SCIENTIFIC TOPICS

CURRENT NOTES OF DISCOVERY AND INVENTION.

A Time Piece That Registers the Thousandth Part of a Second—Triumph of a German Clockmaker—A Pneumatic Wood Borer—Sting of the Honey Bee.

The Sting of the Honey Bee.

There has been more or less discussion of late on the effects of bee stings. Some authorities claim that after a number of stings persons become immune; others declare that it is only in exceptional cases that this state of things occur. There are many bee keepers who never become so accustomed to the stings that they feel willing to risk the pain at the moment and the extremely uncomfortable soreness that follows contact with these small but fierce antagonists. To be sure some persons are less affected than others, but this proves nothing from a scientific standpoint. An experience of years has led a number of agriculturists to the belief that there are seasons and conditions that govern the effect of bee stings. One of these does not suffer at all during some seasons, while at other times the poison is most virulent, permeating the whole system and producing a sense of general illness. Sometimes large blotches break out all over the body; at other times the suffering is confined to the injured locality. From the best authorities it appears that much depends upon the plants from which the bee has lately fed. Certain herbs are poisonous to certain persons, and if the bee has recently gathered honey from them, their toxic properties seem to be conveyd from the bee to the individual. That one may become partially immune is not to be questioned, but that absolute immunity ever occurs may be subject to reasonable doubt.

A Demand for a New Insulator.

All over the country come complaints of the insufficient insulation of electric wires. Trees are destroyed, buildings are set on fire and no end of mischief is done simply because the wires that are stretched hither and yon are not sufficiently protected by the insulating cover; indeed, where the utmost precautions are taken there is more or less danger. Many of the wires are in certain localities attached to trees. These sway in the wind, drawing the wire back and forth over some intervening branch. It is but the work of a short time to wear off the covering when at every movement the wire emits a spark that in a little while seriously injures or entirely destroys the tree. The trouble seems to be that sufficient care is not exercised in putting up wires, or else the covering is not adequate to the wear and tear to which it is subjected. The general opinion is that wires should never be attached to trees or buildings where there is any possibility of enough motion to result in the wearing off of the insulating cover.

Perforated Gunpowder.

The logical combustion of gunpowder in a gun should be slow at the beginning, and as the shot goes faster through the bore of the gun the powder should burn more and more rapidly. This end is attained in a powder, one of whose inventors is Hudson Maxim, brother of the inventor of the rapid-fire gun. A composition is used which burns from the outside of the grain and does not explode en masse. It is made in cylinders with perforations. As it burns, the holes become larger, so that the surface is constantly increasing in proportion to the mass or weight of the grain. When the charge is ignited, the gas is liberated with comparative slowness; as the lumps of powder become smaller the gas comes off more rapidly, so as to follow up the projectile in its passage through the gun. The result is that for equal velocity of the ball a much lower pressure is produced within the gun.

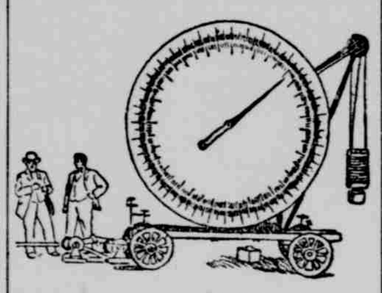
Pneumatic Wood Borer.

Pneumatic tools have been widely used in metal work, but it is only lately that they have commenced to find a place in wood work. At the June conventions at Saratoga a wood borer attracted considerable attention; and its work in the shops and repair yards has fully substantiated all claims made for it.

Thousandth Part of a Second.

The merit of having first constructed precision chronometers for the measurement of one-hundredths of a second falls to the Nestor of Berlin watchmakers, F. L. Loebner. His instruments have been adopted by shipping masters all over the world. His greatest triumph, however, in the matter of recording infinitely small periods of time is his new apparatus for the exact measurement of one-thousandth parts of a second. This novel chronometer has an immense dial of almost ten feet in diameter mounted upon a transportable platform. The dial shows two concentric rings, of which the outer is divided into 360 degrees and the inner circle into 200 degrees. The hand is five feet long and is turned by the mechanism of the clockwork at the rate of five times per second around the dial, so that each degree of the inner dial actually represents one-thousandth part of a second. A special arrangement makes it possible to have the hand turn only once or three times around the dial within a second, the values of the degrees being then correspondingly changed.

