nomical . vatory in Peru.

HE selection of Arequipa, Peru, and vicinity as a per-manent field of astronomical and meteorological venture was the result of an extended investi gation by Professor Solon Irving Bailey and associates of Harvard Univer of nearly the whole west coast of South America, and much of the interior of Peru, Chile and Bolivia. nificent heights were plentiful and ample, but across their glorious views float mists for most of the year.

and water supply, and immediate tele-phonic contact with all the brilliant and the traveler finds himself in the heavens from the Equator to the South most picturesquely beautiful city and Pole. Temporary quarters were util- environs in Peru. To the east, a little

of that year destroyed all two-story

Mollendo is a railway terminus of 500 population. It lies above the sea on barren sand and rock. Its sole on barren sand and rock. Its sole water supply is 100 miles distant in the River Chile. The water is con-veyed to it in pipes along the railway. It is fed by rail and boat. Land in Peru rich enough to produce things is

too rich to plant towns upon.

The railway from Mollendo to Are quipa paints the entire rise of 8000 feet with numberless curves and loops For fifteen miles it follows the ocean southeasterly, then runs due east through the fertile valley of Tambo. Thence it mounts the hills to the desert pampa of Islay.
Suddenly the mountains begin in

Carmen Alto, a site two miles east of Arequipa, was selected in 1890, and approved by the Director, Professor W. H. Pickering. Arequipa is a city of some 30,000 inhabitants. Here were munications with the outer world, food and water sunnly, and imprediate false.

way, rises with the regularity of a co

Noahie flood. It is a country unique

because it is a mountain range rising

out of the sea to dizzy heights, its

western face forming the refuge of a nation. All the world's climates and seasons exist there all the year round,

wash-outs, from floods, slides and ava

lanches. Outside of towns the only

vehicles possible are railway trains

The automobile will never be popular in Peru, but the opportunities for the

coming flying machine will put in pale the remainder of civilization. The discoveries of Professor Bailey at Carmen Alto are declared by a bulle-

tin of the Royal Astronomical Society

in cosmical physics.

The observatory building, two miles

out from Arequipa, and 400 feet higher, cover several acres, including cul-

tivated gardens and lawns. The largest building is the dwelling house of the astronomer, his family and assist-

ants. On its roof is a cluster of meteor-

ological instruments for measuring at mosphere and wind currents. Adjoining the dwelling house is the labor

atory, or work-rooms, in which are de

veloped the sidereal plates—the work there is mainly photometric—the celes-

tial maps and calculations. The observatory itself stands in the rear—the

usual slitted, revolving dome, in which

sented by Miss C. W. Bruce. Further

ful country. It has

queducts than any

at on one knows

of years prior to the



THE HIGHEST WEATHER SIGNAL STATION IN THE WORLD. (This station, on the summit of El Misti, is19,200 feet above sea level—the anemometer being 8 feet higher than the peak. The iron cross shown in the foreground was placed there by Bishop Miguel Gonzalez in 1784.)

stroy.

Peru is a wo

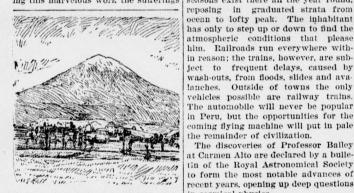
longer and gre

other nation,

their builders.

zations thousan

ized, and the instruments removed from Mount Harvard, and later placed lossal coal heap El Misti, to a height in the new observatory, which is vision 19,200 feet, capped with very nearly ble for miles. The conquest of El perpetual snows, a volcano, quiesceni Mistl, the great volcano, was also the now, but some day to speak and de remarkable achievement of Professor Hundreds had tried to reach the lofty peak. Many of them had died of exhaustion and sickness, many were killed by falling over precipices, and few had ever succeeded in reaching the top. He persisted, finally constructing a winding path from the base to the top, erecting thereon the highest meteorological observatory in the world, 19,200 feet above the sea. Dur-ing this marvelous work the sufferings

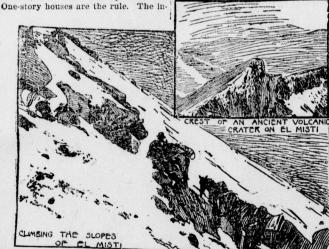


CARMEN ALTO, THE SEAT OF THE HAR-VARD OBSERVATORY.

the background rises El Misti, on which is located the weather station, nearly 11,000 feet above the observatory buildings.)

from mal de mer of himself, his mules and the work were something frightful. All the natives tried to dissuade him from the task, and predicted frightful disasters if he succeeded, a feat which all regarded as impossible

Arequipa is a city of white stone, called sillar, of the appearance of marble, contrasting pleasantly with the surrounding green fields. It is a vol-canic deposit, found in vast proportions, soft and readily worked. It is cut with an adze, as if it were ice. Owing to an entire absence of native lumber, sillar forms a cheap substitute



is the

(Headache and nausea attack men and animals at a height of 15,838 feet, and until accustomed to the atmosphere the rest of the journey to the extreme altitude of 19,200 feet is attended with mal de mer, dizziness, fainting spells, occasionally delirium, and sometimes hemorrhages from the nose, ears and eyes. It is necessary to store from the nose, ears and eyes. It is necessary to stop frequently for a rest, and it was during one of these pauses at an altitude of 18,000 feet that the photograph reproduced

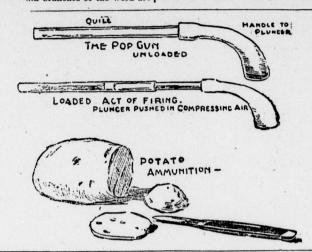
habitants have a wholesome respect | along is the square observatory, confor earthquakes. Ruined walls and taining the thirteen-inch Bache tele-debris are elequent testimonials of the scope and the meridian photometry.

