

# SCIENCE AND INVENTION.

## REFINISH YOUR OWN SILVER.

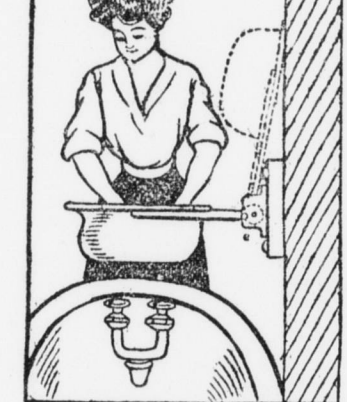
### Directions for Doing Plating Without a Battery.

Dissolve eight silver quarters (money) or silver of equivalent amount in two ounces of nitric acid (strong), and to this add four ounces of common salt dissolved in as little water as possible. A heavy precipitate is silver chloride. Decant the liquid, add more salt solution to see if all the silver has been taken out. Wash the silver chloride precipitate with water and then dissolve it in a solution composed of two ounces potassium cyanide and three ounces sodium hypsulphate in six ounces of water. Filter the solution, if necessary, and make up to two quarts with pure rain water. You may, by the aid of this mixture, plate all sorts of things as watch chains, rings, medals, watches, ornaments, steel, iron and German silver articles as spoons, spectacles, etc. Hang the article to be plated, says Popular Mechanics, in the solution suspended by a strip of lead or immerse the articles and boil them for 10 to 20 minutes, according to the thickness of the plating desired. The articles to be plated must be free from grease, fat and dirt and by this method take a durable and handsome silver plating.

## FOLDING WASHSTAND.

When Not in Use Folds Up Against the Wall.

Among recent devices patented is a folding washstand, shown in the illustration below. The device was de-



Showing Plan of Bowl.

signed principally for use in bathrooms, lavatories, etc., and is shown in position on the wall immediately over the bathtub. When not in use it can be folded against the wall so as to occupy very little space. The wash basin is of the ordinary type, being supported upon brackets, which are pivoted on the wall. A hose is attached to the spigot for supplying water to the basin.

## A NEW ANAESTHETIC.

Stovaine is Its Name and It Produces Temporary Paralysis.

Mr. F. W. Malvin, United States consul at Nottingham, sends to the bureau of manufactures at Washington some particulars concerning the new anaesthetic, stovaine. It appears that it produces paralysis of the body below the point of injection and removes all sensation from the limbs, so that it has been found possible to amputate a man's leg while the patient retained consciousness, and could, had he been allowed to do so, have even witnessed the operation. The patient could feel no pain, and after the operation and when sensation returned experienced nothing but the sense of bruising, which is one of the sequels of grave operations. The curious name of the anaesthetic, "stovaine," is due to its discoverer, M. Fournneau. M. Fournneau was anxious to perpetuate his own name in connection with it, but as the anaesthetic was of the nature of cocaine and no compound resembling that could be contrived out of "Fournneau," he translated the name into its English equivalent of "stove" and added the necessary termination.

## Voice Energy.

Dr. Marage recently presented before the Academy of Medicine at Paris the results of an investigation of the amount of work performed by orators and singers. It appears from his experiments that a bass voice, in order to produce the same impression upon the ears of hearers in a hall, requires the performance of from 17 to 18 times more work than is required for a barytone or tenor voice. The bass voice is always at a disadvantage with regard to the amount of work it demands. Thus Dr. Marage finds that whereas men are always more fatigued than women and children by an equal effort of the voice, men with bass voices suffer the most fatigue.

## Acorns Bring \$4 a Bushel.

A Tennessee farmer has been shipping acorns north for some time, receiving as high as \$4 a bushel for them. The acorns are used for planting.

In and Out of New York Harbor. Outside of the steamer, there were 2,957,328 passengers carried in and out of New York harbor last year on steamers.

## EXPERIMENTS WITH MIRROR.

Interesting Phenomena Explained by Gustav Michaud.

Ask your friend whether he can decipher the following sign, which you pretend to have read over the shop of an Armenian shoemaker. He will probably tell you that he is not conversant with Oriental languages. Tell him that the sign is written in good English and, while he smiles incredulously, lay a frameless mirror perpendicularly on the mysterious script, right across the quotation marks. The result is shown.

Ask your friend to write anything he chooses, with the condition that he shall see his hand and read the script in the mirror only. With the help of a few books arrange the mirror and the paper as shown herewith.