The sudden stopping of the hand, which turns at an enormous rate of speed, its point traveling at the rate of 150 feet a second, or 100 miles an hour, would absolutely destroy the works. On the other hand, the human eye cannot follow the turning of the hand, and in order to establish the exact measurement photography had to be resorted to An auxiliary apparatus consisting of twelve photographic cameras has been arranged in front of the big dial. These cameras are open opposite the dial and before them a disk with a very thin slit at a point passing the twelve cameras in turn, rotates at the rate of twenty times per second. Twelve pictures of the position of the hand are therefor taken within the period of one-twentieth of a second, each showing the exact position of the hand on the dial. With this apparatus it is possible to photograph and measure the initial velocity of projectiles, the velocity of fall of small or large objects, the details of the destructive effects, when exploding mines or high explosives, etc. It is possible to take with this apparatus 2,880 pictures per second.



Scarcity of Tin.

That the gold fields of the world are much more extensive than the tin fields is a fact which might strike the unscientific person with a curious feeling of surprise. The tin fields which are known to exist cover an area of less than 15,000 square miles, while the gold fields are something over 1,500,000 square miles. Therefore there are 132 square miles of gold-bearing regions for every single mile of ground where tin is known to exist. The importance of the tin industry is scarcely appreciated by those who have never made the subject a study. North America has no tin mines, South America but one, Asia has two, Peru and Bolivia contribute 4,000 tons a year, and Australia mines about 6,000 tons a year. While we are all practically familiar with what is called tinware, very few of us appreciate the fact that pure tin plays a very small part in the manufacture of these articles. The quality of tinware has, within the past few years, deteriorated with amazing rapidity, all of which is attributed to the limited supply and great value of tin.

Continuous Steel Pipe.

The West Australian government has taken a contract to lay nearly three hundred and fifty miles of water pipe of a novel character. This pipe is to be made of steel spirals packed in concrete. Sheet steel is cut into strips of the required width. These are fed into a machine and welded into one continuous strip. As the strip is fed into the machine, rivet holes are punched, then the edges of the laps are brought together by machinery and held during the process of riveting, which is all done by compression. The lap is thrown on the outside of the pipe, rendering the inner surface smooth and even throughout its length. A tenacious hydraulic cement is packed around the laps, making the pipe absolutely water-tight.

Fighting Monsters.

The American Museum of Natural History in New York has recently acquired some plaster casts of models representing strange animals of past geological periods. It is believed that such models will have much popular educational value, since they have been carefully prepared from scientific descriptions of the remains of the monsters whose forms they reproduce. One of these extinct saurians, named by Professor Cope the laelaps, was a carniverous animal with heavy hind quarters, the body measuring about seven feet and the tail eight feet in length. Professor Cope believed that the laelaps could leap through the air, and the model shows one of the creatures in the act of springing upon an enemy.

An Odd Bicycle-Stand.

A bicycle-stand has been made by sawing off the spokes of an old wagon wheel to about one-half their length. The hub is then fastened on top of a post, the remains of the wheel occupying a horizontal position. Bicycles are held by it with their front wheels put between the spokes of the wagon wheel.

Veneer Cutting.

Veneer-cutting has reached such perfection that a single elephant's tusk, thirty inches long, is now cut in London into a sheet of ivory 150 inches long and twenty inches wide, and some sheets of rosewood and mahogany are only about a fiftieth of an inch thick.

THE TRADE REVIEW.

Failures for the Month Have Been Exceedingly Few.

R. G. Dun & Co., in their Weekly Review of Trade, say:

"Failures in September have been about $6,700,000, and for the quarter about $22,875,000. The returns indicate a smaller aggregate of failures than in any other month in many years, except in August of this year, and smaller for the quarter than in any other quarter since 1892. In fact, excepting one quarter in that year, no other appears to have shown a smaller aggregate unless, more than ten years ago, when the volume of solvent business was very much smaller than it is now. Evidently the complete returns to be given next week will show that the state of business is in that respect more satisfactory than it has ever been, unless in one quarter of 1892."

Now a Refrigerator Trust.

The organization of the refrigerator manufacturing trust is said to be under way. It is to have $6,000,000 capital and to include all the big concerns in the country.

Ordered to Disband Volunteers.

The Spanish government has cabled to Gen. Blancho instructing him to disband all the Cuban volunteers and auxiliaries, paying them three months' arrears of wages.

To Christen Battleship Wisconsin.

