

AN IMPORTANT DISCOVERY— PRINTING WITHOUT INK.

WHEN it was announced a short time ago that a certain inventor had discovered a process for printing without ink, the statement was received without a full comprehension of the possibilities residing in this discovery, for the latest developments open almost boundless vista. Not only has he succeeded in perfecting a process of printing without ink, but also for printing in colors as many as desired in one impression and without the employment of any pigment whatever. The inventor, or, rather, the accidental discoverer, of the process, Mr. Fries-Greene, holds that inkless printing is no more wonderful than wireless telegraphy, both being accomplished through the same medium, electricity, but that the former will prove more useful and has in it greater promise than the latter.

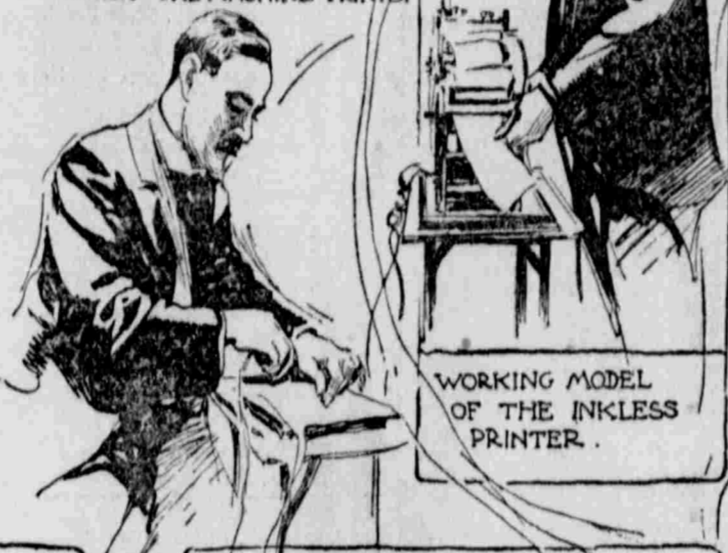
The promulgation of such a discovery a few centuries ago might have been the signal for hustling the inventor off the stake or for ducking him in the nearest pond as a wizard, but the world has advanced immeasurably since the times of ignorance and superstition were cast off, and no century has been so prolific of inventions as the last one. Having become accustomed to the announcement of startling discoveries in the realm of science and especially in the realm of electricity, there is nothing whatever that the present generation would receive with incredulity.

fact, before our magazines and newspapers will be brought out beautifully illustrated in colors and at a cost much less than at present, owing not only to the saving in ink and in attendance, but to the rapidity with which the inkless machines may be operated. Electrical printing machines can be run, the inventor claims, at a much greater speed than the present day perfecting presses, for the action is so quick that a strong, clear impression is produced by the contact of type with paper during even a thousandth part of a second. The only radical departure is in the presses, the ink rolls being done away with entirely, so that the necessary amount of time and labor involved in their preparation and care will be avoided. The invention may be adapted, it is said, to any machine at present used, which may be converted into one for electrical printing without any great change or expense, it being necessary only to remove the ink rolls and make the electric connections and, of course, to use the newly invented types. The new printing machine is simple, compact and inexpensive as compared with the intricate presses now in use and can be set up and operated wherever sufficient electrical power is available.

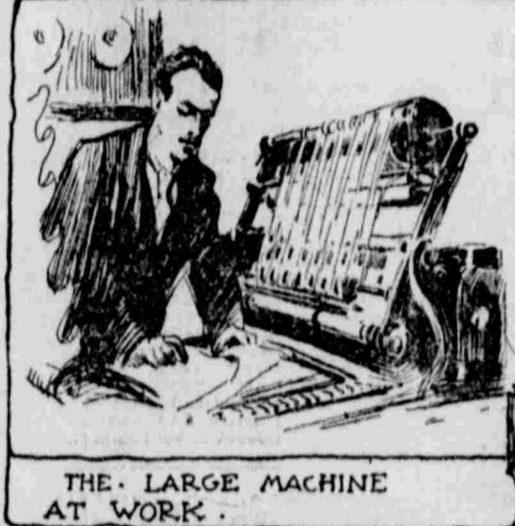
The discovery that electricity might prove directly applicable to printing

known through his scientific researches—and accidentally placed a silver coin on a piece of white paper which was resting on a sheet of tin. The tin plate happened to be connected with the positive pole of an electric battery, and the coin chanced to be touched with the negative wire. Upon removing

THE PRINCIPLE UPON WHICH THE MACHINE PRINTS.



