

Great Britain harbors about 1,200,000 more women than men.

In Oakland and Alameda, Cal., there is a tax which practically prohibits the intrusion of outside firms.

Lead is one of the few metals not yet found in Alaska, but that may be because the Coroner hasn't yet qualified, suggests the San Francisco Chronicle.

Prince Bismarck expressed admiration for the endeavors made by the Pope to solve the social question, adding, "Formerly the social question could be solved by the police, but now it requires the military."

Lieutenant Moss, of the regular army, has reported that he considers the bicycle a valuable means of transporting troops. Hereafter we may expect an army on bicycles, and it will be more imposing than an army with banners.

Says the Chicago Record: When the United States establishes postal savings banks the standing of its private banking institutions will be raised, and no portion of the population will be able to say that it is without safe banking facilities.

In Paris the water supply is becoming a serious question, especially in view of the coming exhibition. The consumption has been steadily increasing for some years, and the authorities are busily engaged in the consideration of schemes for securing an adequate supply in the future.

The Chicago Journal believes "the convict should be made to wish to escape. He should be so treated that he will want to get away and never come back, so treated that other men will have a horror of his fate. It may be a very pleasing thing for the sentimentalist to see a penitentiary run like a young ladies' boarding school, but crime is too serious a thing for treatment on a sentimental basis."

It was decided to bring the body of Mr. Ogden Goetz, the New York multi-millionaire, to this country on his yacht Mayflower for burial. The name of his yacht will bring to mind, and in contrast, the landing of the other Mayflower at Plymouth Rock. What wonderful mutations of fortune are illustrated by comparison of the stern westward voyaging of the Pilgrims to the North American wilderness and sumptuous bringing home of the dead New Yorker!

The British Indian troops showed the stuff of which they are made in the battle of Maizar, in Tochi valley. Two native officers coolly attempted to bring in under heavy fire guns which had been abandoned because of the killing of the horses, and one actually pecked into camp a gun weighing 200 pounds. Then he went out again and came back with his English lieutenant's body. Upon such men as these England should confer decorations, for though their skins are black they are the bravest of the brave.

In a recent article in Harper's Magazine Dr. Henry Smith Williams predicted that meteorology would be the science of the future. In view of that prophecy it is doubly interesting to learn that Professor Willis L. Moore, Chief of the United States Weather Bureau, has recommended to Secretary Wilson for adoption as a feature of the Federal exhibit at Paris in 1900 the issuance at the exposition of a daily weather chart of this country. The observations would be cabled over, thus proving a triumph for the American cable as well as American meteorology. According to Chief Moore, no other Government in the world has the facilities for making such a meteorological showing as has this Republic.

The United States Mint authorities estimate the amount of gold which has so far reached this country from the Klondike at about four tons, worth something over \$2,000,000. At least as much more is believed to be ready for shipment. Some of it will get down this season, but more will be held over until next year. This estimate does not include what is at the mines, but only that which is packed and on the way, either by river to St. Michael's or overland to Dyea to seek transportation by steamer to the United States. It was reported that Wells, Fargo & Co. had received at St. Michael's over four millions for transfer to Seattle, but the story has not been confirmed. A careful analysis and comparison of the reports of the returned miners is the basis of the estimate given above—\$4,000,000 for the total output of the Klondike now in this country or on its way from the mines.

## PROGRESS WITH THE FLYING MACHINE.

Working Out the Man-Flight Problem Along Scientific Lines Near Chicago.

The day is almost at hand when man will dispute with the bird for supremacy in the air. For hundreds of years his ambition has been at work with such persistence of effort that he now begins to see the end. He has grappled with the invisible forces of the atmosphere, sometimes blindly, but always courageously; generally to meet with disappointment, but happily with enough success to keep alive his determination to master the most difficult of all problems in physics. Lives have been lost and fortunes have been expended in the pursuit of this baffling question of man-flight. Ridicule has been heaped upon the heads of those who sought to cope with the feathered messengers of the air, and their sanity questioned by the world at large.

