

Amateur Photography.

With the recent improvements in materials and apparatus for photographing, there has come a great accession to the ranks of those who, in all parts of the country, find in this interesting study a pleasurable, inexpensive, and sometimes lucrative employment. As is the case, however, in almost every wide-embracing field of activity, there is no noticeable success attained except by those who make diligent and intelligent application, and this is particularly true with the large number of amateur photographers, who find it so easy to learn the principal elements of what is necessary to make sun pictures before they realize how important it is to have also some artistic taste and education, and learn the nicety of manipulation required in a thousand delicate details which the successful photographer must carefully attend to. This is abundantly indicated in the discussions which take place before the numerous societies of amateur photographers, now springing up in all sections; but the genuine pleasure to be got out of a little patient application in this field, and at very slight expense, appears to be sufficient to insure its steadily growing popularity. One of the leading societies of this kind, that of the Amateur Photographers of New York, is noticed at length in a recent number of *Anthony's Photographic Bulletin*, with a photograph of the President, Mr. F. C. Beach, from a negative made with the electric light. Mr. Beach commenced making pictures as an amateur photographer in 1864, when only sixteen years of age, and has continued to do so ever since, so there seems to be an especial fitness in his occupying the position of first President of the Society of Amateur Photographers of New York. Mr. Beach has himself invented some and improved many of the old processes in photography, and being something of an enthusiast in this line, it is not strange that the society of which he is the head should at once have taken a leading position.

PLANCHETTE.

Planchette is now very seldom met with, and so many questions are constantly sent to the office of this paper concerning it, that we reproduce herewith an illustration of one which appeared in the *SCIENTIFIC AMERICAN* in 1868.

Many think that there is some hidden secret in the construction of planchette. This, however, is a mistake, as all that is necessary is that the parts should be nicely joined, and that it should stand firmly and move readily on its legs. Any one with ordinary mechanical skill can put one together, and the accompanying cut shows clearly all that is necessary—a heart-shaped cedar board, with two nicely turned metal legs, carrying well lubricated casters, the point of the board having an aperture of suitable size for the insertion of a lead pencil, which serves as the third leg and rests on the paper. It is not to be supposed that planchette will yield at once to the influence, for it is very willful, and often, when it does begin to move, simply speeds across the paper, scribbling incoherences. One of the most extraordinary traits of planchette, however, is the way in which it will persist in writing repeatedly a meaningless reply, until suddenly the humor will seize it, and it will write a coherent word or sentence. Planchette first made its appearance in 1867, and was by no means slow in attracting almost universal attention. The pranks that it was made to play were so many and curious, and its ways so mysterious, that not only did it become the nightmare of the superstitious, but it afforded amusement in many a household. It became also the subject of investigation by some scientists. Marvelous tales were told by the credulous about it, and planchette often told curious tales about itself. Even as distinguished scientists as Prof. Tyndall and Prof. Faraday were drawn into controversies concerning it.

