PHYSICS

Most Powerful Naval Radio

A vacuum tube transmitter 80 times as powerful as the ordinary transmitter in a broadcasting station has just been installed in the Chollas Heights naval radio station, San Diego, Calif. This sending vacuum tube radiates 80,000 watts of electricity and is said by naval officials to be the most powerful tube transmitter in the world. It is four times as powerful as any other United States naval sending station.

This broadcasting device was not designed for telephone use, but will be employed for radio-telegraph communication, using dots, dashes and spaces, at a rate of 100 words a minute.

Chollas Heights is a remote control station, used by the navy for sending purposes only. The messages leave antenna strung on three masts which, 600 feet in height, form a triangle 1,100 feet on each side. The "cross arms," or platforms at the top of the masts, are 60 feet long and contain a bridge on which electricians may work. The actual sending is done from the Pt. Loma naval radio station, 11 miles distant across San Diego and the bay by air line. The Pt. Loma key works the Chollas Heights sender, while receiving is handled at Pt. Loma.

Six transmitters are employed in the station. The 80,000-watt tubes replace 200,000-watt arc transmitters. Under the new arrangement the station will be able to communicate with American ships in any part of the world during the night, when the station has a sending range of 12,500 miles; during the day it can span the continent to eastern points to a total of about 3,000 miles.

The set is operated from an alternating current commercial power supply, by means of six 50 kw. rectifier tubes which can deliver up to 150 kw. at 15,000 volts. Included is a 20,000-volt master oscillator which excites eight 20,000-volt amplifiers. The approximate antenna current is 300 amperes.

The significance of this station is found in the declaration of radio officials connected with its construction and operation that, if it proves completely successful as they predict it will, tube transmitters will replace all large arc transmitters such as are employed by the navy at Washington, D. C., Honolulu and Cavite.

The Chollas Heights set is one

(*Just turn the page*)

PHYSICS

WILLIAM DAVID COOLIDGE

X- and Other- Ray Expert

To Dr. W. D. Coolidge, the distinguished assistant director of the General Electric Company's Research Laboratory at Schenectady, shown here in a characteristic mood, the SCIENCE NEWS-LETTER is glad to extend congratulations, not only upon the award of the Howard N. Potts Medal of the Franklin Institute, as described elsewhere in this issue, but also upon his birthday.

He was born upon the 23rd of October, 1873, in Hudson, Mass., and so far as he is aware is not related to the other prominent bearer of his name. But as they both came from the same part of the country, there may be some distant connection.

After graduating from the Massachusetts Institute of Technology in 1896, he studied at the University of Leipzig, taking his Ph.D there in 1899. Then he taught at his Boston alma mater until 1905, when he began physico-chemical research in the General Electric Company's laboratory, becoming assistant director in 1908. There his principal researches —on ductile tungsten, the Coolidge X-ray tube, and now, the new cathode ray tube—have been accomplished, while others which will doubtless prove equally important, are still in progress.

Science News-Letter, October 23, 1926

A star recently discovered appears so faint that it cannot be seen without a telescope, and yet is said to be 10 million times brighter than the sun.

Science News-Letter, October 23, 1926

ARCHÆOLOGY

Relics in Ancient Cave

Twenty baskets full of broken clay jars and bowls, found in a cave near the village of Heraklion, have been pronounced the most important discovery in recent years in the culture of the New Stone Age.

These valuable fragments of prehistoric pottery were unearthed by the University of Cincinnati's archæological expedition to Nemea, where excavations into old Greek ruins were being made. The unexpected find of the cave and the significance of the pottery, which has not yet been fully studied, is reported by the director of the excavations, Prof. Carl W. Blegen, in a recent issue of *Art and Archæology*.

A native farmer's excavations for a new threshing floor revealed bits of pottery which led the scientists to investigate the site, he explains. They were rewarded by finding a large natural cave, the roof of which had fallen in to fill the cave hole completely, and in this old home of prehistoric cave dwellers were bones of sheep and other animals and a great quantity of primitive dishes.

Pottery from this period of man's early development has never been plentiful, and the value of the cave's contents is increased by the fact that the clay fragments have been stored away in boxes according to the depth of earth in which they were found. When the soft, fragile bits have dried out and hardened they can be better studied, and Prof. Blegen believes that they will provide important stratigraphic evidence in tracing the development of pottery in the Neolithic Age.

The bulk of the sherds belong to perfectly plain vessels without decoration, Prof. Blegen states. Many of these are almost coal black in color; others are buff, and some appear to be red. Another kind of ware is described as being decorated in red paint, mostly with simple geometric figures, often filled with parallel lines or cross-hatching.

"The small area uncovered by our pit seems to be merely a sort of antechamber to the real cave itself," he concludes. "The complete exploration of this latter, which will be a large undertaking, will have to be resumed in the next campaign at Nemea, and may be expected to yield results of very great archæological and historical value."

Science News-Letter, October 23, 1926