Mysteries of Nature

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STORY OF A LIME-STONE QUARRY.

One of Prof. Huxley's most interesting lectures was entitled "On a Piece of Chalk." Chalk is a species of limestone made up mostly of the shells of minute organisms, which appear to good advantage only under the microscope. The northern portion of France and the southern shores of England are wholly made up of chalk cliffs, which present a very striking appearance—the old name for England, Albion, being derived from a word signifying this white appearance. It is found that in the deep sea dredgings these minute organisms which constitute the chalk formation are still accumulating, though at a very slow rate. Chalk is therefore supposed to be a deep sea formation.

Rocks of corresponding age in other portions of the world are known as cretaceous, the word being derived from the Latin word creta, signifying chalk. These formations occupy a wide belt in the states west of the Missouri river, extending from Texas into British America, but there is not very much true chalk such as we are familiar with in the schoolroom in this area. The rocks, however, are made up of a species of shells, which are very beautiful and preserve still their iridescent color.

Another interesting locality where chalk is found is over the hills of Palestine—Mount Olivet and many of the summits of mountains further south in Palestine, and the hill on which Nazareth is built, being of that age and consisting, in considerable part, of pure chalk.

The chalk formations lie in about the middle of the geological horizon and are several million years old.

Coming down to our own line, we find the process of limestone formation still going on with great rapidity in certain localities. The peninsula of Florida illustrates this in the most striking measure. Sea shells are so abundant all along the east coast of Florida that they are washed up upon the shore in windrows, forming indeed the entire shore line, while as one proceeds to the interior of the state he finds successive windrows of shells that have formerly formed the shore line, showing how the land has grown by these slow increments. These shells as they are rolled by the water are broken up and much of them ground into fine powder, when they, all together, become cemented into a loose rock. The buildings of that region—especially the old fort at St. Augustine—are constructed of this rock, known as coquina.

Among the most interesting limestone strata of the earlier ages are the corniferous and the Trenton limestone, which appear in special development in the islands in the western part of Lake Erie, and in an area about Cincinnati, though the name was derived from Trenton, N. Y., where the rocks were first carefully studied. The corniferous and Trenton limestones are favorites everywhere for burning lime, while the solid blocks make the most substantial building material. The great locks at the Soo were built of corniferous limestone from Kelley island in Lake Erie, like Solomon's temple, every stone being fashioned at the quarry and carried directly to its place in the great structure, many hundred miles away.

This limestone is also sought for very widely for the flux in smelting iron, its freedom from impurities giving it special value.

The extent of these deposits over the United States is very surprising. While they appear at the surface at comparatively few places, they are penetrated by deep drill holes almost everywhere in the Mississippi basin, and in the Hudson river and Mohawk valleys.

From what we have already said of the origin of chalk and of the peninsula of Florida, it is easy to see that this extensive limestone stratum over the Mississippi valley implies in early geological ages an equally extensive expanse of ocean, which was slowly filling up with the sediment in some places, but with sea shells in others.

The amount of limestone in the world is enormous, being sufficient to make a stratum hundreds of feet thick over almost the whole habitable world. In this there is brought to light a method of nature to clear the atmosphere of impurities which is very interesting. Lime itself, as a mineral, is a very different substance from the limestone with which we are familiar. Limestone, as we ordinarily know it, is a carbonate of lime; that is, an element of lime is united to one unit of carbon and two of oxygen, which forms the deadly poison known as carbonic acid gas. All the limestone in the world, therefore, represents such an amount of carbonic acid gas withdrawn from the atmosphere, that should it be all set free, man and most land animals would find it impossible to live in it.

Those familiar with burning lime must have had their attention called to this fact by the deadly nature of the gas that settles around the lime kiln. The burning of lime consists in applying such a degree of heat that the carbonic acid gas is expelled from the limestone, leaving a simple form of lime, which reunites with oxygen when water is admitted to it. It is this carbonic acid expelled by heat which forms the deadly gas of lime kilns, making it dangerous for children or animals to lie down and sleep in close proximity to them.

The forms of sea life which have contributed to build up the starta of limestone are exceedingly various. Among the most interesting are the corals which have contributed to this result from the earliest times to the present. Corals are forms of animal life which are attached to the sea bottom—the animal leaving his shell below him as he dies, and continuing to live in the upper story, thereby gradually adding to the solid foundation from which he started.