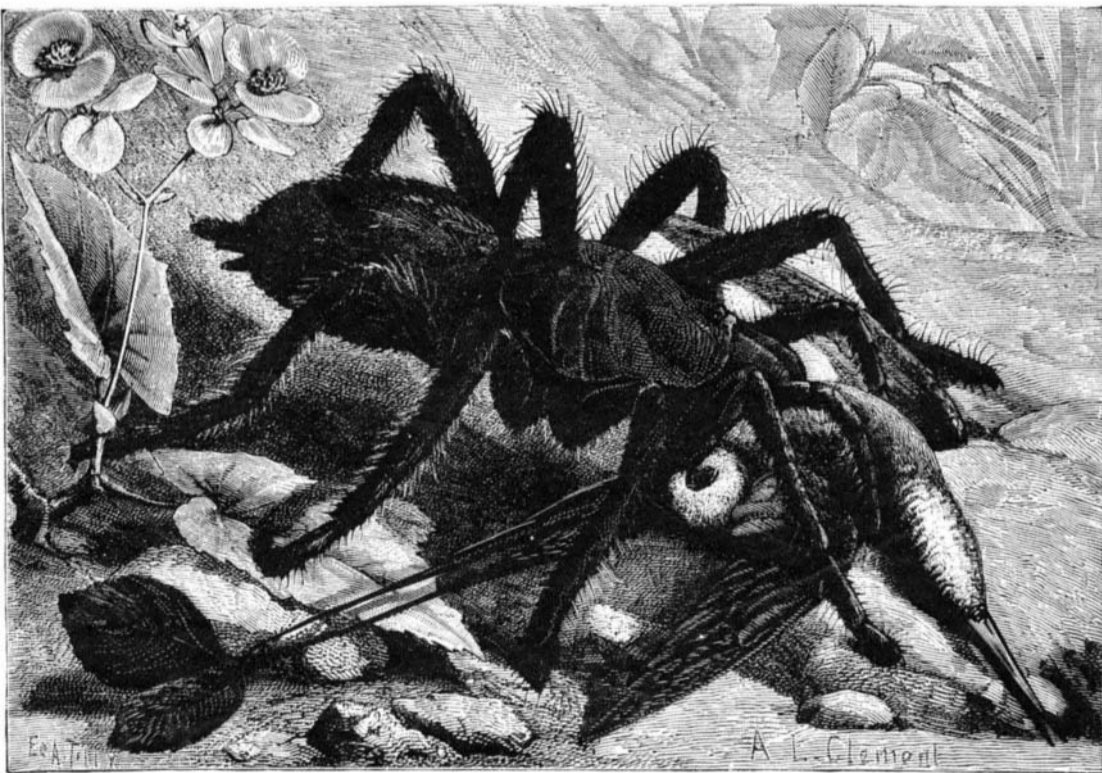
Many believed that humbug was stamped over every movement of planchette, and that one or the other of those whose hands bore upon it always conspired with the little board in the formulation of its replies; but when it became evident that planchette would write coherent answers while under the influence of those who were in ignorance of the replies that were expected, it became necessary to explain the phenomenon on some other basis. Whether this has ever been satis-

factorily answered is in the minds of some still a question. Certain it is that planchette has performed some curious feats, and has made for itself a position in the world of mysteries. Probably the most generally accepted explanation is that advanced by Lewes and others, that although there is no intentional movement of the hands of those who are subjecting planchette to the influence, still there is, in spite of this, an unconscious pressure of the finger tips upon the board, which directs the movement of the pencil. Nor does it seem that such can be at all unlikely, for unconscious movement is by no means an unusual phase of our existence. The somnambulist who nightly takes a promenade from cellar to garret, or whose steps by chance have led him to the border of a pre-



PLANCHETTE.

cipice, has a little knowledge of the peril he has escaped when the morning beams have awakened him as planchette is conscious of its movements. How often also in mercantile pursuits do those who are accustomed to a certain routine perform it unconsciously, and after the work has been finished would be unable to tell you of many of the details of the work which custom has taught them to perform correctly, even while in a state of abstraction. Much has been said at times of planchette's prophetic nature. Under the influence of certain people of a highly nervous temperament, or having to a certain extent the qualities of mediums, future events are said to be foretold. Secrets of which the person touching planchette is in ignorance have been divulged in a remarkable way, and many anecdotes draping planchette in mystery are repeated and believed. Were the testimony, however, more universal, were planchette more consistent, and were it more generally truthful and less given to uttering remarkable sayings only occasionally,



THE BIRD SPIDER. (Natural Size.)

there would be more reason for according it a place for thorough and systematic investigation. Perhaps the day will come when mesmerism is understood and mind reading is more satisfactorily explained, that there will be occasion for looking upon planchette more seriously, and of regarding it as a wonderful means of displaying a rational nervous action independent of conscious mental cerebration.

