

# Science AND Invention

More steel is used in the manufacture of pens than in all the sword and gun factories in the world.

According to chemical analysis, fifteen parts of the flesh of fish have about the same nutritive value as twelve parts of boneless beef.

The principal ingredients in the composition of smokeless powder are gun-cotton and nitro-glycerine. Some other substances are added, however, in small quantities.

An object, like an iron anchor, that is thrown into the ocean and is free to sink, will go to the very bottom, no matter how deep the sea may be. The notion that at a certain depth the density of the water increases to a point exceeding that of iron, and that the object would there be suspended, is erroneous.

Prof. Dewar has at length succeeded in solidifying hydrogen. In its compact form, solid hydrogen is a transparent ice, but owing to rapid ebullition it usually appears as a foamy white mass. Its mean temperature is 16 degrees centigrade above absolute zero. Prof. Dewar says, with reference to his latest achievement: "The last doubt as to the possibility of solid hydrogen having a metallic character has been removed, and for the future hydrogen must be classed among the non-metallic elements."

Before the Biological Society of Washington O. F. Cook described his studies of the African termites, or white ants. Certain individuals in every nest have no other apparent function except that of fighters or soldiers. Some have a long beak from which they eject an acrid, corrosive fluid; others inspire terror by making a loud clicking noise with their mandibles, but they neither shoot nor bite. One singular observation of Mr. Cook was that the soldier ants which rush out to defend an attacked nest "do not return to the nest, but wander about and soon perish from exposure to the outside air."

It is said that there is not a stream rising in the mountains of Luzon—and the same is true of other islands of the Philippine group—which has not its gold-bearing sands. The alluvial deposits of the precious metal have been garnered for many years, but no thorough exploration for gold at its sources in the mountains has ever been made, because the Spaniards were unable to conquer the tribes inhabiting the interior regions. Some of these tribes are said to look upon the digging up of the earth as a sacrilege, and they will not seek gold in that way, nor permit others to do it, lest the wrath of the gods should grow hot against them.

During a violent thunder storm at Ithaca, N. Y., last summer a writer for the Companion was surprised to observe, several times in succession, a short luminous streak which appeared at a particular point in the clouds, and remained visible about two seconds at a time. It was probably an example of the rare phenomenon called bead lightning, described by Prof. Elihu Thomson at the recent meeting of the American Association. When seen to advantage it resembles a string of luminous beads hung in a cloud, "the beads being somewhat elliptical and the ends of their axes in the line of their discharge being colored red and purple respectively." As seen at Ithaca the line was viewed nearly end on, and there was only a suggestion of color visible.

**Too Ethereal.**  
Senator Sorgum had been doing his best to carry on a conversation with the extremely sentimental girl, and was becoming discouraged. She was gazing through the window and exclaimed:—"See those distant stars. Did you ever pause to think that they may be worlds?"  
"Yes, I believe I have."  
"And that they may be peopled with beings that hope and struggle as we do? Oh, did you ever think of those people?"  
"No," he answered, "I never thought of them."  
Turning abruptly, so as to face him, she exclaimed:—"Why not?"  
The senator thought for a moment and then answered coldly:—"For the simple reason, miss, that they don't vote in my district."

**Origin of Hours.**  
Just when the day became divided into hours is not known; nor is the process explained. The Greeks and Romans measured time by the water glass and the sun dials. The hour-glass filled with sand was the outgrowth of these vessels from which the water dripped through tiny openings.

**A Fraction.**  
"What is a fraction?"  
"A part of anything, sor."  
"Give an example."  
"The sixteenth of June."—Melbourne Times.

One of the hard things in this world to understand is why parents seem to enjoy seeing their children undergo the agony of stage fright in an amateur entertainment.

## GEN. LORD METHUEN.

### Family History of One of England's Leading Soldiers.

Gen. Lord Methuen, who was sent to relieve Kimberley and rescue Cecil Rhodes, and met with defeat, has been nearly all his life in the British army. Lord Methuen's family is better known in Scotland by the name of Methven. The two names seem to be interchangeable. The General's family is an old Scotch one, coming from Perthshire. In the reigns of William and Mary and Queen Anne, John Methven was successively chancellor for Ireland and ambassador to Portugal. He negotiated what was probably the original reciprocity treaty, making a commercial compact with Portugal. His son, Sir Paul, was the first of the family to spell his name with a "u" in public. Sir Paul prospered exceedingly and became a much esteemed minister of Queen Anne and her successor, the first George. He was ambassador to several foreign courts in the interval in which he did not hold a home office, and was dilettante in art and letters. He collected a gallery of pictures which was famous in its time, and when he died he was buried in Westminster Abbey. This cultivated old bachelor was succeeded by his cousin, Paul, from whom is descended the present Lord Methuen. It was not until 1838 that a peerage was created for the house of Methuen. The General is the third baron.

