Wolverine News Brevities

Ann Arbor—The billiard room of the Michigan Union was robbed of 15 sets of billiard balls, valued at $750.

Holland—Fifty-five students, the largest class in the institution's history, will be graduated from Hope college Wednesday evening, June 21.

Detroit—Detroiters will pay a tax of $22.04 for each $1,000 of taxable property this year, an increase of 37 cents over the previous assessment.

Detroit—Detroit's Turkish colony, in a meeting in the House of the Masses, pledged $5,000 to the war orphans of Turkey and for the preservation of the Islamic faith.

Holland—After having been at large a year, Charles A. Cake, who escaped from the local police when he was arrested on a charge of forgery, was caught in Chicago and brought back.

Bay City—The Michigan Securities Commission has granted the Ra-Do Corporation of this city permission to place its stock on the market. The company manufactures radio equipment.

Alma—Carl Witter and Ernest G. Locey, were arrested by local officers, who are probing into the death of Albert Balch, 70, farmer, living near St. Louis, who was hit by an automobile said to have been driven by Witter.

Flint—Under Sheriff Aaron B. Crego, who recently handed in his resignation to Sheriff Homer Vette, to take effect June 15, announced his candidacy for sheriff on the Republican ticket in the primary elections to be held September 12.

Flint—Despite the fact that the assessed valuation of this city has been lowered nearly $9,000,000, the common council announced a reduction in taxes of $2 per thousand valuation, when the rate for this year was set at $17. The tax rate cut necessitated a drop in expenditures of $425,000.

Grand Rapids—By altering its diocesan constitution the Western Michigan diocese of the Episcopal church placed women on the same basis as men as delegates to its convention Rev. Harold Holt, Niles, was elected to succeed Rev. J. T. Wilkinson, Manistee, for 10 years diocesan secretary.

Grand Rapids—Splitting the difference in their wage controversy, the Grand Rapids, Grand Haven & Muskegon Railway Co. and its employes, who were on a strike, came to an agreement and transportation on the interurban line was resumed. The new wage schedule is 42 1-2, 47 1-2 and 52 1-2 cents an hour.

Ann Arbor—G. H. Gronnett of Detroit was elected president of the Michigan State Pharmaceutical association at the fortieth annual convention of the organization here. Other officers elected were: Vice-president, Milo Bolenbar, Sparta; second vice-president, N. B. Torpefom, Detroit; treasurer, Ellis Faulkner, Middleville.

Battle Creek—Foundations are being laid at the Roosevelt American Legion hospital for the 80 cottages to be removed from Camp Custer's base hospital sector and which within the next two months will serve as the new addition to the legion hospital. Hospital officials hope that the work will be completed the latter part of July.

Vicksburg—A family automobile ride, resulted fatally for Leslie Hudson, one year old, and in critical injury for his parents, Mr. and Mrs. John Hudson and another little son, Leroy, 3 years old. The tragedy occured on the Grand Trunk crossing when the fast afternoon train from Chicago struck the car in which they were riding.

Three Rivers—Keys to the Three Rivers bank said to have been in the possession of Fred Schoonmaker, former cashier whose body was found in his cottage four weeks ago, following the discovery of a $20,000 bank shortage, were found in 15 inches of water along the shore of a lake near here where the Schoonmaker cottage is located.

Albion—Jumping in over his head into the Kalamazoo river to rescue his two-year-old sister, Donna, who had fallen into the water, Donald Dingey, 4, son of Elmer Dingey of this city, was drowned. His body was recovered two hours later in six feet of water. His sister was rescued by John Cafin, local blacksmith, and a physician resuscitated her.

Benton Harbor—A. H. Burger, chairman of the Berrien County Republican committee and for many years active in state and county politics, died at his home here after a long illness.

Paw Paw—Richard Dykstra, a church pianist, has been taken to the Michigan Reformatory to begin serving a sentence for embezzling a fund entrusted to his care for the purchase of a new church piano.

Dearborn—Henry Ford is prepared to begin work on the development of the Muscle Shoals water power and nitrate plants on a few hours notice, should his offer to take over and operate the project be accepted by Congress, it is learned from sources close to the manufacturer. Acceptance of his offer, it was said, would be followed immediately by the dispatch of telegrams to various parts of the country that would initiate the Detroit manufacturer's plan to create an industry that would be the "crowning achievement of his carrer."

