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♦ DECEMBER. ♦



Science

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— Devoted —

to the Development of Science.



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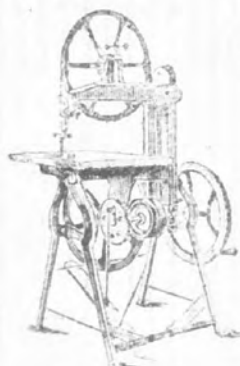
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HENRY BROWN, President & Treasurer.

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VINELAND, N. J.

JOSEPH MASON,
REAL ESTATE AND INSURANCE AGENT.

—PUBLISHER OF—

MASON'S MONTHLY,

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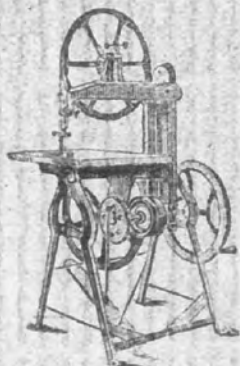
VIEW OF HILLSIDE

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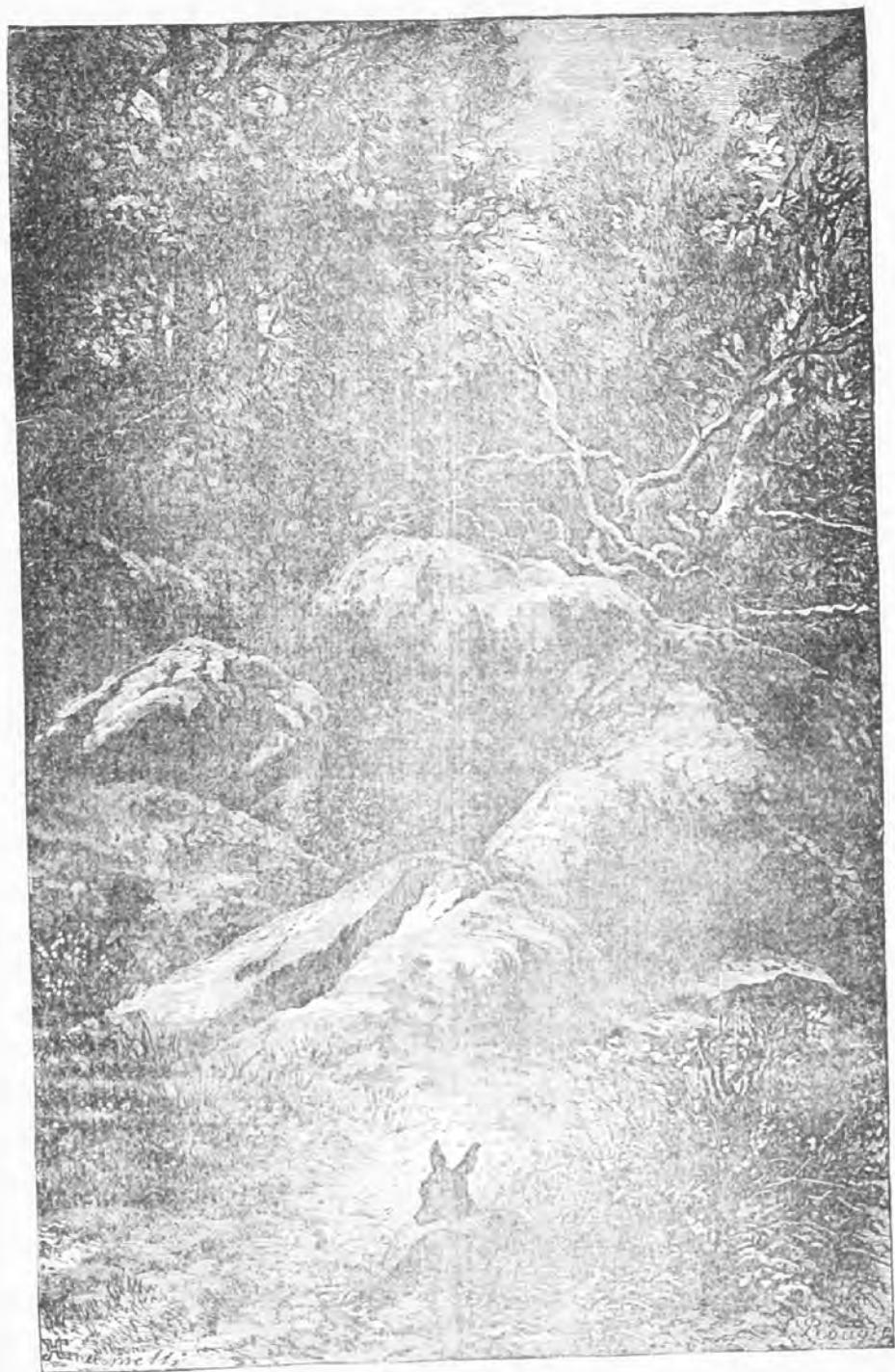
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SUNRISE IN THE MOUNTAIN.

Sunrise in the Mountain

The silent sun drops a net of gold,
 Over forest and mountain and glade;
 Like a dream of yesterday all unfold,
 From the shores of eternity strayed.

The mountain awakes and breathes a prayer,
 A prayer of perfume and shade,
 And the song of the birds, un-speakably fair,
 From the thoughts of the angels made.

The timid doe nestles under the oak,
 A picture of grace and fear,
 Like a word of beauty the Master spoke,
 And the Earth has not dared to hear.

INTRODUCTORY.

We are living in an age of papers. Therefore a new aspirant for public favor need not make an apology for its appearance. There is no need of jingling the stereotype rhyme of "meeting a want"; for wants are met most thoroughly and successfully in every department. Yet for the educational developments of a live town and an intelligent community every journal which promises to follow the lines and avenues of science or of scientific development and culture may look forward to some degree of welcome.

Not setting out with the idea and the intention of "meeting a long-felt want," we shall rest content if the reader will glance over these columns and find therein an article instructive, entertaining, or in any way satisfactory.

If the SCIENCE OBSERVER has done this it may be considered as having done a large share of its duties. There are many odd moments that may be profitably employed. There are numberless unemployed minutes that may be

profitably spent with the perusal of such matters as the columns of the OBSERVER will present. We intend to present the reader with simple, interesting facts in the scientific arena, without going into the cemetery of statistics. To give short selections from scientific papers and other journals bearing on science and upon scientific development, without entering that field of "unlimited names", where the student begins to feel like a Latin dictionary out of print. We shall endeavor to give also original matter, relying largely upon those residents of our intelligent community, whose lines Providence has cast in such places, where the pen follows the dictates of science.

Trusting that our efforts will meet with the favor of an appreciative circle of readers we place in your hands the first number of the SCIENCE OBSERVER.

An Island of Eggs.

There is an island on the coast of California, with an area of three acres covered with eggs. A sea captain who visited it says the island is of rock with a surface of about three acres. It is covered with guano, in which sea fowls of all descriptions were found laying or incubating their eggs. The surface appeared to be almost entirely covered with eggs, principally those of sea-gulls, shaggs, and a small bird known as the salt-water duck. He says it was difficult to walk without treading on the eggs, and that a ship could be easily loaded with them.

BIRD NESTING.

THE first question you may ask will probably be, how can anyone advocate the cruel amusement of bird nesting.

This question is a very unfair one, and the inference still less fair. Those who have made this inquiry fancy that it signifies the destruction of every nest that can be found, the theft of all the eggs, and the robbery or murder of the young.

This question being put on the lowest of all grounds, namely, self-interest, the collector would not be foolish enough to rob or destroy the nests, and still less to kill the young. He would know that by any such actions he would be the cause of driving the birds from the neighborhood, and thus spoil his hopes of obtaining any more eggs in the future. Were it but for the sake of increasing his own collection, he would be very tender with the birds, and do his best to encourage them to inhabit his vicinity.

We shall try to explain to these "tender hearted" people that the study of oology is not as cruel as they think it is.

Firstly, birds are not arithmeticians, and seem devoid of the faculty of number. No bird appears able to count its eggs, and if they are gradually withdrawn from the nest, without damaging it or alarming the parents, the bird goes on laying without seeming conscious of the loss she has sustained.

Taking advantage of this chance, we will give you a fair proof of this

statement by an article clipped from an old bird egg collector's journal, which reads as follows:—

"While on a collecting trip, I found in a hole in a tree two eggs of the Golden Winged Woodpecker; I took one, leaving the other as a nest egg, and continued to do this day after day, until she had laid seventy-one. The Woodpecker rested two days; taking her seventy-three days to lay seventy-one eggs. I prize this set very highly."

C. L. P.

Another example is to be found in the poultry yard. Surely no one would say that poultry-keepers are guilty of cruelty when they go from nest to nest and collect the new-laid eggs. The hens are quite unconscious of having been robbed, and so long as a single nest egg is left them, though it be merely a lump of chalk, so long will they continue laying, provided of course that their stock be not wholly exhausted.

Such is the case with the wild birds. Each species has an average number of young to be hatched each season, and to this normal number the bird generally adheres with tolerable closeness.

Thus we may expect a blackbird, a thrush, or a crow to lay four or five eggs. Should there be but a single egg in the nest, we should wait until two or three more have been added, then remove a couple of them, and by repeating this process we may hope to secure quite a number from a single nest. When we cease to remove them, the bird

will make up her normal number and hatch a full brood.

If the bird's normal number be but two, as soon as the second one has been added it must be removed. Continue so doing until you are sufficiently supplied.

If it were not for the want of space we should give some valuable hints on collecting. Next issue we shall commence a series entitled "Birds and Their Haunts," which will, no doubt, be gladly received by the oologist.

In conclusion we would advise you, dear reader, if you want an interesting study to occupy your leisure moments, to become one of the many participators in this rational and interesting sport.

VARIOUS SPECIMENS.

PAINTED BUNTING.

This bird is one of the migratory tribe wintering in South America and the West India Islands; It is one of the most handsome birds we have. It is beautiful in plumage and has a very pleasant song. They generally arrive at Savannah, Ga., about the 15th of April, commencing to build their nests at once. Their nest is composed of paper, rags, withered plants, leaves, etc., lined with fine fibrous roots and horse-hair. They have no regular place to build, as you will find their nests in the smallest bushes to the largest trees. It is a bird that the collector needs to watch closely. At first sight the female looks very much

like some of the Warblers and Vireos, and the eggs vary a great deal in size and markings, but the general type is white, with red, amber, purple and lilac shadings. Nests have been found containing eggs so thickly marked with ferruginous dottings as to appear that color. Another striking feature about the Bunting is, that it will often build on the top of another nest. In one instance a nest was found which contained one egg and one young bird; the whole structure was about eight inches deep outside, and only about two and a half inches inside. After taking out the egg and bird, and the nest pulled apart, another perfect nest was brought to light underneath containing three eggs. Their nests have been found containing eight and nine eggs, thus leaving little doubt but that two birds sometimes lay in the same nest. A nest of eggs has been discovered as late as July 20, leading to the belief that they must rear two, if not three broods during the season.

YELLOW-SHAFTED FLICKER.

There is no other American bird known by a greater number of names than the Yellow-shafted Flicker. We have heard it called by more than a dozen names, among which we may mention as the more common are: Goldenwing, Woodpecker, Flicker, Yellow hammer, Highhole, High-holder, Pigeon Woodpecker, and so on until the names are too numerous to mention.

WHIP-POOR-WILL.

The Whip-poor-will constructs no nest, but lays its eggs, which are two in number, in a slight hole that it scratches in the earth, usually near a rock or trunk of a tree. Its eggs are of an elliptical form, being as large at one end as at the other; their ground color a delicate creamy white, with blotches, lines, and spots of different shade of light brown and lavender; taken altogether, it is one of the most handsome eggs found in the United States. The length varies from 1.21 to 2.27 inches, and breadth from .75 to .79 inch. The bird commences laying the latter part of May.

PEWEE.

The Pewee is very commonly called Phoebe-bird. The Black Pewee takes the place of the Pewee on the Pacific coast. In regard to the nest of the Pewee, Samuels, in his "Birds of New England," says: The nest is usually placed under a bridge, sometimes under an eave or ledge of rock, sometimes a barn or other building. It is constructed of fine roots, grasses, moss, and hair, which are plastered together, and to the object the nest is built on, by pellets of mud; it is hollowed about an inch and a half, and lined with soft grasses, wool and feathers. The eggs are usually five in number; their color is

white, with a very delicate cream tint. There are usually in each litter one or two eggs with a few spots thinly scattered over the larger end; these spots are of a reddish brown. The period of incubation is thirteen days, and two broods are often reared the same season in this latitude. The length of eggs varies from .72 to .78 inch; breadth from .54 to .56 inch.

WOOD PEWEE.

The Wood Pewee is smaller, and its color is of a darker shade than the Pewee, which it resembles in many respects. The eggs are of a beautiful cream color spotted and blotched, frequently forming a wreath around the large end, with brown and lilac. The measurement varies from .66 to .76 inch in length, and from .52 to .58 inch in width. The nest is built on the horizontal limb of a tree.

High-Priced Eggs.

Two eggs of the great auk (supposed to be extinct), were sold in an auction room in Edinburgh for \$16. They were afterward resold in London, one bringing \$500 and the other 102 guineas. This is supposed to be the highest price ever paid for an egg, except a single specimen of the moa, which was sold in London in 1865 for \$1,000, or £200.

THE SOURCE OF JORDAN.

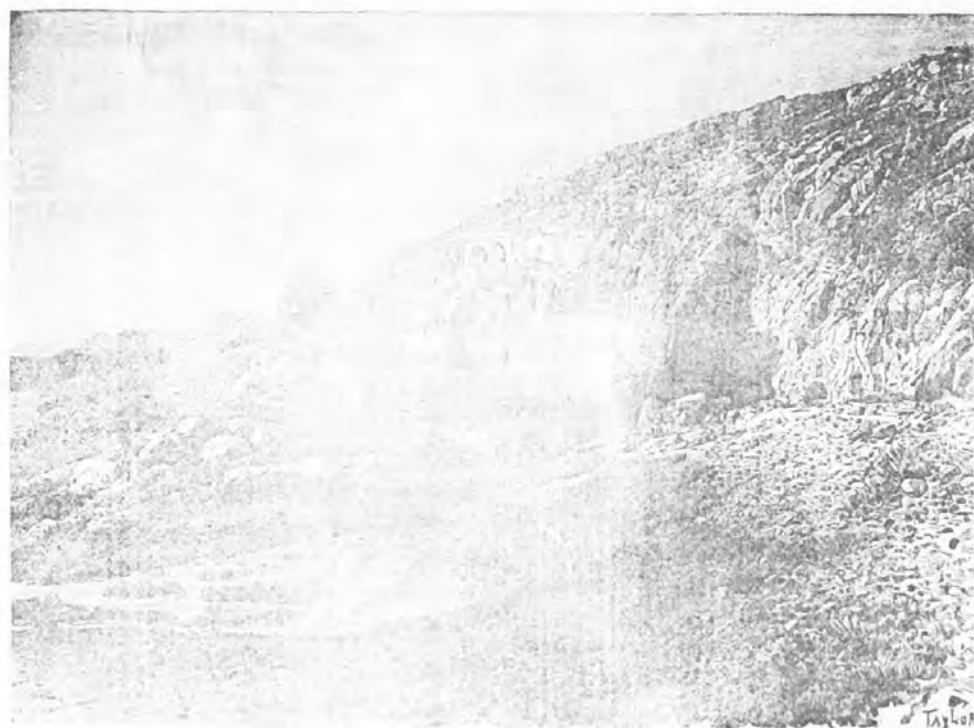
Among the representative rivers of the world, the Jordan always holds its own. There may cluster about the Ganges images of Hindoo worship, or caravans and pilgrimages, of dervishes and of those who seek the dreamy gods of India; there may group themselves about our Mississippi the numerous legends of the first French Catholics and of how the waves closed over the body of De Soto. The German may tell us of the wonderful rock of the "Lorelei" on the Rhine and of how a pistol-shot can be heard repeated in endless series of echoes there, but in spite of the charms other rivers may hand down to this generation, the Jordan holds its own. It may be because the Jordan is associated with the most sympathetic reminiscences of the Christian life. It may be that interest is begotten of such associations. Whatever it is, the Jordan has a charm of its own.

The illustration shows its sources; under Hermon's snow rises this peculiar river, the largest of Palestine, and runs down its varied channel into the Dead Sea, to disappear into its silent mystery. For the Dead Sea is a sea of mystery. It has no outlet. There clusters about it a peculiar haunting dread, which every writer seems to convey.

On the northwest side of Hermon, one of the branches called the Little Jordan arises. It is the "El-eddan" of the Arabs. There are also a fountain and a stream from Ijon;

one from Belat, three miles northwest of the Huleh Lake, another from Ain Mellahah, each large enough to turn a mill. These streams flow in deep rocky channels, several feet below the general level of the country. The slopes of Hermon are alive with streams which supply the Jordan. It is a very Father of the waters to them. From the south of the sea, of Huleh the Jordan flows in a channel 100 feet wide, rocky, winding, always descending; hence its name, which means the "descender". For it falls 700 feet in 9 miles. Falling over about 40 cascades and Rapids, falling another 600 feet in 60 miles, in a straight line, but making about 200 by its windings, to the dead sea, where it is a shallow stream about 500 feet in width, and deep in the rainy or shallow in the dry season. The surface is there about 1,500 feet below the ocean.

Here we have a problem for the scientist. A river, 1,500 feet below the level of the sea, emptying into a sea, which has no visible outlet: what becomes of the water. I remember in this connection a story told me a few weeks ago by a friend. "We have a queer spot in the Danube," he said, "It must be about 14 years ago when I first heard of it, or saw it. It is a whirlpool. A dangerous spot, let me tell you. I have seen many a boat sucked under there. At first you will drift slowly around in a large circle. Gradually growing narrower, until at last the little boat begins to spin faster and faster, and with one last



THE SOURCE OF JORDAN.

lurch is sucked down into the black hole in the centre of the stream. I had hired myself out as a hand on one of the lumber-rafts that go down stream. I knew nothing of the whirlpool. It was night and the moon rode silvery and still in the heavens. All at once the Captain called aloud:

"Ready at your oars, boys!"

I sprang up startled. There was no sign of any danger, yet I saw all the boys bending with set teeth to their rude oars. My neighbor muttered to me under his breath:

"Pull for all she is worth, Fred!" and I pulled.

There was a hiss and a gurgle and a wash and we were past. We had shot fairly through the centre of the maelstrom, this being the only

safety in this case, for to strike an edge meant to be sucked in. And far behind me I saw the black hole which indicated where the waters gurgled and rushed down into their underground channel. Where the water goes, no one knows. They say that someone threw a bottle into the whirlpool once with a letter in it, and that it came up in the Black Sea, but I do not know how true that is."