Miss Elizabeth Stephenson, daughter of ex-Congressman Isaac M. Stephenson of Marinette, will christen the battleship Wisconsin at San Francisco on Nov. 26.

Fire at Clinton, Maine.

Fire swept away the Central Maine railway station and many adjoining buildings at Clinton, Maine, and for a time the town was threatened. Loss, $50,000.

To Control Flour Mills.

The syndicate which is to control the leading western flour mills has been practically completed. The new company is to have a capital of $10,000,000.

Will Send Troops Immediately.

The transportation of troops to Cuba, besides those to be sent to Manzanillo immediately, should be begun as early as Oct. 15 and not later than Oct. 20.

To Increase Italian Navy.

The Italian government has decided to make the proposed increase in the naval strength of the kingdom, and the issue of a loan is considered probable.

Camp Wikoff Almost Deserted.

The departure of troops from Camp Wikoff continues and now there are only three regiments in the camp which a month or two ago had 25000 men.

Did Not Mention Silver.

The New Jersey democratic state convention refused to make free silver an issue. Elvin W. Crane, of Essex county, was named for governor.

No General Strike Probable.

M. D. Ratchford, president of the Mine-Workers 'union, says the report of an impending general strike among the coal miners of Illinois is untrue.

Manitoba Village Fire Swept.

The business portion of the village of Treborne, Manitoba, including two banks and several hotels, was destroyed by fire. Loss, $50,000.

Per Capita Tax Increased.

The grand lodge, Illinois Knights of Honor, raised the per capita tax from 70 cents to $1. J. L. Livingston, Chicago, was chosen dictator.

Heavy Loss in Wisconsin.

It is estimated the losses through forest fires in Barron, Polk, Washburn and Sawyer counties, Wisconsin, have been at least $1,500,000.

Bryan Booked for Cuba.

Col. William J. Bryan is booked to command his regiment in Cuba unless he resigns before Maj.-Gen. Lee makes up his Cuban corps.

Good Times in Michigan.

Labor Commissioner Cox, in a report based on trustworthy advices, declares that industrial conditions in Michigan are vastly improved.

Catholic Archbishops to Meet.

The annual meeting of the archbishops of the United States will be held at the Catholic university, beginning Oct. 11.

Armenians Killed by Turks.

More fighting has occurred between Turks and a number of Armenians from Russia. About fifty Armenians were killed.

Sick Soldiers Coming Home.

The president has given instructions that all sick in Porto Rico be sent north as soon as they are able to travel with safety.

Wine Vintage Is Small.

The wine vintage of California this year will be one of the smallest in the recent history of the state.

Gen. Shafter Is Ill.

Gen. Shafter has had another attack of the Santiago fever and has been confined to his cottage.

Lavigne and Erne Draw.

Kid Lavigne and Frank Erne fought a draw at the Greater New York Athletic club. Erne had all the best of the fight.

Democrats Nominate Henry George.

Henry George, son of the late single-tax leader, was nominated for governor by the silver democrats of New York.

Will Keep All Troops.

The president has decided to muster out no more troops until peace is declared.

LAST OF THE BAYARDS

The Death of the Ex-Secretary of State Closes a Family's History—His Career.

Thomas Francis Bayard died at the home of his daughted in Massachusetts last Wednesday.

Sketch of His Career.

No one family can boast a longer line of members of the United States senate, house of representatives, and cabinets, or greater control of the politics of a state than the Bayards of Delaware. But Delaware is a small state. For a century the family ruled the politics of Delaware, and one after another its members have been sent to the senate, house of representatives, and into responsible offices of the national government.

James Bayard, grandfather of Thomas F., was one of the first delegates in the Federal congress, and was elected to the senate in 1804. Richard Bayard was in the senate from 1836 to 1839, and from 1841 to 1845. James Bayard, a brother of Richard and father of Thomas F., was elected in 1851 and served almost continuously until 1869. He had resigned in 1864, but was appointed to fill the unexpired term of G. R. Riddle. On Jan. 19, 1869, the legislature having met to elect Riddle's successor, James A. Bayard was selected to fill the remainder of the term, and on the same day his son, Thomas F., was elected for the term to begin also sent him as minister to England. The delivery of a speech at Edinburgh by Mr. Bayard, while American minister, supposed to reflect on the protective policy of this country, and on the character of its people, resulted in the introduction in the house of representatives of a resolution by Congressman Barrett of Massachusetts for the impeachment of Mr. Bayard. After some discussion the resolution was referred to the house committee on foreign affairs, with the impeachment clause left out. In the Democratic national convention of 1880 and 1884 he was a candidate for the presidency and received a considerable number of votes.