RADIO

VACUUM TUBE USED AS RADIO DETECTOR

How This Device Depends on Emission and Control of Electrons for Its Operation.

Readers of the radio column are urged to clip each article and paste it in a file book. The articles printed are continuous and the entire series will be valuable for reference.

The greatest advances made in the past few years in the radio art have been due in one way or another to the use of vacuum tubes. In view of this fact a more careful consideration of them will be of interest.

All of these tubes, known by a variety of names, such as radiotron, audion, serlotron (trade names of the manufacturer) depend upon the same fundamental principles for their operation. For the sake of simplicity of brevity these will be referred to in this column simply as vacuum tubes. A vacuum tube can be made to function as a detector, as an amplifier, or as an oscillator.

The vacuum tube depends on the emission and control of electrons for its operation. The electron is the smallest subdivision of matter which mankind recognizes and it carries the smallest known charge of negative electricity. For years previous to electron research it had been held by scientists that matter was built up of distinct particles or units which they called atoms and molecules. At that time the molecule was assumed to be the smallest quantity of matter that could have a separate existence or take part in chemical action, but more vigorous research pointed to the fact that the molecule is made up of still smaller elements which are termed atoms; that is, a molecule may be composed of several atoms. Then for a time it was assumed that the atom was the very smallest quantity of an element that could exist, but later researches have revealed that atoms may be further subdivided into particles

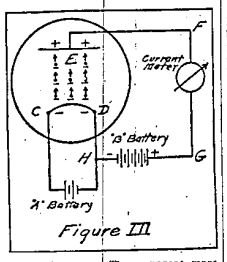


Figure III

called electrons. The apparent mass of an electron is about one-eighteen-hundreth part of that of an atom of hydrogen which is the smallest of the chemical atoms.

According to the electron theory an atom consists of a definite number of electrons grouped around a nucleus having a positive charge and so long as none of the component electrons are driven from the atom, the latter possess no detectable charge. The positive charge on the nucleus is said to be exactly neutralized by the negative charges on the electrons grouped about it.

Suppose now that by some means an electron can be detached from the atom. Then the atom becomes what is known as a positive ion and it exhibits the properties of a positively charged body, or in other words since an electron which carries a negative charge has been removed from the atom which has equal positive and negative charges, the portion of the atom now remaining has a deficiency of negative charge and acts like any positively charged body.

On the other hand if some force can be brought to bear that will add an electron to a normal atom which is neutral as far as electrical charges are measured, the result will be a negative ion, which will possess all the properties of a negatively charged body. An atom then which has a deficiency of electrons is called a positive ion and one having excess of electrons is called a negative ion.

Since each electron carries a negative charge of electricity an electron represents a certain quantity of electricity. Forcing electrons to move from one point to another causes electricity to flow. The ability of any medium to conduct electricity or allow a current to flow through it depends upon the number of free electrons available as carriers of charges.

It has been known for many years that the space surrounding a piece of heated metal is a conductor of electricity. It has been demonstrated more recently that this is due to the release of electrons and that if an incandescent metal be placed in a bulb exhausted of all gases, pure electrons will be liberated from the incandescent metal.

In a vacuum tube such as we are using at the present time, the piece of metal used to furnish the electrons is called the filament and is usually made of tungsten and sometimes is coated with oxides to increase the electron emission. For convenience the filament of a vacuum tube is heated by a battery current and it is this heat furnished by the battery current that constitutes the force that disrupts the atoms of the filament and liberates electrons.

Fig. III is a spherical glass bulb from which all the air and gases have been exhausted and having mounted in it a filament C-D which can be heated to incandescence by the "A" battery connected to it, and the metallic plate E. When the filament C-D is heated to incandescence by the "A" battery connected across its terminals electrons are emitted. Connecting the cold plate E to the incandescent filament C-D by means of the circuit E-F-G-H which includes a current meter and a "B" battery, with its negative side connected to the filament lead at H and its positive side connected through the current meter, the plate becomes electrically positive with respect to the filament.