In the same way the mystery of the outlet of the Dead Sea and consequently of the Jordan is not yet solved. There is no doubt an underground outlet somewhere, but where, is as yet a question. A river 1300 feet below the level of the sea emptying into a sea without a visible outlet is certainly an anomaly.

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The Science Observer.

A. C. SMITH, Editor and Proprietor.

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EDITORIAL.

THE "OBSERVER" will be glad to exchange with any scientific paper in the United States, and elsewhere.

Oologists should not miss the article entitled, "Birds and Their Haunts," written expressly for the "OBSERVER," by one who is thoroughly acquainted with the study.

ANOTHER article to commence next month is of interest to the Taxidermist. It will be entitled, "Hints on Taxidermy." Waterton's system will be introduced, in which no wires are used.

NEXT issue will commence a new serial story entitled, "Leo Barkas, a Story of the Reign of Terror," by the well-known author, Harvey Reese. It is very stirring and adventurous, as well as instructive.

ANY question that may be asked by our patrons in regard to Natural Science will be answered in our "Questions and Answers," which will be under way in time for our next issue. "The more the merrier."

ADVERTISERS will confer a gladly exceptable favor upon us by sending us an "add," be it large or small. We will not refuse the small ones. It will be seen by our advertising table at the top of this page, that our prices are the very lowest.

We shall not feel as though we were encroaching on the name of this magazine, by inserting a small story, or even an article now and then that does not treat wholly upon science. We shall do this for the benefit of those who are not so highly interested in the arts of Science.

For the accommodation of our subscribers we shall have an "Exchange Column," which will be at their disposal free of charge. Each exchange notice not to contain more than three lines. Those containing more than three lines will not be inserted. "First come, first served," will be our motto, and each notice will not be inserted more than once, so as to give each reader a chance.

We shall endeavor to make the "OBSERVER" a valuable and interesting magazine. Not only to the Scientist, but to everybody who may read it. Two interested Professors have been procured to provide us with whatever information on this subject that our readers may wish to know. There is no doubt but that their articles will be gladly received by the public, as they are competent men in this enterprise.

EVERY reader should try and secure the prizes offered by the SCIENCE OBSERVER, to the four persons procuring the highest number of subscribers. A list of the prizes will be found on another page. Read it. The premiums offered by us are not a lot of worthless collections, but are full as we guarantee them. If the winners find them not to be what we represent, they can be returned, and we will gladly pay all return express, and allow a good commission on all subscribers obtained by them. If those who procure these premiums are collectors, they will add greatly to their collections already obtained, and if they are just beginning to collect, these premiums will advance them into the "second degree" of whatever collection it may chance to be.

TO YOUR INTEREST.

IT WILL pay those who have any Indian relics, minerals, stamps, or in fact anything in the way of relics of any kind, to keep watch of our "Exchange Column."

The Old Copper Cent.

It is rarely an old copper is seen among the small change taken by the merchant of the present day. Once the money drawers were well filled with them, but having been declared cumbersome by the public the government introduced the small and more convenient nickle cent; first issuing them as patterns in 1856 and beginning their regular coinage the next year, changing to the present bronze issue in 1864.

With the introduction of the new coinage in 1857 a desire was created to preserve specimens of the old coppers, which had served the country faithfully for a period of sixty-five years, beginning with 1793 and continuing in an unbroken series, with the exception of 1815, when no cent was issued. Coin collecting may be said to have become an acknowledged pursuit from that time, as previously the number of collectors was very small.

In forming a collection of the old coppers the object to be attained is to secure as fine a specimen of each date as possible. Cents in the ordinary condition are easily obtainable with the exception of a few rare dates, the rarest being as follows: 1799, 1804, 1793, and 1809; their degree of rarity is indicated by the order in which they are given.

The growth of the science of numismatics has been steady, and collectors have increased until now they are numbered by the hundreds, if not thousands. Many magazines

and other periodicals are devoted wholly or in part to the subject, and most of the large cities have Numismatic Societies holding regular meetings, and possessing valuable cabinets of coins and collections of books relating to the subject.

F. D. A.

Aboriginal California Mint.

In the vicinity of Santa Barbara, fifty years ago, still existed the original (or aboriginal) Mint of California. The Indians of Tulare county generally visited it once a year, in bands of twenty or thirty, male and female, on foot, armed with bows and arrows. They brought with them panoche, or thick sugar, made from what is now called honey-dew and from the sweet Carisa cane, and put up into small oblong sacks, made of grass and swamp flags; also nut pipes, and wild tobacco, pounded and mixed with lime; which preparation of native tobacco was called *pispewa'*, and used for chewing. These commodities were exchanged for a species of money from the Indian Mint of the Santa Barbara rancherias, called by them "*ponga*." This "*pong*" money consisted of pieces of shell, rounded, with a hole in the middle; made from the hardest part of the small, edible, white muscle of the beaches, which was brought in canoes by the barbarians from the island of Santa Rosa. The worth of a rial was put on a string which passed twice and a half around the hand, from the end of the middle finger to the wrist. Eight of these strings passed for the value of a silver dollar.

Ancient Medal Veneration.

That the ancient Romans valued their medals more highly than the mere intrinsic value of the metal contained therein is proven by Suetonius, who says of Augustus, that at the time of the *Saturnalia*, and at other feasts or celebrations, he gave away raiment, gold and silver, and ancient coins of every stamp, even such as were regal and foreign. So it is evident that even in those times medals and coins commemorative of persons or events were held in high repute and it is this class of coins, most probably to which the edict of his successor Tiberius refers, in which it is made a capital offence for any one to enter a house of ill-repute, with a coin or ring bearing the effigy of Augustus in his possession; for such an act he considered an insult to the memory of the deified Emperor; and in Philostratus' Life of Apollonius, it is told of a certain great man being under prosecution of death for having struck his own slave who at the time held one of these coins in his hands.

Extensive Money Making.

In Ancient Rome no person was permitted to coin money without authority from the State; but the privilege was allowed to Commanders, and executed by their Quæstors, for payment of the troops when on military expeditions. Yet Colony coins are very common, *Argentaria*, or Mints, being set up at innumerable places, and a Mint in the

capital of each province.

The making of money in those days was not only laborious but required an immense force of artists and workmen. Each mint has its *Optio*, or Director; *Exactores* or *Nummularii*, Assayers; *Scalptores* or *Cælatores*, Engravers of Dies, who were generally Greek artists; *Cannarii*, Refiners; *Fusarii* or *Flautuarii*, Melters; *Equatores*, Adjusters of weight, and *Signatores*, who placed the piece on the die, and *Malleatores*, who struck the blow. The whole body constituted a corporation in law and so strong was the united force of these *Monetarii*. Mintmen or Coiners, in the reign of Aurelian, A. D. 274, raised a rebellion in which forty thousand of them and their adherents perished and seven thousand soldiers were killed. Taking all this into consideration it is little wonder that the coins of Rome and its dependencies are so plenteous and varied, even at the present time.

The Dollar-mark Origin.

In a book in possession of the Young Men's Association of Troy, entitled "The American Accountant," written by Chauncey Lee, A. M., and printed in 1797, the origin of the dollar mark is plainly shown in the table of federal money. One straight mark represents one mill, two straight marks one cent, two straight marks with one curve across one dime, and two straight marks with two curved lines across, one dollar; almost precisely the same character as now in use.

The Shilling.

This coin, or one called by a name almost identical in sound and spelling, is known throughout most of the States of Europe. It is asserted by some that the piece of money as well as the name, was derived from the Roman Soldiers, which, with other remains of the Roman institutions, was adopted by the Franks and other German nations. A more fanciful derivation is ascribed to it by certain parties, as coming from schellen, to ring, on account of the particular ring of the coin, and from St. Kilians, whose effigy was stamped on the shilling of Wurzburg. The Solidus shilling of the Middle Ages has suffered various degrees of diminution in the different countries. The English shilling is one-twentieth of a pound sterling, the Danish copper shilling is one ninety-sixth of a Riks-daler, equal to about $\frac{1}{2}$ cent, and the Swedish shilling is one forty-eighth of a Riks-daler. In Mecklenburg, Slesvig, Holstein, Hamburg and Luebeck (Germany) the shilling is one forty-eighth of a Thaler, not two cents in our money.

A shilling was coined for use in Ireland, during the reign of Elizabeth (1568) which was equal to 9 pence English, but was to be taken for full 12 pence by the Irish; they would not take it and it was soon recalled as base coin. The Harp Shilling of James I., was valued at 16 pence Irish, and 12 pence English. In the colony of Massachu-

setts, during the time of Cromwell, the "Pine Tree" shilling was coined "by a parcel of honest dogs" (according to the opinion of Charles II). Henry VIII., in 1526, first coined the five shilling, or crown pieces.

In the reign of Stephen, 1135-54, the shilling became so debased that in ten or more of them there could scarcely be found silver to the value of ten pence. Each Castle at that time had a mint of its own and they regulated the currency according to their wants of honesty.

Counterfeit.

Throughout the country and particularly in the West, there are now in circulation many counterfeit silver dollars, most of which are such excellent imitations that even experts have been deceived. They bear all dates, those of 1880 and 1882, purporting to have been issued by the Philadelphia Mint, being the most dangerous; they are heavily plated with silver, resisting acid unless scraped, and when new, almost identical in color with the genuine. Antimony and lead are the principal ingredients of composition, many are of full weight and none more than twenty grains light.

A working man digging in a Paris court-yard some time ago, came across an earthen-ware pot containing 472 pieces of silver coin, bearing the effigies of Francois I and Charles V.

INDIAN ARROW-HEADS.

The Indians who inhabited South Jersey previous to its settlement by the white men lived along the coast and by the large streams, as their relics testify. That a race of beings should follow them and gather their rude implements into cabinets and museums, never entered their thoughts as they roamed over the country, or with patient toil manufactured the stone ax, spear or arrowhead which enabled them to provide game for their subsistence.

The material used in making the arrowheads, so plenteous in localities that were occupied by them, even at the present time, was usually of the best obtainable for the purpose to be found in the neighborhood, though when the encampment was of some permanency in a locality not affording the best material it was brought from a distance.

Quartz, one of the most common minerals, was largely used and some of the specimens from the transparent variety are objects of beauty and highly prized for the cabinet. Arrowheads of chalcodony, a rare mineral, are not often found in this locality, but the jaspers, yellow, brown and red, are more common and are of such excellent material for this purpose, with its smooth fracture and dull luster that it was highly prized and extensively used. Some of the most beautiful cabinet specimens are of this mineral.

In the vicinity of the marl de-

posits where they could obtain the hard shell rock, that was used to a considerable extent. The color of the material is of a dirty white and frequently shewing fragments of shells.

The soft shales and slates were often used requiring but little shaping. They are found retaining their form, but badly decomposed by the action of the weather, and are the least interesting of the various materials used by the natives of South Jersey in the manufacture of their arrow points. A.

A Trip to Greenwich.

Another person and myself, hearing of the success of a friend in finding Indian Relics in Greenwich, decided to spend a Friday and Saturday there in search of these relics. Friday morning was cloudy, but cleared up later in the day, becoming hotter than we wished. We left Vineland on the early train, arriving there about eleven o'clock.

Greenwich, once the county seat of Cumberland County, is a small town situated on the New Jersey Southern R. R. about three miles from Bayside. It was originally settled mostly by Quakers, and is over one hundred years old. A lady told us that a store which we entered had been built one hundred and twelve years, and it looked as though it would stand fully a quarter of a century more. We walked northward from the depot about one mile and a half, according to the directions given us, coming to a

house surrounded by large trees, where we secured lodgings for the night. They showed us the place where the relics had been found, and we immediately started there, ready for our pleasant work. The land was situated on a small stream, and at the foot of Pine Mountain, in reality a hill, but the highest eminence in South Jersey. This was just such a place as Indians would select for an encampment. We searched the grounds methodically for the treasures, and succeeded in finding a large number of pieces of Indian pottery, and about thirty-five small arrowheads made from red, brown, and yellow jasper, slate, and marl-rock. We also found a hammer-stone, a large stone with an indentation on each side so as to fit the fingers, and used by the Indians for about the same purpose as the hammer is by us. This spot of which we speak is not the only one, by any means, that contains such relics, there being many other such places in the vicinity of Greenwich. Perfectly satisfied with our visit, we returned home Saturday night with quite a heavy burden.

M. C. G.

While some workmen a short time ago were pulling down an old building in the town of Suendborg, on the island of Funen, they came upon a valuable treasure, which included 10 bars of very fine silver and nearly 4000 silver and gold coins, all dating from the reign of the Danish King, Eric of Pomerania (1369-1412).

A Bank Note of 1399 B. C.

The oldest bank note probably in existence in Europe is one preserved in the Asiatic Museum at St. Petersburg. It dates from 1399 B. C., and was issued by the Chinese Government. It can be proved that as early as 2697 B. C. bank notes were current in China under the name of "flying money." The bank note preserved at St. Petersburg bears the name of the Imperial bank, date and number of issue, signature of a mandarin, and contains even a list of the punishments inflicted for forgery of notes. This relic of 4,000 years ago is probably written, for printing from wooden tablets is said to have been introduced in China only in the year 160 A. D.

Keepers of Antiquities.

In the British Museum there is a keeper of Coins and Medals, receiving a salary of \$3,700 yearly, with an assistant who receives \$3,000; a keeper of Manuscripts, receiving \$3,250; keeper of Oriental Manuscripts, \$3,750, with assistant at \$2,500; keeper of Oriental Antiquities, \$3,750; keeper of Greek and Roman Antiquities, \$3,750; keeper of British and Mediaeval Antiquities, \$3,750, making in all \$27,000 which the British people pay yearly to the gentlemen and scholars who are the custodians of these precious coins and other relics.

The gum used on postage stamps is made of the powder of dried potatoes and other vegetables, mixed with water.

ROCK CRYSTAL.

About £2200 of quartz or rock crystals is mined annually in the United States. The best localities are Hot Springs, Arkansas; North Carolina, New York and Virginia. A portion of a mass, that must have weighed over 40 pounds, has been recently received from Alaska, that cut a hand-glass three inches by five. They are frequently dug up in the pre-historic mounds, and were used by the medicine-men and others for foretelling future events. Amethysts are found in very fine specimens in Pennsylvania, Georgia, Texas and the Lake Superior region. From the latter region they are very remarkably lined, some specimens showing "phantom crystals," equal to the Hungarian. Near the Yellowstone National Park and in the Chalcedony Forests of Arizona are tree trunks, some of which are 100 feet long, turned to stone by the action of silicified waters. Some of these trees are still standing upright; others, having fallen, bridge deep chasms. The once hollow cavities of some are lined with amethyst, others with agate. The Arizona agatized or jasperized wood shows the most beautiful variety of colors of any petrified wood in the world, and about £1500 worth is annually sold for ornamental purposes. Probably the most remarkable locality in the world for smoky quartz or cairngorm stone is Pike's Peak, Colorado. Here it is found, in a graphic granite, associated with Amazon stone, which also makes a

very beautiful green ornamental stone. Over £1500 worth of this is annually sold. The largest crystal found—over four feet in length—of good shape, and all suitable for cutting, was recently sold to the Marquis of Ailsa for £20.

A Relic of the Past.

Some time ago Luther F. Brooks, a diamond merchant, bought a petrified fish in Oregon of a man who had just brought it down from the mountains. The finder said it came out of a ledge on top of the mountain near Portland, about three thousand feet above the level of the sea. At the time Mr. Brooks purchased it the tail of the fish could alone be seen, but he set to work removing the rock that covered the remainder of the object. He labored carefully and slowly for several hours a day for six weeks, and was rewarded by obtaining a fine specimen of a petrified fish, about seventeen and one-half inches in length and six inches through the widest or thickest part. The outlines of the tail are complete, and the small rib bones are as distinct as though they had just been placed there. The upper and lower fins are also plainly seen, and the head has retained its shape, while the vertebral column is clearly defined. The stone proper is of a light grayish tint, forming an excellent relief or background for the dark color of the fish.

PHILATELY.

This is not only one of the most interesting but one of the most instructive studies for both young and old. There are no doubt stamp collectors in every city and town, yes, and I may say in every village of the United States. This study is not confined to our country, but many in Europe are taking it up, and especially in Germany, where it has of late become an actual "craze," being largely indulged in by both old and young. Often we see advertisements of extensive stamp dealing firms of Europe. Even in stamp collecting there are deceptions as in everything else. There are persons and I dare say firms in the business of counterfeiting stamps, and they do it with the utmost skill and perfection so that it is often very hard and sometimes impossible to distinguish between the real and the counterfeited stamps. Collecting enlarges our thinking powers and perceptive faculties and in many ways aids a student with his school work. In a school in Missouri a teacher said to a trustee, "You have no idea of the help stamp collecting is to my scholars." And to conclude, I should advise you, if you are not already a collector of postage stamps, to commence Philately at once.

J. C. P.

The Origin of the Stamp.

E. A. Mitchell, of New Haven, Conn., claims to have invented the postage stamp in 1847, and shows

several samples of the original. It did not differ much in size and form from the present Government stamp, but was of brown color, was printed on ordinary paper, and contained the words, "Paid. New Haven Post-office. 5 cents. E. A. Mitchell. P. M." Mr. Mitchell had them printed for the use and convenience of citizens of New Haven, who had complained to him of the delay sometimes occasioned by their being unable to prepay letters except in office hours. The stamps were sold by the Postmaster, and accepted in payment when affixed. A high price is put upon specimens of this stamp by the collectors, and the present Postmaster at New Haven has frequent applications for them.

The American Dollar.

The American \$1 is worth five francs (95 cents) and a trifle over 30 centimes in the coin of France. One Austrian florin is equal to two English shillings, or about 46 cents, and the rix dollar to \$1 American. In regard to German coin, there are about as many different kingdoms in the Empire. The crown of Baden is valued at \$1.40, the thaler of Prussia at 70 cents, the thaler of Brunswick and Hanover at 80 cents, and so on; the 20-mark (gold) is equal to an English sovereign, which is equal to \$4.84 American money. The Swedish crown, or crown is equal to 26 4-5 cents, and the Danish rix dollar is about 60 cents.

SIFTINGS.

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will be presented to the one procuring the largest number of subscribers before the above named date. This collection does not contain a worthless lot of fragment, as the smallest specimens will not range smaller than 1x1 inch. It will consist of 100 varieties, among which will be a number of Indian Relics.

A COLLECTION OF COINS

will be presented to the one procuring the second largest number of subscribers to the OBSERVER before said date. This collection will be made up of United States and Foreign Coin, the old U. S. cents will be a prominent feature. The collection will contain 75 varieties.