THE FIRST INKLESS PRINTING PRESS.



metals, he at last perfected his discovery and not only obtained perfect impressions in black equal to those produced with the best inks, but by using different blocks of metal actually printed in any color desired. By coating the portion of the blocks where red is required with silver the requisite effect is obtained, with copper for green, brass for yellow and gold for orange, etc.

It is nearly a thousand years since printing came into general use first among the Chinese and more than 400 years since movable types were invented, Caxton having used them in England. America's first book was printed in Mexico in 1539, and more than a century elapsed before a book was published within the limits of the present United States at Cambridge, Mass.

The development of printing in this country was not rapid at first, but in the past 100 years no country on earth has made such progress as the United States. Acting in accordance with the



was made accidentally in the same manner as many other great inventions have come about. Mr. Fries-Greene, the inventor, was working one night in his laboratory—for he has been a long time experimenting on a process for color photography and has become

the coin a perfect impression was found printed on the paper. The experiment was repeated again and again, always with the same result—an exact reproduction in every detail of the original, printed in black. Perceiving the great possibilities in this accidental

discovery, the experimenter abandoned all other work and devoted himself unrelentingly to a solution of the problem so unexpectedly presented. After many weeks of experimentation, testing different papers impregnated with various chemicals and using several

teachings of history and experience, it would seem that we shall soon be using printing presses without ink and turning out multitudinous examples of papers and magazines illustrated by means of this newest invention for reproducing pictures in natural colors.

GENERAL KRITZINGER AND COMMANDANT OLIVIER'S SON.



The portraits shown in the accompanying illustration are those of General Kritzing, a gallant Boer general, in a reclining attitude, and the son of another Boer, Commandant Olivier. The former is the more famous of the two, being accounted second only to De Wet in his practice of elusive tactics, which confuse and confound the British, at one time leading them a great chase into the wilderness after nothing, at another slipping with ease out of the traps they had prepared for him. Kritzing is spoken of as being a fine looking man about 5 feet 7 inches in height and possessing a good English education.

WILLIAM LE QUEUX, NOVELIST.

Mr. William Le Queux, whose portrait appears herewith, is a very clever writer, who was born in London July 2, 1864, studied art in the Quarter Latin, Paris, made pedestrian tours all over Europe, took a try at journalism and finally settled down to novel writing, in which he seems to have found his vocation. Some of his successful books are entitled "Whose Findeth a Wife," "If Sinners Entice Thee" and "In White Raiment." He has been called a recent Wilkie Collins, but refuses to accept that designation, believing that his work is superior to that of the author of "The Moonstone" and "Woman in White."

A BALLOON FOR THE ANTARCTICS.

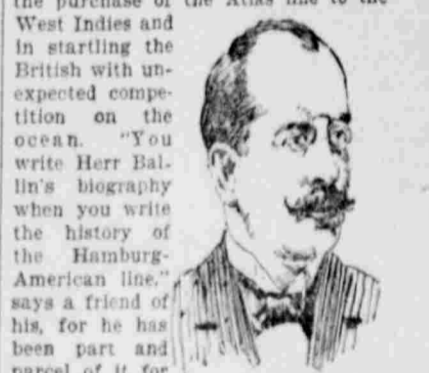
The balloon figured in the accompanying illustration was taken out by the Discovery, which sailed some weeks ago from England for the antarctic to be gone two years. As it is known



