SCIENCE UP TO DATE.

SOME RECENT INVENTIONS AND DISCOVERIES.

Experiments at Drawing Nails — The Heron a Wading Bird—A Shaft Aligning Improvement—Current Notes of the Industrial World.

TO obtain some figures which would give not only the maximum force, but also the work required both for driving and pulling various nails, experiments were lately conducted in the laboratory of Milby College at the instance of R. C. Carpenter. Nails of various kinds were forced into a piece of Southern pine, in which was as nearly homogeneous as was possible to obtain.

In making experiments it was noticed that the cut nail broke and broke the fibers of the wood, principally at the end of the nail, whereas, the wire nail simply crowded them apart, and probably did not move them much beyond the point from which they would return by elastic force, and hence the nail would be grasped much stronger per unit of area of surface by the wire. Presenting less surface, there would be, however, less resistance to starting.

To see what the effect of the change of form would be, a number of tenpenny cut nails were sharpened on the point by grinding to an angle of about thirty degrees, so that the fibers in advance of the nail would be thrust aside, and not bruised or broken. This served to increase the holding power, as will be seen by the experiment, over the cut nail of ordinary shape, about fifty per cent in starting force, and about thirty per cent in work of resistance to pulling.

The Theory of a Draw Cut.

A writer in the Railway Review thus explains why it is that a knife cuts better when drawn across the object to be cut:

"This matter of varying the angle of cut by varying the motion of the cutting tool is something that is learned almost instinctively in actual practice. The small boy very quickly comes to understand that his knife will cut better if he gives the blade a drawing motion while cutting. This is due to two reasons. One that the keen edge, even on the rare occasions when it is sharp is microscopically a saw, and the drawing motion gives the teeth a chance to act; and the other that, as the drawing becomes more rapid, the cutting angle of the blade is made smaller and smaller, so that a rapid draw really gives a temporary sharpness to the instrument. These are trifling and elementary matters, but they will serve to emphasize what I have many a time urged upon young mechanics, the desirability, nay, the very necessity, of close observation of and speculation upon the reasons for the common phenomena of everyday life."

The Heron.

The heron is a wading bird of the family Ardeidae and the genus Ardea (Linn.), including also the bitterns and egrets. The food of the heron consists largely of fish and reptiles, but it will eat small mammalia, such as mice and even water rats. There was found in the stomach of one of these birds seven small trout, a mouse and a thrush. Eels are also a favorite food with the heron, but on account of their long, lithe bodies they are usually taken to shore and killed by pounding on the rocks or the ground. The heron is able to digest its food, and when pursued by birds of prey often resorts to this measure. When looking for food the heron usually stands in shallow water, where it remains immovably for a long time, but when it sees a fish or other kind of food it strikes it with its sharp bill. When attacked the heron instinctively aims at the eye of its adversary. Even a game cock has difficulty in protecting itself from the heron. The beak of this bird is sometimes set on the end of a stick and used as a spear. The body is rather compressed; the neck is very long and is long feathered. The wings and legs are long. The serrated middle claw is for removing the bird's bill the sticky down which is apt to adhere to it after cleaning the plumage. The nest is usually always built upon some elevated spot, as the top of a large tree or rocks near the coast. It is a large and clumsy-looking nest made of sticks and lined with wool. The nests are clustered near together for mutual protection. The eggs are from four to five in number and of a pale green. The heron itself is gray running into black, and the plume is dark slaty blue. The total length of the bird is about three feet. The heron is widely distributed. The Louisiana heron is called by Audubon the "Lady of the Waters." The American varieties of the heron are sometimes seen as far north as Massachusetts. The heron was once one of the commonest English birds, but on account of the drainage of the swamps it is now seldom seen except in localities where the conditions are such that the birds can flourish.

Jonah and the Incandescent Lamp.

One of the most interesting sights of New York City is a performance at one of the Jewish theaters on the Bowery, there being several near Canal street patronized exclusively by Russian Hebrews, in which the plays are produced in the Jewish-German-Russian jargon with a modern reality. Each theater has its own playwright, who, however, owing to the fondness of the audience for realistic scenes, has to divide the honors of the reproduction with the important person who creates the realistic accessories.

