense of sin was so keen that he sent them to inquire as to whether there was any means of averting the judgments of the Lord. Instinctively the human heart turns from God's threatening judgments to a means of escape. The soul that sorrows for sin inquires for a way of escape. The law prepares for the gospel. The law is our schoolmaster to bring us to Christ. The soul under condemnation inquires, "What must I do to be saved?"

3. The Message of Hilkiah, the Prophet (vv. 22-28). (1) Confirmation of what the law said (vv. 22-25). She said that all the curses written in the law must fall, for the sin had not been so different that God's wrath could not be restrained. Destruction was hanging over Jerusalem and it was too late to avert it. It was not too late to repent to obtain mercy from God, but the outward consequence of sin must be realized. This finds fulfillment on every hand today. The murderer must hang. His soul may go directly to heaven, provided he has accepted Jesus Christ. (2) Acceptance of Josiah's repentance (vv. 26-28). Because of his tenderness of heart and deep penitence, the Lord said he should be gathered to his grave in peace, and should not see all the evil to be brought on Jerusalem and its people. What Hilkiah said was true even though Josiah died in battle (35: 23-25). When God accepts a man and forgives him, his death is a peaceful one even though it may be on the battlefield. God's presence is with him and he thus will go straight to the heavenly home.

III. The Law Obeyed (vv. 29-33).

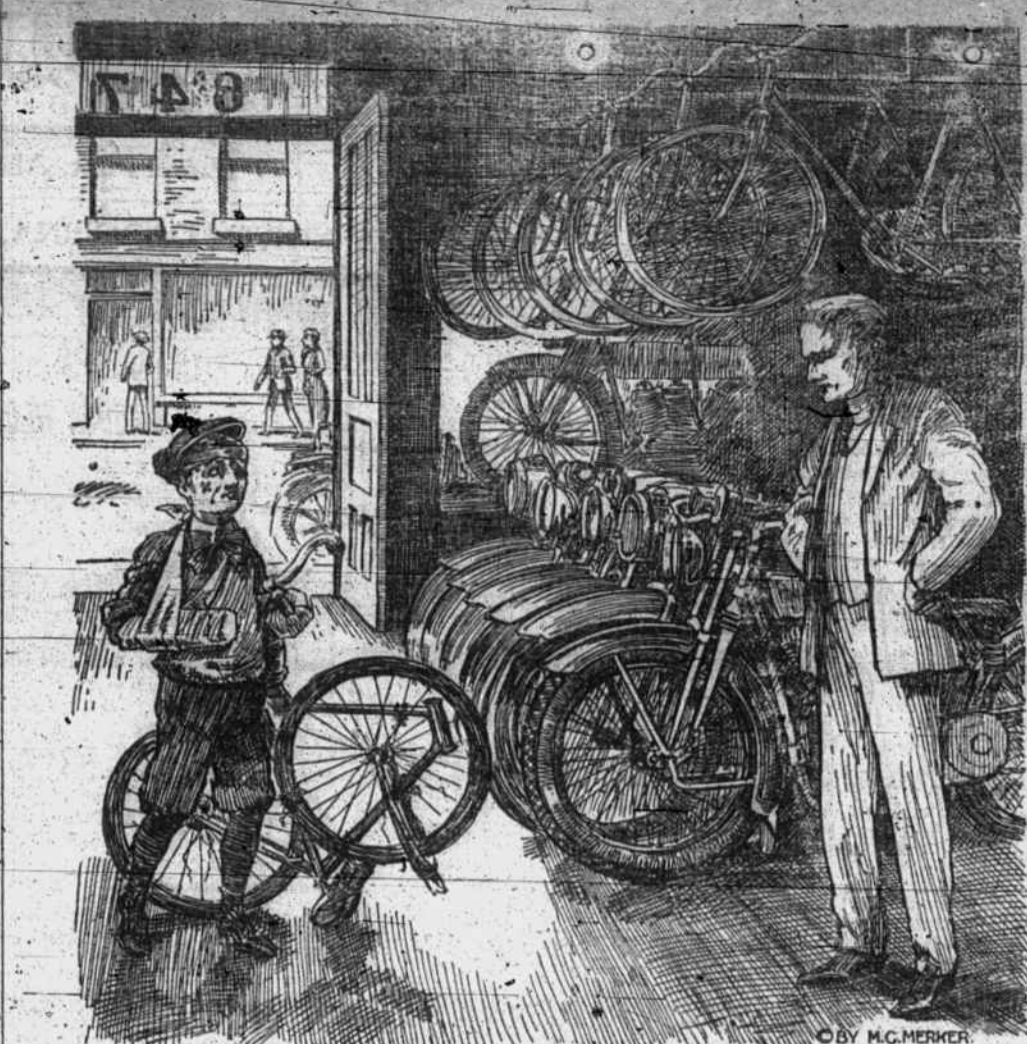
1. The King Read the Law (vv. 29, 30). He gathered together the inhabitants of Jerusalem, including the priests, Levites and elders, and read unto them the law.