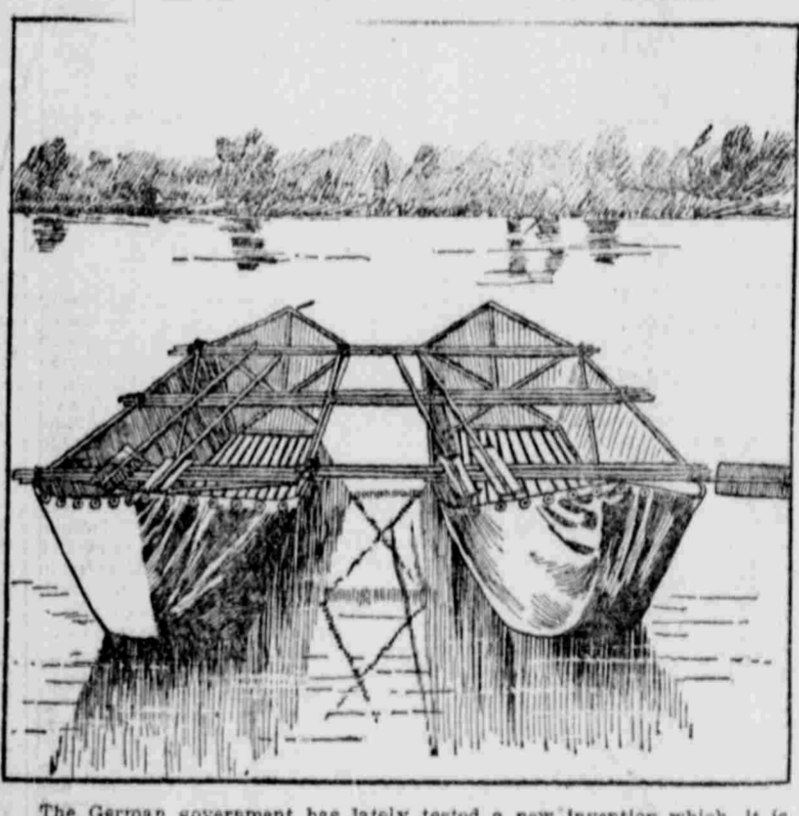
that vast ice cliffs will be encountered, over which it may be impossible to sledge, the balloon may be of great service. Gas for charging it is taken out in 50 large iron cylinders, which also serve as ballast when needed.

AN ENTERPRISING GERMAN.

This is the portrait of Albert Ballin, director general of the Hamburg-American Steamship line, who was mainly instrumental in bringing about the purchase of the Atlas line to the West Indies and in starting the British with unexpected competition on the ocean. "You write Herr Ballin's biography when you write the history of the Hamburg-American line," says a friend of his, for he has been part and parcel of it for the past 15 years. Its first steamer was built in England in 1854 and was chartered by the British government for conveying troops to the Crimea. Now Germany builds her own great ships; and, by the way, one of the latest, the Deutschland, has recently broken the best transatlantic record.



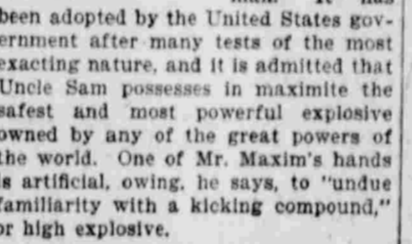
BOATS MADE OF CANVAS AND SOLDIERS' LANCES.



The German government has lately tested a new invention which, it is estimated, will cause a reduction of \$100,000 in annual army expenses and release from duty 2,000 men and 3,500 horses. This is a patent collapsible boat made of soldiers' lances as a frame and a canvas covering, the entire material necessary to be carried along with the troops weighing only 60 pounds to a boat. Each regiment of German cavalry has been obliged to take along two large collapsible boats, for crossing such wide rivers as might be encountered, and necessitating heavy wagons and details of men and horses, which could not well be spared.

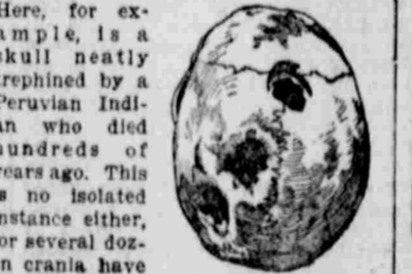
THE INVENTOR OF MAXIMITE.

Hudson Maxim, the gentleman whose portrait appears herewith, is scarcely so well known as his brother, Sir Hiram, the inventor of the rapid fire gun that bears his name, but he is afflicted with the inventive mania. Like his brother, he seems desirous of wiping the rest of mankind off the face of the earth, for his new explosive, maximite, is one of the most terrible forces known to man. It has been adopted by the United States government after many tests of the most exacting nature, and it is admitted that Uncle Sam possesses in maximite the safest and most powerful explosive owned by any of the great powers of the world. One of Mr. Maxim's hands is artificial, owing, he says, to "undue familiarity with a kicking compound," or high explosive.