Since like charges repel and unlike charges attract, there will be a movement of electrons from the filament to the positively charged plate, and the current meter will show a deflection which indicates that a current is flowing in the circuit E-F-G-H.

Increasing the "B" battery voltage causes an increase in the current flowing in the circuit E-F-G-H, the plate circuit, until the positive charge on the plate E is so strong that all of the electrons given off by the filament are attracted to it. Any further increases in the "B" battery voltage will not cause any increase in the current in the plate circuit.

Increasing the temperature of the filament will increase the total number of the electrons emitted.

FRISCO TALKS TO HONOLULU

New Radio Station at the Presidio Can Be Heard Half Way Around the Globe.

"Hello, Honolulu."

That may sound like fiction, but it is a reality, nevertheless.

The new radio station at the Presidio, San Francisco, with aerial conditions right, can be heard half way around the globe. Officials in charge of construction declare it to be the most powerful vacuum tube transmitter on the Pacific coast.

Located on the highest point in the Presidio, overlooking San Francisco bay, two 750-foot aerial towers to augment its efficiency, the new station will command similar stations in Salt Lake City and Cheyenne.

Radiophones on German Trains.

Wireless telephone instruments will be installed on a number of important German express trains, and receiving instruments will be placed in hotels and embassies, according to an announcement made recently. Experiments conducted in a moving freight car have shown that the wireless system works well, the men engaged in the testing of the instruments being able to hold conversations with friends in Berlin. The tests were made under the observation of engineers, military attaches and the diplomatic representatives of the United States and Sweden.

Handling Vacuum Tubes.

When you handle the vacuum tubes of your receiver great care should be exercised that they are not knocked about or that the elements are broken. These little lamps are the heart and soul of the set. A good way to operate these tubes is to keep the glow just a little below the critical point.

ADVICE FOR AMATEURS.

The voltages applied to the plate circuits of amplifying tubes are not extremely critical and one voltage control will suffice. The detector tube, however, is often very critical and an efficient potentiometer will work wonders in controlling it.

Apparatus used for the reception of broadcasting is exactly the same as that used for the reception of code signals. The transmitting equipment, however, is different.

The use of a single wire for reception is advantageous because it lessens the amount of objectional interference in the way of static. It is equally as good as a multiple wire system for reception.

Defective "B" batteries will often cause roaring in the telephone receivers.

The electron often talked about is the smallest known quantity of negative electrical energy. In motion it makes up the electric current.

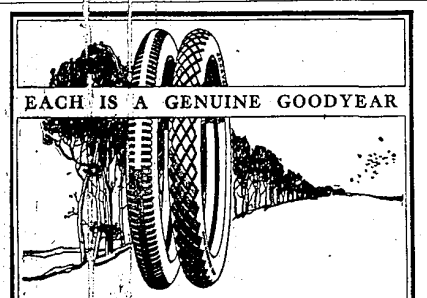
A "soft" vacuum tube is used as a detector tube and a "hard" vacuum tube as an amplifier. The terms "hard" and "soft" refer to degree of evacuation.

Radio waves travel at the same speed as light, namely 186,000 miles per second.

A wavemeter is an instrument used for checking up the wave lengths of sending and receiving stations.

Gas pipe or water pipe systems may be used for grounds, the latter being more advisable.

Lightning protection secured by grounding the antenna when not in use is essential and is required by the underwriters.



EACH IS A GENUINE GOODYEAR

Each of the two tires illustrated above is a genuine Goodyear through and through.

One is the famous reliable 30 x 3½ inch Goodyear All-Weather Tread Clincher.

Its companion is the popular 30 x 3½ inch Goodyear Cross Rib.

The Goodyear Cross Rib is built of the same high grade Egyptian cotton fabric that goes into the All-Weather Tread Goodyear.

It has a long-wearing but differently designed tread, and sells for less money.

More than 5,000,000 of these tires have been sold in the last five years.

Their fine performance has demonstrated the folly of buying unknown and unguaranteed tires of lower price.

Ask your Goodyear Service Station Dealer about their advantages.

GOODYEAR

WOMAN HAS HISTORIC PEN

Used by President Harrison When He Signed the Present American Copyright Bill.

