

## Agricultural.

### A Word About Silos.

So far as silos constructed and used last season have come under our observation they have not withstood well the combined action of acetic acid and water and moisture. This relates to silos constructed of stone under ground and plastered with hydraulic cement. The cement, under the combined action of the acid and external water, will crumble and fall off, leaving wide areas of the walls in a denuded condition. In all silos acetic acid is developed to a greater or less extent, and this in the form of vapor comes in contact with the lime in the cement and forms a fixed salt, an acetate. When this occurs the wall is weakened and falls as soon as the contents of the silos are removed. It should be known that cemented walls are not impervious to the inflow of water. Although cisterns will hold water, if left empty in wet places, water will find its way through from without, and numerous silos constructed on the sides of hills where there are springs were found to have several feet of water in them last spring. Considerable loss resulted from this cause. All silos should be constructed with drains, and it is very important that the drain should be trapped so as to prevent a current of air from passing in under the contents of the silo. As a rule, where silos are constructed underground it will be better to plank them inside of a rough, dry well. The planks will last many years and need but few repairs. If ensilage is to hold its place in popular estimation, much is to be learned in regard to the construction of pits and in methods of ensilaging. There is little doubt but that the cutting process, which is so expensive and laborious, may be dispensed with, and it will be found that it is better to partially dry the fodder in the field before putting it into the pits. If 25 per cent. of the water is removed it will cost much less to handle the fodder and the value will not be in the least diminished.

### Straw in Place of Hay.

Colonel F. D. Curtis has been experimenting in feeding farm animals upon straw in place of more costly hay, and finds a profit in it, provided a suitable amount of grain be given with the straw. Last winter he found himself short of hay, but with plenty of straw, and he gives in the *New York Tribune* his experience in substituting the cheaper for the dearer fodder. The straw was fed chiefly in cold weather, as the animals had a better appetite than after the weather became warm in the spring. A horse ate 84 cents worth of meal and 60 cents worth of straw in seven days, that would have eaten \$2 worth of hay in the same time, if hay alone had been his food, thus making a saving of more than one-fourth. Milch cows working oxen, and young cattle all did well with straw and corn fodder as a part of their ration. The butter made was of excellent quality, and the milk yield highly satisfactory. He found that light straw for horse driven on the road is superior to hay, as they will not so readily overfill themselves as with hay. Plenty of grain must be given with straw to animals of hard work. He believes that farmers can afford to sell a portion of their hay, and then purchase grain to feed with their straw, and make a profit by the exchange. It is no new thing to feed straw in winter to farm animals; but it was not until such experimenters as Professor Sanborn and the agricultural chemists showed the philosophy of the practice that farmers have felt free to adopt it as sound policy.

### Home-Made Fertilizers.

The following directions for making home-made fertilizers are from the report of Dr. Cutting, Secretary of the Vermont Board of Agriculture: "Take 500 pounds of bone meal (dust), the finer the better. Sift it if you can get a fine sieve, so as to save 100 pounds of the finest. Put the coarse part of it into a tub or box, and wet with water until it is moist; it will take three or four pailfuls; then slowly add two gallons of sulphuric acid, which weighs at least 14 pounds to the gallon. Stir continuously; it will foam and boil. Let it stand twelve hours, then add another gallon of acid as before, and while it is hot, so that the lumps break easily, add the other 100 pounds of bone meal. This will then weigh about 250 pounds; add to it immediately 1650 pounds of dry loam, woods dirt, muck, or, if these are inconvenient to get, you may add sand, though I like woods dirt or muck best. This, of course, has been previously pulverized and sifted. Should you choose, put all together, mix perfectly, and you have a ton. It has cost you about \$8, and as far as my experiments go, and others that have tried the same way, it is equal to any ton of nitrogenous fertilizer used. I use about two hundred pounds of this to the acre, and find it as good as any fertilizer I ever used costing \$45 a ton. I find it better than bone out with sulphuric acid until it contains 15 per cent. of soluble phosphoric acid, such

as Prof. Sabin in his addresses has put down as the most valuable superphosphate. I arrived at this formula by experiments against reason, as the chemist would say; but as I have explained, it is just the mixture that is acceptable to the little rootlets of various plants. Next to this I find from 75 to 100 pounds of bone-dust to the acre, without any preparation except to mix with dry woods dirt, so it can be evenly distributed—say 150 pounds of dust to 500 pounds of loam—and then apply broadcast, as before, putting this amount on two acres."