In the Pacific ocean and Indian ocean, and indeed in most tropical regions, corals are still vigorously at work building up reefs around the shallow shores of islands and continents. In the Pacific ocean these reefs take upon themselves a circular shape, oftentimes with deep water upon the outside, and inclosing a large area of shallow water within the circle.

A most interesting theory of Darwin and Dana to account for these circular reefs or "atols," as they are called, is that the coral insect began to build up his structure in the shallow water surrounding a mountain peak when the whole bed of the ocean was slowly sinking. As the coral could not endure the deeper water beyond, he continued to build up, with a perpendicular face outward, while as the ocean bed sank, the inclosure between the newly started reef and the mountain peak would remain free, because of the sediment washing down from the mountain, which would interfere with the growth of the coral. Thus it is brought about that in many cases these circular reefs surround a body of shallow water, from whose center a mountain peak arises, while in other cases the settling of the ocean bed has gone so far that the mountain peak has disappeared and there is within simply a body of protected water, which makes an excellent harbor, if there is any entrance to it.

Among the limestones of great interest are the various forms of marble which have been sought for the world over for their beauty of color and their fineness of texture. These marbles mostly belong to the very oldest geological formations, and appear in close proximity to granite rocks, where they have evidently been subjected to heat and great pressure, as they were buried deeply in the earth and transformed or metamorphosed into their present shape. The usual color of marble is white, but they are often variegated with almost every beautiful color derived from mineral ingredients, especially iron and copper, giving them a red or green or yellow cast.

There are also extensive deposits of lime which are not dependent upon the action of animal life, but are chemically deposited, especially in the vicinity of springs whose water is overcharged with carbonate of lime in solution. As this water trickles down from the roofs of caverns and falls upon the bottom, the evaporation leaves a certain amount, which arranges itself in the form of stalactites at the top and stalagmites at the bottom of the cavern, the material being arranged in layers, which are often somewhat variegated in color and from objects of great beauty.

But, as already said, the main source of limestone is shells of animals living in the sea. The material is brought to them by the rivers which come down from the continents charged with carbonate of lime in solution, the animals being so constituted that they can collect this from the water which surrounds them, much as the leaves of the trees collect the carbon from the atmosphere and convert it into solid chunks of wood.

Thus these forms of animal life serve a double purpose, of cleansing the waters from their impurities, and of depositing beneath the ocean bed the solid rocks which, upon elevation, become the framework of the continents, and furnish man with many of the things most necessary to supply his wants.

Dainty Lingerie

GIRLS who are making their trousseaux will be interested in this very dainty underlinen, which, although being very pretty, is quite simple and practical. The drawers at top corner are a French pattern, trimmed with valenciennes lace and embroidery beading. The chemise below has yoke of insertion, headed by beading; then comes a nightgown, trimmed with insertion and tucks. The camisole at top is for evening wear, and is made in piece embroidery, with insertion shoulder straps. The lower camisole has a yoke of insertion; the combinations are to match, and have French legs. The Empire bodice of the nightdress is of piece embroidery.

Material required: Drawers: 2 yards 36 inches wide, 2 yards valenyard beading, 4 yards ribbon.

Camisole: ¾ yard 36 inches wide, 4 yards insertion, 1¼ yard beading, 2½ yards ribbon, 2½ yards lace.

Nightdress: 5 yards 36 inches wide, 2 yards embroidery 18 inches wide.

Camisole: ¾ yard 36 inches wide, 2 yards embroidery 18 inches wide, embroidery edging, 2 yards ribbon.

Camisole: 1 yard embroidery 18 inches wide, 2 yards beading, 1 yard 2½ yards ribbon, 2½ yards lace.

Combination: 2½ yards 36 inches wide, 4 yards insertion, 3½ yards beading, 2½ yards wide and 3 yards narrow lace, 5½ yards ribbon.

Nightdress: 5 yards 36 inches wide, 2 yards embroidery 18 inches wide 3 yards beading, 3 yards ribbon, 2 yards wide and 1 yard narrow lace, 2 yards embroidery insertion.

VALUE OF THE COLORED SLIP

With a Number of These a Good White Frock Can Be Worn on Many Occasions.

The girl with little money and a great need for pretty clothes would do well well to remember that old but none the less clever device of using colored slips over a white gown.

Girls who could not afford both a class day dress and a commencement dress bought a nice white frock and wore it on class day over a colored slip, with colored accessories, and usually flowers to match.

By having various slips, of lawn or silk, a good white frock may be worn upon an endless number of occasions.