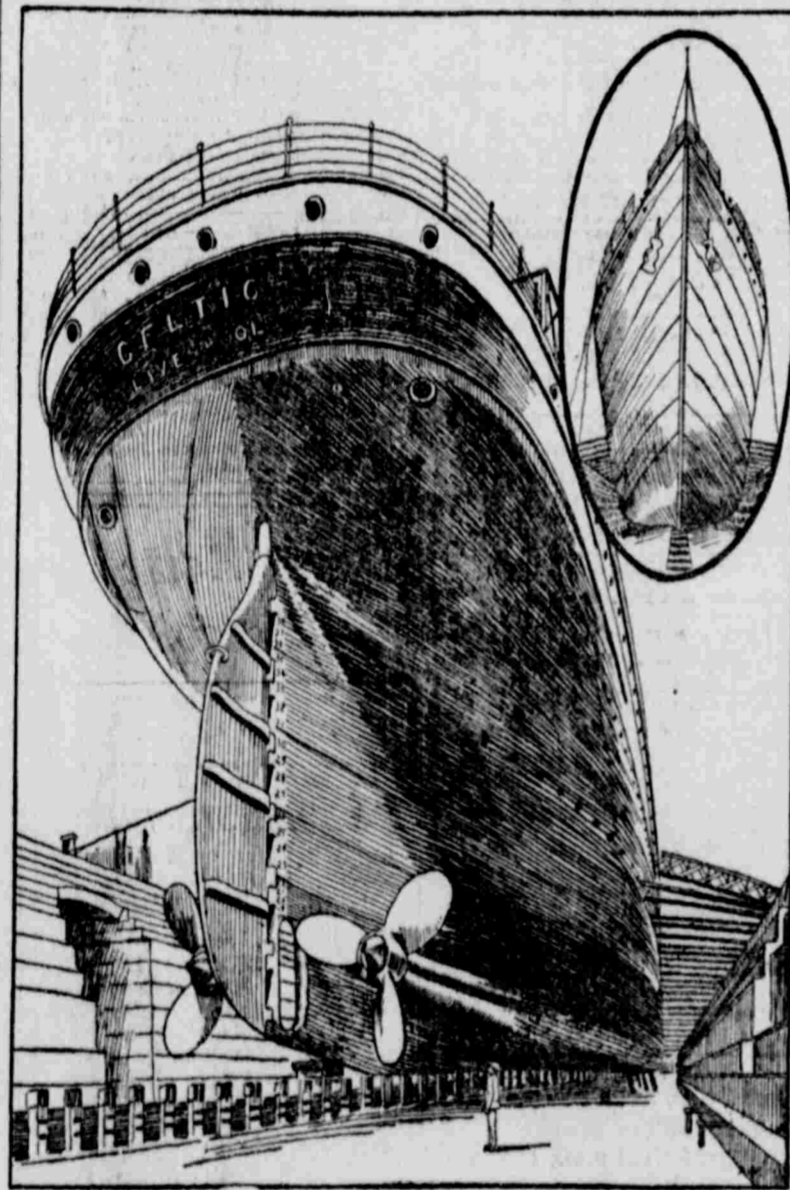


ANCIENT PERUVIAN SKULL.

The perforated skull shown in the accompanying illustration proves that the aborigines of America were proficient in things of which it was until lately thought they had no knowledge at all. Here, for example, is a skull neatly rephined by a Peruvian Indian, who died hundreds of years ago. This is no isolated instance either, for several dozen crania have been found bearing similar evidence of surgical skill. It must have been hard for the patient in those days without anesthetics to have his scalp scraped off and his cranium incised by means of a flint implement. The process probably took many hours, and he must have suffered terribly.



STERN VIEW OF THE WORLD'S LARGEST VESSEL.



The grand proportions of the Celtic, the largest liner ever built, a stern view of which is shown in the accompanying illustration, may be judged from the figure of the man standing near her gigantic propeller. Her builders have such promise of success in this leviathan of the Atlantic and her sister ship, the Oceanic, that they may even go further and build greater. This one, however, is large enough for convenient handling, having a total displacement of 32,160 tons, with 15,950 net tonnage for cargo, and no less than nine decks. Three thousand people come over to this country on the maiden voyage of the Celtic, which took place a few weeks ago.