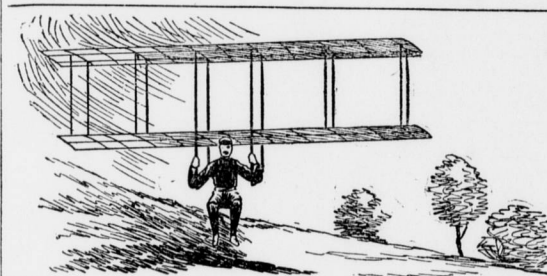
The advancement made toward the full solution of the problem of man-flight during the year 1896 was greater than that of any previous year, and attracted the widest attention among scientists. Probably more interest centered in the experiments conducted thirty miles southeast of Chicago on the shore of Lake Michigan by Octave Chanute, of Chicago, than anywhere else. The prominent position occupied by Mr. Chanute in the scientific world was accepted as a guarantee that he had faith in his experiments, and that he had no other purpose in view but to demonstrate certain principles involved in the problem.

At the time he was thus engaged Mr. Chanute observed much caution in his utterances concerning the results obtained. Fearful lest his conclusions might not be properly formed, or that he might be misunderstood, he refrained as far as possible from committing himself on the subject further than to say his experiments were very satisfactory. Since then he has gained courage, so to speak, and has become enthusiastic over what has been accomplished. He is now confident that the way is clear for the solution of the problem, and modestly takes to himself a goodly share of the credit for pointing the way. He claims that his experiments have marked out the best lines for investigators to follow, and numbers them as follows in the order of their importance:

1. The development of the self-propelled aerodrome.
  2. The development of the motorless air sailer.
  3. The development of the motor.
- During the past week the experiments of last year have been renewed near Dune Park, Ind., and Mr. Chanute has been almost a daily visitor to the scene of action. His interest in the result will not let him stay away longer than one day for several reasons. One reason is that the machine being used is one of his own invention in its most important details, and another is that the experiments are following the second line of investigation, which he laid down as necessary for the solution of the problem of man-flight. It is said that Mr. Chanute is the real one who is conducting the experiments, but this he denies with a considerable scientific knowledge, who was associated with Mr. Chanute last year in his extensive experiments at the same place.
- The machine with which Mr. Herring is now experimenting daily represents the ideas of both himself and Mr. Chanute. It belongs to the same class as the machine which the late Otto Lilienthal, of Berlin, brought out in 1894 and in the use of which he met his death last year. It might well be termed a flying machine, and yet this description does not fit accurately. It

machine to bring the center of gravity under the center of air pressure, it was constructed with a view to bringing the center of pressure over the center of gravity by the aid of wings moved automatically. This machine had twelve wings, each six feet long and three feet wide, and each pivoted to a central frame. It had a total wing surface of 177 square feet, and weighed thirty-seven pounds.

By a process of evolution this apparatus became the machine in use at the present time with which such remarkable results have been obtained. Experiments showed many defects in the machine, and it was rebuilt on a different principle. The twelve wings were discarded, and in their stead were substituted three superimposed



A GOOD START.

concave surfaces, each sixteen feet long and four feet three inches wide, with an aggregate surface of nineteen square feet. Attached to the rear of this machine was a combined horizontal and vertical rudder, designed by Mr. Herring as a result of his frequent trials of the machine. In the course of the experiments it was found necessary to remove the lower surface, and this left the present machine.

The several changes therefore reduced the sustaining surface of the machine from 177 square feet to 135 square feet. The weight was lowered at the same time from thirty-seven pounds to twenty-three pounds. This general reduction did not impair the strength of the machine, while at the same time it improved its efficiency to a remarkable degree. Repeated trials showed the machine capable of sustaining an aggregate weight of 178 pounds, this figure representing the combined weight of the operator and the machine. The frame is constructed of spruce wood, braced with fine piano wire, and the concave surfaces are formed by varnished silk stretched over the frame to the highest tension.

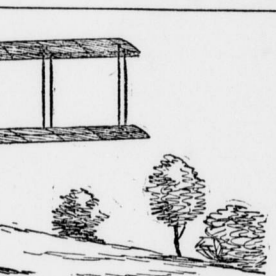
Will this machine fly? Mr. Chanute will answer this question by replying that was never intended to fly. He will inform those asking the question that the machine is made for experimental purposes solely, with the end in view of developing the motorless air sailer. At the same time, Mr. Chanute might say, the experiments may lead to a solution of the most important part of the problem of man-flight—the maintenance of the equilibrium of the machine under all circumstances. He holds that this problem must be solved first. It has been demonstrated to his satisfaction that until automatic stability at all angles of flight and conditions of wind is evolved and safety thereby secured it would be premature to seek to apply a motor or a propelling instrument to a full-sized machine.