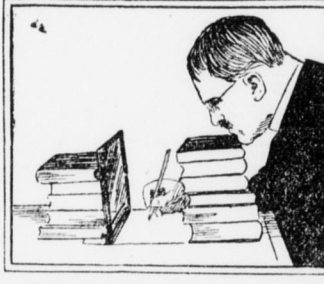


Script and Translation.

with paralysis agitans, and unable to write anything but zigzags. You take his pencil and write rapidly and correctly in the same conditions. Your secret can be told in a few words: First, close your eyes; as long as you strive to follow the pencil in the mirror, your efforts to write are vain. Second, write in printed capitals and make no attempt to write anything but the pseudo Armenian sign and a few other sentences which participate of the same characteristic. What is that characteristic? It is not hard to find. Find it.

The peculiar inversion of objects viewed in a mirror is of course the cause of the difficulty felt in reading or writing. The writer is left free to write from left to right, but finds that while he is so doing the mirror upsets his letters. There is an entirely distinct kind of inversion which can be best observed with the help of a mirror. The most suitable time for the making of the following experiment is after a meal the menu of which included soft-boiled eggs. Take an egg shell and trim it with scissors so as to reduce it to a half shell. In the hollow bottom roughly draw with your pencil a cross with pointed ends. Bore a hole, about the size of a pea, in the center of the cross. Place yourself so as to face a window, the light falling upon your face, not upon the mirror which you hold in one hand. Close one eye. Place the shell between the other eye and the mirror, at a distance of two or three inches from either, the concavity facing the mirror. Through the hole in the shell look at the mir-

ror as if this were so distant object. While you are so doing, the concave shell will suddenly assume a strongly convex appearance. You may then examine it directly in all its parts; no amount of auto-suggestion will allow you to get rid of the illusion. To destroy it, it becomes necessary either to open both eyes or to withdraw the shell away from the mirror. The nearer the shell to the



A Case of Temporary Illiteracy.

by Orton of Pennsylvania. In the intercollegiate last year Haskins made a wonderful showing, winning not only the mile race, but also the half-mile, in 1 minute 57 4-5 seconds. Haskins was also the winner of the intercollegiate cross-country race last fall at Princeton.



An Extraordinary Inversion.

mirror and the farther the eye from the shell the more readily comes the illusion.

The hole in the shell acts as a diaphragm, and its position, at some distance from the eye, favors the localization of the luminous pencils in the crystalline lens. Those which are emitted by the marginal parts of the egg are refracted exclusively by the marginal parts of the crystalline lens. They are more bent and give smaller images than the pencils which are sent by the center of the shell. The decreasing scale of reproduction from the center of the shell to its periphery offsets the influence of distance on the appearance of images of points situated on the anterior or posterior parts of the shell.—Scientific American.

## Inducing Variety in Expression.

"Maude has such a mobile countenance."  
"Yes, the auto kind of mobile face."  
—Baltimore American.

# SPORTING FACTS AND FANCIES

Bill Papke, the western cyclone and present claimant of the middle-weight championship title, is certainly making plenty of money out of the fighting game. If success sticks to him he ought to come very near having a swell bank roll when he retires from the game. Bill first began fighting November 26, 1906. Since he has been a professional pugilist he has made \$15,500 out of his battles, including the wagers he won on himself. The smallest amount Papke ever received for boxing was \$40, which he got for engaging in a limited round fight with the Mexican Wonder. He made short work of the Mexican Wonder, putting him out in four rounds. This victory gave him confidence, and he started out to make his living as a pugilist. His next battle was with Red Morrissey, whom he put away in three rounds. Since then Papke has been going right along the line meeting all the fighters that were willing to take him on. The largest amount which Papke has drawn out of a battle was \$2,288. He received this sum for his ten-round fight with Hugo Kelly, at Milwaukee, which was declared a draw, although the majority of the spectators and fight critics claimed that Bill should have had the decision. His other fights have netted him from \$700 to \$1,000 for his end. He has also had a few weeks' theatrical engagement, for which he received \$500 for each week. Besides these engagements he has also taken part in three exhibition bouts and got \$100 for each bout. Since Papke began fighting he has only engaged in 26 battles, 18 of which he has won by knockouts, fought four draws and was awarded the decision in four others.

Pennsylvania university's intercollegiate chances were dealt a hard blow the other day when Guy Haskins, the mile champion, was dropped from the dental department of the university. That means that he will not be allowed to compete for the red and blue. Last year, besides winning the intercollegiate championship for the second time, he lowered the mile record to 4 minutes 20 3-5 seconds. The former mark was held for several years



GUY HASKINS

The mile record is held by T. P. Conneff, 4:15 3-5, made at Travers Island in 1895. This mark has been approached on a few occasions, but has stood, and it that of Kilpatrick's show the superiority of the middle and long-distance runners of ten years ago.