The general was military attaché at

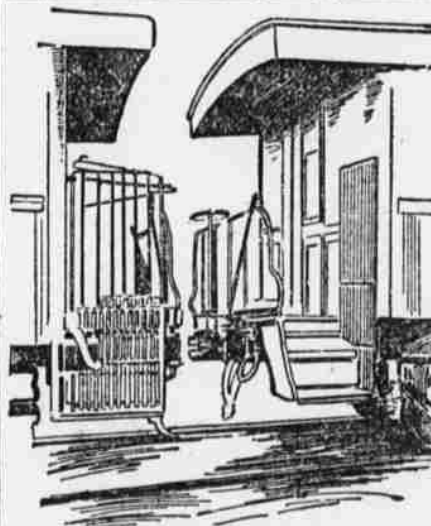


GEN. LORD METHUEN.

the Court of Berlin from 1877 to 1880. From 1888 to 1891 he was adjutant general of the Cape of Good Hope. In 1891 he succeeded his father as baron, and went home to England. Gen. Methuen was 54 years old last September. Through the Scarsdales, the General is related to the Tennysons.

### TO PROTECT THE RAILROADS.

**Gates Prevent Passengers Entering Without Ticket Examiner's Consent.**  
Several Western railroads have for some time required passengers to show their tickets on entering the cars, and on the adoption of this practice it was found desirable to have a gate that would make it practically impossible



GATES FOR PASSENGER COACHES.

for passengers to enter a train at any point except that guarded by the ticket examiner. The feature of the design shown here, which has been adopted by some of the roads, is that it folds in such a way as to be entirely out of the way when not in use.

**Natural Icehouse on a Farm.**  
Water constantly freezes in summer in a rocky crevice on the farm of John Dood, in Sweden Valley, Pa. Aside of this fact, and with the intention of forming a natural icehouse, the owner tried to have a shaft sunk in the rocks. When the men had gone down fourteen feet the atmosphere became so densely cold that they had to cease work. Dripping water freezes there in a few minutes.

**Chloroform Won't Work.**  
It has been found that an apparatus for killing animals with chloroform in England would not work in India, because the high temperature prevented the concentration of the chloroform vapor. That this was the cause was proved by the fact that by placing ice in the box the animals were readily killed.

**Japan's Theater Boxes.**  
Japanese theaters have their boxes so arranged that the ladies can change their dresses, as it is not considered stylish for a lady to appear an entire evening in one dress and with the same ornaments.

When some people die, the bells ought to ring, instead of toll.

## TOM KETCHUM.

### The Daring Leader of Black Jack's Gang of Bandits.

The notorious leader of the infamous "Black Jack's" gang of train robbers and murderers, Tom Ketchum, is now in the penitentiary at Santa Fe, N. M. Tom held up a train single-handed and in the sequel to this was wounded and captured.

It was the Colorado Southern express that Tom held up. The place selected was near Folsom, on the northeast corner of New Mexico. One night as the express was puffing laboriously up grade the engineer saw a light ahead giving the signal to stop. When the train slowed down Tom Ketchum jumped into the cab and, carelessly swinging a 45 Colt near the engineer's nose, told him to obey all orders given during the next few minutes. This, Tom said, would save heartaches in the engineer's home and the intrusion of an undertaker in the family circle. Then he jumped off and tried to uncouple the engine, which was made impossible by the steep grade. Falling in this, Tom walked back to the Wells-Fargo express car and, thumping the door with the butt of his Colt, demanded admittance. The messenger opened the door and poked the muzzle of a Winchester out into the dark and pulled the trigger. That put an end to the hold-up that night. Just how badly Tom was shot is not known, for he was wounded in a subsequent battle with United States Marshal Foraker's posse and he will not say how much damage the messenger did. As he declared the hold-up off it is probable he was severely injured. The express pulled on and Tom jumped his broncho and sought safety in the mountains.