### Forms and Habits of Fishes.

#### Professor Bickmore Tells About Spinal Development.

The formation, coloring and curious spinal development of the numerous varieties of bony fishes were illustrated and described in a very entertaining manner by Prof. Bickmore at the American Museum of Natural History. A type drawing of a fish's vertebrae was exhibited on a screen, showing that all the different bony parts of a fish are essentially the same. Attention was called to the variation in the forms of fishes, and Prof. Bickmore explained at some length the various combinations in the formation of fins. From the common dorsal and caudal fins this part of a fish's anatomy is so developed as to form wings which enable fish to fly, and legs which enable fish to creep on the earth.

A drawing of a flying fish was displayed on the screen and its characteristics were briefly described. The Professor said he had seen flying fish spring out of the sea when the surface was as smooth as glass and fly a considerable distance. The dolphins, he said, exhibited great sagacity in chasing the flying fish. A dolphin can usually judge a flying fish's power of remaining in the air so accurately that the former can swim under water and come up to the surface just in time to catch the flying fish as it drops from exhaustion. The dolphin is a voracious fish, and often hunts around among rocks and weeds for its prey. While fishing for blue-fish, off Cape Hatteras some time ago, one of Prof. Bickmore's party caught a dolphin, which attracted their attention by leaping out of the water. The body of the fish was bright yellow, and its spinal development was light blue in color. While dying the dolphin's color changed from yellow to silver, then from silver to gold. The gold and silver hues then alternated, chasing each other like fleecy clouds.

Fishes have a very keen sight, but their senses of hearing and smelling are not so acute. Any sudden changes of light are quickly noticed by the members of the finny tribe. The eyes of fishes vary in size. Some fishes, which swim down near the deep bottom of the sea, where there is little, if any light, have large eyes and are also provided with a phosphorescent appendage looking something like a bundle of rags, which apparently lights their pathways through the dark and mysterious depths. There is a class of fishes called "star-gazers," whose eyes are so placed that they look directly upward instead of onward. Another kind of fish has its eyes placed nearly half-way back on the top of the body. The eyes of the sun fish are set in a soft and elastic cushion which can be closed completely over the eyes when ever the fish is so disposed. Fishes that lie on one side, like the flounder, have one eye larger than the other. The lecturer described and illustrated a fish which is supplied with fins something in the form of legs.

This fish, he said, frequently made long journeys over the ground in search of water when the stream or lake in which it was originally had been emptied by drought. The peculiar shapes, colors and habits of angel fishes were touched upon. Not only the bodies but the fins of some angel fishes are found to be completely covered with glistening scales. Bands of various colors encircle the bodies of most of the fishes of this class, and the variegated appearance of some angel fishes remind a beholder of the top of a Japanese box. The angel fishes swim around in quiet lagoons, and procure a large part of their food by knocking insects off from overhanging bushes along the shore. Their peculiar shaped mouths—something like a bird's bill—enable them to shoot tiny drops of water, with fatal force, at their prey. Fishes have a great many nerves but very few brains. There is in each fish a set of muscles and a set of nerves for each set of vertebrae.—*N. Y. Times.*

Cassell, Pettey, Galpin & Co., publishers for Robert H. Smith, Professor of Engineering in the Mason Science College, Birmingham, an excellent little hand-book on "Cutting Tool Worked by Hand and Machine," which contains fourteen folding plates and fifty-one wood-cuts.