THE BIRD SPIDER.

Few animals are more repulsive than the gigantic spider which we figure herewith, of natural size. The bird spider (*Mygale avicularia*), for so the creature is called, excites horror in all the countries in which it is found.

In the Antilles and in the forests of Venezuela, Brazil, Guiana, and Ecuador, its repulsive aspect has, among the residents, as well as among travelers, caused a terror that the imagination of the aborigines has still further exaggerated. How many times, while lying in my hammock during the long equinoctial nights, have I heard the Indians and peons, while squatting around the camp fire in the virgin forest, tell each other stories, or fables rather, whose inexhaustible theme was serpents, bats, and big spiders! In measure as the night advanced, the tales became more and more extraordinary. From hecatombs of birds devoured upon their nests by the *Arana cangrejo* (crab spider), with long velvety legs and poisonous jaws, the orator passed to more dramatic facts, and the last flickerings of the dying embers often lent their fantastic accompaniment to a story about a child whose blood had been sucked while it lay in its cradle!

Freed from these local exaggerations, which are so frequent among these weak minds in a state of nature (and examples of which might be easily found nearer home), the history of the bird spider still remains sufficiently interesting to merit being narrated and be better known.

Linne described this species under the name of *Aranea avicularia*, the specific name recalling the animal's habit of feeding at times upon young birds, and even upon adult humming birds, captured upon the nest. The celebrated entomologist Latreille in 1802 established the genus *Mygale* for Arachnids of the tribe Theraphoses. All the individuals included in this group are hunters, and live either in nests constructed in the earth or in the clefts of stones and under the bark of trees, like the species that forms the subject of this article. Some of them are wonderfully skilled workmen, as the mason spider (*M. cementaria*, Latr.), of southern France and the pioneer spider (*M. fodiens*, Walck.) of Corsica.

The habits of the bird spider are not so well known as those of the ones just mentioned, either because from its hunting being done at night it is rarely met with, or because it selects retreats that are not very accessible. There are few authors to be found, however, who have correctly spoken of this curious and dreaded spider; several of them have copied one another, and others have devoted themselves especially to its anatomy. During the course of my travels in equinoctial America I have several times had an opportunity of seeing the bird spider in a state of nature, and it will perhaps be permitted me to add a few personal observations to those of the travelers who have preceded me.

Of the several hundreds of spiders that have been described, this is the largest. The largest specimen that I captured (the one that served for making the annexed portrait) measured exactly, with legs stretched out, 7 inches in diameter. The first one I saw was at Martinique, not far from Saint Pierre, in the trees skirting a road. Its nest was suspended from the branch of a *Palicourea*, an elegant shrub of the Rubiaceæ, and its appearance strikingly recalled those large caterpillar nests that we so frequently find upon the Aleppo pine (*Pinus halepensis*) on the mountains in the vicinity of Cannes and Nice. It consisted of a beautiful white silken tissue, of several thick layers, strengthened by very strong threads capable of arresting a small bird. In the center were placed the eggs, perhaps 1,500 or 2,000 in number. As soon as the young are hatched and escape from the cocoon, large red ants of the genus *Myrmica* wage a bloody war on them, and feast upon their whitish flesh of no consistency and without hairs. Such destruction happily counterbalances the ravages that the spider would make were it to multiply too abundantly. In fact, the adult animal, whose body measures no less than $4\frac{1}{2}$ inches in length, not including the legs, is as ferocious as its aspect implies. Its entire body bristles with long reddish brown hairs. Its eyes, eight in number, are strangely grouped upon a small elevation (cephalothorax); six of them are arranged in a triangle on each side, and the two others are separate at the apex of the warty prominence. At the extremity of the strong, black, smooth jaws are the palpi,

shaped like legs, and each terminating in an enormous black shining sting, which is obliquely swollen like that of the scorpion, and, like that, filled with a dangerous venom. These are not its only weapons. At the extremity of its abdomen two elongated glands secrete an abundance of a lactescent, corrosive liquid, which the animal is capable of ejecting against its enemy at will, in order to blind it or render it insensible. Add to this a muscular power so great that it is very difficult to make it let go, even when it has fastened itself to a smooth body, and we shall obtain some idea of the formidable manner in which this species is armed.