The two-mile record, 9:27 4-5, is held by Alexander Grant, and was made at Travers Island in 1903. There is not a runner at the present time who appears capable of beating this mark. Rowe, the Michigan two-miler, deserves commendation for the new college record of 9:34 4-5, set at Franklin field last April. Alfred Schrubbs holds the world's two-mile record at 9:09 3-5, made in Glasgow, Scotland, June 11, 1903.

The 120-yard hurdle record is held by A. C. Kraenzlein, at 1:15 1-5, made in Chicago in 1898. The former Penn jumper also holds the American college record jointly with S. Chase of Dartmouth and F. G. Moloney of Chicago, at 1:15 2-5. Johnny Garrels of Michigan went the distance in 1:15 1-5, but his record was not allowed by the conference committee because a strong wind was blowing at his back.

The record for the 220-yard low hurdles, which is ten hurdles, each 2 feet 6 inches high, is also held by A. C. Kraenzlein, at 2:33 3-5. He holds the college record for the distance in the same time. This Kraenzlein was a great all-round athlete and held the running broad jump record for a time, and also was a sprinter of ability.

In the shotput there is one man who "has it on" all of his rivals, but there is a strong possibility his records will meet the same fate as those of Duffy's. At the present writing Rose is liable to suspension from the A. A. U. on the grounds of professionalism. His shotput record now is 49 feet 7 1/4 inches, which beats all his competitors, with the exception of Wesley W. Coe, by several feet. In case Rose is let out by the A. A. U. the record will fall to Coe, who has a mark of 49 feet 6 inches. G. R. Gray in 1893 put the ball 47 feet, which stood for a number of years.

# TRACK AND FIELD RECORDS BROKEN

MARKS ARE BEING CONTINUALLY SMASHED BY THE PRESENT DAY ATHLETES.

## KRAENZLEIN BEST HURDLER

Efforts of Kilpatrick in the Half Mile and Conneff in the Mile Still Remain the Best—Century Dash Jointly Held by Nine Men—Rose and Sheridan Supreme with Weights.

In estimating a season's performances on the cinder path and on the field the fact should be borne in mind that many events which were on the regular program years ago are not looked upon as "standard" at the present time, writes Walter Eckersall. Consequently marks made in these events stand because races of such distances are not run at the present time, such as, for instance, the 51-yard dash, 660-yard run, 15-mile run and 200-yard hurdle race.

The standard events are the 100, 220-yard dashes, 440, 880, mile and two mile runs, 120 and 220-yard hurdle races, shotput, running high jump, running broad jump, pole vault, discus throw and hammer throw. The records in these events have been broken innumerable times, and hardly a meet takes place that one or more of them is not equaled.

In the 100-yard dash Dan J. Kelly ran the distance at Spokane, Wash., in 0:09 3-5, but his record was not allowed on account of a favoring strong wind blowing on his back. The official mark for the century dash today is 0:09 4-5, held jointly by J. V. Crum, B. J. Wefers, J. H. Maybury, J. H. Rush, Clyde Blair, Archie Hahn, Dan J. Kelly, A. C. Parsons and N. J. Cartwell.

In the 220-yard dash there should be a distinction between a straight-away and a curved course. B. J. Wefers ran the distance straightaway in 0:21 1-5, and on a fifth of a mile track he negotiated the distance in 0:21 4-5. On a quarter of a mile track J. H. Maybury went in 0:21 4-5. Around a turn on a one-third mile track P. J. Walsh ran it in 0:21 3-5, but Dan J. Kelly went the route around a slight curve in 0:21 1-5.

Maxey Long holds the undisputed record in the quarter-mile run, both on the straightaway and around the circuit. At Travers Island in 1900 he ran the distance straightaway in 0:47 and around a 352-yard circuit path he made 0:47 4-5.

In the half-mile run C. H. Kilpatrick made the phenomenal time of 1:53 2-5 in 1895. This record has not been approached, and from the present outlook it is not liable to be beaten for some time. Kilpatrick also holds the all-American college record made at Union college.

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In the discus throw, Martin J. Sheridan holds the undisputed title with a throw of 143 feet 4 inches, made at New York September 9, 1906. In the Olympic games at Athens he threw the missile, free style, 137 feet 1-3 inch.