The customs collectors at Boston New York, Baltimore and Portland have been instructed to receive proposals for the construction of sheds for imported cattle at the quarantine stations to be established at those ports.

### Memorable and Bloody Combats between Canvasmen and Townsfolk.

"I was just reading," said an old showman, "a letter from Billy Cole, and it set me thinking about men being killed with circuses. I've been with shows many a year; used to travel with old Dan Rice and Uncle John Robinson and Forepaugh, and I've seen many a tough battle between the people and the showmen. When I joined they used to hire canvasmen as much for their ability to fight as to work. A canvasman watching the tent is just like a man watching his home. He will fight in a minute if the outsider cuts the canvas, and if a crowd comes to quarrel he will yell 'Hey, Rube!' That's the circus rallying cry, and look out for war when you hear it. Almost every man about a show, no matter what he is doing, will start and rush for the place that cry comes from; and he will take any weapon he can lay his hands on, too. Sometimes the parties that cause the trouble are knocked down and the matter ends, and sometimes others take their part and the fight lasts a long time. I've heard them yell 'Hey, Rube!' many a time, and seen as bad fighting as I did in the war. I was with the old Van Amburgh party when they did tough work, I tell you. There was the fight at Steubenville, Ohio, in 1857, when they killed three of the outsiders, and lost a man in Murfreesboro, Tenn., when John Lins got killed. In 1853, at Toledo, a boy tried to get under the canvas and a showman struck him. Some one raised the cry of 'murder,' and there was a fight, and finally they arrested the whole show. In 1855 we had it hot at Rockland, Me. A party forced themselves into the side-show, and tried the same game at the circus door. They were drunk. Billy Simpson, the boss canvasman, had men at the big show door ready for them, and the Mayor read the riot act, and said he would deputize the showmen to keep order. The gang thought they could get in anyway, and at last some one was hit and the collision commenced. It was a fine party to tackle, and the way that gang was done up was a caution. Seven corpses, I think, and only one of them belonging to the show. When we got to Cohoes we had another just like it.

"In Paterson, N. J., about 1853, Dick Sands was told the gang was coming to tear his show to pieces, so he goes over to New York and gets Tom Hyer, the fighter, who then kept the Punch House in the Bowery. Tom got a gang, and when the fight began it was a stunner. Hyer had about twenty men from the Bowery and some friends in Paterson, besides, and they went at it with a will. There's never been a big fight there since. What was the worst fight? Why, that one at Jacksonville, Texas, with the Robinson show in 1875. Noyes' show had a fight there once and four were killed, and the Orton show got out to pieces there. A bad town and bad men, and circuses don't show at night there. One drunken fellow goes into the Robinson show and seats himself on the ring-bank, and they threw him out bodily. He went up town and got a gang. They were going to run the show out of town. The Town Marshal told the men to protect their property, and they did. The gang waited around until evening, and when they were loading the show on the cars they commenced. Gil Robinson asked Uncle John what to do, and the old man says: 'Let 'em swear all they want to, but if they shoot, give 'em the best you've got.' A shot was fired, and they went at it. The show had about fifty carbines, and they were all in good hands. The fight began about half-past 3 o'clock in the afternoon and lasted until 11 at night. They charged and fought in the streets and about the cars, and twenty-three were killed and more than fifty wounded. It was a regular battle. The show lost seven men. They finally got the train away, but the people undertook to saw down a railroad bridge just out of the town. As the train passed it a volley was fired and one man killed. The next day they were at Crockett (then Huntsville), Houston and Galveston. The authorities took the show bills and sent out warrants for all the men whose names were on them, but they were lost by the Sheriff, and that night Robinson got his people and the most valuable part of his show on board a boat and went to New Orleans leaving a good deal of property behind him and giving up a dozen towns where he was billed to appear. The show has not been in Texas since.