It is rare that the bird spider is seen to hunt during the daytime, except near its nest, and principally in dark places; but as soon as night arrives, it leaves its lair. Its wonderful agility, a characteristic which it shares with its congeners, is coupled with rare boldness. It attacks large lizards, like the anolis of the Antilles, and likewise serpents, it is said. These it falls upon as quick as a flash, and seizes by the upper part of the neck, in order to prevent them from resisting. If it surprises a humming bird upon its eggs, it buries its terrible pincers into it between the base of the skull and its first vertebra, injects therein a poison which paralyzes it, and then sucks the blood of its victim at leisure.—*La Nature*.

Live Stock Transportation.

A writer in a recent number of the *Age of Steel*, published in St. Louis, describes from personal observation the cruel treatment to which cattle are subjected while being driven from Texas to Kansas City, and from thence transported by rail to the Eastern seaboard cities. The description, although written apparently in the refrigerator car beef traffic interest, is no doubt substantially true, if, indeed, it does not fall short of the truth in depicting the abuses practiced in live stock transportation. The details need not be recapitulated. It is enough to say that they are revolting to every humane instinct, and a reproach to civilization. It is not alone the barbarities inflicted upon helpless animals to satiate mercenary greed that should attract public attention, but the diseased and unwholesome meats with which our markets are in this way supplied, and to a larger extent than is generally supposed. This concerns everybody, and so far as it exists it is an imposition on the community and a serious detriment to the public health. It is not our purpose, however, to magnify the evils resulting from the rapacity of shippers and carriers in conducting live stock traffic, but to suggest some of the reasons why so little, comparatively, has been accomplished in the way of ameliorating the condition of cattle while in transit over long distances on our railways.

The trouble is not because suitable cars cannot be built, or that cattle cannot be fed, watered, and rested while on their journey; but it results from the necessity of cheapening the cost of transportation by carrying as many cattle as possible in a car, and by continuous running, so as to make the trip in the quickest possible time. This will do very well for short distances that can be made in from 12 to 18 hours, but when cattle are driven long distances to points of shipment, and are then packed into cars to remain there from 50 to 100 hours, with imperfect feeding and no outside rest, the case is very different. If cars could be made so as to give the animals plenty of room to lie down, and at the same time be supplied with feed and water, without increasing the cost of carrying them, it would have been done long ago. "Palace" cattle cars were invented and patented a dozen years ago, with ample provision for making the cattle comfortable and saving them from the protracted misery which they now have to endure. One of these cars was 36 feet long and 9½ wide, which is 10 feet longer and 1 foot wider than stock cars usually are. It would carry 16 cattle of ordinary size and give them plenty of room, but no such cars are running on the roads now, because competition will not admit of it. No road is going to carry cattle in palace cars, packed in as loosely as hyenas and tigers in a traveling menagerie, while a rival road, by prodding and tail twisting, carries twice as many in the same number of cars of the common kind. The best car, from a shipper's and transporter's point of view, is one that will carry the greatest weight of Texas steers to the square foot without killing the steers before reaching their destination.

It is doubtful whether shippers and carriers want any better cars to lessen the miseries of the cattle, unless they will carry more cattle in less space than cars now do, and thus increase the profits of the business. In railway traffic the tendency is to carry more paying weight of all kinds of freight, and live stock is no exception. What is needed to put a stop to the cruelties incident to the transportation of cattle and the slaughtering of sick animals for food that are fit only for fertilizing purposes, is the enforcement of the existing law of Congress, with such additional provisions as may be required; or, in other words, the management and running of cattle trains should be subjected to more strict legal supervision than they now are.—*National Car-Builder*.