The attempted robbery was soon known to the officials, and three days later Marshal Foraker's men were hunting for Tom in the uplands. They finally hit the trail and followed it back into the very heart of the mountains. Here they lost it and while discussing the best move a report of a rifle split the air and one of the deputies fell out of his saddle. This was sufficient evidence of Tom's presence in the vicinity, but not his exact whereabouts, as Tom used smokeless cartridges. Another shot was heard and another deputy went to the ground. At this rate every man in the posse would be cut down without a ghost of a chance of getting a shot. The deputies, therefore, separated and began to scour the brush. A glint of sunshine playing on the blue-steel barrel of a Winchester disclosed Tom Ketchum's position behind a big boulder surrounded by brushwood.

Then the day's proceedings began. The deputies shot at that glint of sunshine playing along blue steel; Tom shot at the deputies. The deputies dodged behind trees and rocks and shot wildly. Tom stayed where he was and made bull's-eyes. If Tom hadn't shoved his right arm a little too high in taking aim he would have brought down a full mess of deputies. As it was a slug of lead as big as your finger tore through Tom's shooting member, and it took a few minutes to change his Winchester over to his left arm. In these short minutes the deputies closed in on Tom and captured him. He was in a bad



TOM KETCHUM.

shape. His right arm was terribly broken and torn and he was already suffering from loss of blood. But he was game. He offered to take his left arm and begin the performance all over again, which proposition was respectfully declined. The next day when he was able to be moved Tom was strapped to his broncho and taken to a train, ultimately landing in the penitentiary hospital at Santa Fe.

Of "Black Jack's" gang of thieves and cutthroats Tom Ketchum was the leader. He was 35 years old, and in Texas, his native State, he is known as the new Jesse James. He stands 5 feet 10 inches in his stocking feet and is built on the graceful lines of a tiger. He is as void of conscience as the Winchester he carried. He would rather shoot a man than eat; if the man be an officer of the law it was more fun to kill him than to go to a dance. One of his boyhood pastimes was to hide in some convenient place on the ranch in Texas and shoot Mexican herdsmen. When a lad he was summoned as a witness in a lawsuit, and not knowing what the summons meant, and not caring to take any chances, shot and killed the officer. After this he found it convenient to change his residence, so he rode up into New Mexico and Arizona. Here he soon became a terror to everybody in general and railroad and express com-

panies in particular. He admits in a roundabout way that since 1886 he and his gang have stolen from postoffices, trains, stages and wayfarers \$200,000 and killed 200 men.

## LI HUNG CHANG'S WEALTH.

### Ways in Which He Accumulated His Enormous Fortune.

Li Hung Chang, the most conspicuous Chinese of the age, is often called the richest man in the world. One way in which Li for many years made an enormous sum of money was to use thousands of soldiers in his own private enterprises without paying them a cent for their labor. In the course of time he purchased extensive estates in the rice-growing regions and raised more bushels of rice every year than the bonanza farmers of North Dakota used to raise of wheat. He got his labor for nothing, and his great crop of rice was almost clear profit. He simply turned his soldiers loose in the rice fields, and they had to be content with the rations and the miserable pittance paid to them by the government.

The great man also became his own contractor for army supplies. He would sell his own rice to the govern-



LI HUNG CHANG.

ment for army rations at an enormous profit, and pocketed a handsome rake-off on all other supplies furnished to the tens of thousands of soldiers in the Pechili province. Then he was chief supreme of the custom houses for a long distance around the Gulf of Pechili, and there was nothing mean about the stream of gold that poured into his strong-box through this channel. It has long been notorious that one of the methods he employed was to import large quantities of goods through his agents without the payment of a cent of duty, and then sell the goods at a round figure to his countrymen. This method of money-making finally involved the old gentleman in troubles, charges were made against him, and he came near losing his official head; but his power was so great and his real services to the state were so valuable that he was almost invulnerable in spite of the many enemies who have always been ready to accuse him.

One of his great sources of money-getting employed by Li Hung Chang during the later years of his career as Viceroy was as a money lender. There is little doubt that he was the king of pawnbrokers the world over. His loan offices were scattered far and wide over his province, and he loaned great sums of money on mortgages and on pledges of personal property. In a country where no legal rate of interest is fixed this business has brought enormous returns to Li Hung Chang.

### Its Chief Industry Ignored.

A student of the history of American iron and steel shipbuilding recently visited the public library at Philadelphia. Philadelphia and Chester, which, so far as ship-building is concerned, are practically one, are the birthplace of iron and steel shipbuilding on the Atlantic coast, and it might be expected that first-hand historical material concerning the industry would be found in abundance in the public library of Philadelphia. When the card catalogue was examined it was discovered that the only books under the heading of ships or relating to ships or shipbuilding were Miss Harraden's "Ships That Pass in the Night" and a little volume on "Seaboard Life," written for boys, by W. H. Rideing. An appeal was made to the librarian in charge of the reference-room, which resulted in the ascertainment of a few initial and elementary facts from the standard history of Philadelphia. Of first-hand material there was absolutely none. Beyond what was contained in the history of Philadelphia the library afforded no information concerning one of the oldest and most interesting and now one of the largest industries of the city.—Boston Transcript.

