

to Madame Campan that the old system of children's education was bad, inquired what she considered wanting to make it good. "Mothers," was the reply. As women are the first, and perhaps the most influential, teachers, we must have good mothers, if we would secure good teachers. With their rests the tuition of the heart, so much more important than that of the head, sentiment precedes intelligence. The earliest smile which responds to the maternal caress is the first lesson in the affections. Mothers were meant by nature to inspire virtue, even when they do not directly seek to teach it, and they will rarely go wrong when they follow their parental impulses.

SCIENTIFIC AND USEFUL.

YELLOW soap contains about one-fourth resin. This best moulding sand is that of which each grain is a small crystal.

TARTARIC acid has been met with adulterated with as much as 60 per cent. of Epsom salts.

QUININE is found to possess, in a very marked degree, the property of preventing certain forms of decomposition, and of checking putrefaction and alcoholic fermentation.

In a fairly constructed boiler, one pound of coal will convert nine pounds of water into steam. The energy required for this is equal to that exerted in lifting 2,332 tons ten feet high.

SMALL wires, elevated at a certain height, and placed at suitable distances apart, have been found very effective in checking reverberation or echoes in large or ill-constructed buildings.

A NEW method of preserving meat has been discovered. It consists in dipping the joints in boiling butter, by which means the entire surface of the meat is cased and the action of putrefaction prevented.

It is stated in the Journal of Applied Science, that the only way to destroy the animals which infest natural history specimens is to heat them in an oven to 160 F., at which temperature all eggs would be destroyed.

In New York glass-lined iron pipes are being used to convey water. The friction is lessened, the pipes are always clean, and the water is kept pure. Between the glass and iron is a layer of plaster of Paris, which, being a non-conductor of heat, prevents the water from freezing in the winter.

PRECIOUS STONES.—The ruby is nothing more than a bit of crystallized earth colored by iron; alumina or clay, and silica or flint, form the basis of nearly all the precious stones. Opal is silica with water. Topaz contains in addition a little fluorine; the emerald and chrysolite contain glucinum, and the garnet is so ferruginous that it attracts the magnetic needle.

Most interesting discoveries concerning the parasites which infest the false hair worm by ladies, continue to be made by M. Lindeman, as we learn from the British Medical Journal. He terms these organisms navicellae, and calculates that forty-five millions of them are set free in a ball-room containing fifty ladies. They produce Bright's disease, he tells us, as well as affections of the heart and lungs.

The effect of violet light upon vegetation has been widely discussed within the past few years, and the most diverse opinions are expressed in regard to it. M. Bourdignon, in Les Akendes, gives an account of his experiments, the result of which was to demonstrate that all colors are unfavorable to vegetation, and none more so than violet. M. Poey's previous conclusions as to the latter color were directly the reverse of this.

A LEADEN cistern should never have the surface scrubbed, much less brightened. A leaden water cistern pipe should never be subjected to blows or unnecessarily bent, whereby any scale or crust that may have accumulated shall be removed. Experience proves that these surface incrustations, after reaching a maximum, protect the underlying metal from further corrosion. The scale matter is mostly sulphate of lead, which is innocuous.

THE MOUNTING OF MICROSCOPICAL OBJECTS.—Mr. Smith in a recent number of Science Gossip, states that as he has used, with great success, a solution of gum dammar in benzine—five drachms to one fluid ounce—for mounting microscopical objects which do not admit of the application of heat. One drop is allowed to fall upon the slide, the object is then put upon it and another drop added; the cover is carefully applied and pressed down, and the specimen allowed to dry; in ten days' time it may be cleaned and put in the cabinet.

PRESERVING CHARR'D PAPERS.—Mr. E. H. Hoekins, of Lowell, Mr. Schuchett, has suggested a useful and practical way of preserving and giving toughness and flexibility to charred paper, which has proved to be of much importance in the identification and copying of valuable documents charred by conflagrations such as the recent Boston and Chicago calamities. We have seen specimens of charred paper and bank notes, thus treated, that can be handled with impunity. The printing upon the charred bank notes can be readily discerned. The preserving process consists, we believe, in pouring collodion upon the surface of the charred paper. The collodion forms a thin transparent film, dries in a few minutes, when the process is completed.—Scientific American.

FAMILY MATTERS.