NEW TOP FOR COOKING STOVES AND RANGES.

The object of this improved stove top is to secure a more rapid heating of sad irons or other articles of similar character. The use of this improvement, which will be understood from the accompanying engraving, shortens the hours of labor over the ironing board, as the irons are more rapidly heated, while the fire need not be forced to the same extent as when the irons are heated upon the stove top. Time is first lost in heating the top plate to the required temperature, and when so heated, owing to the warping of the tops, the irons are not effectually heated, as unless they rest evenly upon the plate a current of air will be generated between the surfaces of the iron and plate which will carry away a portion of the heat which should have been transferred to the iron. In this improvement the



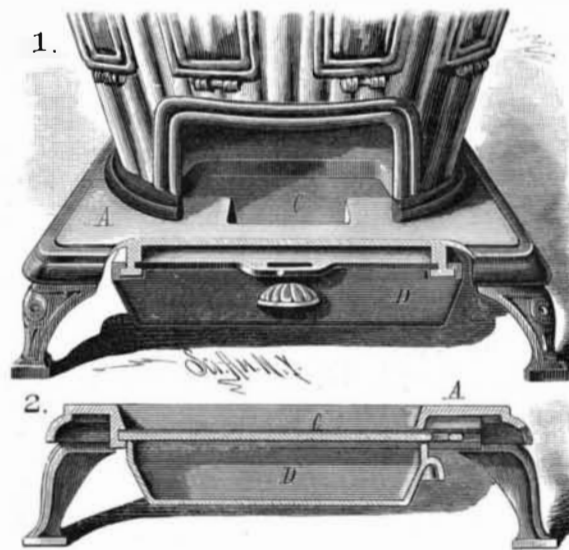
SHAABER'S TOP FOR COOKING STOVES AND RANGES.

plate is perforated in the form of the article to be heated, which rests upon a slight ledge; thus the heat impinges directly upon the exposed surface of the article. The improved cover plate is applicable to stoves already in use, and can be furnished as a separate detail to be used on ironing days.

This invention has been patented by Mr. Jacob Shaaber, of 825 Chestnut Street, Reading, Pa. We are informed that two extensive stove manufacturers of Reading are now getting ready to introduce it with their stoves.

IMPROVED STOVE.

The bottom plate, A, of the stove has a central opening, and has cast on its lower surface inverted T-shaped flanges on opposite sides of the opening. In the grooves thus formed move the sliding cut-off plate, C, and the ashpan, D, the side edges of which are bent in order to enter the outside grooves. Below the opening and back of its rear margin a stop bar is cast on the plate, to receive within it the back edge of the sliding plate; this bar is made sufficiently deep to also act as a stop to the ashpan. This fit of the sliding plate makes



WILLIAMSON'S IMPROVED STOVE.

a close undercover to the opening to prevent the escape of cinders, dust, or ashes when the ashpan is withdrawn. The pan is provided with a front handle, by which to move it, and the plate is also formed with a handle or loop piece arranged out of the way of the pan, to admit of the movement of the slide in or out without interfering with the pan. After the ashes have been dumped into the pan, the plate may be closed and the pan be removed subsequently at any time, without producing dust in the apartment and without risk of ashes or cinders falling from the stove to the floor.

This invention—patented by Mrs. Sarah A. H. Williamson, of Carson City, Nev.—is applicable to ranges as well as stoves, and when a grate is used for burning coal.

The Medical View of Roller Skating.

It seems as if America were peculiarly susceptible to epidemic influences of a mental kind. We hear of no other country so violently perturbed by "waves" of temperance crusading, religious revivals, velocipede crazes, pedestrianism, and, finally, rollerskating, upon which latter pastime the thoughts and feelings of three-fourths of the rising generation are at present centered. In intensity and extent, the roller skating mania has far exceeded all its predecessors, and it must be inferred, either that the psychological contagium is particularly strong, or that the susceptibility of young America to affective epidemic influences is increasing.