A COLLECTION OF BIRD EGGS]

will be presented to the one procuring the third largest number of subscribers to the OBSERVER. This collection will consist of 100 varieties, among which will be some valuable specimens.

A COLLECTION OF STAMPS

will be given to the one procuring the fourth largest number of subscribers to the OBSERVER before said date. The collection to consist of United States and Foreign. Among the most prominent in the U. S. will be a number of old date and Department stamps. There being in all about 400 varieties.

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A COLLECTION OF COINS

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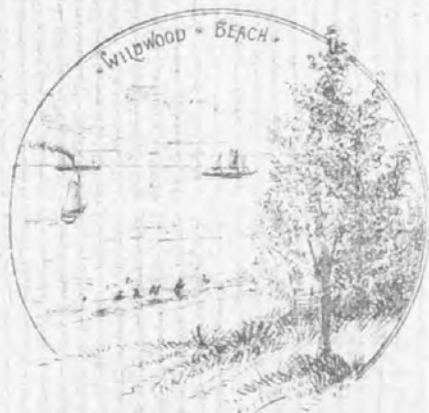
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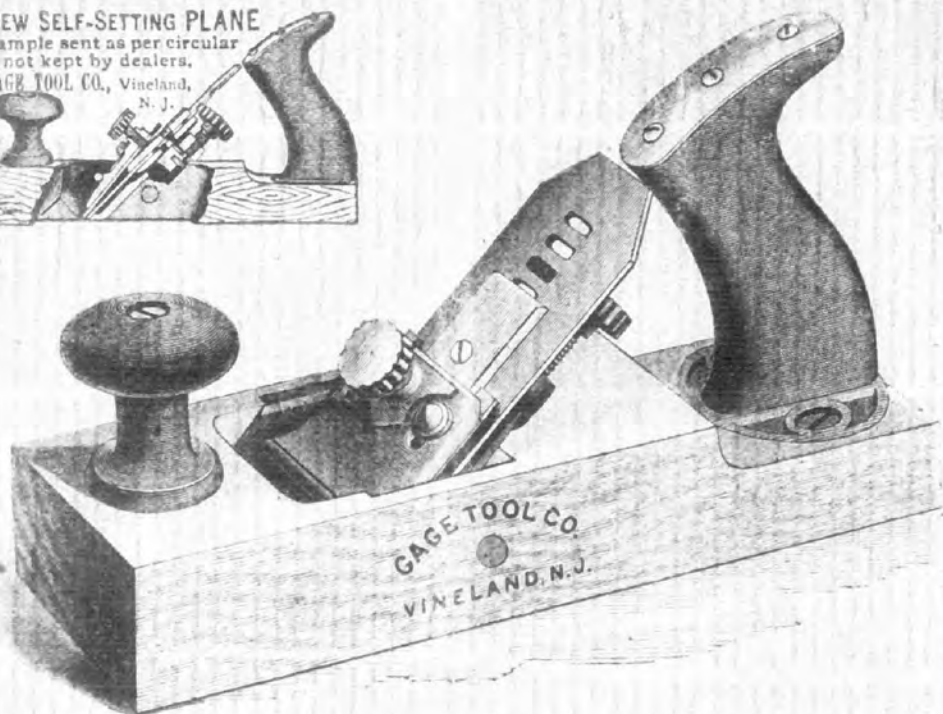
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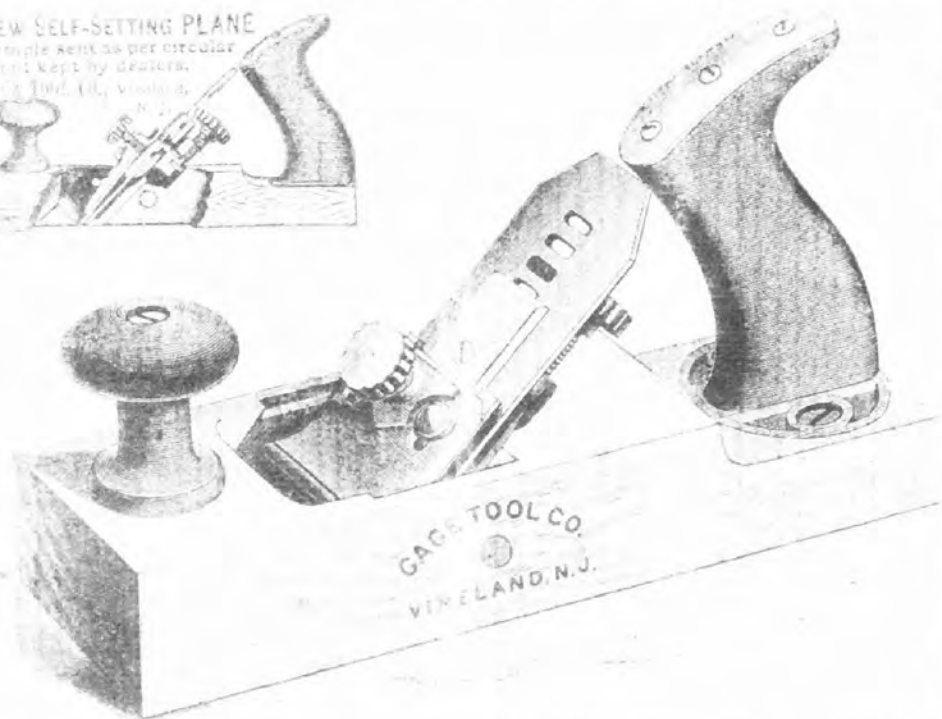
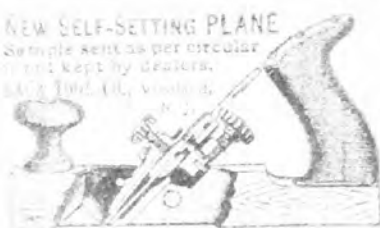
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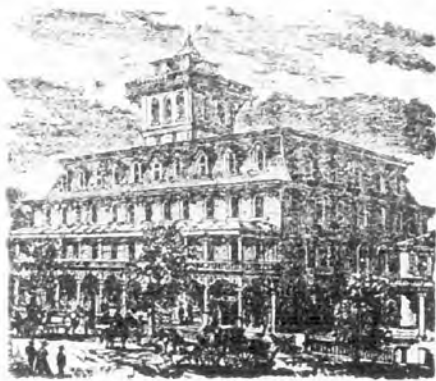
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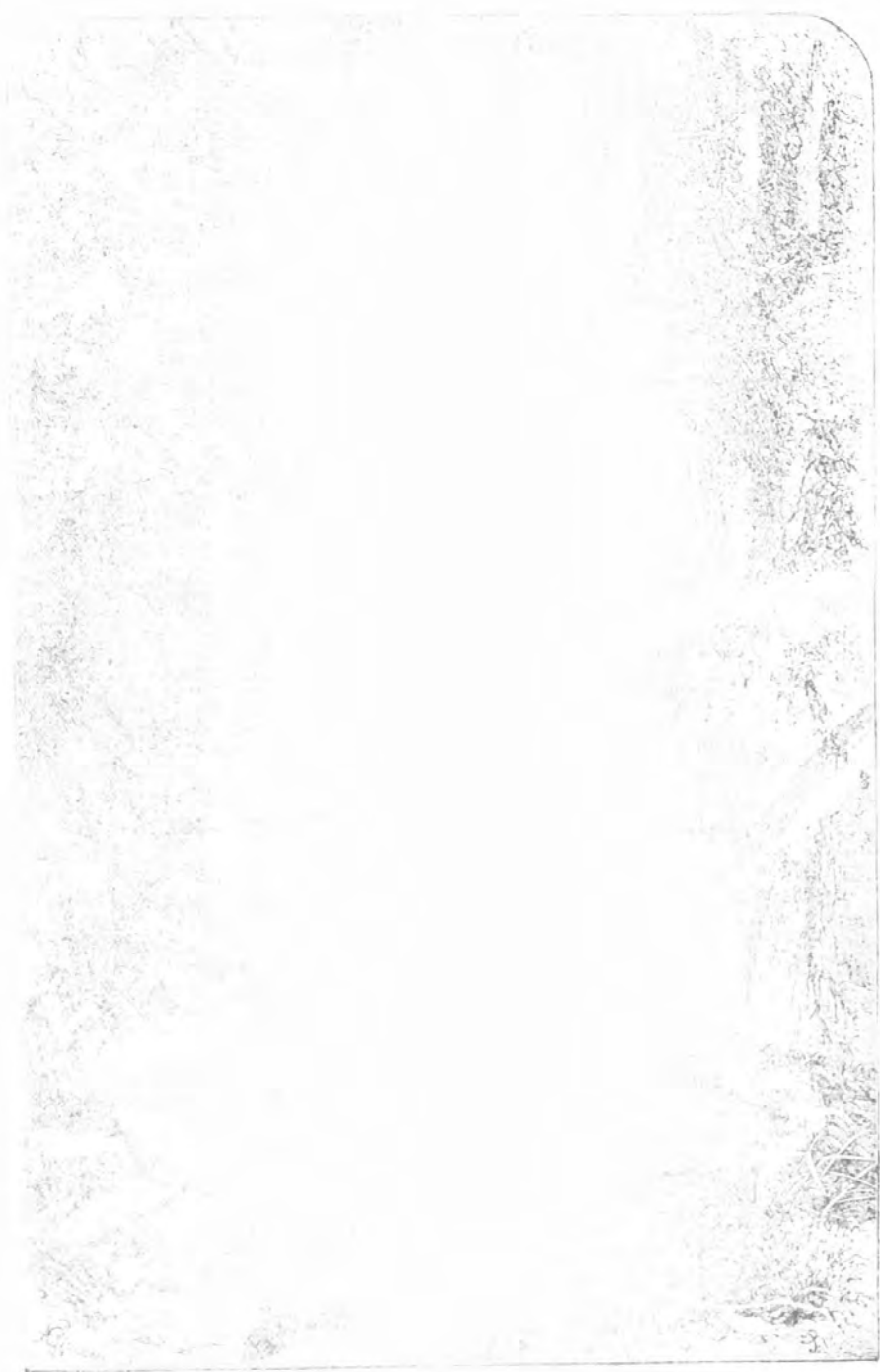
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THE GATE OF NIGHT.

The Gate of Night.

I stood at the gate of night in the west,
And the mystery of life,
Unrolled it waves with a weird unrest,
Of labor and struggle and strife.

For the sea breaks ceaseless on the shore,
And the winds and the stars ne'er stand,
And teeming multitudes evermore,
People air and sea and land.

From the throbbing globe to the insect world,
There is labor and struggle and strife;—
And why?—Will the veil e'er be unfurled,
That covers the question of life?

LEO BARKAS.

A STORY THE REIGN OF TERROR.

BY HARVEY REESE.

Written for the OBSERVER.

CHAPTER I.
A COMPACT.

 BROAD and smooth highway leads out from Paris northward through St. Denis. A mile or a mile and a half beyond St. Denis, stood, at the time of my story, a large mansion, in the midst of a park. The house itself was built in that peculiar mixture of architecture so prevalent at that time, with wide halls, massive doorways, and windows, immense walls, and heavy porticos and landings. Around it the park, extending away on all sides with lawns and fountains and woods, as far as the eye could reach. A broad coachway wound up to the front portico, lined on either hand with high trees, clipped in phantastic forms. All around bore a look of care and attention. The lawns were smooth, the fountains clean and brilliant in the sunlight, and the forests showed the hand of careful foresters.

The afternoon sun of a bright day in early June lay on the scene. It glittered in fantastic forms through

an oriel window on the south side of the chateau. Within the room, furnished with all the lavish splendor of the age, with hangings and arras, with heavy, massive furniture, with paintings, whose celebrity was stamped upon their face with the yellow dye of antiquity, two men were conversing earnestly. One, a slender, noble, imposing figure, the other, thick-set and burly, pockmarked, and with short sandy hair.

"Then it is true?"

"True as the sun, monsieur!"

"You are certain?"

"Rochemaure is never mistaken, sir, in such a case as this," said the stout man, striking his chest in intense self-approbation. "You were wise, sir, in such troublesome times, in the choice of your advocate."

"I am heartily thankful to you, my dear sir; how shall I ever repay you?"

"We shall talk of that, mon ami. Do you wish to look over the papers?" He laid a large bundle of papers on the table, and pushed them over to the master of the house.

"Thank you. Would it be too much trouble to tell me—It would gain so much more by—"

"Certainly, sir. That I shall. You see the case lay against Rambouillet Assurance, yes. Here were the estates, made over to you by the testator, the second from the last of the line. The testament was irreproachably exact in all its parts. Eh bien; they try to battle against it; they fail. Why? Because they secure the services of a pettyfogging, practiceless fellow: Fleur-Barban. It all lies in the choice of the man. The case comes up; I bring all my witnesses to show that the old man knew perfectly well what he was about, when he made the testament. We

prove all the signatures; we run to the ends of the earth to get the men, who served as witnesses. We establish the validity of the written instrument by all the means within the grasp of the law, sir. We rise to collect all the points of our argument; we make a speech that turns the hair of every Rambouillet in the Salle gray. They leave the Salle discomfited, worsted, routed. The case is yours, sir. Voila!"

The other has listened with the same satisfaction, which forms so powerful an undercurrent in the speech of the other:

"How shall I thank you? and what said the others?"

"What others, Monsieur Fouchet?"

"Rambouillet?"

"They, sir. Va donc. They go off muttering and cursing between their teeth; they swear vengeance, indeed, but what is their vengeance?" asks the corpulent man, with a vigorous shake of the head.

"I do not know, monsieur. In these uncertain times, when Royalty and Republic are struggling for the mastery, one does not know where one may be to-morrow."

"Bah, sir,—excuse me—but the great case, Fouchet-Rambouillet, is won and decided, and no change of government ever can make a shade of difference."

There was a pause, while Fouchet arose to walk over to the window, and cast a loving glance out over the broad lands, by doing which he did not notice the greedy glitter in the eyes of the lawyer. After a few moments Fouchet turned again:

"And how do you make the costs?"

"Let that matter rest, I beg of you, my dear sir. We can talk that over at any time."

"No, no, not by any means. You

have worked hard, and you deserve your pay."

"Eh bien, done," and the stout man coughed a little, "let us say 2,500,000 francs."

"Eh?"

"2,500,000 francs!"

"Ha, ha! Tres bien, my good, my dear good friend, my good! Pas mal trouve! Ha! ha!"

The little man had arisen and now stood with both hands on the back of his chair:

"Excuse me, sir. Why this levity?"

"Why, my good sir, my best of lawyers—at the enormity of your joke!"

"My joke?" jerked out the other, purpling up, "my joke, sir? Do you think the services of a Rochemaure are secured for a paulty sum, sir. Non, non!"

"Are you in earnest?"

"Certainly, sir. Parfaitement. I am in earnest. I ask you to consider my claim. Where would this estate, this mansion and these grounds—be without—"

"Stop!" Fouchet suddenly put both hands on the table; "say no more, Mr. Rochemaure, say no more. You are forgetting what you ask!" With this he slipped the bundle of papers into his pocket and buttoned up his coat over them securely. "Why, with a demand—"

"Not a demand, sir; not a demand; a perfectly just claim! I have worked for this property for the last six years, day and night, sir. You hear me? Day and night. And now I—"

"And now you want half? Why, my dear sir, 2,500,000 francs is half the value exactly."

"Exactly," repeated the other, "just one half of the property."

They both paused exhausted. Then, after glancing at Rochemaure for a moment, Fouchet continued:

"Well?"

"Eh bien!" asked the other.

"How far are we?"

"No farther, I presume."

"Are you really in earnest?"

"My dear sir, how could I be otherwise?" Then again the greedy glare lit up his eye. "Where would your estates be, if I had not gained the case? The case stood not as clear as necessary—"

"Did you not tell me—"

"Stop, my friend, stop! In every case, that passes through the hands of law, there are slight flaws, that need a fine distinction of language and degree. So in this. It is so in all cases, as I tell you."

"Then my title is not even clear, and yet you lay claim to one half the estate;—why—"

"Your title is perfectly clear. You are in possession as long as you chose voluntarily to remain so. Nothing can deprive you of your possession, except—"

"Except?" as the other paused.

"Except treason."

As though bitten by a serpent, Fouchet recoiled.

"Treason? Does any one—?"

The lawyer held up his hands in a depreciating way:

"Make no hasty conclusion. I beg you. No one has listened a word of anything that may be suspicious."

Fouchet bit his moustache and nervously rubbed his hands.

"But about our terms. Could you not reduce your demands? say 500,000?"

Rochemaure shrugged his shoulders.

"Not a centime."

"But consider. The estate would have to be sold. I have no ready cash."

"Make it a rental!"

"And live on my own estate, as though it were held by someone

else?"

"It is!"

"Sir?"

Rochemaure nodded vigorously:

"I hold one half of it."

"And by what right do you exact this exorbitant fee?"

"It is not always well to speak of right—" rejoined Rochemaure, with a threat twinkling in his eye.

"And supposing I refuse?"

"You will not think it advisable—"

"Why?"

"We need not speak of that. I will expect an answer from you by to-morrow."

"What will you do then?"

Rochemaure gave no answer, but was busy buttoning on his gloves.

"You need not wait until to-morrow. I cannot meet your demands."

"Eh, you say no?"

"I say no!"

"You absolutely refuse?"

"I—"

"Very well, sir. Good day!"

"But listen!"

"Good day, sir; good day! We shall speak of this matter again in a short time."

And he walked out hastily, while Fouchet stood gazing after in a stupefied way.

(To be Continued.)

A Petrified Monster.

S. R. Dawson, of Percy, Ia., claims to have discovered the petrified remains of a huge monster on the bank of the Des Moines River. The body, without the head, is forty feet long, and nine feet from the tail. It is four feet five inches wide. The head is broken off, and was laying near the body. The general appearance of the deposit is that of a darkish blue stone turning grayish on the outside, but there is a quartz formation where the bloodvessels and intestinal canal would have been.

OOLOGY COLLECTING.

BIRDS lay and incubate their eggs in accordance with the latitudes which the different varieties inhabit. Their eggs are to be found from February to August, most species, however, breed in April, May and June. The crow and several varieties of the hawk are among the early breeders of this latitude, their nests being found as early as March. It is an utter impossibility to give the exact dates of the many varieties, as they vary in almost every State, and often in different sections of the same State.

The time of the breeding of birds in a certain locality can be better ascertained by the collector of those parts. The eggs of the earliest laying birds are generally the most valuable specimens, and a collector should keep a sharp look-out for them.

Owls and hawks very often take possession of deserted crow's nests, and also of hollow trees. If they go to the trouble of constructing a new nest it can hardly be distinguished from that of the crow, if it be situated in a tree, where it generally is. Frequently owls and hawks inhabit the same nest for a number of seasons.