Mr. Bayard was married twice, his second wife being Mary Willing Clymer, who was only 26 years of age, while he was 61. This second marriage occurred in 1889. Like himself, the bride was a member of an old and distinguished family, closely related with the history of the country, being the daughter of Dr. George Clymer, a grandson of the signer of the declaration of independence. Since his retirement from active life he has lived at his old Wilmington home, a lovely place known as Delamere Place.

A $20 gold piece is a nice round sum.

Sketched From Photograph in American Celebrities.

THE LATE THOMAS F. BAYARD.

the following March. Thus father and son were by one legislature and on the same day both elected to the United States senate, the first time of such an occurrence in the history of the country.

His Public Career.

Thomas Francis Bayard was born in Wilmington, Del., Oct. 29, 1828. He was the son of James Asheton Bayard, who was elected United States senator from Delaware for three successive terms, and grandson of another James Asheton Bayard, who was at one time United States minister to France, a United States senator from Delaware for two terms, and one of the commissioners appointed by President Madison to conclude a peace treaty with Great Britain in 1813.

T. F. Bayard was educated chiefly in the Flushing school. He was placed in a business house in New York city, but after the death of his elder brother in 1848 returned to Wilmington, studied law, and was admitted to the bar in 1851. Soon after he was appointed United States district attorney for Delaware. Removing his residence to Philadelphia, in 1855, he there became the partner of William Shippen in the practice of law for two years, after which he returned to Wilmington, where he continued his practice of the law until he was elected, in 1868, to succeed his father in the United States senate. He was re-elected for a second term in the senate in 1875 and for a third term in 1881.

On the same day that he was elected to the senate for a full term his father was also re-elected a senator from Delaware to serve for the unexpired portion of his original term. This is the only case on record of a father and son elected by the same legislature to fill this distinguished position. While in the senate he served on the committees on finance, judiciary, private land claims, library, and revision of laws, and in October, 1881, he was elected president pro tempore of the senate. In 1876 he acted as a member of the electoral commission.

Presidential Aspirations.

In March, 1885, President Cleveland selected him for his secretary of state. Including his great grandfather, Gov. Bassett, he was the fifth member of his family to occupy a seat in the United States senate. President Cleveland

Telegraph in Africa.

Mr. R. D. Mohun leaves Antwerp this week with an expedition to construct a line of telegraph from Lake Tanganyika to Stanley Falls on the Upper Congo, under the commission of the Congo Free State. Mr. Mohun was formerly Consul at Zanzibar. It is not known yet what purpose this new line is to serve. But it may safely be surmised that it is but a link in some larger enterprise. Mr. W. H. Cavendish is already in Africa at the head of an expedition to carry the line northward. No doubt he will reach the point from which the Belgian line starts, so that in two years from now, if all goes well, the Cape will have telegraphic connection with Stanley Falls—that is, the Cape-to-Cairo line will stretch more than half the length of Africa. But the wire already runs from Cairo to the present headquarters of the Anglo-Egyptian army on the Atbara. It will be at Khartum within a period which may almost be measured by weeks. If any force pushes on beyond Omdurman, it will take the wire with it, and when the two years are completed, the gap between the end of the line coming south from Cairo and the end of that running north from Cape Town will be much less than the distance from Khartum to Stanley Falls.—St. James' Budget.

Good Horse Sense.

The Mexican burros ascertain where to dig for water by closely observing the surface of the ground. One observer writes:

"We had found water in an arroya of a sufficient quantity to make coffee, when we saw three burros searching for water. They passed several damp places, examining the ground closely, when the leader halted near us and began to paw a hole in the hot, dry sand. Having dug a hole something over a foot in depth, he backed out and watched it intently. To our surprise, it soon began to fill with water. Then he advanced, took a drink, and stepped aside for his companions to drink. When they went away, we drank from their well and found the water to be much cooler than any we had found for many a day. There is no witchcraft about Mexican burros, but they have good horse sense."

SOCIETY DIRECTORY.

MASONIC.

PLYMOUTH KILWINING LODGE, No. 149, F. and A. M.; meets first and third Friday evenings of each month. Daniel McDonald, W. M. John Corberly, Sec.