The ordinary observer would answer that the machine does fly, never-

were indescribably thrilling and delightful.

All the flights begin from an eminence, the numerous sand hills near Dune Park offering all the opportunities desired for starting. Another requisite is that the operator must start facing the wind, although with proficiency good results may be obtained with the machine traveling at an angle with the wind. Those who have seen a buzzard or most any other large bird begin a flight from the surface of the earth will have noticed that the bird invariably faces the wind and runs a few steps before rising. For the same reasons the operator of the Chanute flying machine must face the wind, holding the machine over his head, then run a few steps down the side of the hill on which he stands and finally give a jump outward into space as though he never expected to come down. He will be doing nothing more, in effect, than he did when he jumped from the top of a fence in boyhood days with an umbrella over his head.

The wind rushing against the lower sides of the two surfaces of varnished silk holds the operator suspended, while the angle at which he holds the surfaces either impels it forward or retards its motion. Sometimes a strong gust of wind comes along when least expected and suddenly raises the machine higher than the starting point. But for the automatic rudder this



A GOOD START.

might prove disastrous to the operator. He would, in all likelihood, turn a back somersault with the machine and get badly hurt. Again, a blast of air from above might strike on the top of the machine and cause it to shoot downward at a terrific rate of speed. This is what happened to Lilienthal last year, and was the cause of the accident which resulted in his death.

The line of flight of the machine in the hands of such a skillful operator as Mr. Herring may be controlled very largely. He has demonstrated time and again his ability to steer the machine in broad curves by simply shifting the weight of his body from one side to another. Last Monday he succeeded in describing a compound curve during a flight of about 300 feet, and landed with his back almost completely turned to the wind. It has also been demonstrated that the machine can be made to travel almost at right angles with the wind at a high rate of speed.

Flights have been made in all sorts of winds, the speed of which varied from ten to twenty-one miles an hour. The latter wind is higher in its speed than any gliding machine was ever tried in before and tested the steady-



ALBATROSS WHICH FAILED.

ness of the machine most thoroughly. The speed at which the machine travels rests very largely with the operator and depends upon the angle of descent from the starting point. When he finds that he is approaching the ground too swiftly it is only necessary for him to tilt the front of the machine upward, when its speed will be immediately checked, and a landing can be made in safety. The range of flight is also very largely within the control of the operator, one who is skillful being able to alight within ten feet of any spot indicated while the wind maintains an even rate of speed. The longest flight recorded is the one made this year by Mr. Herring, which was almost 900 feet. Another flight of 600 feet was made last week.

Long flights are not the aim of the men who are conducting the experiments with the gliding machine. They are seeking to arrive at intelligent conclusions concerning the problem of automatic stability more than anything else, and it is claimed by Mr. Chanute that many new facts have been discovered bearing upon this question. In anticipation of an early solution of the question Mr. Herring is hard at work on a motor which he hopes to be able to apply to the gliding machine. An evidence of the faith that is within him is shown by the fact that he predicts that an air ship will be constructed within another year which will fly to New York with but four stops on the way to replenish the stock of fuel.—Chicago Times-Herald.

### Rewarded For Finding a Feather.

The Gazette of Moscow says that while the King of Siam was passing through the streets of that city a white feather fell from the plume of his helmet, and was picked up by the peasant Toukianow, who is in the service of M. Koch, Toukianow hastened to restore the feather to the chief of police. He was greatly surprised several days later upon receiving from this official, in the name of His Siamese Majesty, a casket containing a portrait of the King and a massive gold chain decorated with a token of the same metal bearing the arms of Siam in enamel. Toukianow has not yet recovered from this unexpected piece of good fortune.

## MINING FOR DIAMONDS.

GRAPHIC DESCRIPTION OF THE METHODS IN SOUTH AFRICA.

The Kimberley Mines Have Produced More Than Ten Tons of the Precious Stones Since Opened—Valuable Diamonds Sometimes Explode in the Hand

"Under the conditions present in nature's laboratory the wonder is not that diamonds are found as big as one's fist, but that they are not found as big as one's head."