Among the rare eggs are those of the woodpeckers, creepers, nut-hatches, titmice, etc., their rarity probably owing to the great difficulties which have to be undergone to secure them, as they build in unexpected cracks and crevices.

Sandpipers and plovers incubate

their eggs in plowed fields, and in meadows near a fence, or in a small clump of grass or a bush. The oologist highly prizes the eggs of this class of birds. Eggs of these species are difficult to discover, owing to the habit they have of running along the ground for a distance before taking flight, thus misleading the collector as to the exact position of the nest. To overcome this difficulty the collector should conceal himself until the bird returns to the nest. Another good way to overcome this trouble if the bird is uncommonly shy, and continues running about without returning to its nest, is to go away for a short time, sufficiently long for her to return to her nest, then return to about the spot and discharge a gun. In this way they will take to wing directly from the nest. We have still another process by which the nests of those species that lay and incubate their eggs in the grass and directly on the ground, can be easily discovered. It is to lay down your hat, or any thing of that sort as near the spot where the bird rose as possible. Now hunt around in a circle from the object which has been placed on the ground, by so doing you stand a much better chance of discovering them, than if guided by the eye alone. A trained setter or pointer dog is a valuable companion in procuring eggs. It would of course have to be well trained so that it will not rush in and devour or destroy the eggs before its master may have time to secure them.

When on a collection expedition always take along a stout wooden or tin box with a quantity of cotton or hemp to carry the eggs in. This is a needed article. Never use bran or saw-dust, as the eggs will strike together by the jolting caused by striking the box against the underbrush, etc., and thus break the eggs.

IN THE AUVERGNE.

WRITTEN FOR THE OBSERVER.

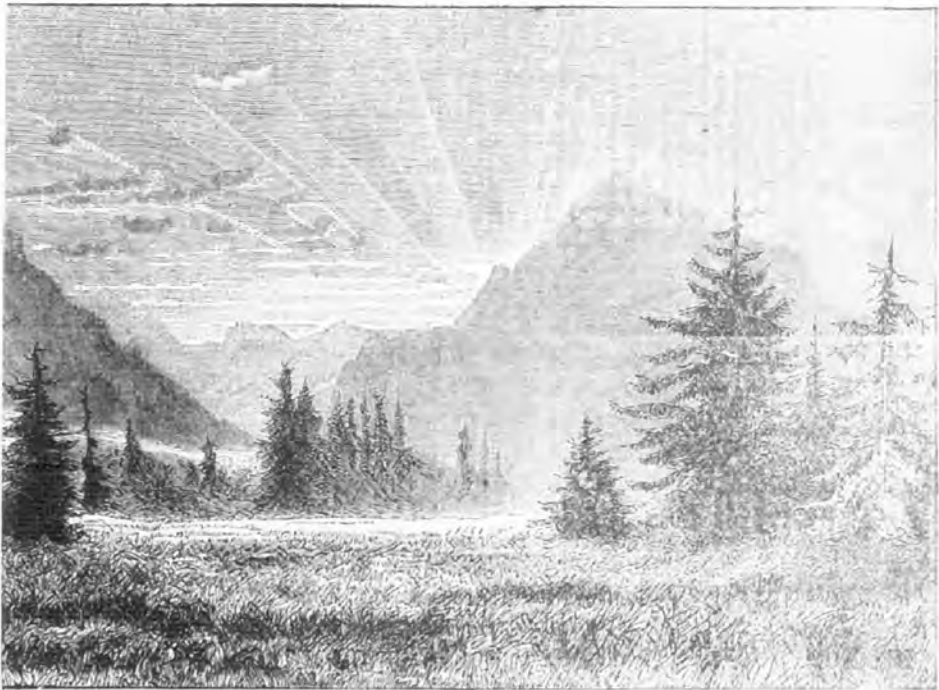
"THE handiest place I was ever in," said Will Thornton to me one day as we sat chatting in his hotel, was in the Auvergne. The family had finally driven me to it. I submitted with as good grace as I could and polished up my French and crossed the channel. It was the rheumatism, you know, and I was to use the hot baths. We reached our destination, a little town with the most out-landish of names, let me see, Oh, yes, Chaudes-Aignes, that was the name. Do you know they had actually utilized the hot springs there in the most matter of fact way. They run it into the houses and put it to every imaginable use. They heat their rooms with it, they cook and boil and bake with it. In fact they make every manner of use of it.

Talking about Chaudes-Aignes reminds me of the queer dick who went with me. He was an inveterate hunter after minerals. Say minerals to him and I think you could have waked him out of his first sleep with a whisper. He

would rather have a "specimen" than a dinner. As soon as we reached the place, he was all attention. He picked up everything with a most persistent constancy and examined it. The habit had grown so strong with him, that he would even stoop for a Sabot, look it over and drop it again. We had scarcely been there four days when he proposed an expedition. We were to go to the springs and see the formations at the source. It was of interest to me, I confess, for I was somewhat anxious to see them myself, but I was mistaken in my man. He did not go to the larger springs near and in the town, but must needs go on up the valley to find some spring which somebody had described to him.

Thus at early dawn we set out. The sun was just coming up, and touched the peak of the nearest mountain with golden fingers. I found it to be a delightful walk and was therefore a little better satisfied to stand the occasional twinges of pain, that shot through me. He found his spring. And such hunting and searching you never saw. He clambered up every imaginable slope, he twisted himself into the most uninviting undergrowth. He hammered here and there. I stood near the spring watching the water bubbling up with fierce heat. As I looked around for my friend, he was gone. I stood and waited. My thoughts carried me away, I did not heed the flight of time.

Suddenly there arose a confused sound of breaking and crashing of twigs, of sliding earth, a rattle of stones and of select exclamations and as I looked upward quickly, I saw my friend coming down the steep slope of the mountain in anything but graceful form. He had



THE AUVERGNE VALLEY.

unfortunately got to rolling and he rolled over and over, through bush and brake; "resistless onward in his way," as it flashed through my brain. And to make matters worse he was making straight for the springs. Sliding and tumbling and rolling he came along. I jumped to the rescue and with much trouble and considerable pain turned him from the rash purpose of boiling to a more Christian method of death.

He stood up panting:

"I got it," he exclaimed in triumph, when he had brushed his clothing and wiped the dust and dirt from his eyes.

"Got what?" I asked.

"Cairngorm" he said, as he opened his hand, from which he had not allowed the fragment, for which he had risked a boiling bath, to escape. "The finest specimen I ever saw. Found it right up there,

near the foot of that rock. Come up, I'll show you the spot."

"No, thanks," I remarked. "the place is entirely too easy of decent to suit my rheumatic purposes."

"Well, just as you say," he nodded, proceeding with his cleansing operations. "Here is a piece of Agate and here some Persulphite of Iron, and this is Pyroxene. I have some specimens of most of these already. But these are particularly fine. Now, look at this Cairngorm, how delicate these lines are, and the shadings of the gray and black, and this Agate. When I shall polish this side it will look finer than any specimen I have in my collection."

"He was certainly an odd chap."

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A. C. SMITH, Editor and Proprietor.

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EDITORIAL.

Don't forget the prizes offered by the Observer, to those obtaining the four largest number of subscribers. A description of prizes will be found on another page.

We are sorry to disappoint our readers as to the non-appearance of the article entitled "Birds and Their Hunts." For some reason unknown to us the author informed us that it would not be ready for insertion until next issue. It will appear in February number without fail.

THE story "Leo Balkow's story of the Reign of Terror," by Harvey Reese, commences in this number. Do not fail to read it, as it is an instructive, historical sketch of the time of the Reign of Terror, in France when Royalty and Republic were both struggling for the mastery.

COLLECTORS of Philately should be on the watch for the frauds in U. S. Postage and Revenue stamps. Most of the odd colors that command high prices, are merely some common color, surcharged by the action of acids. Of course there are some specimens of these rare varieties, but most of them are so-called frauds.

We see that THE CURIOSITY WORLD, is bound to gain the largest subscription list for the least money, of any other paper of its kind. It is one of the most interesting papers treating on Natural Science and Curiosities, in the country. December list, 10,000 copies were mailed in single wrappers by the "World." That looks like business.

WHILE in Philadelphia we paid a visit to The Derbin Stamp Company, corner Fifth and Library Streets. They appeared to be as busy as usual. This is owing to the widespread reputation they have gained by their promptness and square dealing. The PHILATELIC MONTHLY is a bright appearing little periodical, edited by E. B. Haines, manager of the Company.

A NEW set of newspaper and periodical stamps for this Country, with values running from an eighth of a cent to above a hundred dollars, is one of the probabilities of the near future. The present system of collecting the postage on second-class matter is not satisfactory. It is proposed to attach these stamps to the papers themselves, instead of the stubs to the receipt-books.—PHILATELIC MONTHLY.

We have been asked by a number of collectors of Autographs, to devote a space of the OBSERVER to this fast developing study. We have therefore consented to allow these patrons whatever space they may wish to furnish interesting articles. Among the number are some efficient writers on this subject, and, no doubt, will be of interest to all our readers. This addition will be commenced with our next issue.

THE QUAKER CITY PHILATELIST, makes its appearance with regularity and neatness. This magazine of the Quaker City is commanded by wide-awake editors, as it contains all the latest valuable information that can be secured in connection with Philately. It is the leading organ of the Philatelic Association; and also the advertising medium of the Philatelic Arena. Continue with prosperity, Brothers.

THE United States should possess a National Museum of Numismatics, Autographs, Indian Relics, Antiques, etc. All the larger countries of the Eastern Continent, have a Museum of this description, which is supported by the Government. Cannot our Country afford such a museum as well as any other. Of course it can, but, why not is the unsolved question. This is a question that needs the consideration of all United States citizens.

LOOK AT THIS.

IN the "Exchanges" will be found some rare bargains this month. Read them. Send fifty cents for a year's subscription to the OBSERVER and you will be allowed the privilege of inserting an Exchange notice free. Those not subscribers are charged 10 cents each insertion for every three lines.

Early Coins of Massachusetts.

BY FRANK D. ANDREWS.

THE scarcity of small change was a great inconvenience to the early Colonists, the supply from the mother country proving inadequate to their needs. As early as 1650 they proposed to increase their circulating medium by the coinage of silver, and established a mint in Boston in 1652, with John Hull as mint master, to whom all persons could carry plate, coin and bullion, which were melted and brought to the necessary standard, and coined into shillings, sixpences and three-pences. This issue is known as the New England Money, and was the rude beginning of coinage in this country. The obverse bore the value expressed in numerals:—XII, VI, III. The reverse the capitals N. E. Very few specimens of this coinage have come down to us and they are found in but few collections. In October of the same year a more elaborate design was adopted, known as the Pine Tree Money, and forthwith the new coins became plenty. This coinage continued for several years and relieving the wants of the early settlers in their commercial transactions. Hull, the Master of the Mint, received one shilling in every twenty that he coined, and became one of the wealthy men of the time. The story of the dowery he gave his daughter Hannah on her marriage day, has come down to us. As the story goes, she stood in one of the

scales while the bright new shillings were poured into the other until they equaled her weight, and both went to her husband, Samuel Sewall, who was one of the Judges who condemned the witches in 1692. To his credit may be said in 1697, he acknowledged his own guilt and asked pardon of God and man.

The following is a general description of the Pine Tree money:

Obverse. A pine tree, within a dotted circle, a larger dotted circle surrounding the legend MASATHVSETS IN. Reverse. The date 1652, occupies the center; and beneath, the value—XII, VI, III, II. The date and numerals are enclosed by a dotted circle, and another dotted circle encloses the legend NEW ENGLAND AN DOM.

There are many varieties of this coinage, some with an oak tree, instead of a pine, and specimens have been found bearing the date 1650, and 1662, instead of 1652. The number of the branches on the tree also varies. Most collections contain specimens of this coinage. In 1787, Massachusetts authorized the coinage of cents and half cents. It is said Jacob Perkins, of Newburyport, made the dies for this issue when he was only 21 years of age. He afterwards became distinguished as an inventor.

The cents and half-cents were coined for two years, 1787 and 1788, the cents of the latter year being scarcer than those of 1787; the half-cents of both years are rare.

The following is the description:

Obverse. The figure of an Indian standing holding in one hand a bow, in the other an arrow. Legend COMMONWEALTH. Reverse. An eagle with expanded wings, upon its breast a shield inscribed with the word CENT. Around the eagle the legend MASSACHUSETTS; beneath the eagle is the date, 1787. The smaller coin has the addition of HALF to the word CENT on the shield. Several varieties and peculiarities have been observed but the preceding description will enable any one to recognize these coins.

The Dollar.

BY JAMES U. PARRINSON.

The term dollar is of German origin. During the years 1517-1526 the counts Schlick under the right of mintage conferred by the Emperor Sigismund in 1437 upon their house caused to be struck a series of silver coins of 1 oz. weight and worth about \$1.13 of our money. The pieces were coined at Joachimsthal a mining town of Bohemia and came to be known in circulation as Joachimsthaler (afterward for shortness Thaler) and this name for coins and money of account has been widely used by the German States ever since. Some German scholars derive the term thaler from talent which in the Middle Ages designated a pound of gold. In Norway and Sweden we find the daler, and in Spain the dalera, the Spanish coin which for

centuries figured so conspicuously in the commerce of the world. It was the Spanish pillar or milled dollar that was taken as the basis for the United States coinage and money of account. By the act of April 2, 1792, 371¼ grains of pure silver and 24¾ grains of pure gold were declared to be equal to each other, and to the dollar of account. At that time as now in Great Britain, 113 grains of pure gold were the equivalent of one £ sterling. Before this date and during the confederation the dollar of account as compared with the sterling currency was rated at 4s. 6d. which was an exaggerated valuation of the Spanish dollar and in accordance with this valuation the Congress has established \$4. 444 as the custom house value of the pound sterling. Spanish dollars were first coined in the Spanish-American colonies. The best known variety was the pillar dollar so called from the two pillars on its reverse representing the Pillars of Hercules, the ancient names of the opposite promontories at the Straits of Gibraltar. The rude imitation of these pillars in writing connecting them by a scroll is said to have been the origin of the dollar-mark. Another explanation is that as the dollar consisted of eight reals, 8r. being stamped upon it, the mark was designed to stand for the piece of eight, as the dollar was commonly called. The two vertical lines were employed to distinguish it from the figure eight.

United States Gems.

The gems peculiar to America are chlorastrolite, zonochlorite and hiddenite. Chlorastrolite, or green star stone, is a species which was discovered by Professor J. D. Whitney, of the United States Geological Survey, about forty years ago. The only place in the world where it is found is Isle Royale, Lake Superior. This island, belonging to the State of Michigan, forty miles long, five miles wide and about twenty miles from the mainland, is composed of amygdaloid trap, in the almond-shaped cavities of which the gem principally occurs. This green stone radiates from a centre, and shows a beautiful chatoyance similar to cat's-eye, crocidilite and other fibrous minerals. About £300 worth are sold annually. Zonochlorite is a green banded stone, similar to chlorastrolite in composition, but discovered by Professor Foote at Nespigon Bay, on the north shore of Lake Superior. It is an entirely novel stone, hardness about 7, takes a very high polish, and if it could be found in sufficient quantities would undoubtedly be extensively used. Hiddenite is a green variety of the well-known species spodumene. A yellow variety from Brazil has been cut as a gem for many years. This variety has been known for about seven years, and is fully as beautiful and valued as highly as the diamond. It occurs in connection with emeralds in North Carolina. The locality is worked by a stock

company, and produces about £500 worth of hiddenite and £600 worth of emeralds annually. One of the finest of these emeralds is in the British Museum. The fullest series of them is in the collection of C. S. Bement, of Philadelphia. One weighs $8\frac{3}{4}$ ounce, within a quarter of an ounce of the weight of the most celebrated emerald in England. Of gold quartz about £28,000 worth is sold annually. Most of this comes from California, where it is not only used as a gem, but in the manufacture of various ornaments. One of these, an imitation of the Cathedral Notre Dame, is valued at £4000. Californian gold is worth about £3 10s. an ounce, nice specimens of quartz readily bring from 5 to £7 an ounce.

American Diamonds.

Although the flexible sandstone, the gangue of the diamond in Brazil, is found in the mountain masses in North Carolina and other States, no very large diamonds have as yet been discovered. Many small ones are recorded from Carolina, North Carolina, Virginia and elsewhere. The largest was found at Manchester, near Richmond, Virginia, weighing $23\frac{3}{4}$ carats in the rough and 11 11-16 carats cut. It was valued when found, at £800, and £1400 was loaned upon it later. Professor Whitney states that the largest found in California was $7\frac{1}{4}$ carats. Rubies and sapphires have been found in the rock in the corundum mines of North Carolina, and

C. S. Bennet, of Philadelphia, has an uncut green one in his collection that would give 80 to 100 carats worth of good stones, one of which would probably weigh 20 carats. This specimen is probably worth £200. The largest red and blue crystal weighs 312 pounds, and belongs to Amherst College. The best sapphires are found in the placer mines of Montana. Asteriated corundums are found in Pennsylvania and elsewhere.

Animalculæ in Water.

There are many things generally believed to be true by those not especially conversant in scientific matters, which really have not the slightest basis of fact to rest upon. We have often been asked, for instance, if an ordinary microscope would show the Millions of animalculæ which every drop of water is supposed to swarm. This belief rests upon a very common misapprehension. Ordinary pond water contains a few small animals, which, when magnified, certainly look rather frightful. But they are perfectly harmless, and not very numerous. At least, they do not swarm in every drop. Rain, spring, and other pure waters are absolutely free from all forms of life, except those accidentally introduced. By proper treatment, water containing impurities may be made to develop large numbers of bacteria; but they are not a regular accompaniment of ordinary waters.—*Popular Science News.*

Copper Zinc Alloy.

A description is given in *Engineering* of the new copper zinc alloy just introduced in London, and which, it is claimed, possesses properties as those of bronze are to gun metal. The specific advantages presented by this metal are chiefly great strength and toughness, and capacity for being rolled, forged and drawn. It can be made as hard as steel, and when melted is very liquid, producing sound castings of close fine grain, and the color can be varied from that of a yellow brass to rich gun metal, the surface taking a fine polish, and, when exposed to the air, tarnishing less than brass. When cast in sand the metal has a breaking strain of twenty-one to twenty-two tons per square inch; when rolled or forged hot into rods the breaking strain is found to be forty-three tons per square inch.

Petrified Flesh.

Henry Benson, of Hayden Hill, California, states that he discovered a petrified salmon on a hillside 1500 feet high. The fleshy part resembles crystalized and variegated quartz, retaining in part the yellowish color of the salmon, and what was the skin of the fish is now a sort of porcelain, or white flint. It is supposed to be a relic of some ancient river.