How important the functions of the latter are, says the Electrical World, will be evident from the following description of a scene from a play entitled "Jonah," produced at the Old Bowery Theater:

"After Jonah has been thrown overboard, for a moment," says the reporter, "it appears that nothing can save him. But, just as he is sinking for the last time, a great fish comes along, shaped something like a mammoth and depicting itself like a ball of rubber, opens a very wide mouth and Jonah climbs in.—Instantly the ship, which has been hammering the stage boards for a wild teasing, becomes still. The ballet sailors on the deck set up a jubilant chorus, and a gauze-dressed angel drops down from the flies, while the fish—which has disappeared behind the scenes—turns about and re-enters with a new side presented to the audience. This new side is as open as the day. Through an oval window in the whale's starboard quarter Jonah is disclosed sitting in great splendor of red and green with glow lamps, and not a suggestion of discomfort."

A Shaft Aligning Improvement.

To facilitate quickly and accurately running a line of shafting, irrespective of the different diameters of individual shafts in the line of pulleys, clutches, etc., A special tool is employed to measure the distance of the shaft from a stretched temporary cord, to find lateral discrepancies, and a pair of adjustable hangers supported on the shafting and carrying a level to find discrepancies at right angles to the temporary cord. The measuring tool to be applied at different points between the shafting and the cord consists of a tubular body having at its closed end arms adapted to straddle the shaft, while in its open end a graduated bar is adjustable by means of a tapered thread and nut, to indicate the proper distance from the line of shafting to the temporary line. The hangers each consist of an angular loop, whose members are pivoted at one side, and detachably connected at the other side, the loop being connected at its other end with a graduated bar sliding in a tube, where it is held in adjusted position by a thumb screw. Connected with the lower end of the tube by a swivel is an angular head, with one edge at its top and bottom, to support a spirit level or straight edge with a spirit level, the latter being supported at its ends in the two heads, shown in the illustration. When the line of shafting to be leveled is supported from the floor, the hangers extend upwardly and the spirit level is applied upon the opposite knife-edges of the open head, a detachable thumb screw and follower on the outer end of the head being then brought into use to clamp the hanger firmly to the straight edge or level.

An Electric Shock.

A curious accident occurred at Rochester, N. Y., June 20. Mr. Frank E. Gilyard, Secretary of the Rochester Gas and Electric Company, who is employed at the power house at the lower falls, received a shock from the branches of a powerful continuous current dynamo carrying its full complement of 60 series arc light street lamps. The electromotive force was more than nearly 2,000 volts. He was resuscitated after an hour and a quarter's work by a physician and two other workmen. The men in the station had been made familiar with the Ayrton method, and they went to work at once to produce artificial respiration by raising and lowering the arms in rhythm and at the same time alternately pressing and releasing the chest. This was continued until a physician came, and after the usual treatment to be continued, though apparently the patient was dead. Shortly after Gilyard showed slight signs of life and in a few minutes natural respiration set in and he soon was well enough to go home. The physician pronounces him out of danger. All agree he would have died had not artificial respiration been resorted to. There are many cases on record where death resulted from much less intense currents, while in some the voltage was as low as 500.

Kutho Daw.

Prof. Max Muller asks for money to photograph the inscriptions of the Kutho Daw, near Mandalay, in Burmah, before they are destroyed. The Kutho Daw is a collection of over 700 Buddhist temples, each containing a white marble slab on which part of the Tripitaka, the great Buddhist Bible, is engraved; together they give the entire work, which consists of 275,200 stanzas, or 5,500,000 syllables—nearly fifteen times the bulk of our Old Testament. The language is that of the fifth century before Christ, believed to have been spoken by Buddha; the characters are the Burmese letters, and the text was revised by a learned commission. The dampness of the climate is rapidly effacing the inscriptions.

The Notch of Venus.

A cable dispatch received at Harvard Observatory, July 2, from Professor Weiss, in Vienna, announces the discovery of a pale green. The heron itself is gray running into black, and the plume is dark slaty blue. The total length of the bird is about three feet. The heron is widely distributed. The Louisiana heron is called by Audubon the "Lady of the Waters." The American

Temperature of Sahara.

The highest temperature in the world is recorded in the great desert of Africa, where a thermometer often marks 150 degrees Fahrenheit.

Strategy.

"Ahem!" exclaimed the King of Dahomey, imperiously waving his hand, "you will observe that our Amazons never carry any money."

The potentate touched his brow significantly.

"Yes," he proceeded, "our brain is something larger than a peanut. We know what we were doing when we had our soldiers fitted with uniforms that wrinkle in the back. Yes"—Detroit Tribune.

Her Argument.

"I believe the world does turn round," declared the somewhat 'skeptical' little schoolgirl.

"What has convinced you?"

"I can see it whirl when I twist up in my swing and then untwist."

"Do you think that whirls instead of the world?"

"Yes, but it goes after I stop," was the conclusive reply.—Ex.

Matrimonial Item.

Col. Fogerty—I hear your son is going to get married.