Modern scientists of the "Psychical Research" school are putting forward the theory of brain waves as a possibly potent element in the production of panic fears and epidemic fashions and feelings. The mind acts "exoneurally," we are told, and the vibrating brain cells of the enthusiastic roller skater communicate their rhythmical pulsations to the previously insensitive spectator. Whatever the mechanism, there is certainly at present a morbidly exaggerated passion for, and indulgence in, roller skating. And the question comes home to the physician, whether it is doing any physical or mental harm.

On the whole, we are inclined to take a rather lenient view of the present craze. Considerable inquiry has failed to elicit any facts showing that roller skating, temperately indulged in, does any harm to growing children, or produces any diseases and injuries peculiar to the sport. Severe sicknesses have been known to result from violent exercise in hot, ill ventilated rinks, and occasionally serious injuries are produced by falls and collisions. In proportion to the immense number of persons who have been engaged in propulsive divagations upon polished floors during the past winter, the pathological outcome has been small.—*The Medical Record*.

The Recent Earthquakes in Spain.

A number of interesting physical observations have been made on the recent earthquakes in Andalusia and the Azores. The shocks near Malago varied in destructive effects, according to the nature of the ground, says *Engineering*; buildings founded on sand at the borders of the Mediterranean Sea suffered in general less injury than houses built on rocks and at a higher level. The first shock was felt about 9 P.M. on December 25, 1884, the tremors being very violent and lasting, as well as exceedingly rapid. Then there was a stoppage for two or three seconds, followed by a trembling stronger and more rapid than before. Fortunately this did not last long, else every building would have been destroyed. During the night of the 25th of December, the shocks were continued from time to time at intervals of from 45 minutes to 80 minutes, and varied in strength, but were mostly feeble as compared with the first shocks.

Further shocks were felt until January 1, 1885, more of them occurring by night than by day, and the nocturnal ones being stronger than those of the day. The shocks were felt at Madrid, but they were feeble there. In fact, the severe shocks were felt over a belt of country bordering the Mediterranean, and 90 to 120 miles broad. By means of a large vessel of water, M. Germain observed that the shocks, except one, took place round an axis parallel to the borders of the sea, and cutting the north and south line at an angle of 74 degrees on the east side of the latter. Each shock was accompanied by a roaring sound like that of a distant storm; but the sea remained calm as usual.

Another observer states that great rocks were rolled down the slopes of the Sierra Alhama, and the captains of the vessels, the Isabel, bound for New York, and the Clementine, for Valencia, report that the earthquake was felt at sea by the Isabel in longitude 28° 51' W., latitude 29° 55' N.; and on December 18 by the Clementine, in longitude 12° 30' W., and latitude 33° N., off San Fernando on December 23. Moreover, shocks were felt at Terceira, in the Azores Islands, at 2:30 A.M. on the 22d of December, but without doing any damage.

Teaching the Deaf to Talk.

Mr. N. F. Whipple, principal of the Oral School of Deaf Mutes, at Mystic, Conn., recently explained in the Plymouth lecture room, Brooklyn, the system of teaching articulation to the deaf and dumb. He introduced on the platform a boy who had been deaf from his birth, and who repeated the Lord's Prayer loud enough to be heard in the rear of the room. The boy spoke with much distinctness. Long and difficult words suggested by the audience were promptly interpreted by another deaf boy as they fell from Mr. Whipple's lips.

Enoch Whipple, over sixty years of age, who was the first deaf mute taught to speak in this country, read a chapter from Jeremiah, and related how in early childhood he had learned the power of speech from watching the movements of his father's lips.

As a test of the length to which the system has been carried, Mr. Whipple had the lights lowered and had a deaf boy interpret his utterances by watching the shadows made on the wall by his lips.