The kingdom of Siam has made a contract with the Hamburg Mint to have coined 25,000,000 pieces of a bronze metal.

Britain and United States.

By CARLTON.

Probably no amusement of the present day is more popular than the collecting of U. S. and Foreign postage stamps. Besides being amusing to the young, it is very instructive to any who may participate therein.

Great Britain was the first country to issue the postage stamp, and from time to time the various countries followed her example in the adoption of this method of prepaying postage, until there are but few countries at the present time that do not have this postage system.

It must be at once apparent to every intelligent person, that there must be a great deal of information gained from the study of these labels. Coming from all parts of the World, and upon their faces is generally found the portraits of the rulers, or the coat of arms, and in most cases the currency of the country. In this way the collector is made acquainted with the geography, history and currency of the various nations. The following is a short description of the first stamps of Great Britain and the United States:

Great Britain introduced the postage stamp in 1840; there being two varieties issued that year. The 1 p. was of black, so darkly printed at times as to make it almost indistinguishable; also a 2 p. of the same year, color blue. A change of color took place in the 1 p., its color being that of a dull red; the design

of the 2 p. was somewhat changed, having white lines at the top and bottom, the color same as previous year. In 1847 a 6 p.; color violet; and 1 s.; color green, of a different design from previous year, and in 1848 a 10 p. brown; same design as 1847 were added to their postage stamp issues. After this date the designs were changed so frequently that the space cannot be spared to give a complete description.

It was not until 1847 that the United State first issued the postage stamp. In this year two varieties were issued; one a 5 cent, color of brown, with portrait of Franklin to the left, and the 10 cent, color black, with head of Washington to the right. Since that time the stamps of different values were of various designs, containing the portraits of great men, as in 1870-1 issue where Washington, Jefferson, Franklin, Jackson, Clay, Scott, Perry, and others were represented.

Some New Issues.

The official stamp of Mexico is now olive brown.

There has been a change in the color of the Virginia Islands 4d. stamp; it is now vermillion.

The United States two cent stamp looks very bright in its new coat of green. A desirable change from that of the dull red of the past.

The 4d. post-card of Victoria has now an inscription indicating that it may be sent to New South Wales, etc., without additional postage.

The German local stamps have increased to such an extent that a special album is required to receive them. They are a nuisance to the collectors of America.

A ½ cent stamp has been issued in Newfoundland. It is small, square in shape, with the head of a Newfoundland dog in the centre of a circle band, inscribed "Newfoundland" above, and the value below. The color is vermillion.

Hints on Taxidermy.

By HARRY W. WILKENS.

WE are now about to introduce to our readers, one of the most enjoyable of the different sciences, namely taxidermy. During the short time that the SCIENCE OBSERVER has been in the field, we have been bored by a number to give a sketch on this subject. As will be remembered, we mentioned last month that we would begin an article entitled "Hints on Taxidermy," and living up to our statement, we will insert this sketch on skinning, stuffing and mounting, by Harry W. Wilkens, which has been prepared by the author for the OBSERVER.

This is no particular system, but dwells principally upon Waterton's ideas. All the old systems are fast going out of date, and of course, new and better ideas are coming into the minds of the large circle of taxidermists. These old systems are on the usual style of internal support, such as cork, wood, wire, etc., all of which have been dispensed with by the late Charles Waterton.

Stuffing by his method is of the slightest description, and is very easily understood.

You may visit any museum and you will find that the beak of a bird is black, flat and shriveled, so that no one, on looking at it would imagine that when living the beak was covered with soft, pinky lips, as full as those of man. But if they

were to have been prepared under the directions of Waterton the lips would have been as full, the bill unshriveled, and skin laying smooth as though life was still in its body.

Although the specimen be roughly treated, the skin is made so elastic by Waterton's process, that it soon resumes its former shape. It can be left for several days or even weeks and can then be brought back to its proper form by relaxing the hardest parts with moisture. Not only are the specimens so light that they are almost unperceivable of weight, but when the skin once becomes dry, it may be cut to pieces, the pieces packed into a small compass, and then capable of being put together again so perfectly that no trace of the junction is perceptible. This would of course be impossible in ordinary systems, which make the specimen bulky, stiff and unmanageable.

Taxidermal errors are not noticed in birds as much as in mammals, as the feathers conceal many faults, at least from the casual observer. In small birds the errors can be more easily noticed than in larger ones, principally in the humming bird, which is used so much as ornament. If you look closely at the little creature it can be discovered that there are dark spots all over it, this is owing to the feathers being drawn out of place by the contracting of the skin, whereas if it was prepared by Waterton system that a feather should chance to be out of place, all that is required is to

moisten the offending portion and draw the feather into its proper position.

As I am about to describe my mode of skinning, stuffing and mounting birds, I shall do so in such a way that when completed your specimen will look something like a bird.

I wish it to be understood that I am not writing for professionals, but merely for beginners, or those who wish to follow it as a pleasure or study.

(To be Continued.)

A New Thermometer.

According to a recent item in the *Scientific American* a new thermometer has been invented with a milligrade scale in place of the divisions of the C. F. & R. The following table shows the plan:

M.	
1396°	Water boils.
1293°	Alcohol boils.
1134°	Blood heat.
1000°	Water freezes.
853°	Mercury freezes.
0°	Absolute zero.

There is a delightful possibility involved in this. How pleasing it will be instead of saying in the summer, that the mercury is up among the nineties, that it has run into the thousands. "We have 1206° in the shade," will be an agreeable way of speaking of the heat.

The Trade Dollar.

The following statement from the annual report of the U. S. Mint, just issued, regarding the coinage, expatation, and redemption of the trade dollars may be of interest to our readers.

The total amount coined was

35,965,924. Exported, 28,778,862, of this number 1,706,020 have been imported, leaving 27,072,842 as the net export. Total number redeemed, 7,689,036. Total number melted, 8,608,495, leaving 284,587 pieces not presented for redemption; used in the arts, specimens in the hands of coin collectors carried out of the country by emigrants and in miscellaneous deposits of coin remelted at mints, etc.

The U. S. Geological Survey, has issued statistics of the production of minerals in the United States during 1886, in which it appears that the total value of mineral products was more than \$465,000,000, the largest mineral production yet recorded in any country. In 1885 the value was about \$429,000,000. Many substances shared in this increase, but principally iron and steel, which alone showed an increase of \$30,000,000. In 1885 bituminous coal was the most valuable mineral product, but in 1886 it was passed by pig iron, which had a higher total value than silver and gold combined.

Editor Science Observer:

I remember your conversation with me regarding the publication of an Amateur Magazine and asking me to contribute. It was a surprise to me on seeing a copy of the OBSERVER to find it exceeding my expectations both in its neat typographical appearance, and the interesting reading matter it contained. I am sure it will prove entertaining and instructive reading for both those who have a special interest in the subjects treated, and the general reader. I wish you success in your undertaking and a large subscription list.

Very Truly,
OLD COLLECTOR.

SIFTINGS.

The new Mexican turquoise is mined to the value of about £700 annually.

Mr. Harrison Garrett, of Baltimore, Md., has one of the finest collections of engravings in this country.

Lime is a preserver of wood. It has been noticed that vessels carrying it last longer than any others.

Phosphorus, when perfectly pure, is a colorless, transparent body soft as wax and easily cut with a knife.

Clocks were not known to the Romans, and striking clocks were not invented until 1400 years after the death of Caesar.

Sea-water consists of twenty-seven elements, the principal of which are chlorine, sulphuric acid, magnesia, lime and potash.

Mr. Berthold Neumaegen, a member of the New York Stock Exchange, has a collection of 100,000 butterflies which have cost him \$35,000. He has been collecting for twenty years.

The leaning tower of Pisa was built in the twelfth century. It is 190 feet high and leans thirteen feet from the perpendicular. The inclination was caused by the settling of one side of the foundation.

Topaz has recently been found at Pike's Peak, Colorado, in large quantities. Some masses weighed two pounds each, and very fine clear white stones have been cut, weighing from 125 to 193 carats.

The old church at Smithfield, Virginia; supposed to be the oldest in the State is to be restored as near as possible to its original condition. The church was built in 1632, and was used continuously for two centuries.

The tomohawk once used by Tecumseh is in the possession of Mr. S. W. Cowles, of Hartford, Conn. He purchased it in Ohio in 1881, after obtaining satisfactory evidence of its being genuine. Tecumseh was killed at the battle of the Thames, Oct. 5, 1813, by Rich. M. Johnson, afterwards Vice President of the United States.

The trade dollars of the following years are becoming quite scarce and were issued only as proofs for collectors:

Year	Number Coined
1878	900
1879	1541
1880	1987
1881	360
1882	1007
1883	379

EXCHANGES.

A three line notice in this column free to subscribers. To those not subscribers 10 cents per every three lines.

A foot-power scroll saw with lathe attachment and 50 patterns for U. S. or Foreign coins, Indian relics, etc. Box 1116, Vineland, N. J.

Pair of 10 $\frac{1}{2}$ all clamp nickeled ice skates, nearly new, for minerals, coins, stamps, Indian relics, etc. Box 1116, Vineland, N. J.

Pair 10 $\frac{1}{2}$ all clamp, nickeled roller skates, for coins, minerals, stamps, Indian relics, etc. Box 1116, Vineland, N. J.

A card hand inking printing press and outfit, for offer of coins, birds egg, minerals, etc. A. C. S., P. O. Box 1178, Vineland, N. J.

A good piece of Indian pottery, from Greenwich, N. J., for every large U. S. cent, or for every Foreign coin, or for ever cent of the present style of 1871, 1872, 1873, and 1877; also for every nickel cent of 1857 and 1858. A. C. S., Box 1178, Vineland, N. J.

AN ARRANGEMENT OF
UNITED STATES COPPER CENTS.

—1816—1857.—

For the Assistance of Collectors.

This Work describes the variations occurring on more than four hundred copper cents from 1816 to 1857. It is of value to collectors who have duplicates and care to arrange them with some regularity.

It is published in pamphlet form and contains 42 pages.

PRICE 50 CENTS.

Sent by mail on receipt of the price.

FRANK D. ANDREWS,
Vineland, N. J.

IT IS AN
EXCELLENT MACHINE

PRICE \$8.00.

World Type Writer.

Rev. A. Roeder
is agent.

CALL AND SEE IT.

27 East 11th Ave. N.

JOSEPH WIGGLESWORTH.

Dealer in

INDIAN AND MOUND RELICS

—of all Kinds,—

WILMINGTON, DELAWARE.

ARROWHEADS.

I have a large stock of these from the different States. I mix them up in the different forms, localities, etc., at .50, .75, and \$1.00 per dozen. A fine grade of arrowheads for the dealer or collector, many odd formed, at \$6.00 per hundred.

SPEARHEADS.

Some very fine ones ranging in price from 25 cents to \$2.00 each.

SCRAPERS.

The small notched scrapers that usually sell for 50 cents, I now sell at 25 cents. Oval scrapers, 20 to 75 cents each.

WAR CLUB HEADS.

The flint heads used on war clubs chipped all around the edges; price according to workmanship; .60, .75, and \$1.00 each.

GROOVED AXES.

All sizes and from different localities. The prices for ordinary forms, but very fine specimens range from 75 cents to \$2.50. Odd forms, which it would be extremely hard to duplicate, \$3 to \$5.

CELTS.

Or ungrooved axes, in all manner of shapes and sizes, from 40 cents to \$1.25.

DRILLS.

The specimens range from good to fine, 30 cents to \$1.50 each.

PESTLES.

I have a limited number of fine pestles which show great age. Prices according to size, \$1.25 to \$2.00.

PIPES.

These are among the rarest of stone relics. They are of all sizes and shapes. Those that are not quite perfect and sold at from \$1.50 to \$5.00. Fine perfect ones from \$5.00 to \$25.00 each. They are extremely rare and hard to obtain.

ORNAMENTS.

These are taken from the Mounds in the West and are usually made of a variety of slate, making a very pretty specimen. Perfect ones, \$1.25 to \$2.50 each.

Besides the above specimens, I have others, too numerous to mention. Advanced collectors will do well to correspond with me. As I devote my entire time to my business, I am enabled to fill orders with dispatch. Satisfaction guaranteed.

MY \$2.50 COLLECTION

BY EXPRESS

Contains 1 grooved axe, 1 celt, 1 pestle, and 8 fine arrowheads. Expressage unpaid.

JOSEPH WIGGLESWORTH.

Wilmington, Delaware.

READ.

COLLECTIONS FREE.

Wishing to bring this magazine before the public, and secure a large subscription list, by which we will be enabled to enlarge the OBSERVER to one of the largest and most interesting magazines treating on the development of Science; this being our wish we hope, with the encouragement of the Scientific Arena, to be able to fulfill, if not be in advance of our expectations. We have therefore decided to award the following premiums to the four persons procuring the four largest number of subscribers to the OBSERVER before April 1st:

A COLLECTION OF MINERALS

will be presented to the one procuring the largest number of subscribers before the above named date. This collection does not contain a worthless lot of fragment, as the smallest specimens will not range smaller than 1x1 inch. It will consist of 100 varieties, among which will be a number of Indian Relics.

A COLLECTION OF COINS

will be presented to the one procuring the second largest number of subscribers to the OBSERVER before said date. This collection will be made up of United States and Foreign Coin, the old U. S. cents will be a prominent feature. The collection will contain 75 varieties.

A COLLECTION OF BIRD EGGS

will be presented to the one procuring the third largest number of subscribers to the OBSERVER. This collection will consist of 100 varieties, among which will be some valuable specimens.

A COLLECTION OF STAMPS

will be given to the one procuring the fourth largest number of subscribers to the OBSERVER before said date. The collection to consist of United States and Foreign. Among the most prominent in the U. S. will be a number of old date and Department stamps. There being in all about 400 varieties.

If the premiums offered by us are not what we guarantee, they can be returned, and a good commission will be allowed on all subscribers secured by the winners.

The above collections will be described in full in a later number of this magazine.

THE SCIENCE OBSERVER,

VINELAND, N. J.

P. O. Box 1178.

SIFTINGS.

The new Mexican turquoise is mined to the value of about £700 annually.

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1879	150
1880	100
1881	100
1882	100
1883	100

EXCHANGES.

A three line notice in this column free to subscribers. To those not subscribers 10 cents per every three lines.

A foot-power screw saw with infinite attachment and 50 patterns for U. S. or Foreign coins, Indian coins, etc. Box 116, Vineland, N. J.

Pair of 10¢ all clamp, nickel plated, roller skates, nearly new, for minerals, coins, stamps, Indian relics, etc. Box 116, Vineland, N. J.

Pair 10¢ all clamp, nickel plated, roller skates, for coins, minerals, stamps, Indian relics, etc. Box 116, Vineland, N. J.

A card hand inking printing press and outfit, for other of coins, birds, eggs, minerals, etc. A. C. S., P. O. Box 118, Vineland, N. J.

A good piece of Indian pottery, from Virginia, N. J., for every large U. S. cent, for the every Foreign coin, or for a specimen of the present style of 1871, 1872, 1873, and 1877, also for every nickel cent of 1867 and 1868. A. C. S., Box 118, Vineland, N. J.

AN ARRANGEMENT OF
UNITED STATES COPPER COINS.

— 1840—1857.

For the Use of Students of Collections.

This Work describes the characteristics appearing on more than four hundred copper coins from 1840 to 1857. It is of value for collectors who have duplicates and care to arrange them with some regularity.

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A COLLECTION OF COINS

will be presented to the one procuring the second largest number of subscribers before said date. This collection will be made up of United States and Foreign Coins, the old U. S. cents will be a prominent feature. The collection will contain 25 varieties.

A COLLECTION OF BIRD EGGS

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THE SCIENCE OBSERVER

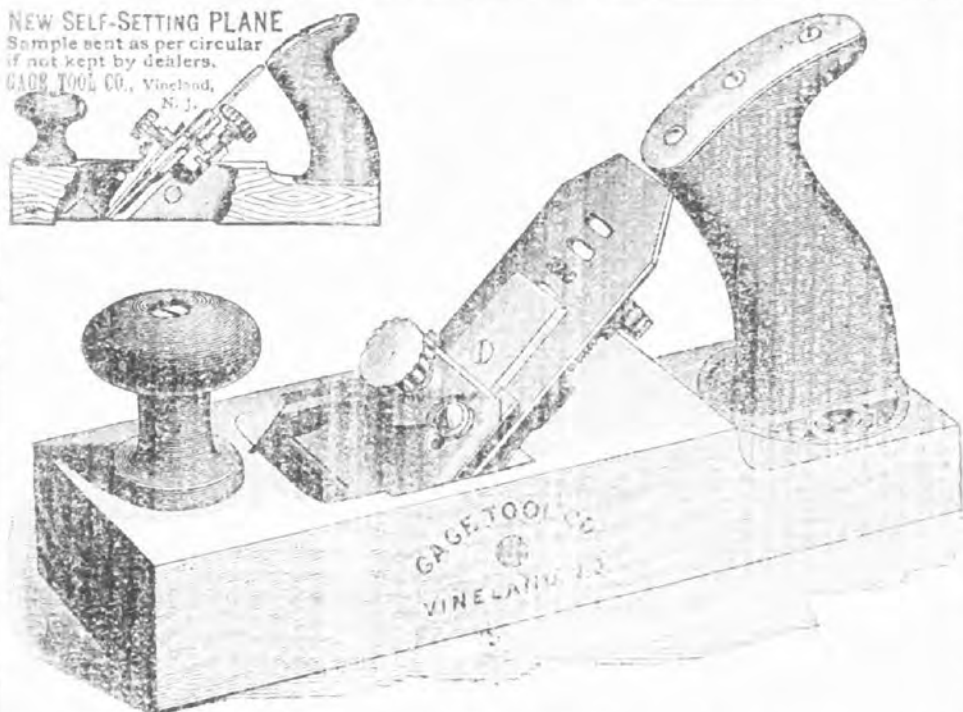
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P. O. Box 1178.

NEW SELF-SETTING PLANE

Sample sent as per circular
if not kept by dealers.

GAGE TOOL CO., Vineland,
N. J.



This Plane is what every good mechanic needs and as it is Self-Setting it is just what amateurs and boys can use with great satisfaction—it is more fully illustrated, and described at length as a matter of interest to their readers, in the following Mechanical and Trade Journals:—

The "American Machinist," N. Y., of September 3d 1887.

The "English Mechanic and World of Science," London, England, September 9th 1887.

"Kansas City Commercial," Kansas City, Mo., September 24, 1887.

"Mechanical World," Manchester, England, September 24, 1887.

"American Builder," Cleveland, Ohio, October 15th, 1887.

"Iron Age," New York, N. Y., October 13th, 1887.

"Journal of Progress," Philadelphia, Pa., October 13th, 1887.