Judge Wooseby—Yes; he is about to become a benedict.

Col. Fogerty—Can make him wait thirty years and get more sense?

Humph! If he should get a sensible wife he would not marry at all.

Views of a Philosopher.

Everett Wright—I see that down in South Africa they have trained trained monkeys to work in the cotton fields. Now what do you think of that?

Philosopher Dunkelt—I think nothing strange of it. I can't see no difference between a man that works and a monkey nohow.—Cincinnati Tribune.

The Jonesburg's Trials.

Teacher—Give me the name of some domestic animal.

Tommy—A dog.

Teacher—Another?

A fine dog has six legs.

What's the quarter with pulling off two of them?

A Mitigating Circumstance.

"Is it true that you used to be an inebriate and lie around drunk in the gutter?" inquired the lady of a gentleman whose acquaintance he had recently made.

"Yes, madam, I was in the most aristocratic portion of the city."

Very Promising.

"Brown is a very promising young man."

"Yes, more promising than paying. I'm his father."

IN THE DAYS OF OLD.

SCENES IN SENATE DURING NINETEENTH CONGRESS.

Roy Randolph and Clay Came to Fight a Duel—Fierce Invectives of the Famous Virginia Orator—Statesmen of the Old School.

(Washington Correspondence.)

HE old Senate Chamber, now used by the Supreme Court, was admirably adapted for the deliberations of the forty-eight gentlemen who composed the upper house of the Nineteenth Congress. Modeled after the theaters of ancient Greece, it possessed excellent acoustic properties, and there was ample accommodation in the galleries for the few strangers who then visited Washington. The senate doed to meet at noon, and generally conclude its day's work by three o'clock, which adjournments over from Thursday until the following Monday were frequent.

John C. Calhoun was Vice-President of the United States, and consequently President of the Senate—a position which he filled very tolerably well. He was forced to sit and dumbly listen to debates in which he was easier to participate. He had been talked about some of the best men in the country as a candidate during the then recent Presidential campaign, but had not given him any substantial support.

Regarding each Senator as an Ambassador from a sovereign state, he doubtless believe that as Vice-President he possessed the power to call them to order for words spoken in the Senate chamber. John Randolph abused this liberty, and one day commenced one of his tirades by saying "Mr. Speaker, I mean the President of the Senate and would-be President of the United States, which God in His infinite mercy prevent," and then went on in his usual strain of calumny and abuse.

JOHN QUINCY ADAMS.

When Mr. Adams, who had first been elected to Congress, Rufus King, of his state, had said to Mr. F. Mercer, also a member of Congress, "Wait till he has been a little longer in Congress and you will become perfectly acquainted with the views and feelings of every man." Yet not one month had gone by.

This prediction was verified, and Mr. Van Buren soon became the directing spirit of the party, the friends of Mr. Jackson, although no one was ever able to quote his views. Taking Aaron Burr as his political model, he was a little irreproachable private life, he was in his ability to plan and to execute, an unsurpassed master of the art of political intrigue.

He was rather under the medium height, with a high forehead, a piercing eye and pleasing features. He made attitude and deportment a study, and when you had seen him in his private, household furniture was sold at auction, it was noticed that the carpet in his parlor was worn in a circle, and it was worn thus because it was there that he had rehearsed his speeches.

Senator Joseph Kinsella, of Virginia, attracted the most attention on the part of strangers. He was at least six feet in height, and was built in an imposing proportion of body, and a small, round head. Claiming descent from Pocahontas, he wore his coarse, black hair long, parted in the middle, and it falling down on either side of his shallow face.

His small, black eyes were expressive in their rapid glance, especially when he was engaged in debate, and in high-toned and long voice would ring through the Senate chamber like the shrill scream of an angry vixen.

Hegenerally wore full suit of heavy drab, and his head, he had adopted the high, rolling collar of his surtout, and almost concealing his head, while the shirt bound in with stiff cords allowed his knee breeches and the white leather tops of his boots. Round his center he fastened a leather belt, in which was a pair of pistols, carrying a heavy riding whip, and followed by a favorite hound, which crouched beneath his desk.

WILLIAM HENRY HARRISON.

The music was furnished by quite a performance in the gallery, consisting of a violin, a bass drum and fifes and clarionets. The refreshments were served in small, square, tin boxes, which were passed around in a manner which was a marvel to the uninitiated, and which was a source of great amusement to the Senate. Hence the boxes were called "Kinsella's Dinner Pails." Hence the boxes were called "Kinsella's Dinner Pails." Hence the boxes were called "Kinsella's Dinner Pails."