"The reason the show loses so few men is because they are prepared for fight. As soon as it commences they seize the first weapon that they can find, and fight as bulldogs fight. No run there. They have to stay. If they run, they are simply going away from home and assistance. Then, you see, practice makes perfect, and they are generally cool and sober and know what to do. Forepaugh got into a row in Kentucky, and had a running fight for three days, and they finally sent a regiment from Louisville to protect

and get the show out of the State. John O'Brien used to have what was called the 'Irish brigade,' and woe it was to those they battled with. There have been several cases where the militia have been called out, and the whole show arrested. Cooper & Bailey's circus had a fight at Quincy in 1872, and a negro policeman was killed. The fire-bells were rung, the militia came, and every man belonging to the show was arrested and held until the following day, when it was shown that the policeman was in the wrong and the circusmen right. Harry Gise, the boss canvasman, was fined \$400, however, for hitting the policeman De Mott & Hilyard's circus was surrounded after a fight in Iowa, a few years ago, and all arrested. Besides these general rows I've to do you about there have been a great many cases in which a revolver has been drawn, usually by a drunken man, and the showman has dropped dead or mortally wounded. Many an owner of a show has died at its door, some drunken brute who wanted to force his way in firing the fatal shot. John May, a clown with Mable's show, was shot in Missouri in 1855 by a party who did not like his jokes.

James McFarland, of the Spaulding & Rogers party, was killed at Liberty, Mo., in 1858. J. Leonard, a doorkeeper for Buckley's exhibition, had his head cut off in Georgia, by a man to whom he had refused admission because he was drunk. In 1866, Jack Robinson was killed at the door of Robinson's circus in Crittenden, Ky., and a fight followed in which five other lives were taken. Gil Eaton, an agent of Robinson, was killed in the same way at Lincoln, Ill., in 1890. That was a bad year for doorkeepers and proprietors. Bill Lake, proprietor, was shot down at his door in Grandby, Mo. Den Orton, of the Orton show, was killed at the door while showing at Boston, Texas. Harry Whitby, of the Whitby & Cooper party, was killed at the door in Louisiana. Colonel C. F. Ames was fatally wounded at Dawson, Georgia. These all occurred in 1869. Bill Lake's widow married Wild Bill, and he used to stand at the door, gun in hand, but they never bothered him. It takes a man of nerve to tend a circus door, especially in the South. It's all right in large cities, but when you come to the small towns where the wild boys come in fill up with red liquor, and then go to the show, it's different. In Texas it's not unusual for a desperado to present a revolver when asked for a ticket, exclaiming: 'There's my ticket.' Sometimes they allow him to pass, but oftener a row ensues and the man kills or is killed.

### Domesticating the Partridge.

We believe that the partridge can be domesticated. An attempt was made some years ago on Long Island, which was partially successful. In severe winters at the West, during heavy snow falls, they have been known to approach granaries and barns, and to feed in common with poultry. We had, several years past, a somewhat singular experience with a single specimen of this shy bird, which may be worth relating, as it is a strong proof of the possibility of their domestication.

One evening we found a full-grown partridge under some currant bushes. It was a strong, fine bird, and did not seem afraid, although, after the habit of its kind, it was quite watchful. We easily captured it by hand and caged it, but its effort to release itself was so severe that we resolved to give it its liberty. Strange to say, it seemed grateful and allowed quiet handling. We had several broods of young chickens, and at feeding time it regularly appeared among them for its portion of food. At night it made its home on a low grape trellis, and on occasion of any one passing beneath it would make a slight noise and would permit a touch of the hand. A bit of red color in a dress or in any other shape always seemed to excite it, and it would chase the children up and down the garden walk as long as the offensive color was displayed.

As cold weather approached the bird sought warmer shelter, and found a roosting place in the chicken house very near the fowls. He had remained with us nearly the entire summer, and suddenly disappeared, the probability being that he was stolen.—*Catskill Examiner.*

At a recent scientific meeting in San Francisco an announcement was made of the discovery in Southern Oregon of a large deposit of nickel ore resembling that discovered in New Caledonia in 1864, the development of which by the French has so greatly extended the economical use of this metal. The new Caledonia minerals are known as garnierite and noumetite, both hydrated silicates of nickel and magnesia, occurring with chrome iron, steatite and other minerals found only in serpentine. There are, likewise, two of the Oregon minerals, one dark and the other pale apple-green, like those of New Caledonia, and closely corresponding with them in hardness and peel to gravit.