"Carpenter and Builder," New York, N. Y., October 13th, 1887.

"Tradesman," Chattanooga, Tenn., November 15th, 1887.

"Blacksmith and Wheelwright," New York, November 15th, 1887.

"Mason's Monthly," Vineland N. J., November 15th, 1887.

"Stoves and Hardware," St. Louis, Mo., Dec. 15, 1887.

The "Iron Age" can be seen at most Hardware dealers, where you may also see the Planes—full particulars furnished by the

GAGE TOOL COMPANY, VINELAND, N. J.

VOL. 1.

NO. 3.

←FEBRUARY--1888.→



Science *Gazette*

A Monthly Journal

—Devoted—

to the Development of Science.



ILLUSTRATED.

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PUBLISHED BY
ANGUS C. SMITH,
Box 1178, VINELAND, N. J.

GEMS,

Minerals, Fossils

—AND—

GEM SPECIMENS.

A choice line of the best specimens in the world, at cheapest prices.

CLOSING OUT 150 SPECIMENS.

All collectors of good standing sending *Five Dollars* can have an assortment to the value of *Ten Dollars*. They may select what they choose and the balance can be returned.

MOONSTONES

From India—very fine—for cabinets, lace-pins, scarf-pins. This Chertoyant Feldspa. gem should be in every collection when you can get a gem generally worth \$3.00 at the price I am now asking—30 cents.

A large assortment of fine small specimens I shall close out in lots of 50 cts. These lots will vary, and no tests can be given of them. But I guarantee they will be satisfactory and will be worth twice the sum asked. All different.

A Few Sea Curiosities Cheap.

W. S. BEEKMAN,

Box 108, WEST MEDFORD, MASS.

WORTHY OF ATTENTION.

If you wish a good book, examine

EMMANUEL'S LAND,
AN ALLEGORY,

—By Miss S. M. Grey.—

Miss Grey is now canvassing Vineland for the above mentioned work, and it has already secured the appreciation of leading citizens.

FRANK H. LATTIN,

—Publisher of—

"THE OOLOGIST."

Wholesale and Retail Dealer in

SPECIMENS, INSTRUMENTS,
SUPPLIES, AND

—Publications for the—

Oologist and
Ornithologist.

Sole wholesale agent for LEAVES, Egg Check List and Key to the Nests and Egg of North American Birds. Jobber in Natural History Specimens and Curiosities of all kinds. Shells, Indian Relics and Minerals a Specialty. Sample Oologist, and catalogue for stamp.

Address,

FRANK H. LATTIN,

ALBION, N. Y.

Indian Arrowheads.

Having purchased a quantity of first quality specimens, I will dispose of them at a very low price. Those wishing to take advantage of the following low price, should order at once, as the quantity is limited.

4 PERFECT ARROW-
HEADS 25 CENTS.

ANGUS C. SMITH,

VINELAND, N. J.

P. O. Box 1178.



THE WOODS, D. 1891.

GEMS,

Minerals, Fossils "THE OOLOGIST."

—AND—

GEM SPECIMENS.

A choice line of the best specimens in the world, at cheapest prices.

CLOSING OUT 1500 SPECIMENS.

All collectors of good standing sending *Five Dollars* can have an assortment to the value of *Ten Dollars*. They may select what they choose and the balance can be returned.

MOONSTONES

From India—very fine—for cabinets, lace-pins, scarf-pins. This Chatoyant Feldspar gem should be in every collection when you can get a gem generally worth \$3.00 at the price I am now asking—50 cents.

A large assortment of fine small specimens I shall close out in lots at 30 cts. These lots will vary, and no lists can be given of them. But I guarantee they will be satisfactory and will be worth twice the sum asked. All different.

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HEADS 25 CENTS.

ANGUS C. SMITH,

VINELAND, N. J.

P. O. Box 1178.



FEATHERED SONGSTERS.

Feathered Songsters.

A Love Song from the GERMAN.

Feathered Songsters, when ye meet her,
 And on brooklet, still and small,
 Tell my loved one, that I greet her,
 That she is mine all in all.

Ah, ye clouds, if you can trace her,
 Walking through the silent dell;
 Pain: my picture in the azure,
 Where her eyes can see it well.

See her pausing by the bushes,
 Bare or tinted by the fall—
 Tell her of the pain that crushes,
 My poor heart, ye birdlings all.

LEO BARKAS.

A STORY OF THE REIGN OF TERROR.

BY HARVEY REESE.

Written for the OBSERVER.

CHAPTER II.

THE FUGITIVE.

The sun had gone to rest blood-red amid the sultry silence. Darkness fell quickly; and night brooded heavily upon the vast city, and the silent suburbs. Jeanne had just finished her work, and was about to lock up the house for the night. She hummed a song to herself as she moved about:

"Ayez pitié de moi,
 De moi, ma Marie—"

a snatch of song, that whirled through her brain. Etta, the old scotch woman, sat nodding in her chair, waiting for Jeanne to finish her work, and then to go to bed with her. It was strange, how silent it was. A cricket had been chirping just a moment ago; but now that too was silent. There it chirped again! No! That was a step on the gravel. Jeanne stopped, half-turned and listened. Yes, it was a step, and now came a soft tap at the door. Jeanne started, and with difficulty suppressed a scream. There was a face at the window, a vile, wild-looking face, with great

haggard eyes, and the scar of an old wound burning fiercely between them. He opened the door:

"For God's sake, young woman; let me hide somewhere."

Jeanne could answer nothing; she stood and trembled. What was she to do? Etta had not awoken; she was sleeping soundly in her chair; Francois, the valet, was with Mr. Fouchet upstairs; there was not a soul about. Trembling she flew to the dresser, and took out a plate of cold meat and some bread and handed it to the man. She had not understood him. She thought he had asked for food. Yet he ate, no, he devoured the food; in a moment there was not a scrap of it left. Then he handed back the plate.

"I have no more," she said, "Please go away!"

He shook his head.

"I cannot; I must hide."

"Oh, mon Dieu, why?"

"Who asks why in such times as these? Where can I hide? Tell me quickly."

"I do not know. Please go away!"

"Is there no place here? That cupboard!" pointing to it.

"No-no! You cannot stay here."

"I will go then."

And he turned and stole softly away. But he did not leave the place. Like a shadow he glided down the long facade of the house, and around the corner to mingle with the deeper shadows beyond, like a thought of grief to-day with the bye-gone sorrows of yesterday.

Upstairs Fouchet and Francois, the valet, were conversing in low, matter-of-fact tones:

"Then you can pack the small hand-satchel, and take an inside for the Diligence on Thursday. I shall probably be gone several days."

"Yes, messire. But do you not

fear to travel?"

"Fear? Why?"

"There are strange rumors afloat, and—"

"What?" he demanded, seeing him hesitate.

"And I have seen," Francois' voice sank to a whisper, "I have seen the petroleuse."

"Bah! Some old woman going to buy a sou's worth of me."

"No, messire, je rendrai grace, the petroleuse, and yesterday—what was that?"

Francois turned from the window, near which he was standing, with a start. Then hastily he peered out into the darkness again.

"What did you see?"

"I thought I saw a shadow out on the gravel-walk."

"Listen!"

And both men were perfectly silent, listening intently; but no sound came to their ears, except a low murmur, distant and indistinct, like the muttering of the sea, so far away. There was no more rattling of dishes in the kitchen, for Jeanne had finished and had bolted and barred everything and had hastened to bed, seeing that she could not impart her fears to Francois, since he remained in his master's room. But there was no step on the gravel now, not a rustle amid the hushed branches of the park. The shadow had gone, where?—And Fouchet resumed the conversation:

"It was nothing; a leaf brushed past the window."

"I suppose so, monsieur."

"Eh bien, what was it you saw yesterday?"

"I saw that lawyer Rochemaure walking by here three or four times with several men, who wore caps and looked ready for the blouse. I am afraid of him."

"Why should you be?" asked Fouchet; yet he trembled slightly.

"He probably had a case with the men."

"Perhaps he had."

"And do not forget to put my note-book into the satchel."

"Yes, messire. It shall be attended to."

"Nothing more to-night, Francois. See that everything is well secured. For these are unsettled times," he muttered to himself, after Francois had gone. And he listened again out into the night; but there was no sound, save that one low, indistinct murmur, like the confused muttering of the sea, so far away; so low, and yet so full of awe, and full of indescribable fears, like a storm-cloud brooding on the possibilities of destruction.

(To be Continued.)

Jacob's Ladder.

On Mount Whitney, the highest mountain in California, at a level of 15,000 above the sea and 1,500 feet above the timber line, where there is no soil and no moisture save snow and hail and ice, there grows a little flower shaped like a bell flower, gaudy in colors of red, purple and blue. It is called Jacob's ladder, and its fragrance partakes of the white jasmine. It blooms alone, for it not only has no floral associates, but there is no creature, not even bird or insect to keep it company.—*Scientific American*.

St. Peter's Cathedral, in Moscow, possesses five cupolas, and to overlay them, it required nine hundred pounds of gold. The doors cost \$310,000; and the floor, which is of marble, cost \$1,500,000.

THE FEATHERED FAMILY

BY CARAL BOSO.

BIRDS constitute the second grand division of warm-blooded Vertebrates; this division being separated from the first, (the Mammals,) by marked characteristics, which will be described as we proceed.

The bird family is termed oviparous (*ovum*, egg, and *pario*.) because their young are produced from the egg. They do not suckle their young, as is the case with mammals; they are covered with feathers, while mammals are covered with hair; they are constructed for flight, with but few exceptions, while the mammals are not; they have no teeth, which is true with only a few exceptions in mammals; they have bills, which is the case with one species of mammals, the duck-billed platypus, of Australia, having a bill like that of a duck and putting it to precisely the same use, searching for insects, small shell-fish, etc., by plunging it here and there in the mud. Its body is like that of the Otter. Birds also have some peculiarities in the digestive organs, most birds having, instead of the process of mastication, a crop in which to soak their food, and a gizzard to grind it.

Feathers have commonly three distinct parts; a horny tube, or quill part; a stem which proceeds from this tube; and laminae, being thus locked together enables the feather to press upon the air in flight.

The wing may be termed as a hand with a feathery appendage, so that it may press upon a considerable space of air at once, and thus lift up the bird. Upon examination the bones of a bird's wing are nearly the same as those of the arm and hand of man.

It will also be discovered that the breastbone of those species which are mostly on the wing is much more developed than those that do not fly to any extent, or especially those that do not fly at all. The muscles of those birds that spend half their time on the wing are also larger in that position than elsewhere, and of course have to possess a larger and peculiar shaped breast-bone, on which to support these muscles.

The muscular power required for flight in the air is not commonly appreciated. If we look at the body after being stripped of its feathers and then at the size of the wing, you can imagine the size the wing would have to be to support man, and although the wings could be furnished, there would be a great lack of muscle. This is why all attempts made by man to fly have proved a failure.

The bill of the feathered family is not used for the same purpose as teeth are used by mammals, but merely to gather its food. The manner of digestion varies in birds, according to the nature of their food. The grain-eating birds have a crop in which the grains are soaked and then forced into the gizzard, where they are ground. Those species that live on flesh differ from those above mentioned, as they have no gizzard, but a thin membranous stomach, there being no need of grinding or crushing.

The incubating of eggs varies greatly, according to the species of birds. The eggs of the humming-bird take but twelve days; the canary fifteen to eighteen, fowls or the common poultry twenty-one; ducks twenty-five, and swans forty to forty-five. Sitting on the eggs is merely to furnish the requisite heat, as eggs can be hatched by artificial heat as quickly as otherwise. The

heat of the sun is sufficient to hatch the eggs of some species inhabiting the tropics, such as the ostrich, mound builders, of Australia, etc. The largest majority build nests in which to lay and incubate their eggs, generally lining them with soft material. The eider-duck lines her nest with down which she strips from her breast. In this way the feathered family vary in regard to the building of nest, and laying and incubating of their eggs.

The formation of a feathered animal from the contents of an egg by heat is one of the most wonderful feats of nature. When the young bird is ready to be hatched, it cuts its way out of the shell with an instrument furnished it for the purpose, in the way of a pointed scale on the end of the bill. This scale drops off soon after birth. The scale may be readily seen on the beak of a newly-born chick.

The senses that are mostly developed in birds are sight, smell and hearing, the sense of touch in most species is very slight, as is also the sense of taste. Sight is the most prominent sense of the bird, it being very acute in birds of prey.

Birds of the Tropics are beautiful in plumage, but are very poor songsters. Those of the Temperate Zone are not so beautiful in plumage but have generally a good song, especially the smaller species. Those of the Arctic regions are mostly dull in color and have no song.

Among the many mysteries of this wonderful division of Vertebrates is the instinct which leads so many varieties of birds to change their climate according to the season. They migrate southward as the cold weather approaches, and in the spring return, often to the same spot they vacated the season before. It has been proven by nat-

uralists that the same birds will often return to the same neighborhood for many years. Spallanzani, a celebrated Italian physiologist of the last century, claimed to have seen the same couples return to their old nest for eighteen years in succession.

There are about 10,000 known species of birds, and classified mostly by their feet and beaks, these being parts which indicate their habits. The feathered kingdom is divided into two grand divisions—Land Birds and Water Birds. Of the land birds there are five orders; 1. Raptores (*rapio*, to seize), birds of prey. 2. Insessores (*insido*, to sit), perchers. 3. Scansores (*scando*, to climb), climbers. 4. Rasores (*rado*, to scratch), scratchers. 5. Cursores (*curro*, to run), runners. The water birds consist of two orders: 1. Grallatores (*grallo*, stilts), waders. 2. Natatores (*natator*, a swimmer), swimmers.

(To be Continued.)

The Matterhorn.

As described by one of the guides of the trip.

THE weather was all that could be desired. The heavens arched above in regal beauty; the air was dry, sweet, and clear. Little flags of cloud fluttered from the distant peaks of the mountains, as the silent giants stood grim on their eternal guard. We stood at the window of the hotel. Never had I set eyes on a more beautiful scene. I had seen the weird grandeur of the Alleghanies both north and south. I had stood on top of the Blue Ridge and gazed down over the plain where the boys in blue, and the boys in grey had decided large portions of their "unpleasautness;" I

had seen the picturesque wilds of the Alleghanies further north; I had seen the fierce rifts and kenions of the Sierras, and the mild nonentity of the Palisades along the Hudson. But the wildest conceptions of mountain possibility dwindled into nothingness beside these giants. There was the Matterhorn, standing sheer up from the valley like a separate creation, like an afterthought of God, like the scaffolding put up by the creator for a larger work, as yet incomplete; and over yonder was the Jungfrau, over which and over whose name so many have already raved, that I am ashamed to say a word.

"What do you say, Will," I turned to my companion, "do you risk it in the morning?"

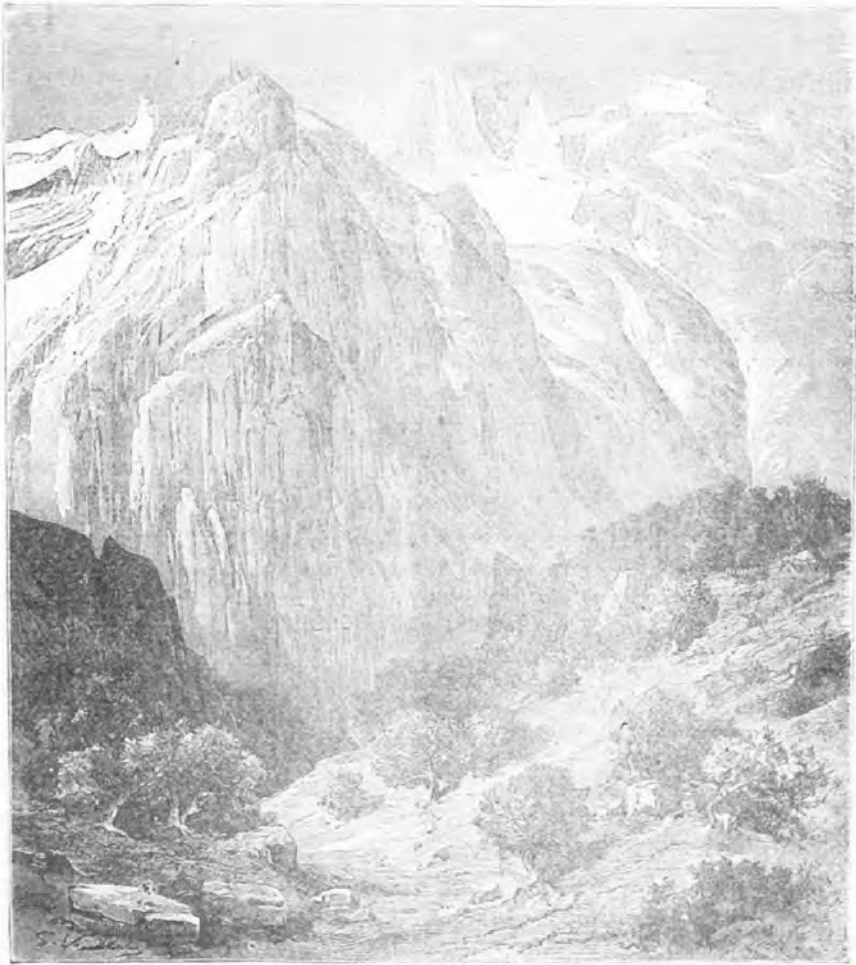
"Not if I know it," he replied in his quiet way, I came to get a chance of air for my lungs; and I am as high up now as I want to be. But do not let that hinder you. If you are anxious to risk a few bones on the thing, then go on. Nobody will mourn you when you have landed at the bottom of some unfathomable abyss, except your humble servant; and I shall have to try to get along without you, if you must follow the wild English love of the climb. Go on, my friend, while I meditate upon some appropriate epitaph."

"Oh, come, Will; you are talking nonsense. There is no more danger in it now, with all the helps and huts, and tracks and guides. Is there, Herr Wirth?" I said, appealing to the host, who stood near in white-aproned obsequiousness.

"Ach, mein. Mein Gott" he said, "It is not what it used to be. Now, the road is well known, and there are men who go constantly. It was different when I made the first ascent of the Horn with the English Gentlemen."

"Who were they," I interrupted, sniffing a story afar off, "Hudson and the rest."