Besides providing a change of costume, the slip actually protects the gown and helps to keep it fresh.

There are various accessories which may be had to match; sash, necklace or pendant, stockings and even shoes, and, where possible, flowers.

Charming and inexpensive frocks may be made of white eyelet, embroidered in a color and worn over a slip of the same color.

PRETTY SILK BLOUSE.

Blouse of silk trimmed with wide bands of embroidery simulating a bolero and laced in front with ribbon. The guimpe and undersleeves are of tulle.

MAKE SPLENDID NECK CHAINS

The Best Use to Which One Can Put the Over-Supply of Old Silver or Gold.

What to do with old silver or gold is no longer a problem—which is good news to those (of whom there are many) whose over-supply of both, but especially of silver, has heretofore been a nuisance. What with bridge prizes, Easter and Christmas gifts alone — the individual's or recipient's accumulations become serious—many of the articles being of little use—and very soon do they become an eye-sore. A clever owner of this overplusage solved the difficulty by turning her silver over to a well-known jeweler who had it put in the melting pot and afterwards converted into a handsome single row neck chain of graded silver beads—with earrings to correspond—a single ball for each ear, with an inset diamond of fine quality in each ball. Worn with black gowns the effect is exceedingly smart. Gold melted down serves for neck chains or beads.

CUIRASS STYLE IS POPULAR

For Young Girls It Is Acknowledged One of the Most Effective of the Season.

The cuirass style of gown has brought about an effective combination of net covered with embroidery and other materials. One of the popular evening frocks for a girl who has a good figure is a gracefully fitted cuirass which extends to the hips, and a knife-plaited long skirt. The former is made of coarse net covered with a flat embroidery of silk soutache, and the latter of messaline with a scroll of the soutache outlining the top of hem. This has tight elbow sleeves fastened with frills of lace and is cut into a Dutch neck outlined with a flat band of valenciennes lace or a tucker of fine white net run with a colored silk ribbon. This frock is fastened down the back with lace buttons.

The original model came out in linen with the cuirass of coarse net covered with an Egyptian design of fine soutache. It ran straight to the neckband and was finished with a Dutch collar of baby Irish lace. The sleeves are long, almost tight-fitting, and finished with a turnover cuff of baby Irish.

IN VOGUE

The princess costume is a feature of the season.

Stripes are not as wide as they were last year in men's shirtings; nor are they as fancy.

Among the materials used for bathing suits are mohair, fine serge, taffeta and silk serge.

Some of the newest and smartest of skirt and coat costumes are being made without sleeves.

Necklaces of small cut jet beads will be worn much this summer by those who favor the collarless gown.

Woven of Linen.

For the stout woman there are beautiful combination garments even thinner than the usual batiste and linen affairs made by the perfect seamstress. They are low necked and of knee length.

Those corset-cover-pantalon combinations are of exquisite make and beautiful finish—the really best garment for the would-be hipless.

Shantung for Summer.

For comfortable summer suits, fine serge with shantung for the coat, both in the same shade, is being employed.

Such suits are finished simply, the only braiding often being on the turn-down collar, which comes only to the side of the front and around the sleeves at the hands and possibly above and below the elbows.

The fancy for trimming sleeves around and around at different parts of the arm is a growing one. A waist which a girl has just embroidered for herself has a band of embroidery near the shoulder, another on the arm below the elbow and another at the wrist.

Inexpensive Cottons.

As linen ducks bring the cost of a suit or skirt up to a considerable sum the manufacturers have considered the needs of slimmer purses and there are now several very presentatible substitutes at very moderate prices. Drill for example, is durable and reliable of good body and hangs well. Its width is 36 inches, its cost 25 cents the yard. Still cheaper is white cotton duck the same width as drill, at 15 cents.

FRENCH-CANADIAN CATTLE, CLOSELY RELATED TO JERSEY

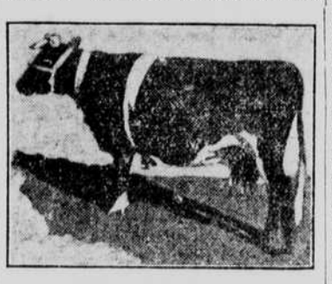
Give More Profit in the Form of Churned Butter for Each Dollars' Worth of Feed Than Any Other Breed.