HE WILL BE A KING.

The heir apparent to the throne of Portugal, Crown Prince Luiz Filipe, duke of Braganza, whose portrait appears in the accompanying illustration, is an amiable boy, large for his 14 years



and bears a striking resemblance to his mother, Amelie, daughter of the late Comte de Paris. His father, Dom Carlos, the king, is the personification of jolly good nature, although he is reckoned as one of the poorest monarchs of Europe.

SUMMER RESIDENCE OF J. B. BALL AT DEAL BEACH.



The accompanying illustration shows the fine summer residence of Mr. J. B. Ball at Deal Beach, N. J., that lovely seaside resort between Long Branch and Asbury Park. It is one of the most elegant examples of the colonial style of architecture, with stately columns and a porte cochere, set in the midst of spacious grounds, with a glorious ocean view. It is, in fact, typical of the quiet, substantial character of Deal, which is somewhat secluded and restful, though within a comparatively short distance of New York city.

EMPEROR WILLIAM'S CHINESE MEDAL.

The emperor of Germany has designed and caused to be cast to commemorate the occupation of China by German troops a medal, 50,000 examples of which have been struck off, 40,000 in bronze and 10,000 in steel. On one side is the imperial eagle attacking a dragon, on the other, as depicted in the accompanying illustration, an inscription in honor of the troops, the date of invasion, the emperor's cipher and the crown of Charlemagne. The whole is inclosed in a wreath of laurel leaves and does credit to the taste and skill of the imperial designer.



FOURTEENTH CENTURY FRESCO RECENTLY FOUND IN AN ANCIENT BASILICA IN ROME.



Art lovers the world over will be rejoiced to learn that there was recently found in Rome during some repairs in the ancient chapel of St. Cecilia a fourteenth century fresco. After the century long accumulations of dust and white wash had been removed a fresco was revealed about 44 feet long and 7 feet high, representing, it is thought, Christ in glory, seated on a throne set in a purple aureole and surrounded by angels. A government expert pronounced it undoubtedly the work of Pietro Cavallini, an Italian painter who flourished in the early part of the fourteenth century. Cavallini was a disciple of the famous Giotto (born near Florence 1276; died 1337), whose paintings are recognized as the first successful attempts at portraiture and who is considered the first painter of the Roman school worthy of competition with the great Florentine masters.

PERSONAL POINTERS.

General W. J. Palmer when he retired from the directorate of the Rio Grande Western railway distributed among the employees 1,000 shares of the stock of the road. At that time the stock was quoted at 104, and the value of the various gifts ranged from \$10,000 to Vice President Dodge down to the single share given to each of the minor employees.

The Rev. Albert A. Sinnott, D. C. L., who has recently completed his postgraduate course at the Canadian college at Rome with high honors, is one of the youngest doctors of canon law in the world, being only 34 years old. His

bishop has appointed him professor at St. Dunstan's college, Charlottetown, Prince Edward Island. The Duke of Newcastle is one of the few Englishmen who still cling to tricycling. He rides a machine made in this country. The People's church of London has adopted a policy of inviting prominent foreign clergymen to occupy the pulpit for stated periods each year. The Rev. Dr. John T. Christian of the LaSalle Avenue Baptist church of Chicago is the latest minister to receive such an invitation.

Joseph Chamberlain at 65 is among the youngest men in the house of commons. He could very well pass for ten years younger. Otogiro, the Japanese actor who is now playing in London, was formerly attached to the embassy of his country in France. He has made many adaptations of European plays for the Japanese theaters.

Senor Don Luis F. Carbo, Ecuadorian minister at Washington, in a recent speech at the Pan-American exposition said: "The Pan-American exposition is destined, gentlemen, to make closer the ties of union and confraternity existing between the nations of the continent."

Sir Harry Johnston, who has returned to London from Uganda, has brought with him the finest collection of photographs ever obtained in Africa. After a courtship by mail lasting 35 years John Phye and Mary Bradley have been married at Sharon, Pa. He is 64 and she 57 years of age. In youth

they lived on adjoining farms, but the Bradleys moved to New Jersey. William Rollins of Dogue, King George county, Va., who died recently, was widely known as the ferryman who carried John Wilkes Booth across the Rappahannock when the latter was making his escape from his pursuers after the assassination of President Lincoln.