"It is exactly as your grace has said," he replied; Croz, my poor companion, my brother and I were the guides. The thing was new then. We had been up there a number of times," he continued, as we settled ourselves down to listen. "But we had never tried to take any of the uninitiated up. But the English gentlemen would listen to no advice. If no one would go with them, they would. I had never been to the highest ridge. I had been up there, you see where the white spot is, right in a line with the chalet there, but not beyond. There were four of the gentlemen. I remember as well as though it were to-day. Hudson, Whymper, Hadow, and Lord Douglass. We went. It was very hard work, for even in places where we would have had no trouble at all, if we had been alone, there was work and danger with a larger party. We reached the top, after innumerable hardships. I too felt a strange feeling of satisfaction, when we stood there on the highest "Joeh" in the grim silence of another world, as it appeared. But the descent was the terrible part of the adventure. Poor gentlemen. They were bright and cheerful all the way. They were brave. We advanced cautiously. All had gone well. My brother was at the back of the line. He was the last man on the rope. A large stone or block of ice had become loose up above and came whirling down toward us. My brother could not suppress a cry of warning. Hadow, the second man on the chain looked quickly back and—lost his footing. Oh, the horror of that moment. For a time I knew nothing. We went whirling down, fiercely clutching at everything that



THE MATTERHORN.

presented itself in a wild instinct of self preservation. Hands, knees, and arms were frightfully torn and lacerated. Then a quick snap and with a wild cry the four unfortunates plunged down the abyss, the rope having parted nearly halfway. That was in July, 1865. We were glad when we came down again in safety, and I never again experienced anything like that scene. I shall never forget it, though I should live for a hundred years. But now," he continued, after a long pause, "the way is comparatively

easy. For they have blasted in some places and made the more impassable ones passable by means of chains and ropes attached to the rocks, and there have been huts built for the accommodation of those who attempt the ascent."

"Does that help to change your mind?" I asked Will.

"Not in the least," he replied.

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The Science Observer.

PUBLISHED MONTHLY.

A. C. SMITH, Editor and Proprietor.

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EDITORIAL.

As stated last month we commence a department devoted to the collecting of Autographs. Mr. Frank D. Andrews has kindly volunteered to contribute sketches of interesting reading on the subject, and it will no doubt be one of the leading departments of the OBSERVER.

HAVING been disappointed as to the article entitled "Birds in Their Haunts," we have secured a sketch entitled "The Feathered Family," by Carol Boso, which commences in this number. This article will be even more interesting than the former, as the writer is well versed in this study.

THOSE wishing to purchase Indian or Mound Relics should address Joseph Wigglesworth, of Wilmington, Delaware, and not his price-list. He has a large and complete stock, and his prices are the lowest. "The dealings we have had with this gentleman have been just as he represented them.

IT is stated by the CURIOSITY WORLD of January 15, that J. H. Houston, of Washington, D. C., is endeavoring to convict C. F. Rothfuchs of that city, of selling counterfeit stamps. It also states that Mr. C. F. Rothfuchs has always acted as a gentleman in whatever business transactions they have had with him. Mr. Rothfuchs is a prosperous stamp dealer, and probably jealousy is the cause of the trouble.

READ our "Exchanges" by all means, for by so doing you will be enabled to secure that which you may desire without paying any "cash" on either side. Subscribers to the OBSERVER will be allowed the use of the "Exchange Column" free of charge. All notices containing more than three lines will be charged 10 cents for every three lines extra. Those not subscribers will be charged 10 cents for every three lines for one insertion.

The OBSERVER will probably be enlarged to twenty pages commencing with March or April number. As we do not wish to encroach upon the reading matter, our facilities for "adds" will soon be too condensed. The increase will give the readers two pages more reading. In March number we shall also offer special inducements to those securing subscribers for this magazine. The offers will be good one month only. Keep your eye open.

We see by THE CURIOSITY WORLD of January 15th, that Bro. Hubbard is in a quandary as to whether he shall change the "WORLD" to a magazine, or let it continue as heretofore. It makes a fine appearance as it is, but is unhandy when bound, and periodicals of such a nature are generally preserved, and in paper form are too cumbersome. Our Bro. also states "that if the majority of the people wished it changed, it would be done; and if the people wished it to remain as it is, all right." Always ready to please his patrons, is his motto.

FOR the past year the subject of a society to consist of archaeologists, is talked of in the United States. Any move in connection with such an Organization will be endorsed by this magazine, and these columns will be open to those wishing to debate upon the subject. Such a society will band together the collectors of Indian and Mound Relics, Fossils, Etc., and by having them combined into an association of this sort will enable members to become acquainted, will facilitate the exchanging of specimens, and accomplish many things that as yet have not been unveiled. If societies of this nature can be organized in connection with other branches of science, why cannot one be started in connection with Archaeology. There is no good excuse. A call is hereby made to the Archeologists of the United States to send their names to the committee which is as follows:—Warren K. Moorehead, Xenia, Ohio; Joseph Wigglesworth, Wilmington, Del.; Alvah Davison, Helmetta, N. J. Already a number of the leading dealers and collectors have forwarded their names and will become members should it be organized. We wish it success.

Growth of Autograph Collecting.

By FRANK D. ANDREWS.

The preservation and arrangement into collections of the old letters and written memorials of the distinguished men and women of our country was commenced early in the present century by a few persons of culture and literary taste, some of whom were by inheritance the fortunate possessors of the correspondence of prominent actors in the revolutionary struggle, and the important events connected with the growth of a new republic. The number of collectors continued to increase, though slowly, until in 1850-52 it received a new impetus through the publication of a series of well written articles, illustrated with *fac similes*, from the pen of the late Ben: Perley Poore, who was then an enthusiastic collector of a dozen years standing and possessing a remarkable collection of over five thousand choice specimens, embracing names prominent in American and European history of the period and of the past two centuries.

Of the French rulers, every king for three centuries was represented, and one of his most highly prized autographs was that of John Law, who promised such affluence and prosperity to France through his "Mississippi scheme."

Mr. Poore subsequently increased his collection to twenty thousand. His long residence in Washington, and connection with the leading

statesman of the country enabling him to acquire such an enormous collection without purchasing.

The war of 1861-65, brought into prominence the names of those who took an active part in it and created a desire in many to possess some written memento of those known to fame. Another factor in developing the pursuit was the amount of material brought to light in ransacking the attics and old houses, caused by the high price paid for paper, a portion of which was secured by collectors, or formed the nucleus of new collections. The instances know when too late of the valuable material destroyed are numerous, and represent the ignorance regarding such matters.

It is reported that a load of the old papers of Aaron Burr were carted through the streets of an eastern city to the paper mill. The correspondence of Samuel Huntington, a signer of the Declaration of Independence, and Governor of Connecticut, was burned by a tenant who moved into the house he formerly occupied. The papers of Benjamin Harrison, another "signer," met with the same fate during the war of the rebellion. Numerous other cases might be cited of the wholesale destruction of old papers, rich in historical material, and valuable to the collector.

There has been a growing appreciation for the written memorials of the great and good, and better care is taken of their correspondence. Collectors continue to increase, and

among their number are found historical students, antiquarians, and others of literary tastes. The pursuit, when properly conducted, is an intellectual one, bringing to the collector a vast amount of knowledge regarding the men and women who have helped make history, and is of value to him in many ways, the consideration of which we will leave for another number of the OBSERVER.

A Letter by Washington.

The following is a copy of an autograph letter of George Washington, written when President, to his nephew Robert Lewis, regarding the payment of his debts, in the collection of Frank D. Andrews:

PHILADELPHIA, 17th., APRIL, 1796.

DEAR SIR,

Your letter of the 6th. ult. has been duly received; & this will go under cover to Mr. Pearce; as, from the tenor of it, it is not unlikely you may be at Mount Vernon about this time.

You do not seem to understand me yet, relative to paying my debts. I neither want every driblet, as it is received, sent to Mr. Pearce, or deposited in the Bank of Alexandria; nor the WHOLE withheld until all are collected. My idea on the subject is simply this. On the first of January, in every year, ALL the Rents become due. On some other certain day (if not paid) they are DESTAINABLE. It is presumable then, that between those periods you may have visited the Tenants, or given them notice that the Rents MUST be paid in that time; or distress will be made, and it is expected that such collection as are made in that time will be paid, as above, for my use; for AFTER THAT; if you withhold the money, so collected until the tardy tenants pay; or it can be received in a court of Justice, I may lie out of it a considerable time—you run a hazard in keeping it by you—while no one is benefited by the collection.

I did not know how the matter between Mr. Ainess & McCormick stood. I wanted nothing more than my right; and this if possible, by fair & amicable means. I'll not litigate (if it can possibly be avoided) on my own account, and sure I am I will not (knowingly do it) to gratify the prejudices, or passions of any other.

As to the JACK as it is now too late to send him to you for the present season, their will be time enough between this and the next, to decide on the best disposition of him. Presents my best wishes, in which your Aunt unites, to Mrs. Lewis and be assured of the sincere friendship and affectionate regards of

Your Uncle

GO WASHINGTON.

MR. ROBT. LEWIS.

A Distinguished Receipt-Book

Mr. Henry Irving, the actor, recently purchased the receipt book of the old Walnut Street Theatre, Philadelphia, from 1834 to 1841. It contains a hundred or more pages filled with receipts for engagements and salaries, and signed by the distinguished actors of that day who visited Philadelphia including Junius Burtus Booth, T. D. Rice, the original "Jim Crow," J. E. Murdoch, Jefferson the farther of Joe Jefferson, "Gus" Adams, John R. Scott, "Yankee" Hill, P. T. Barnum, the elder Thorne, "Fallstaff" Hackett, "Sol" Smith, Logan, Passlœ and a host of lesser lights, have their names in this interesting relic.

AUTOGRAPHS.

There is an autograph of Galileo in the Gunther collection.

A letter of Oliver Cromwell brought \$30 at a recent sale in Paris.

An old account-book in the handwriting of President Andrew Johnson, used by him when tailor, is in the possession of George W. Childs, of the Philadelphia Ledger.

The collection of autographs and engraved portraits belonging to Dr. Edward H. Leffingwell, of New Haven, Conn., has cost him upwards of \$20,000. Several years ago he made a catalogue of his treasures so that he could dispose of them at will. In the Historical Society's rooms is a handsome cabinet made by Dr. Leffingwell's order which will not be opened until after his death.

The Public Library in Newburyport, Mass., contains some interesting autographs arranged so they can be seen by visitors. Among them are some ship passports signed by George Washington, John Adams and James Madison. An old sermon of Bishop Bass, the first Prof. Episcopal Bishop of Massachusetts. Letters, or manuscript of Hannah Gould, the poetess; Caleb Cushing, the distinguished lawyer and Attorney General; John Quincy Adams, President of the United States and many others.

The United States Mint.

By CARLTON.

THE subject of a National Mint for the United States was first introduced by Robert Morris, the patriot and financier of the revolution. As head of the Finance Department, Mr. Morris was instructed by Congress to prepare a report of the foreign coins, then in circulation in the United States. On the 15th of January, 1782, he laid before Congress an exposition of the whole subject. It was through his vigorous efforts, in connection with Thomas Jefferson and Alexander Hamilton, that a mint was established at Philadelphia in the early history of the Union. Nothing of interest transpired until the 15th of April, 1790, when Alexander Hamilton, Secretary of the Treasury, was instructed to report a proper plan for the establishment of a National Mint, and he made his report at the next session. An act was framed, establishing a mint, which finally passed both Houses and received the approval of President Washington, April 2, 1792.

Ground was purchased on Seventh street near Arch, and after removing an old still house that stood on the site, the requisite buildings were erected thereon. This was the first structure constructed in the United States by the authority of the Federal Government. The edifice was of plain brick, and was under the supervision of David Rittenhouse, Director of the Mint, who laid the

corner-stone on July 31, 1792, and in the following October operations of coining were commenced. It was occupied about forty years. On the 19th of May, 1829, an Act was passed by Congress locating the Mint on its present site.

On the 2nd of March, 1829, provisions were made by Congress for extending the mint, the bullion for coinage having increased beyond the existing accommodations.

This edifice is still in use and stands on a lot of ground on the northwest corner of Chestnut and Juniper streets, fronting 150 feet on Chestnut street, and extending 204 feet to Penn Square, (formerly the largest public square in Philadelphia.) The corner-stone was laid on the 4th of July, 1829, by Samuel Moore, then Director. The building is of marble and of the Grecian style of architecture, and the roof being covered with copper. The building presents on Chestnut street and Pen Square a front of 123 feet, each front being ornamented with a portico of sixty feet, containing six Ionic columns. The cost of this building amounted to \$209,230, including ground, machinery, fixtures, etc.

Until 1836 the work at the mint was done entirely by hand and horse power. In the above mentioned year steam power was introduced.

A few half-dimes were issued toward the close of 1792, and in the following year operations commenced in earnest. The coinage affected from the commencement of

the establishment until the close of year 1800 may be estimated in round numbers at \$2,534,000; the coinage of the decade ending 1810 amounting to \$6,971,000; within the ten years ending 1820, \$9,328,000; within ten years ending 1830, \$18,000,000; and the whole coinage from the commencement of the institution to 1830 at \$37,000,000.

This is merely a few points in regard to the founding of the mint at Philadelphia. If the readers have not already made this institution a visit, they should take advantage of their next trip through the city of Borth-erly Love, and stop in at this interesting building.

Philadelphia may be looked up to as the mother of our Republic, for in old Independence Hall, which still stands on Chestnut street, between 5th and 6th, was signed the Constitution of the United States.

Another feature of this city is that it was selected as the best location for the first mint, and although New York has hankered after this establishment for many years, it still stands in the Quaker City, and is very likely to remain there.

A Rare Coin.

Carl Scheban, of Kansas City has a coin said to be very valuable. It is one of seventeen gold pieces coined in the Mint at San Francisco in 1879. For some unexplained reason the dies were destroyed after these coins were made. It is a curious piece of United States money,

of the face value of \$4. One side bears the head of the Goddess of Liberty, the date 1879, and around the rim are thirteen stars with the following figures and letters between them: "6, G, 3, S, 7; C, 7, G, R, A, M, S." On the reverse side is a five-point star in the centre, underneath which is the word "Met." In a circle outside the star is the inscription, "E Pluribus Unum" and "Deo Est Gloria." There is still another circle outside the inscription, bearing the words, "United States of America, Four Dol."—*New York Sun*.

How Postage Stamps are Made.

In printing steel plates are used, on which 200 stamps are engraved. Two men are kept at work covering them with the colored inks and passing them to a man and girl, who are equally busy at printing them with large, rolling hand presses. Three of these little squads are employed all the time, although ten presses can be put into use in case of necessity. After the small sheets of paper upon which the 200 stamps are engraved, have dried enough they are sent into another room and gummed. The gum used for this purpose is a peculiar composition, made of powder of potatoes and other vegetables, mixed with water, which is better than any other material, for instance, gum-arabic, which cracks the paper badly. This paper is also of a peculiar texture, somewhat similar to that of bank notes. After having again been dried, this time on little racks which

are fanned by steam power for about an hour, they are put in hydraulic presses, capable of applying a weight of 2,000 tons. The next thing is to cut the sheets in halves; each sheet, of course, when cut contains 100 stamps. They are passed to two other squads, who, in as many operations, perforate the sheets between the stamp. Next they are pressed once more, and then packed and labled and stored away in another room, preparatory to being put in mail-bags for dispatching to fill orders. If a single stamp is torn or in any way mutilated, the whole sheet of 100 is burned. Five hundred thousand are burned every week from this cause. For the past twenty years not a single sheet has been lost, such care has been taken in counting them. During the progress of manufacturing, the sheets are counted eleven times.

— — —
Newbury Serpentine.
— — —

Whoever visits Newbury, Mass., if he be interested in Mineralogy, will spend some hours at the Devil's Den.

The excavation was made by digging for limestone. Its discovery by Ensign James Noyes was considered an event of such importance that Judge Samuel Sewell mentioned it in his diary: "1697 Col. Pierce gave an account of ye body of limestone discovered at Newbury, and the order of the selectmen to prohibit any persons from carrying any more away under ye penalty of twenty shillings. It seems they

have begun to come with teams thirty in a day. The town will have a meeting and bring it to some regulation."

He also thus writes in *Phaenomena quaedam apocalyptica*, published 1697: "This summer Ensign James Noyes hath happily discovered a body of marble at Newbury, within half a mile of the navigable part of Little River, by which means very good lime is made within the province."

From this extract it would seem that this limestone was the first discovered in Massachusetts. Previous to this discovery, lime had been manufactured from oyster and clam shells; but for nearly a century afterward lime of the best quality was made annually in Newbury, and some amusing stories are told showing its strength and tenacity.

After a time the industry declined, to be revived about forty years ago; but for some reason even with modern appliances, the business was not remunerative.

Forteen years ago, at the time so sadly remembered by many as the "silver craze," a company was formed for the quarrying of marble, and handsome specimens were sent to Boston. This serpentine, the so-called green marble, when polished has been made into a variety of handsome ornaments. In the drawing room of Mrs. Harriet Prescott Spoffard, at Deer Island, the mantle-pieces have tiles of serpentine. The beautiful green shades, from the darkest to the lightest, and

sometimes found clouded and again distinct. At times we find the fine dendritic tracery. Unfortunately the presence of seams of silky chrysolite renders the marble unfit for many uses.

But whether polished or unpolished the serpentine makes fine specimens for the cabinet, and the spot is often visited by parties, both of young folks and those whose interest in such subjects will never allow them to grow old.

A drive or stroll of three miles over the old turnpike from Newburyport to Boston, brings us in sight of the three sister poplars which crown and mark the spot. Over the wall, through the pasture, and here we are at the Den. Traces of fire on the rocks, tell us of former parties, as well as the marks of picks and chisels. In case of a shower, the overhanging rocks afford ample protection, but if, as when I last visited it, the sky is clear, and the company a merry one, who would not wish the afternoon longer. There are plenty of specimens lying around, but the better ones are uncovered by the aid of a pick.

Besides serpentine we can find wollastonite, satin spar (calcite), diorite, dolomite, and massive garnet, both alone and with olivine.

The return home with well-filled and therefore heavy baskets is very likely to be more merry. A specimen from my basket will be included in the first premium of THE SCIENCE OBSERVER.

Hints on Taxidermy.

BY HARRY W. WILKINS.

Now comes the question "what are the necessary tools." There will be but very few, and those of the simplest character.

1. A first-class pocket knife. One with two good blades is required. With the knife is connected a strap, which should be used at intervals, to keep the blades in fine cutting condition; they should be as sharp as razors. The strap cannot be used to much; and of course now and then honing will be necessary. Always use the strap quite freely before putting the knife away for future use. Do not use the knife for any other purpose.

By the above directions it will save an infinity of trouble, for if the knife once becomes dull, it will require considerable time and trouble to replace the edge.

If you can secure a small scalpel it will be advisable to do so. They are not expensive, and are made expressly for dissecting; and the flattened end cannot be surpassed for separating the skin from the flesh, there being no danger of cutting it. The strap should be used freely on this, and before putting it away give it as much as you please, too much is impossible. Keep the blade covered with a leather sheath, which you can make yourself.