The early French settlers in Canada came principally from the provinces of Normandy and Brittany in France, which lie near the Channel islands, the home of the Jerseys and Guernseys. The cattle of the mainland and of the islands were of the same blood, and those which the colonists brought to Quebec, and from which the present French-Canadian cattle are descended, were those very closely related to the Channel Island breeds, says a writer in the Rural New Yorker. Even now the resemblance is so close that many a light-colored, pure-bred Canadian cow can almost pass as a dark Jersey. They have, in fact, been called the first cousins of these other breeds, but their residence for 250 years in the province of Quebec, where in the past, especially in pioneer days, they were scantily fed and poorly sheltered, has developed a constitution of iron.

For size they rank with the Jersey; cows averaging from 700 to 900 pounds, and bulls correspondingly heavier. The color is black or dark brown, with sometimes a fawn-colored stripe down the back, and the muzzle may or may not be fawn, or orange-colored, like that of a Jersey. The general appearance is one of alertness and vigor. The head is intelligent, showing an active disposition, which is at the same time remarkably docile. The udder is carried close to the body, teats are of good size, and well placed. Ribs are well sprung, barrel roomy and chest remarkably deep. Tuberculosis is claimed to be unknown in this breed, except when contracted by direct contact with animals of other origin. The Canadians surpass all other breeds in their ability to thrive on rough pasture in summer and coarse, plain fodder in winter. Nevertheless they respond splendidly to better treatment.

In 1886, the Quebec legislature gave an official standing to the breed by establishing a herd book. Animals of acknowledged pure blood and of superior dairy qualities were admitted to registration for ten years, but since 1896 none have been, or can be, entered, except the descendants of the foundation stock already recorded. The whole number of animals now on record is about 8,000. At the Pan-American exhibition, Buffalo, out of ten competing breeds of cattle, the French-Canadians gave more profit in the form of churned butter for each dollar's worth of food consumed than any other breed. Isn't this the kind of butter machine we need? Given a certain amount of raw material in the form of fodder and grains, the cow that can manufacture this into butter with the least waste comes pretty near to being the right sort to keep. In other words, a cow of great capacity is not necessarily a profitable animal. It all depends upon her ability to transform food into milk with the least waste of material. The following figures, which are the average for the best three French-Canadian cows in the Pan-American six-months' test will show what this breed is capable of doing: Amount of milk, 5,252.8; pounds; per cent. of fat, 4.19; value of butter at 25 cents per pound, $63.86; cost of food, $23.64; profit on butter, $40.22; weight of cow at entry, 858 pounds; gain in weight, 51 pounds; percentage of profit to value of food, 177.

Typical French-Canadian Bull.



A French-Canadian Cow.

ATTENTION TO BREEDING EWES

Proper Care Must Be Given Sheep at All Times.

It is a good plan to allow the breeding ewes the run of the farm after the crops are off in the fall, as long as the ground is bare, so they can pick it over. Also let them have the run of the stalk field until the snow gets too deep and whenever the ground is bare in the winter turn them out so they can get exercise. The exercise is of more benefit than the food they get. For rough food there is nothing better than clover hay—the sheep never get tired of it, and corn fodder is next. Timothy or slough hay is very poor feed for sheep and they do not seem to thrive on it as well as on clover hay or corn fodder. Be sure to save some clover hay until lambing time, as the ewes will give more milk for the lambs on clover than anything else. For a grain ration a mixture of shelled corn, oats and bran makes an excellent feed ration. Do not neglect the bran part, as that keeps the system in good condition and aids digestion. Commence feeding grain to the ewes in time, so they will not run down and get poor before lambing time. A poor ewe cannot take proper care of her lamb, for she has nothing to draw on.

If you have comfortable quarters, so you can take care of the early lambs, you will find that March lambs are the best for market or breeding purposes, as they get more size by fall and are ready to eat grass when it comes, the cheapest feed on the farm.

Use a good, pure bred ram on the flock, as the improvement in quality, size and feeding capacity of the lambs will more than repay the extra expense and you are getting a better flock instead of running them down, as with a scrub.

Some Good Ones.

Dwarf Apples.

Astrachan apples on dwarf trees four years old have set so full as to require half of them to be taken off and with some trees two-thirds, says the American Cultivator.

Dwarf trees will require more pruning, the fruit to be thinned and higher cultivation. They may be protected against any and all kinds of insects and as the fruit is finer in quality, if the quantity is less the value the fruit will command will bring up the average well with standard trees.

There are so many difficulties attending the culture of the apple, the worst being imported insect pests, that the business will have to be carried on largely by specialists in the future. The competition of western orchards will also be a factor in forcing better methods upon our eastern growers.