The above impressive sentence was spoken by Professor William Crookes in a remarkable lecture upon the subject of diamonds given at the Royal Institution in London recently. This lecture is the most interesting and authoritative exposition of Crookes's, who is one of the foremost chemists and physicists of our day, made a trip of inspection early last year to the African diamond fields, and gave in his recent speech the results of his travels abroad and of the experiments in his laboratory at home.

The most noted diamond mines, the Kimberley, the De Beers, the Dutoitspan, the Bulfontein and the Wesselsfontein, are all contained in a circle of ground three and one-half miles in diameter. The mines proper are irregularly shaped round or oval pipes extending vertically downward to an unknown depth. They are filled with broken fragments of various rocks cemented together by a hard blue clay, called "blue ground," in which the diamonds are found. At first the mines were worked from above, as a stone quarry or gravel pit is worked, but that system proved unsatisfactory, and at present underground workings are the rule. In early days they belonged to different people and different companies, but they have gradually fallen into the hands of one rich concern, the De Beers Consolidated Mines, Limited, which to-day owns practically all the valuable diamond mines in this region. The method of mining is to sink shafts in the solid rock at some distance from the diamond pipes, and then run in tunnels to the "blue ground," which is cut away and mined out by a peculiar system that enables the miner to take out all valuable material and leave the refuse rock behind. Professor Crookes says of this mining:

"The scene below ground in the labyrinth of galleries is bewildering in its complexity and very unlike the popular notion of a diamond mine. All below is dirt, mud, grime; half-naked men, black as ebony, muscular as athletes, dripping with perspiration, are seen in every direction, hammering, picking, shoveling, wheeling the trucks to and fro, keeping up a weird chant, which rises in force and rhythm when a titanic task calls for excessive muscular strain. The whole scene is more suggestive of a coal mine than a diamond mine, and all this mighty organization, this strenuous expenditure of energy, this costly machinery, this ceaseless toil of skilled and black labor, goes on day and night just to win a few stones wherewith to deck my lady's finger."

The work immediately after the "blue ground" leaves the mines looks more like farming than mining. When the "blue ground" is brought to the surface it is as hard as sandstone, and has to be exposed to the influence of the sun, the air and water to prepare it for the pulverization necessary later in the world. The hard lumps and bowlders are spread out on the floor, exposed to the weather, and are allowed to stay there with occasional waterings and harrowings until they begin to crumble very readily. The friable mass resulting is then taken to revolving, perforated cylinders, in which it is agitated for some time with water. Refractory lumps which refuse to pass through the holes are taken back for more weathering. The material running through the perforations is led to immense pans, provided with ten arms, in which teeth are set spirally. When these arms revolve and when plenty of water is made to flow over the pans the very light stuff is carried away by the waste pipe in the centre, while the coarse material containing the diamond collects around the edges of the pan. By a somewhat similar arrangement this diamantiferous gravel is concentrated until the diamonds can be picked out by hand. The men who pick over the coarsest gravel are the most trustworthy employes, since, of course, the most valuable diamonds are found there. Sometimes as much as \$50,000 worth of diamonds is separated in one day. From the sorting room they go to the office, to be cleaned and sorted according to value. In this office may be seen heaps containing white, black, cinnamon, blue, green, pink and orange diamonds. It is quite remarkable that the diamonds of different mines possess certain distinctive characteristics which enable experts to know at once from what mine each stone came.

Large diamonds are rather common; it would be quite easy to collect in Kimberley a hundred gems which would weigh an ounce apiece. Professor Crookes saw a set of eight diamonds, seven of which weighed an ounce each and the eighth two ounces. The largest diamond known in the world is one found four years ago in Jagersfontein. It weighs over half a pound, and, though perfection in color, is marred by a little black speck in the center. Nearly half a ton of diamonds are turned out by the Kimberley mines every year. These mines have produced over ten tons of diamonds since they were first opened; an amount more than sufficient to fill a box five feet square and six feet high with the blazing gems. The supply is so large that the consolidated company which owns, this region has had to limit the production to keep up the prices. The majority of diamonds under polarized light show the jewels to be in a state of tension caused by

the imprisonment of a little colorless gas in the interior. This gas was caught in a little hole or flaw in the stone when it was being formed and is always straining to escape. In consequence of this internal tension valuable diamonds not infrequently explode or fall into pieces when exposed to heat. Cunning dealers sometimes allow unsuspecting and rich clients to carry in their warm pockets, or to handle in their warm hands, large crystals, fresh from the mine, and then if the stones break the dealer demands satisfaction for the loss of a valuable gem. To guard against losses due to this explosion of diamonds, large jewels are frequently shipped to Europe imbedded in raw potatoes. It is most interesting to note that the artificial diamonds now being prepared explode just as the natural ones do.