2. A pair of very stout scissors, not very long.

3. An assortment of needles and thread.

4. A couple of steel knitting-needles.

This is about all the necessary implements; although a pair of wire-cutting plyers will be a gladly received companion; as you will also find a pair of forceps for placing the eyes.

Now to work.

Plenty of cotton wool will be needed to begin with.

Next an assortment of glass eyes. These can be purchased cheaply at all taxidermal shops.

Some eyes will have to be made, as they cannot be purchased at these shops.

The best plan is to procure dolls eyes before they are colored. Paint the necessary coloring on the inside with oil paints and a very fine brush. When the paint is dry, fill the eye with wax; cut a short piece of wire for a pin, stick it into the wax, and you will have a serviceable eye.

You must get some medical man to give you an order upon a druggist to supply you with half a pound of corrosive sublimate.

Get the druggist to reduce it to an impalpable powder, but on no account do it yourself. The sublimate is a deadly poison, and if you let the dust fly about it will get into your eyes and nostrils, and do no small damage. You will also want a cake of white wax, and some methylated alcohol—say a quart.

The dissolving of the sublimate will take several days.

Pour about one-thirds of the al-

cohol into a bottle, also a table-spoonful of the sublimate, cork tight and shake from time to time during the period it is dissolving.

(To be Continued.)

SIFTINGS.

The corner stone of the White House was laid on the 13th of October, 1792.

There are about four hundred of the Bermuda Islands, but the mostly small and valueless.

The highest known peak of the Andes in South America is that of Aconcagua being 23,910 feet above the level of the sea.

From 1851 to 1886 gold has been dug out in Australia to the value of £306,500,000; of this Victoria contributed 55,000,000 ounces.

At Americus, Ga., they have a spring whose water will petrify fruits. Strawberries treated in this way are a favorite kind of jewelry.

An English syndicate is about to purchase the Mulatos mine, in Mexico. Their offer of £660,000 for the property has been accepted.

The once famous and extensive forest of Lebanon has dwindled down to the dimensions of a mere thicket, numbering but a few hundred trees.

There is a beautiful uncertainty about the value of the copper cents of Mexico. In Vera Cruz, for instance, it takes 104 of them to make a dollar, while in Chihuahua ninety-five will pass for a dollar.

Rosewood is, if properly worked, the most durable wood, and may, even after a hundred years' use, be polished again so that it will look like new. It is extremely hard and strong and becomes harder with age.

Out of some 10,000 species of birds recognized by ornithologists, there are 850 species and sub-species which make their home in North America. There are eighty-two others which find their way to this continent as stragglers from other countries.

Naptha and benzine are light products of the distillation of petroleum; the former has the lowest specific gravity. Benzole proper is one of the distillates of gas tar. Methy-alcohol, or wood naptha, is all alcohol obtained as one of the products of the destructive distillation of wood.

EXCHANGES.

A three line notice in this column free to subscribers. To those not subscribers 10 cents per every three lines.

A foot-power scroll saw with lathe attachment and 50 patterns for U. S. or Foreign coins, Indian relics, etc. Box 1116, Vineland, N. J.

Pair 10½ clump, nickeled roller skates, for coins, minerals, stamps, Indian relics, etc. Box 1116, Vineland, N. J.

A card hand inking printing press and outfit, for offer of coins, birds, egg, minerals, etc. A. C. S., P. O. Box 1178, Vineland, N. J.

A good piece of Indian pottery, from Greenwich, N. J., for every large U. S. cent, or for every Foreign coin, or for ever cent of the present style of 1871, 1872, 1873, and 1877; also for every nickel cent of 1857 and 1858. A. C. S., Box 1178, Vineland, N. J.

Good specimen of petrified wood, (size 1x1½) for every perfect Indian arrow-head sent me. M. G., Box 497, Vineland, N. J.

A 7-shot 32-calibre Smith & Wesson revolver, good condition, for minerals, coins, Indian relics, etc. A. C. Smith, Vineland, N. J.

A piece of petrified wood for every perfect arrow-head sent me. Harry H. Perkins, Box 368, Vineland, N. J.

Will exchange shells from Jersey coast, for shells of other localities, minerals, coins, etc. Box 1116, Vineland, N. J.

I have a collection of about 900 varieties United States and Foreign postage stamps, in an International Album, which I will exchange for offer in minerals, coins, Indian relics, etc. Some of these stamps are quite rare. It will pay you to correspond with me. Send for description. Angus C. Smith, Box 1178, Vineland, N. J.

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is agent.

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READ.

COLLECTIONS FREE.

Wishing to bring this magazine before the public, and secure a large subscription list, by which we will be enabled to enlarge the OBSERVER to one of the largest and most interesting magazines treating on the development of Science; this being our wish we hope, with the encouragement of the Scientific Arena, to be able to fulfill, if not be in advance of our expectations. We have therefore decided to award the following premiums to the four persons procuring the four largest number of subscribers to the OBSERVER before April 1st:

A COLLECTION OF MINERALS

will be presented to the one procuring the largest number of subscribers before the above named date. This collection does not contain a worthless lot of fragment, as the smallest specimens will not range smaller than 1x1 inch. It will consist of 100 varieties, among which will be a number of Indian Relics.

A COLLECTION OF COINS

will be presented to the one procuring the second largest number of subscribers to the OBSERVER before said date. This collection will be made up of United States and Foreign Coin, the old U. S. cents will be a prominent feature. The collection will contain 75 varieties.

A COLLECTION OF BIRD'S EGGS

will be presented to the one procuring the third largest number of subscribers to the OBSERVER. This collection will consist of 100 varieties, among which will be some valuable specimens.

A COLLECTION OF STAMPS

will be given to the one procuring the fourth largest number of subscribers to the OBSERVER before said date. The collection to consist of United States and Foreign. Among the most prominent in the U. S. will be a number of old date and Department stamps. There being in all about 100 varieties.

If the premiums offered by us are not what we guarantee, they can be returned, and a good commission will be allowed on all subscribers secured by the winners.

The above collections will be described in full in a later number of this magazine.

THE SCIENCE OBSERVER,

VINELAND, N. J.

P. O. Box 1178.

JOSEPH WIGGLESWORTH.

Dealer in

INDIAN AND MOUND RELICS

—of all Kinds,—

WILMINGTON, DELAWARE.

ARROWHEADS.

I have a large stock of these from the different States. I mix them up in the different forms, localities, etc., at .60, .75, and \$1.00 per dozen. A fine grade of arrowheads for the dealer or collector, many odd formed, at \$6.00 per hundred.

SPEARHEADS.

Some very fine ones ranging in price from 25 cents to \$2.00 each.

SCRAPERS.

The small notched scrapers that usually sell for 50 cents, I now sell at 25 cents. Oval scrapers, 20 to 75 cents each.

WAR CLUB HEADS.

The flint heads used on war clubs chipped all around the edges; price according to workmanship; .60, .75, and \$1.00 each.

GROOVED AXES.

All sizes and from different localities. The prices for ordinary forms, but very fine specimens range from 75 cents to \$2.50. Odd forms, which it would be extremely hard to duplicate, \$3 to \$5.

CELTS.

Or ungrooved axes, in all manner of shapes and sizes, from 40 cents to \$1.25.

DRILLS.

The specimens range from good to fine, 30 cents to \$1.50 each.

PESTLES.

I have a limited number of fine pestles which show great age. Prices according to size, \$1.25 to \$2.00.

PIPES.

These are among the rarest of stone relics. They are of all sizes and shapes. Those that are not quite perfect and sold at from \$1.50 to \$5.00. Fine perfect ones from \$5.00 to \$25.00 each. They are extremely rare and hard to obtain.

ORNAMENTS.

These are taken from the Mounds in the West and are usually made of a variety of slate, making a very pretty specimen. Perfect ones, \$1.25 to \$2.50 each.

Besides the above specimens, I have others, too numerous to mention. Advanced collectors will do well to correspond with me. As I devote my entire time to my business, I am enabled to fill orders with dispatch. Satisfaction guaranteed.

My \$2.50 COLLECTION

BY EXPRESS

Contains 1 grooved axe, 1 celt, 1 pestle, and 6 fine arrowheads. Expressage unpaid.

JOSEPH WIGGLESWORTH,

Wilmington, Delaware.

Do not fail to secure a copy of

The Science Observer

—For—

—MARCH—

The March number of the SCIENCE OBSERVER will contain special inducements for those securing subscribers to the above mentioned Magazine.

We are endeavoring to obtain 2000 subscribers by June 1st, and to do this we will have to make special inducements.

Advertisers will also share in the inducements offered. The greatest advantage will be to have a large subscription list.

We ask all readers to subscribe, and also to persuade others to do the same, for on your 50 cents is based the prosperity of THE SCIENCE OBSERVER.

Yours Truly,

THE SCIENCE OBSERVER.

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Good specimen of petrified wood, 5000 lbs., for every pair of Indian arrow-heads of any. M. G., Box 117, Vineland, N. J.

A 75-horse power big Southey & Wesson 4-cylinder, good condition, for minerals, coins, Indian relics, etc. A. C. S., Box 1178, Vineland, N. J.

A piece of petrified wood for every petrified arrow-head sent me. Free of charge. Box 98, Vineland, N. J.

Will exchange shells from Jersey, except for shells of other localities, minerals, coins, etc. Box 1116, Vineland, N. J.

Have a collection of about 300 various United States and Foreign post-25 stamps, in an International Album, which I will exchange for other minerals, coins, Indian relics, etc. Some of these stamps are very rare. It will pay you to correspond with me. Send for description. A. C. S., Smith, 1003 1178, Vineland, N. J.

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A COLLECTION OF MINERALS

will be presented to the one procuring the largest number of subscribers to this magazine in 1900. This collection of minerals and coins will be made up of United States and Foreign coins, minerals, shells, Indian relics, etc. I will not set an arbitrary price, knowing which will be a number of Indian relics.

A COLLECTION OF COINS

will be presented to those procuring the second largest number of subscribers to this magazine in 1900. This collection will be made up of United States and Foreign coins. The collection will consist of 100 coins.

A COLLECTION OF INDIAN RELICS

will be presented to the one procuring the third largest number of subscribers to this magazine in 1900. This collection of Indian relics and coins will be made up of Indian relics, etc.

A COLLECTION OF STAMPS

will be presented to the one procuring the fourth largest number of subscribers to this magazine in 1900. This collection of stamps will be made up of United States and Foreign stamps. Among the stamps procured to the U. S. will be a number of old blue 2-cent 10-cent and 5-cent stamps. They will be made up of 100 stamps.

If the premiums offered by us are not of your great value, they can be returned, and a substitution will be allowed on all side written, secured by the winners.

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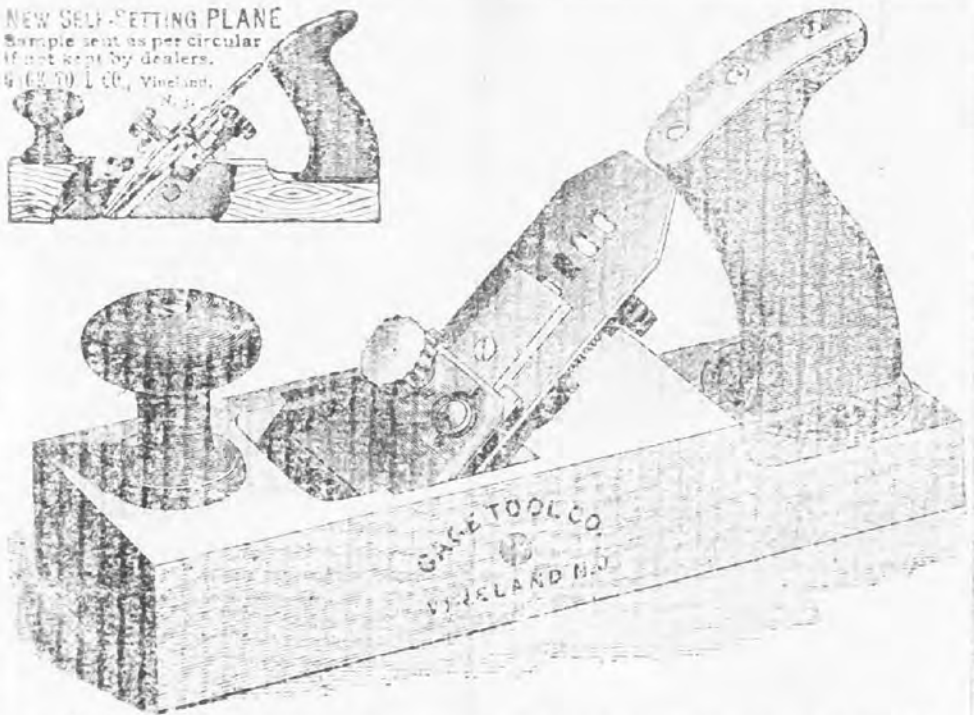
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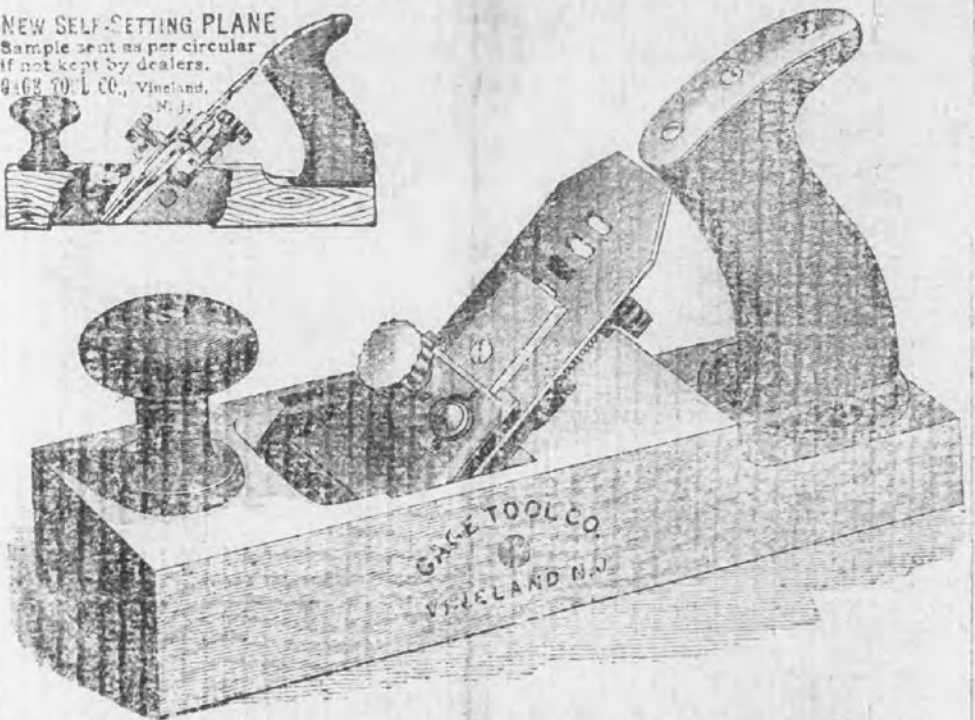
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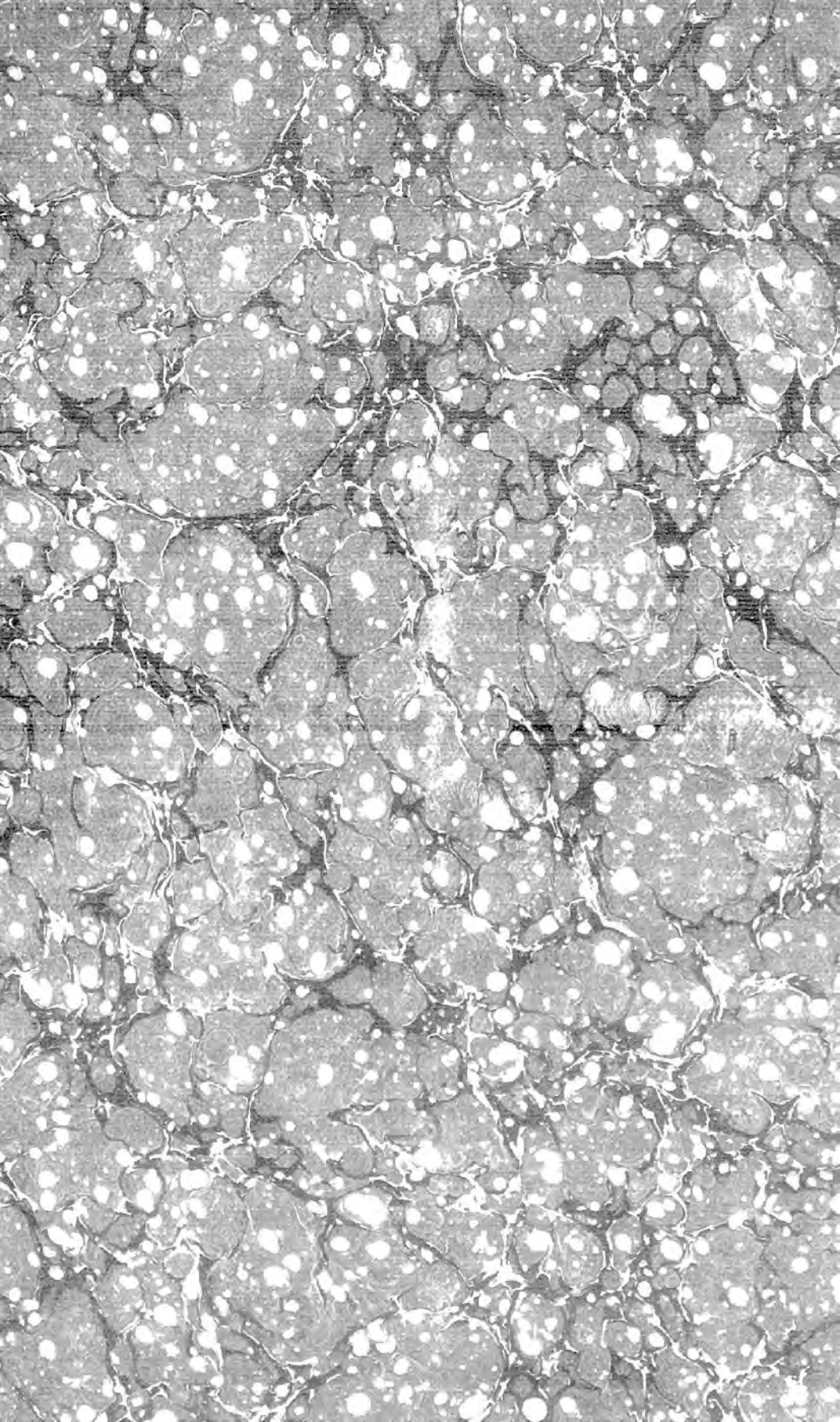
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