OATMEAL.—Once more let us urge the more extensive use of oatmeal as an article of diet; its bone and muscle producing power is equal to that of beef.

SUGAR.—Crystallized sugar should always be preferred by the consumer to uncrystallized. Impurities cannot be included with crystals; but a simple powder may have any conceivable adulterant mixed with it.

TO STEW CELERY.—Well wash some heads of celery, and cut in pieces about three inches in length; boil in veal stock till tender. To half a pint of good milk add the well-beaten yolks of two eggs, a bit of lemon-juice, a little salt, and butter the size of a walnut; stir constantly, and make very hot, but not boiling. Strain over the celery.

A NEW WINTER SALAD.—Ordinary buck-wheat, such as we give to fowls, grown in a moderately warm greenhouse, and cut like mustard when about two or three inches high, makes a delicious winter salad, a combination of lettuce and corn-salad in flavor. It can be grown in pans all the year round without the least trouble, and even when lettuces are plentiful will be found a very desirable addition to the salad bowl.—The Garden.

CROQUETTES OF AUSTRALIAN MUTTON.—Mix one pound of Australian mutton very fine, chop a quarter of a pound of suet, swell a quarter of a pound of rice till it is very soft and mashy, chop a small onion, add salt and pepper, and rub them all together till the rice is completely mixed with the meat; add an egg well beaten, mix thoroughly again, make into balls, and fry with a little parsley. This will make about fourteen good-sized croquettes. The rice combines with, and takes the flavor of, the meat, and we defy any one to detect the rice, or discover that fresh meat has not been used. Small pieces of cooked meats of different kinds can be minced together, and, if stewed with good gravy, thickened with a little fine oatmeal or flour, and flavored with vegetables, they will make a very appetizing dinner, and not the most dainty eater will find any unpleasantness arise from the mixture of meats.

MISCELLANEOUS ITEMS.

AUSTRALIA and California, it is estimated, have together produced gold amounting in value to £300,000,000 since 1852.

WHILE London has about 100 persons to every 1,000 of the population of the kingdom; Lisbon, 61; Copenhagen, 59; Athens, 55; Dresden, 53; Paris, 45; Berlin, 37; Constantinople, 22; and Vienna, 14, St. Petersburg has only 7 to the 1,000.

ENGLISH RACE-HORSERS.—Out of the total number of 2,473 horses on which the tax of £2.17s. per head was paid in the financial year 1871-72, as many as 2,098 came to the post during the year just closed. The largest number of horses on which this tax has been paid was in 1868-69, when owners returned 2,532; but it was in 1870 that the greatest number of animals ran—namely, 2,569. In the year 1803 only 536 horses came to the post; in 1827, 1,166; and in 1862, 1,828.

HAIR-DRESSING IN CHINA.—Unmarried women of China can always be distinguished from matrons, as the hair is allowed to fall over the back in long tresses or in the form of a queue, or caught up at the back in a simple bow, fastened with silk cord. In Canton it takes the form of a plaited tail at the back, and a fringe of hair over the forehead. After marriage it is taken up and dressed in the form of a teapot, having its handle above the head. In Swatow it is made to resemble a bird resting on the crown of the head, or of a horn bent backwards and rising from the back of the head.

VOICE OF FISHES.—At a recent meeting of the Académie des Sciences, M. Charles Robin read a report on the investigations of M. Dufossé relating to the production of voice in certain fishes. The swimming-bladder appears to be the principal agent in producing voice, at least in those fishes in which that organ has an opening into the œsophagus; and even in those in which it is a shut sac it acts as a sounding-board in augmenting the sound produced by other parts. That it is not exclusively the cause of vocal sounds is shown by the circumstance that some fish are destitute of a swimming-bladder, and are yet capable of producing distinct musical sounds.

NEWSPAPERS are recommended as a substitute for blankets when one is lacking a supply of the genuine article, or desires a light warm covering on the bed. There is no doubt of the efficacy of these impromptu blankets. They have one slight objection, however—namely, the cold, rattling sound they give forth whenever the occupant of the bed stirs hand or foot. Nevertheless, it is well to know how to use newspapers in an emergency, such as being in a hotel and finding one's self chilly in the night. The papers should be spread between two of the coverings on the bed, and, if one is not restless, the result will be a warm and comfortable night; but tossings and turnings will send out into the chill night air vague, rattling sounds which will remind the nervous of long-forgotten ghost-stories.