Different stones and sometimes different parts of the same stone vary greatly in hardness. Some very brilliant diamonds which came to England from New South Wales were found to be so hard that it was impossible to grind them, and they had to be used for rock drills instead of for jewelry. The intense hardness of the diamond is strikingly shown by the fact that if a good stone without flaws be put between two pieces of steel and great pressure applied it will be forced clear into the steel without being injured in the least. Some diamonds when put into a vacuum and subjected to a current of electricity give out considerable light. Professor Crookes owns a beautiful green diamond which, treated in this manner, produces enough light to enable him to read.

### WISE WORDS.

Censure is the tax a man pays to the public for being eminent.—Swift.

Flattery is a sort of bad money to which our vanity gives currency.—Locke.

To be good and disagreeable is high treason against the royalty of virtue.—Hannah More.

Fire and sword are but slow engines of destruction in comparison with the babler.—Steele.

The greatest part of mankind employ their first years to make their last miserable.—Bryce.

Men are never so ridiculous for the qualities they have, as for those they affect to have.—Channon.

No man ever offended his own conscience, but first or last it was revenged upon him for it.—South.

A good word is an easy obligation; but not to speak ill requires only our silence, which costs us nothing.—Tillotson.

For drunkenness, drink cold water; for health, rise early; to be happy, be honest; to please all, mind your own business.—Franklin.

An unjust acquisition is like a barbed arrow, which must be drawn backward with horrible anguish, or else will be your destruction.—Taylor.

To pardon those absurdities in ourselves which we cannot suffer in others is neither better nor worse than to be more willing to be fools ourselves than to have others so.—Pope.

### Six Hundred Shots a Minute.

A startling development in gunmaking is the new automatic Hotchkiss mitrailleuse. It fires off 600 or 600 infantry cartridges per minute. This little marvel of mechanism performs the most astounding functions with twice the rapidity and more than the accuracy of human intelligence. It loads a gun, closes the breech, fires, opens the breech again, throws out the empty shell, and introduces a new cartridge exactly as a soldier would do. A gun barrel of extra strength is screwed in front of a movable breech box which contains the operating mechanism. Running on a parallel line below this barrel is a hollow cylinder which communicates with the barrel by means of an orifice perforated at a short distance from the mouth. In this cylinder is a cogged piston. When the shot is fired, as soon as the ball has passed the orifice communicating between the barrel and the cylinder, the gases from the powder penetrate the chamber in front of the piston and push it back to a position where it is held by a catch. When the trigger is once more pressed the catch is released and the liberated piston flies back to its initial position by means of a spring.

### Teacher on a Lighthouse Island.

Miss Daisy Doud is the teacher of a school on the Farallone Islands, which are a part of the First Ward of the city of San Francisco, Cal. There are four lighthouse keepers on the islands, which are rocky and rough, and Miss Doud teaches the children of the keepers. There are ten little ones, and one of the oldest in the world. All kinds of sea birds live upon the rocky island coast, and if Miss Doud's little ones are inclined to the study of natural history they will have ample opportunity for the feathered and fished part of it at any rate. Deep sea fish and shell fish are in abundance at the foot of the schoolhouse, and the spray sometimes dashes angrily up the steep rocks and washes the windows of the schoolroom.

### Cure For Consumption.

In Denmark the postmen often have very long routes in the country regions, and are obliged to walk or ride many miles a day in all kinds of weather, but undesirable as such positions would seem to be, they are eagerly sought after, and of all men, by consumptives who want to get well. It has been proved that the work is life-saving, for despite the hardships and the exposure to wind and rain and snow, almost all the invalids who adopt the life become robust and hearty.

## THE MERRY SIDE OF LIFE.

STORIES THAT ARE TOLD BY THE FUNNY MEN OF THE PRESS.