SNAP-SHOTS AT FARM WORK

Interesting Notes Concerning Grass, Potatoes and the Dairy

Is there any wild grass that you can cut down and bring in for the cattle to stamp down in the yard for manure? There may be a low swale where you can get some of this. It will all help to keep up the farm.

There is no better way to stop a wash in the field than the following method: Get some old rails and sharpen them, then drive them into the ditch, level with the ground, so that when the rains come the rails will gather the stalks and grass, and in a year's time the ground will be nearly level. Such dams should be four to seven rods apart.

After your potatoes are out of bloom mow the tops off, but not too close, and see if you don't have the finest and most beautiful crop you ever had. This is an Irish kink from a potato grower of Washington county. The idea is that the tops have done their duty after blooming. Try a few.

The dairyman who is up to date will not be satisfied by knowing the cow that gives the most milk or butter in a day or in a year, but he will seek the cow which produces the most from each dollar's worth of feed.

Picking Cucumbers.

Don't forget to keep picking the cucumbers as they ripen. Look through the vines carefully (they have a great way of hiding in the leaves), so that none will be overlooked; for two or three large ones going to seed will sap the strength of their vine, whereas in picking them right along new ones will form and a continued supply be secured.

Method in Handling Feeds.

Handle feeds so that you may know definitely how much it costs to feed each cow. Determine what the cow produces and find whether she is kept at a profit or loss.

NOT THE BUTCHER'S FAULT.

Mrs. Customer—That lamb you sent me, Mr. Stintwaite, was the largest and toughest I ever saw.

Mr. Stintwaite—Tut, tut. It's that boy been loitering again. I assure you, when that joint left the shop it was the sweetest little leg of lamb you could set eyes on, and I gave him strict orders to deliver it at once because you wanted it young.

A Gentle Aspersion.

Among the prisoners brought before a Chicago police magistrate one Monday morning was one, a beggar, whose face was by no means an unfamiliar one to the judge.

"I am informed that you have again been found begging in the public streets," said his honor, sternly, "and yet you carried in your pocket over $10 in currency."

"Yes, your honor," proudly returned the mendicant. "I may not be as industrious as some, but sir, I am no spendthrift."—Harper's Weekly.

Shortcake.

The strawberry shortcake, I love it, I love it! I prize it more dearly than tongue dare to tell! No sherbet or pudding or pie is above it; there's nothing in pastry I like half so well. Just give me a section as large as a platter, with freshly crushed berries spread over the lot, and I am contented and happy, no matter what ailment or trouble or sorrows I've got. Ho, bring on the shortcake, the strawberry shortcake, and always and ever I'm Jack-on-the-spot!—Los Angeles Express.

Where Trouble Is Found.

Wigwag—I never knew such a fellow as Bjones! He is always looking for trouble."

Henpeckke—Then, why doesn't he get married?—Philadelphia Record.

Great Mountain of Borax

Immense Deposits in Death Valley, the Value of Which Can Only Be Conjectured.

With the exception of the Grand Canon there is probably no more famous locality in the west than Death Valley. Although there are a number of Mt. Blancos in the great American desert, the Mt. Blanco of Death Valley is the greatest of its name.

It rises like an enormous white breast against the terra cotta ridge of Funeral Range, close to Furnace Creek canon, a great rent that cleaves the east rampart of Death Valley. Around it is a rolling waste of bald yellow hills, and it towers a good 1,000 feet above them.

The lowlands of Death Valley, sinking for several miles wesward, is probably 2,500 feet lower.

No one ledge or series of ledges anywhere in the world contains the immense amount of borate quartz shown in the surface of this mountain of Colemanite. It is a body of ore measuring 1,000 feet in width and 5,000 feet in length, pitching into the mountain range at a 33-degree angle.

It is a borax quarry whose limitations cannot be even roughly conjectured, but it must exceed by thousands of tons any known borate deposit.

Skeleton in Stone Quarry.

Workmen at the Silver Dale stone crushing plant, near Pottstown, Pa., were horrified when they unearthed the skeleton of a human being. It was found at a depth of ten feet, with a jumbled mass of stone around it, and there was not a remnant of wood to indicate that the body ever lay in a coffin. When exposed to the air it crumbled, and the workmen could not tell of what sex it was. The skeleton was found in a perfectly upright position.

Heidelberg is to have a special institute for experiments with radium in treating diseases.