CONSUMPTION OF SPIRITS.—The quantity of home-made spirits entered for consumption in

England as beverage in the first three-quarters of the year 1872 was 10,109,041 gallons, being 1,163,449 gallons more than in the corresponding period of the preceding year; in Scotland, 4,344,771 gallons, an increase of 578,741 gallons; in Ireland, 4,255,899 gallons, an increase of 831,100 gallons. The total, therefore, for the United Kingdom was 18,709,711 gallons, an increase of more than two million gallons in the same period the following quantities of imported spirits were entered for home consumption:—Brandy, 2,315,242 proof gallons, an increase of 101,591 gallons over the quantity in the corresponding period of the preceding year; rum, 2,879,110 proof gallons, an increase of 163,886 gallons; other sorts, 603,125 proof gallons, a decrease of 235,211 gallons.

HINTS TO FARMERS.

Just previous to the war Missouri raised 17,000 tons of hemp; at present the cultivation of this crop is almost entirely abandoned.

CAREFUL estimates prove that a horse requires for his sustenance the produce of eight times as much land as would furnish food for a man.

THE value of agricultural produce imported into England during 1872 amounted to \$450,000,000, of which nearly one-half was grain of various kinds.

It is said that the disagreeable creaking noise caused by overreaching in horses will be prevented if the blacksmith in shoeing cuts off the toe or crust of the stall of the hoofs on the fore feet instead of on the hind feet as is the frequent practice.

THE weights of the heaviest cattle which competed at the Birmingham show for the "butcher's premium" for fat oxen, were as follows: Hereford, 2,387 pounds; Short-Horn, 2,508 pounds; Devon, 1,876 pounds, and a Scotch ox, 2,666 pounds.

THERE are diseases to which cows are subject which do not lessen the flow of milk for some time; yet this secretion is seriously affected in quality and is dangerous to use, and cases are on record where the milk of a sick cow is absolutely poisonous and has caused death to many children.

THE economy of rapid and comfortable transit for beef cattle was recently shown at a meeting held in Manchester, England. The loss attending the driving of fatted stock on foot to market was formerly 80 pounds per head per 100 miles; now a fat bullock is taken 530 miles by rail to London with a loss of 40 pounds only.

LIVE-STOCK.—Much of the success of a farmer depends on the proper and economical management of his live-stock. We should never forget that it is live stock. We can paint an implement and stow it away until required, but our animals must have food to eat every day. They must have food enough to keep them warm and sustain the vital functions. If you do not give them enough they must live on their own fat and flesh.

WORKING oxen should be fed somewhat in proportion to their work. If possible, never feed grain or meal alone. It should be mixed with cut feed. This is far more important with oxen and cows than with horses. The horse has but one stomach, and that a small one, while the ox has four, and can eat and digest a much more bulky and less nutritious food than the horse. Grain fed alone is very apt to pass into the intestines undigested. Corn fed in the ear is better for oxen than shelled corn.

EARLY lambs for the butcher should be kept warm and dry, and pushed forward as rapidly as possible. Give them all the sliced roots, bran, and oats, or oil-cake, or corn-meal that they will eat, in a little trough separate from the ewes. Give the ewes plenty of bran, clover hay, and sliced roots, and keep them warm, dry, and comfortable. And do not forget that they need a constant supply of water. This is true of all animals, but it is more especially true of those that are giving milk.

HUMOROUS SCRAPS.

A WORD to the wise.—Keep so. MEN with winning ways.—Successful gamblers.

WHEN is a mother a father?—When she's a squire (sire). How to turn people's heads.—Come into a concert late in thick boots.

JONES, who has lately been married, says that courtship is bits, but matrimony is blisters. "WHAT difference can a letter more or less make?" asked an imprudent married lady. A good deal, she found. It changed the heavy swell, to whom she wrote, from a correspondent into a co-respondent.

A SCOTCH peasant girl, on arriving for the first time at the turnpike gate nearest Glasgow, knocked and inquired, "Is this Glasgow?" and being answered in the affirmative, asked, "Is Peggy Macpherson in?"