The recent celebration by the League of American Pen Women of their twenty-fifth anniversary, or "silver jubilee," makes this story timely:

During the administration of Benjamin Harrison, the present American copyright bill was passed. William McKinley, then a member of the house of representatives, offered the bill, the date for which was supplied by Margaret Sullivan Burke, newspaper correspondent, and afterward first president of the League of American Pen Women. She gave the league its first home and its name.

Afterward, when President Harrison signed this bill, the pen with which he signed it was presented to Mrs. Burke by Elijah Halford, his private secretary, and one of her old Indiana friends. This pen is now in the possession of her daughter, Hilda Burke.

As to Talebearing.

Thou shalt not go up and down as a talebearer among thy people; neither shalt thou stand against the blood of thy neighbor: I am the Lord. Leviticus: 19:16.

SEEM TO PROVE CONNECTION

Stone Implements Found in Chile and in South Dakota Found to Be Identical.

Scientists are given something to ponder over by the assertion of Richard Franklin Pettigrew of Sioux Falls, S. D., former United States senator, upon his return to the city from a four-months' trip along the west coast of South America, that stone implements representing the stone age in Chile are exactly like a number of stone hatchets, axes and other implements recently found in the hills along the Split Rock and Big Sioux rivers, ten or fifteen miles east of Sioux Falls.

Pettigrew states that a doctor who is studying prehistoric man at Santiago, Chile, gave the implements to him. "I was intensely interested in the resemblance," said Pettigrew, "though I do not pretend to account for it. The United States ambassador sent them to the United States for me and I found them on my return to Washington."

Perhaps.

Maybe the reason so many women insist upon eating things that disagree with them is because they love an argument so.

Help Wanted

WANTED: Male help over 18 for automobile machine shop and assembly work. Experience not necessary. Ideal living conditions in best resort town on Lake Michigan.

Apply or write Employment Department,

Continental Motors Corp.
Muskegon, Mich.

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offers to home seekers opportunities that cannot be secured elsewhere. The thousands of farmers from the United States who have accepted Canada's generous offer to settle on FREE homesteads or buy farm land in her provinces have been well repaid by bountiful crops. There is still available on easy terms

Fertile Land at $15 to $30 an Acre

—land similar to that which through many years has yielded from 20 to 45 bushels of wheat to the acre—oats, barley and flax also in great abundance, while raising horses, cattle, sheep and hogs is equally profitable. Hundreds of farmers in Western Canada have raised crops in a single season worth more than the whole cost of their land. With such success comes prosperity, independence, good homes and all the comforts and conveniences which make life worth living.

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W. N. U., DETROIT, NO. 24—1922.

ERROR IN MODEL'S JUDGMENT

Criticism on a Par With Some Others That Have Come Under Observation.

There is an old saying that a beautiful painting judges us, not we the painting. So in most things. Most people think they are passing judgment, when in reality their lack of real knowledge is "showing them up." Wherefore, many people keep their mouths shut most of the time.

A little knowledge may be a dangerous thing, but most to be desired. Recently a man was looking at a beautiful photograph of a modern Greek girl posed in front of the Parthenon. It was a symphony of the old and new, the glory that was Greece, to quote Poe's immortal phrase again, and the beauty that always characterizes a lovely woman.

"Isn't that a fine picture?" he asked another.

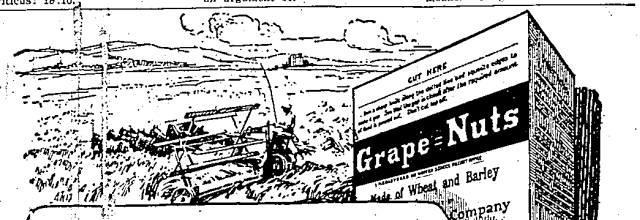
The other surveyed the photograph critically.

"Yes," he said. "She's got awful surroundings, though. What did she go up in the rocks for?"

Results the Same.

"Jones means well."

"Yes, but he lives beyond his means."—Judge.



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Many so-called "refined" foods are robbed of vital elements which the body needs.

Grape-Nuts—that famous wheat and barley food—brings you all the natural goodness of the grains in perfected form, with a crispness and flavor that charm the appetite.

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