PLYMOUTH CHAPTER, No 49, R. A. M.; meets second Friday evening of each month. L. Southworth H. P. J. C. Jillson, Sec.

PLYMOUTH COMMANDRY, No 26 K. T.; meets second and fourth Thursday of each month D McDonald E. C.; L. Tanner Rec.

PLYMOUTH CHAPTER, No 26, O. E. S.; meets first and third Tuesdays of each month. Mrs Mary L. Thayer W. M. Mrs. G. Aspinall. Sec

ODD FELLOWS.

AMERICUS LODGE, No. 91; meets every Thursday evening at their lodge rooms on Michigan st. Ed Campbell N. G. Chas. Shearer Sec

KNIGHTS OF PYTHIAS.

HYPERION LODGE, No. 117 meets every Monday night in Castle Hall. Lou Allman C. C. Chas. S. Price K. of R. and S.

FORESTERS.

PLYMOUTH COURT, No. 499; meets the second and fourth Friday evenings of each month, in K. of P. hall. Elmer Wernz C. R. Daniel Cramer Sec.

HYPERION TEMPLE RATHBONE SISTERS, meets first and third Friday of each month Mrs J. G. Davis, Mrs. Rena Armstrong

K. O. T. M.

PLYMOUTH TENT, No. 27; meets every Tuesday evening at K. O. T. M. hall. Dan. Jacoby, Com. James Hoffman, Record Keeper.

L. O. T. M.

WIDE AWAKE HIVE, No. 67; meets every Monday night at K. O. T. M. hall on Michigan street. Mrs. Flora J. Ellis, Commander. Bessie Wilkinson, Record Keeper.

HIVE NO. 28; meets every Wednesday evening in K. O. T. M. hall. Mrs. Maggie Fogle, Com., Alma E. Lawrence, Record Keeper.

ROYAL ARCANUM.

Meets first and third Wednesday evenings of each month in Simon's hall. Moses M. Lauer, Regent. Francis McCrory, Sec.

WOODMEN OF THE WORLD

Meets first and third Wednesday evenings of each month in K. of P. hall. C. M. Kasper, C. C. Joe Eich, Clerk

G. A. R.

MILES H. TIBBETS POST, G. A. R; meets every first and third Monday evenings in Simons hall Dwight L. Dickerson Com., Charlie Wilcox, Adjt.

SONS OF VETERANS.

Meets every second and fourth Friday evenings in G. A. R. hall J. A. Shunk, Captain. Cora B. North, 1st Lieut.

CHURCHES.

PRESBYTERIAN CHURCH—Preaching at 10:30 a. m. and 7 p. m. Sabbath school at noon. Junior Endeavor at 4 p. m. Senior Endeavor at 6 p. m. Prayer meeting every Thursday evening. Teacher's meeting immediately following. Rev. Thornberry, Pastor.

METHODIST,—Class meeting every Sunday morning at 9:30 o'clock. Preaching at 10:30 a. m., and 7:30 p. m. Sunday school at 12 m. Epworth league at 6:30 p. m. Prayer meeting every Thursday evening at 7:00 p. m. L. S. Smith, pastor. J. W. Wiltfong, class leader. D. Frank Redd, Sabbath school superintendent.

PROTESTANT EPISCOPAL.—St Thomas' church. Rev. Wm. Wirt Raymond, rector. Sunday services, 10:30 a. m., 7:30 p. m. Sunday service, at noon. Services Wednesday evenings at 7:30. Communion on holy days at 10 a. m.

CHURCH OF GOD—Garro and Water sts. Regular services 10:30 a. m., each Sunday. Third Sunday in each month preaching by J. L. Wince; fourth Sunday by H. V. Reed. 10:30 Sunday morning and 7:30 Sunday evening. Sunday school at 12 o'clock; Eva Railsback Supt. Prayer meeting at 7:30 each Thursday exening.

UNITED BRETHERN.—Sunday 9:30 a. m., class meeting. 10:30 a. m., and 7:30 p. m., preaching by the pastor. 11:30 a. m., Sunday School. 5:00 p. m. Junior Y. P. C. U. meeting. 6:00 p. m., Senior Y. P. C. U. meeting. A cordial invitation is extended to the public.

CATHOLIC CHURCH—Church is held on Sundays as follows: First mass at 7:30 a. m., second mass at 10 a. m. Vespers at 3 p. m. Week day mass at 7:45. Father Moench pastor.