MR. HYDE having married a Miss Teller, and the "fatted calf" having been killed in their honor, it gave an editor a chance to say that "It was not the first time that cattle had been killed for the Hyde and Teller."

IN AT ONE YEAR AND OUT AT THE OTHER.—Editor of Almanac: "Well, Mum, Almanacs

is Almanacs this year—and they'll be dearer next!"—Old Lady: "You don't say so! Then I'd better take half a dozen at once."

THE following is said to be a genuine dialogue which took place recently in one of the U. S. National Schools:—Teacher to Scholar: "What gender is mouse?" Scholar: "Feminine." Teacher: "Please give the masculine gender." Scholar: "Rats."

AN old lady lately visited a travelling circus. She was delighted in every respect but one. Speaking of the proprietor, she said—"He has every thing in his show that is on the bills but the hippodrome. I wonder where he keeps his hippodrome? Is it dead?"

HE COULDN'T DRINK WINE.—That was a noble youth who, on being urged to take wine at the table of a certain famous statesman, had the moral courage to refuse. He was a poor young man, just beginning the struggle of life. "Not take a glass of wine?" said the great statesman.—"Not one simple glass of wine?" echoed the statesman's beautiful and fascinating wife.—"No," said the heroic youth, resolutely, gently repelling the proffered glass. What a picture of moral grandeur was that! A poor, friendless youth refusing wine at the table of a wealthy and famous statesman, even though proffered by the fair hands of a beautiful lady. "No," said the noble young man—and his voice trembled a little and his cheeks flushed—"I never drink wine, but"—here he straightened himself up, and his words grew firmer, "if you've got a little good old whisky, I don't mind trying a glass!"

OUR PUZZLER.

27. RIDDLE.

I am a bird well known to you; A dainty morsel I'm thought too. Take off my head, and then, I ween, A different kind of bird is seen.

JESSE.

28. ENIGMA.

My house is flat, my house is small, My house hath neither door nor wall, But only floor and ceiling; Yet snug and cosy here I dwell, As mayst in the cowslip bell, Not one small atom feeling.

Of interest in politics, Of nations' wrongs, and statesmen's tricks, Or changes men are seeing, There's scarce a mortal, high or low, That doesn't love and like me—so I'm quite a regal being.

Yet, if they have their way, I die; They roast and stew me, stew and fry, Without the least compunction: The love they feel for me the cat May have for luckless mouse or rat— Devouring is man's function.

I swear I've neither limbs nor head, Yet I delight to lie in bed— Would I could stay there too! But men try every mortal scheme To bring on me, when fit they deem, The ill that I am heir to.

At Christmas, too, I and my mates They pack in box that suffocates— What care they for our feelings? Our boards they pluck, our horses break, Eat us with turkeys and rump-steak Like pigs potato peeling.

Could I but bite, oh, happy day! I'd bite their fingers all away, Or leave my mark upon 'em; But, goodness me, alack, alack! They run a cold steel down my back Ere I can close upon 'em.

A. H. B.

29. CHARADE.

My first's a rumi god, both musical and witty: My second a man's name—more common far than pretty; My third and fourth two pronouns are we much too often hear; My whole I'm sure you've lately seen—it comes with Christmas cheer.

GROUSE.

30. GEOGRAPHICAL REBUS.

A seaport celebrated for its bay and its beggars; a town of Poland; a river of Europe; a town in the South of Ireland; a seaport town in the Holy Land celebrated for its many stages; a Republic of South America. The initials and initials, read forwards, give the names of two countries in close proximity.

GLOUCESTER.

ANSWERS.

24. DORBLE ACROSTIC.—America, Chicago, thus: Adriatic, Mothman, Ennui, Itavilla, C, India, Cheborag, Aleppo.

25. SQUARE WORDS.—

Table with 3 columns: 1, 2, 3. Row 1: TABLE, GRAND, GRAPE. Row 2: ABOUT, ROGUE, RATES. Row 3: DOUGH, AGAIN, ATLAS. Row 4: LUCKE, NUTS, PEASE. Row 5: ETHER, DENSE, ESSEX.

26. FEMALE NAMES HIDDEN.—Ethel, Dora, Edith, Ada, Miriba, Ruth, Myra, Susan, Ida, Kate, Angelina, Theresa, Madeline, Althea.