## Literary.

Mr. Arthur Nicola, F. G. S., has written a book entitled "Zoological Notes," which takes up the structure, affinities, habits, and mental faculties of wild and domestic animals, and includes many anecdotes concerning adventures among them, as well as sketches of some of their fossil representatives. Mr. L. Upcott Gill, No. 170 Strand, London, is the publisher.

Dr. George Macdonald's new volume of essays, which he describes by the name of "Oris," is worthy of far more consideration than its title is likely to obtain for it. Among the topics discussed are "The Imagination," "The Art of Shakespeare," "The Elder Hamlet," "Wordsworth's Poetry," "Shelley," and "True Christian Ministry." Sampson Low & Co., London, are his publishers.

"The Vazir of Lankurau" will be the first modern Persian play ever printed in Europe. The volume will comprise the Persian text, explanatory notes, a glossary, a grammatical introduction, and an English translation. The work will be out shortly, and will be used by Mr. Charles Scherer, the director of the school of living Oriental languages at Paris, for his course in the second half of the winter's session.

As a brief account of English authors Dr. J. Scherr's condensed "History of English Literature," translated from the German by M. V., and published by Sampson Low & Co., is worthy of some attention. Dr. Scherr praises M. Taine's work highly, though differing from him on many points. His first edition appeared nine years before M. Taine's, and is the only critical work on English literature that has recently come from a German author.

Miss Anna Buckland has written a book named "The Story of English Literature," which is one of the most fascinating works of its kind ever written. It strikes the happy medium between critical and narrative writing, and happily combines biographical and descriptive accounts of the great English writers, with a fair estimate of their chief works. It is just the book to put into the hands of the 16-year-olds. Cassell, Pettey, Galpin & Co. are the publishers.

Mr. Grant Allen's slender volume on "The Colors of Flowers," which is published by the Macmillans in the Nature Series, is expanded from an essay which originally appeared in the *Cornhill Magazine*, and was warmly commended by Mr. Charles Darwin for its originality. It is written in the interests of evolution, in which Mr. Allen heartily believes, and will be found within the reach of the non-scientific reader.

Baron de Malortie has written a work on "Egypt," published by Wm. Ridgway, No. 160 Piccadilly, London, which discusses the native rulers and the interference of foreigners in Egypt with a free hand. He enforces the opinion that the shortcomings of the native rulers are trifling compared with the blunders of their patrons, and that their mistakes are mainly due to foreign meddling and advice. Much valuable information is packed into the volume, which is the latest book on Egyptian politics.

### Points of Etiquette and Decoration.

Gentlemen do not wear gloves at dinner-parties.

The finger-nails should never be cut or cleaned in public.

The custom of removing the glove before shaking hands is no longer obligatory.

The latest thing out in table covers are of coarse netting over bright-colored silk.

Make your leave-taking short, and do not dally, but depart gracefully and politely.

Spun-glass napkins costing \$100 a dozen are a recent addition to the supply of luxuries.

A unique claret jug is in the form of an upright cocktail in beautifully enameled glass.

New shades for the vestibule are seen in white and ecru linen embroidered in Kensington designs.

Exquisite curtain draperies of Maras silk have a plain center, and borders of satin with gay floral designs.

There is a great demand for brass portrait plaques and plaque pictures done on porcelain for hall and library decoration.

New brass candlesticks to set on are made like censers, with a socket in the centre, and are accompanied by a tray and snuffers.

Lustra painting is a new art, and can be applied to every fabric from velvet to linen and also to wood and the various articles made of terra-cotta.

Pretty and inexpensive screens can be made by covering an ordinary clothes-horse with dark felt or plush, upon which Chinese crape pictures may be mounted.