Throwing the 16-pound hammer, including the weight of the head and handle 172 feet 11 inches, was the record at Long Island City in 1904 of John Flanagan. There are many ways of throwing the hammer and a record for each, but the above is for the best throw to date under the method almost universally used.

# A CONDENSED HISTORY OF THE PRIZE RING

A condensed history of the prize ring championships is given below:

- 1719—Fig, who conducted boxing, sword and singlestick contests at his theater in Oxford road.
- 1730—Pipes, who was succeeded by Greeting.
- 1734—George Taylor, champion of England.
- 1740—Jack Broughton beat G. Taylor.
- 1750—Jack Slack beat Broughton in Figg's theater.
- 1760—W. Stevens won from Slack, London.
- 1761—G. Meggs beat Stevens, London.
- 1764—W. Darts beat Meggs, Shepton Mallet, England.
- 1769—Lyons beat Darts; retired afterward.
- 1771—Peter Corcoran beat W. Darts, championship, at Epsom race course.
- 1776—Harry Sellar beat P. Corcoran, 38 rounds.
- 1791—Ben Bryan beat Johnson; retired afterward.
- 1792—Dan Mendoza beat W. Warr, 300 guineas, 23 rounds.
- 1795—John Jackson beat Mendoza, gave up title in 1802, and Jim Belcher succeeded him.
- 1805—Jearce beat Belcher, 500 guineas, 18 rounds. Pearce gave up title in 1808.
- 1809—Tom Cribb beat J. Belcher, 35 rounds; held title 15 years.
- 1824—Tom Spring beat John Langan, afterward retired.
- 1825—Jim Ward beat T. Cannon, \$5,000, ten rounds.
- 1833—Deaf Burke claimed title on Ward's retirement.
- 1839—W. Thompson (Bendigo) beat Burke.
- 1841—Ben Caunt beat Nick Ward, 35 rounds.
- 1845—Bendigo beat Caunt for championship, 93 rounds.
- 1849—Tass Parker beat Con Parker, \$500 a side.
- 1850—Perry (Tipton Slasher) claimed championship.
- 1851—Harry Broome beat Perry.
- 1853—Perry again claims title.
- 1857—Tom Sayres beat Perry for championship belt; retired 1860.
- 1860—Sam Hurst beat Padock. Both claimed championship.
- 1861—Jem Mace beat Hurst, eight rounds.
- 1862—Mace beat Tom King for championship and belt.
- 1860—King beat Mace, but afterward conceded Mace's superiority.
- 1865—Joe Wormald beat Marsden for the championship. Mace again claimed the championship belt.
- 1866—Jem Mace fought a draw with Joe Goss.

1867—Joe Wormald claimed championship belt on forfeit from E. Baldwin, who failed to appear at the ring.

- 1867—Jem Mace fought a draw with E. Baldwin, and the championship belt was held in abeyance.
- 1868—Joe Wormald battled for the championship to a draw with E. Baldwin in America.
- 1869—McCoole won the championship of the world from T. Allen in America.
- 1870—Jem Mace beat T. Allen in America for the title.
- 1872—Jem Mace fought a draw with J. Coburn for the championship.
- 1882—John L. Sullivan beat Paddy Ryan in nine rounds at Mississippi City, Miss., for championship of America.
- 1885—Jem Smith defeated Jack Davis for championship of England.
- 1887—Jake Kilrain fought Jem Smith a draw for the championship of the world; belt offered by the Police Gazette and \$10,000.
- 1888—John L. Sullivan and Charley Mitchell fought 39 round draw at Chantilly, France.
- 1889—John L. Sullivan defeated Jake Kilrain for the belt and \$10,000 a side at Richburg, Miss., July 3, in a notable contest.
- 1889—Jem Smith battled with Fraul P. Slavin for the championship of England, Dec. 13, at Bruges. It was a draw.
- 1891—Robert Fitzsimmons beat Jack Dempsey for the middleweight championship of the world at New Orleans, Jan. 14. The contest lasted 13 rounds.
- 1891—James J. Corbett fought Peter Jackson to a draw at San Francisco May 21. "No contest" was the decision of the referee.
- 1892—James J. Corbett defeated John L. Sullivan for the championship of America in 21 rounds at New Orleans, Sept. 7. The purse was \$25,000 and the stake \$20,000, being a total of \$45,000, the largest amount ever fought for.
- 1894—James J. Corbett beat Charley Mitchell of England in three rounds at Jacksonville, Fla., Jan. 25.
- 1897—Robert Fitzsimmons beat James J. Corbett for the championship of the world in 14 rounds at Carson City, Nev., March 17.
- 1899—James J. Jeffries beat Robert Fitzsimmons for the championship of the world in 11 rounds at New York city.
- 1907—Tommy Burns defeated Jack O'Brien in 20 rounds at Los Angeles, May 8.
- Tommy Burns defeated Bill Squires of Australia in one round at Frisco, July 4.
- Tommy Burns defeated Gunner Moir of England for the world's championship Dec. 2 at London, England.