2. The King Made a Covenant Before the Lord to Keep His Commandments and Testimonies (vv. 31, 32). This was done sincerely—with all his heart and soul. He caused all that were present to stand to it.

3. The king took away all the abominations out of all the countries that pertained to Israel (v. 33). All the days of the king they departed not from following after the Lord.

He Will Save You.
When you feel as if things were dragging you down into the depths will you remember that the Lord Jesus Christ is at your side? All human help may seem very far away, but He is not far away. Even through the noise of the storm He can hear the faintest cry, "Lord save me, I perish," and "He will save you to the uttermost."

Adversity.
Adversity is the first path to a bright day.



"MOTHER SENT AWAY FOR THIS BICYCLE, AND IT WENT TO PIECES WHILE RIDING IT. CAN YOU HAVE IT REPAIRED?"
"I'LL SEE WHAT I CAN DO WITH IT BUT I AM AFRAID IT IS A BAD BARGAIN."

A MOTHER'S MISTAKE
WHEN a home-dealer sells you a motorcycle or a bicycle, he has made certain that it is substantially built and equipped to your satisfaction. He knows the danger that may befall the rider and will not risk his reputation by selling a machine that falls below standard. People who have the eyes to see, the hearts to respond and the minds to understand know the wisdom of spending their money at home.
MORAL:—It is folly to lay out money in the purchase of repentance.

THE WELFARE OF THESE MERCHANTS SHOULD BE YOUR FIRST THOUGHT BECAUSE YOU RISE AND FALL WITH THEM.

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Elizabeth A. Bergner, Radio Instructor in Lane Technical High School, Chicago, and Her Class.

address before the Royal Society in London, England.

1890—The sending of an electric current through the earth was systematically studied by John Rowbridge of Harvard. It was found that signaling might be carried on over large distances between places not connected by wires.

1895—It was found that telephonic speech could be conveyed by induction over a space of quarter mile. This experiment took place in England.

1898—Electric waves were suggested as being particularly suitable for the sending of signals through fogs.

1892—An instrument for the detection of electro-magnetic waves was discovered which was given the name of a "coherer."

1894—A scientist of Berlin signaled through three miles of water.

1895—High frequency waves excited curiosity of Senator Marconi.

1897—First patent for practical wireless transmitting system is taken out in London by Marconi. Afterward, successful signaling was carried out over distances as great as one and one-quarter miles. Sir William Preece of the British postoffice system interested his cohorts in Marconi's wireless experiments.

1897—Marconi establishes communication between points four miles distant. Balloons were used to suspend antennae.

Marconi demonstrates his wireless system before the king of Italy, communicating with two Italian warships nine miles distant.

The first Marconi station is erected on the Isle of Wight and experiments conducted over a distance of 14 miles.

Near the end of the year the first floating wireless station was successfully operated.

1898—The first paid marconigram was sent from the Isle of Wight station.

1899—Reports made on lighthouse accident by radio. First French gunboat is fitted with radio apparatus. In Vienna communication between two balloons is established. New York Herald receives radio report of international yacht races. The British war office introduces Marconi apparatus into the South African battlefields.

1900—German vessel communicates a

upon Germany August 4 and all private radio telegraphy and telephony suspended.

1915—Radio communication between America and Japan is completed. The stations were located at San Francisco and Tokyo with a relay station at Honolulu.

The American Telephone and Telegraph company succeeded in radio telephoning from Arlington station at Washington to Herwall, a distance of nearly 5,000 miles.

Secretary Daniels of the United States navy transmitted telephonic messages from Washington to the Brooklyn navy yards.

1916—President Wilson and the mikiado of Japan exchange messages over the new transpacific radio service, which is formally opened.

1917—Senator Marconi visits the United States and aids greatly in recruiting for radio operators for the United States army.

1918—Wireless telephony progressed rapidly, being used to a great extent in the equipment of airplanes. Several new long range stations were erected in the United States, it being claimed for one built at Annapolis, Md. that it was capable of communication at 4,000 miles. The United States government also opened a high-power station at Bordeaux.

In September of this year radio signals sent from a point 42,000 miles away were received in Sydney, Australia.

1919—With the exception of the three transatlantic flights—that of the U. S. NC-4, and the British flights of Alcock and Brown and the dirigible R-34, in which radio communication played an important part in keeping the ships of the air on their courses—no very great progress was made in radio telegraphy, although radio telephony was being pushed along quietly. Restrictions upon amateurs receiving and sending were lifted by the American government.

1920—This was the year of the radio telephone, more attention probably being paid to this branch of radio than to its elder brother, telegraphy. Several broadcasting stations were opened.

1921—This year was another radio telephonic year. It was marked by the opening of numerous broadcasting stations.

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