great shake of 1868. The earthquake photographic dark room, tool room.

etc. In the rear is the dwelling for as sistants or servants. The entire outfit is protected on the stream side by a heavy wall, and there are shelters for the housing of domestic animals, etc. The grounds are somewhat self-supporting; otherwise, supplies are of easy access at Arequipa. Automatism, the exact servant of the astronomer, leaves the observer almost a clear field to in-dulge solely in celestial studies. Photographs take themselves automatically, and weather instruments record the atmosphere and force of the winds. tain branches of the work are

Our Grandfathers. 8000000000000000000000000 "The gun barrel of the popgun we used when I was a boy," said a jolly old grandfather, "was made from a sec-tion of goose quill which we used to cut as long as we could, and yet have it of pretty nearly uniform diameter from end to end. Then you whittled

The Pop-Guns of



made comparatively easy, and observ-ers need only climb to the stations on the side (16,000 feet) and the top (19,200 feet) of El Misti whenever inclined to bring down the records automatically made there.-Harper's Weekly.

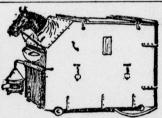
A Will on the Sole of a Shee.
"Where there's a will there's a way," according to the proverb, though it may not have meant the kind of will shown in the accompanying illustra-tion. The picture tells almost the whole story. A fisherman in a New



England town was fatally injured by a rock falling upon him as he was walking at the base of a cliff. When to form the most notable advances of recent years, opening up deep questions found, he was dead, but clutched in one hand was one of his shoes, upon which he had written: "To whom it may concern: All my estate, including my deposit in the bank, I leave to my grandson, Walter Mahlon, providing he does not marry before the age of twenty-five, but in case of his marriage before that time, the above mentioned to be used for the State for charitable

A Steam Bath For Horses

A German veterinary surgeon has just brought upon the market an appa ratus for the purpose of enabling a sick



STEAM BATH IN THE STABLE.

orse to take a steam bath. The ap paratus, as illustrated, is made of solid wood, coated with sheet iron; it has double bottom, into which the steam is onveyed by means of a metallic hose. Little iron rollers allow the apparatus to be easily moved to any desired place

Expensive Riding.

The most expensive season tickets in the world, perhaps, are those issued by the Congo Railway Co. The first-class single fare for a journey of about 250 miles is \$100. Latterly this company has issued season tickets avail able for the year at the following rates: For four return journeys, \$475; for eight return journeys, \$665; and for twelve return journeys, \$855. Naturally the issue of the tickets is very limited, so far only four having been delivered, but application for a fifth has been made. They are not printed. has been made. They are not printed, but written out on a piece of card-board, four inches by six inches, folded in two; on one side the date and name of holder are inserted and the other is divided in squares, where the filled in by the station masters at the

out a piece of wood, hard wood preferred, a plunger to go into this quill, leaving on one end of this plunger a chunk of the wood from which you whittled it, to serve as a handle and to make the shoulder so that the plunger would go into the quid only just so

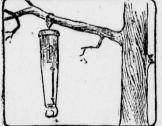
"The plunger you made long enough to go almost through the quid, not quite, and it was whittled down small enough to go into the quill freely, but still not so small that it would wobble around in it. The quill and the plunger constituted the gun, the

ammunition was potato.
"You took a potato and cut off a slice across it and then by pressing the larger end of the quill down through that silce you cut out of it a little cylindrical wad of potato, which, as you pressed the quill down, was, of course, pressed up into that end of the quill. Then, with the plunger, you pressed that potato wad along through the quill from that end to the other. which might be described as the muzzle of the gun. Then you pushed the bigger or butt end of the quill down through the slice of potato again, the quill of course cutting out as it was pressed down through the potato, another wad of it, as at first. So now there was a potato wad in each end of the quill; the gun was loaded; now to

"You simply put the end of the plunger against the wad in the butt end of the quill and pressed it forward in the quill toward the other."

A Baited Gun For Wolves.

As many wild animals prowl at night and remain in their lairs all day, many schemes are devised by the hunter and trapper to slay them or capture them with automatic traps, which have only to be set in their path to tempt them with the balt and take them unawares. Below will be found a new contriv ance for this work, designed especially for the killing of wolves and other large game. As will be seen, the implement is a sort of gun, designed to be suspended from the limb of a tree or other convenient support. It has a barrel adapted to carry a cartridge,



BAIT GUN BUSPENDED FROM A TREE.

the tube proper being inserted in a larger wooden case for weight and pro-A breech-block is mounted on one side of the barrel, and an opening is made through the case for the in-sertion of a cartridge in its chamber. The firing pin is mounted in the end of breech-block, and is actuated a coiled spring. At the muzzle of the gun will be seen a bait fixed on a curved hook attached on a sliding rod, the latter connecting with a trip-lever which releases the firing pin and discharges the gun. To put the weapon in operation a cartridge is inserted and the firing pin drawn back, when the gun is suspended from overhead at a height which compels the animal to strain its head upward to reach it, thus bringing its head in line with the direction of the bullet. Cliver J. De Roshey is the inventor.

The Sure Winner.

For the long race in matrimony you can bet your money with perfect safety on the little woman who knows all about buckwheat cakes and good soups.-New York Press.

There are 4000 Russians in Kansas a thousand heads of families who do little beyond raising wheat. They vote in elections as one man and at tend strictly to their own business

In Norway the average length of life is greater than in any other country on the globe.

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