A Word Picture—The Martyr—A Doubtful Quantity—Rubbed It In—A Heasty Ship—Too Quick For Him—Domestic Repartee—Fencing With Fate, Etc.

A sudden rain, a road of clay. A leak that's sure though slow; A nump just twenty miles away—How's that for wheel and wool? —Rochester Union and Advertiser

The Martyr.  
"Your husband seems to be a victim of the tobacco habit."  
"No; I'm the victim. He thoroughly enjoys it."

His Wish.  
"Which would you rather be, Har- greaves, rich or handsome?"  
"I'd like to be rich, also."—Cincinnati Enquirer.

Burned Them.  
Kitty—"What did she do with those adoring love epistles he wrote?"  
Jack—"She simply made light of them."—Up-to-Date.

A Doubtful Quantity.  
Boarding School Teacher—"And now, Edith, tell us the plural of baby."  
Edith (promptly)—"Twins."

The Locality.  
"Are you in pain, my little man?" asked the kind old man.  
"No," answered the boy. "The pain's in me."—Indianapolis Journal.

Domestic Repartee.  
Mrs. Henpeck—"The proof of the pudding is in the eating."  
Mr. Henpeck—"The proof of those you make is in the post-mortem."—Life.

Fencing With Fate.  
He (cautiously)—"If I should propose, would you say yes?"  
She (more cautiously)—"If you knew I would say yes would you propose?"

Rubbed It In.  
Judge—"Why did you knock this man down? Did he say you were a liar?"  
Prisoner—"Worse'n that, sah; he proved it."

It All Depends.  
She (sweetly)—"Do you believe that kissing is unhealthy?"  
He (cautiously)—"Well, I—er—is your father at home this evening?"—Chicago News.

Lacked Interest.  
"We let our typewriter girl go."  
"What was the trouble?"  
"Why, she didn't take enough interest in the business to pry into our private letters."—Chicago Record.

A Sign of Life.  
Mother—"Edith, go and see whether the clock is going!"  
Edith (coming back)—"No, mamma, it is standing quite still, only its tail is wagging a little."—Enquire Within.

Too Quick For Him.  
Mrs. Bacon—"Did you offer Mr. Crimmon your umbrella when he went out?"  
Mr. Bacon—"No; I didn't have a chance; he took it."—Yorkers Statesman.

A Heasty Ship.  
Mrs. Mashem—"My dog and I have been sitting for our photographs as 'Beauty and the Beast.'"  
Lord Lorens (a bit of a fancier)—"Yes; he certainly is a beauty, isn't he?"—Punch.

A Fugitive.  
The Editor's Assistant—"Here's some fugitive poetry, left to-day."  
The Editor—"By whom?"  
The Editor's Assistant—"A fugitive poet. I ran him out with a shotgun."—Cincinnati Commercial Tribune.

Non-Com.  
First Lawyer—"You are a shyster!"  
His Opponent—"And you are a blackguard?"

The Court—"Now, gentlemen, let us get at the disputed points in the case."—Philadelphia North American.

Woman's Portion.  
"In marriage," said the old bachelor, as he mentally figured on the cost of a wedding present, "a woman gets everything."  
"Yes," admitted the old maid; "she even gets the worst of it."—Chicago Post.

Bare Felicity.  
She—"Such lovely bargains as there are at that new place!"  
He—"Ah?"  
She—"Yes, silks at eighteen cents, and in a store so small that a hundred persons crowd it to suffocation!"—Detroit Journal.

Martyrs, Indeed.  
Young Housekeeper—"My good man, can't you find a more useful life than that of a tramp?"  
Tramp—"We are useful, madam—just think of the number of divorces we prevent by eating young housekeepers' pies."—Judge.

Didn't Approve of the Feast.  
The lesson was from the prodigal son, and the teacher was dwelling on the character of the elder brother.  
"But amid all the rejoicing," he said, "there was one to whom the preparation of the feast brought no joy, to whom the prodigal's return gave no pleasure, but only bitterness; one who did not approve of the feast being held, and who had no wish to attend it. Now can any of you tell me who this was?"

There was a breathless silence, followed by a vigorous cracking of thumbs, and then from a dozen sympathetic little geniuses came the chorus:

"Please, sir, it was the fatted calf!"—Aberdeen Journal.