**American Barb Wire in Africa.**  
Barbed-wire fences are used extensively in south Africa and most of the material is imported from the United States.

**Appropriate.**  
"Why do they call that trick bicycle rider Asbestos?"  
"Because he doesn't scorch."—Bismarck Tribune.

If we were a woman, we would inaugurate a lot of reforms, but there is one thing we wouldn't do; we wouldn't kiss other women.

## HOMESPUN PHILOSOPHY.

### Observations on Commonplace Things by the Atchison Globe Man.

Women don't treat men very decent. As a man grows older, amateurs become worse.

Didn't complain of any thing so long as you don't have a cancer.

Most women dislike it when strange men slap them on the back.

When some people become bilious, they quarrel with every friend they have.

This is the season when men discover that 'possum and 'coon are not good to eat.

Men without means are always wondering why capitalists do not invest more readily.

The poorest fiddle players carry their fiddle boxes in the most flagrant manner on the street.

Women quarrel, make up, and claim that everything is again "just the same," but it isn't.

We have noticed that the man who comes in to use the telephone, usually leaves the door open.

After a woman reaches forty, sometimes her nose is as red as her lips were when she was sixteen.

When a decent man hears a "story" on another decent man, instead of assisting in spreading it, he starts a back fire.

No wonder women never eat much when meals are ready; they eat so much around grocery stores, and while cooking.

Every man who leads a prayer meeting finally gives the impression that the Lord uses an ear trumpet, and he has exclusive control of this end.

There has always been a certain amount of wickedness in the world. It is perfectly natural, and protests against it are as idle as protests against old age.

If you want a man to rave over a present, you must give him a good one, but a woman will make as much fuss over a silver spoon as she will over a house and lot.

The most adorable woman in the world, is the woman who is most natural. A woman who is "cultured," expects flattery in large doses, and is disagreeable if she does not get it.

Women's magazines contain many suggestions for women who want to keep their husbands at home nights, but there is nothing that really helps them except corns on the husband's toes.

## WRESTLING WITH LANDSCAPE.

### The Original Iowans Got Tired of Climbing Hills.

"Westward of the Mississippi, the dramatic play of physical nature against the migrating will of human beings assumes many times the interest and impressiveness that it had in the movements from the Alleghanies to Illinois," says a writer in Ainslee's, in an article explaining the settling of the United States. "The struggle of the settled with the swamps and marshes and malaria of Indiana—a struggle which lasted to within the most recent generation—was but a prelude to the hardships and conflicts that followed when the Iowa immigrants crossed the river, and the Missourians that were to be forsaken the hills of Tennessee.

"Iowa itself, excluding the consideration of the warfare with the doughy Sioux, was not such a basis of tragedy, nor was Missouri topographically so, but Iowa and Missouri furnished the basis of the exodus to the further west, and in doing so gave both the genesis and the nemesis to many a habited place on the way to the Pacific. Iowa itself is an illustration in a minor way of the law of least resistance, and Missouri is an illustration of the law of greatest endurance.

"The excess of population from Illinois would doubtless have gone over the Missouri as well as the Mississippi and have stretched across the plains of Nebraska twenty years before the Union Pacific rails were laid, had not Iowa's surface been as it is and the nomads grown tired of rolling up and down the undulating hills and decided that the easier thing to do was to settle in the attractive wooden vales and stick their plows into the deep, loamy, corn-producing soil. The thousands who remained have always been of the remaining, sticking kind—steady, industrious, thrifty, but circumscribed by the hills from whose outlook only hills are to be seen."

### Wonders of the Locomotive.

The story of the locomotive sounds simple in the recital. The wonder of the thing comes into view only when one reflects on the speed and nicety with which cumbrous parts are made to do their duty. The piston and connecting bar of a modern locomotive weigh some 600 pounds. When the speed is sixty miles an hour these parts travel back and forth five times a second.

**Out of the Fryine Pan.**  
He gets his daughter off his hands  
And he thinks it all complete,  
But soon he finds he has to keep  
Her husband on his feet.

A "ready-made" tailor in a provincial town has this advertisement outside his shop: "Wear our twenty-one shilling suits, and you will have a fit."