In buttonhole-stitching the bottom of a flannel skirt, first double the flannel as if to hem it, and baste it in place. This will give firmness to it, and it will last twice as long.

Special marks of kindness and attention should be received with discretion, for it is far better to refuse privileges which were never intended.

It is not now considered correct to introduce visitors who are calling at the same time, and considerate visitors will obviate any awkwardness by taking their departure immediately upon the arrival of a stranger.

When at a dinner-party a gentleman is introduced to the lady whom he is to take in to dinner, he should converse with her until dinner is announced, when he should offer her his right arm and conduct her to the dining-room.

A new frame for small mirrors and pictures has the top and left side about one-half the width of the bottom and right side. It is covered with plush, and a small owl placed on a perch ornaments the upper right hand corner.

### To Explore the Everglades.

There is a prospect that the Everglades of Florida, celebrated in poetry and in history, yet withal a comparatively unknown land, are now for the first time to be thoroughly explored. The novel work is to be done at the expense of the *New Orleans Times Democrat*, and a number of thoroughly competent gentlemen, engineers, draughtsmen, writers and guides are already engaged in exploration. The Everglades are supposed to have been known as early as the time of Ponce de Leon, and it is insisted by some writers that he referred to this beautiful and poetic, though decidedly mysterious, miasmatic and swampy region when he gave to Florida its name, "The Land of Flowers." They first came prominently into public notice, however, when the Government went to war with the Seminole Indians, commanded by the wily chiefs Ocala and Billy Bowlegs. It may still be remembered that the conflict in question was a long, expensive, and, for a time, a most disastrous one. The Indians knew every foot of the vast swamps and dense forests into which they adroitly led our troops, while the latter in the intricacies of to them bewildering jungle became more and more mystified and discouraged as the unequal contest went on.

Many years have since gone by. The Seminole war has passed into history, and the once heroic band of savages has, in the Indian Territory, settled community, but the Everglades still remain silent and unknown. The expedition which is now to explore them has started from the mouth of the Kissimmee River, and it is expected that it will descend that stream into the much-talked-of Lake Okechobee, which is supposed to be in the centre of "The Dark Peninsula." Having fully explored the lake and the character of the lands in and around it, the trip is to be continued by way of the Caloosahatchie River and other smaller streams and the canal of the Diston Company to the Gulf of Mexico at Punta Roca, the point from which the telegraph cable now leaves the mainland for the West Indies, and from which it is expected that a regular line of steamers to New Orleans will ultimately be established. As has been intimated, the primary object of the interesting expedition is to give the world some account of a region which, for all practical purposes, is less known than Central Africa. Incidentally, however, it is expected that exploration will result in the opening of the rich lands of the Everglades to the cultivation of rice and sugar, and it may be in the establishment of extensive settlements and commerce.

### The Love of the Eagles.

The largest birds of the eagle species are found in the Wood River Mountains. They have often been known to omit devouring weakly rabbits and squirrels, and to have shown almost human kindness. An event which occurred ten days since at Foster's ranch above Hailey, fully establishes this trait of the Wood River variety. One of the ranchers saw a huge eagle flutter over the barnyard, interested in a fat turkey, and immediately secured his rifle. The first shot broke the eagle's wing, and in its crippled condition it wobbled and flopped around uttering screams of pain. The man was watching the result before firing again when he discovered another eagle coming from a distance. It was evidently a mate of the first one. Like an arrow it flew to the rescue, and, examining the wound and seeing its mate could not escape, it took hold of it by its claws and beak and flew to the mountain side, where it laid down the victim of the sportive hunter. During the past seven days the men on Foster's ranch have noticed each day that the mate carried food to the wounded bird regularly, and is yet feeding it upon squirrels, rabbits, birds and mice. Mr. Foster could kill the birds any day, but has refrained on account of the affection displayed between them. A small American flag will be fastened about the wounded bird, and when it again flies it will carry the emblem of freedom with it to the highest mountain peaks.