## FITZ SHOWS KNOCK-OUT PUNCH

Ruby Robert Gives Demonstration Much to His Sorrow.

Ruby Robert Fitzsimmons is always ready and willing to illustrate before sporting men just how he knocked Jim Corbett out at Carson City with his memorable solar plexus punch. Not so very many years ago his former manager, Percy Williams, now a well-known theatrical magnate, asked Fitz to show a number of friends just how Corbett was annihilated. Robert was in fine form then, as he was training for a fight at the time.

He promptly complied with the request by calling Reggy Williams, a brother of his manager, to stand up and be a victim. Reggy, however, had been there before and knew the power of the Cornishman's blows, so he was not over-egged to take part in the exhibition. So he said to Robert:

"Wait a minute, Bob, until I go and get a stiff brace, for I need courage."

"All right," replied Fitzsimmons with a grin, "but hurry." Reggy stepped over to the bar, took a nip, and then, picking up a thick board he slipped it under his vest. Then he came back with the remark:

"Go ahead, Bob, but not too hard." Fitz jumped about, feinting and sparring for a few moments, while Williams squared off like a real fighter. Then Robert shot out his terrible left and hit the mark with a crash. It sounded like a blow on a board fence with a sledge hammer and, though Williams was knocked down, he jumped up quickly and laughed until his sides shook. Fitz was standing around on one foot, with his left hand under his arm and a look of intense pain on his face.

"What's the matter, Bob?" asked Percy Williams, who was next to the trick.

"What's the matter?" roared the angry Cornishman. "Why, me blooming 'and is smashed! That funny brother of yours 'as a sheet of iron under his vest!"

Fitz was a mark then for a lot of guying, but the joke was a serious one, for his left hand was in poultices for six weeks.

## Wabash May Lose Cayou.

Students at Wabash college are making a strong effort to keep Francis M. Cayou athletic director at that institution, it being his intention to leave at the close of the present school year. Cayou, who is a famous Carlisle Indian athlete, has brought Wabash to a high place in the matter of athletics, and his loss will be a severe blow to that institution.

## M'GRAW SHOWS JUDGMENT

Scores Two Runs on a Single and a Pass Through Quick Thinking.

"I will never forget a game I played when I was with the Baltimore club, and how two runs were made on a base on balls and a single," said Manager McGraw of the Giants the other day. Matty, Dan Brouthers, the office boy and Fred Knowles pulled around their chairs to listen. "I led off," continued Muggsy, "and Willie Keeler followed me at the bat. I got a base on balls. Keeler came up and pulled over in right field for a base hit.

"One Bill Joyce was playing right field at that time. He had me figured to slow up at second base on the hit, but I put one over on Joyce and kept on going. Joyce got the hit on the first bound, playing it safe, and, just as I expected, he lobbed it in. When I was sliding for third base the third sacker was looking all around for me, and I got up and kept on going.

"Duke Farrell was catching, and I slid around the Duke. By the time the Duke got his bearings Keeler was right on top of me. Bill was the runner up all the way. The crowd liked the way we pulled off the unexpected. Of course we had the dope right after Keeler made the hit. They laid for us in every game after that."

Then Dan Brouthers got busy and told how McGraw saved his team from defeat twice during a game with the Chicago team and then won out in the tenth inning.

## WINTER BASEBALL NOTES.

Pitcher Lakoff, late of Detroit, has been sold to the Portland club of the Pacific Coast league.

President Dovey has decided that he will not retain Knotts, Sline, Frock, Bushee and Barberich.

Roosevelt is the name of a pitcher in the Northwest league. He is quite a twirler, they say, but he doesn't wield a big stick. Of course his front name is Teddy.

Pop will be sold as usual on the big league grounds this season, but woe to the unfortunate who leaves the bottle around promiscuously. The commission has voted to fine the club that fails to push the offender's prosecution.

William J. Delehanty, the youngest member of the famous baseball family, has been sold to the Wilkesbarre team of the New York State league. He jumped the O. and P. league last season. This year he will play third base in place of Zimmerman, who was sold to Chicago.