

AN ANCIENT GREEK VASE.

The vase shown in the accompanying engravings must not be classed with ordinary ceramic ware, as it is a veritable work of art. It is the celebrated cup of Arcesilaus, which is preserved in the collection of the library of Richelieu street after having figured in the Durand Museum. It was found at Vulsei, in Etruria. It was made by a potter of Cyrene, the capital of Cyrenaica, founded by Greeks from the island of Thera. It is remarkable that Cyrene, removed from the center of Grecian manufacture, should possess a manufactory of painted vases from which have come so many works of art. The traveler, Paul Lucas, discovered in the necropolis of Cyrene, in 1714, many antique vases, both in the tombs and in the soil. One of them is still preserved in the Museum at Leyden. The Arcesilaus, who is represented on this vase, is not the celebrated skeptical philosopher of that name; it is Arcesilaus, King of Cyrenaica, who was sung by Pindar, and who was vanquished in the Pythian games under the 80th Olympiad (458 years B.C.).

The height of this vase is 25 centimeters, its diameter 28 centimeters. The paste is very fine, of a pale red. It is entirely coated with a black groundwork, which has been generally re-covered with a yellowish white clay, baked on.

According to M. Brongniart, this piece has been subjected to the baking process at least two or three times, thus indicating that the ceramic art had made considerable progress in Cyrene even at that remote epoch.

The following description of this vase is given in the catalogue of the Durand Museum: The King Arcesilaus is seated under a pavilion upon the deck of a ship. His head is covered with a kind of hat with a large brim, and his hair hangs down upon his shoulders. He is clothed in a white tunic and embroidered cloak or mantle, and he carries a scepter in his left hand; under his seat is a leopard, and his right hand he holds toward a young man, who makes the same gesture, and he is weighing in a large scale assafœtida, which is being let down into the hold of the ship. We know that he deals with assafœtida because one of the personages (the one who lifts up his arm toward the beam of the scale) holds in his right hand something resembling that which is in the scale, and the Greek word traced near it signifies "that which prepares silphium." Assafœtida, the resinous matter of the silphium, is used largely by the Greeks in the preparation of their food. The Orientals to-day make frequent use of it and call it the delight of the gods; while in Europe, because of its repulsive odor, it has long been designated as *stircus diaboli*.

Snow-Raised Bread.

Somebody thinks he has discovered that snow, when incorporated with dough, performs the same office as baking powder or yeast. "I have this morning for breakfast," says a writer in the *English Mechanic*, "partaken of a snow-raised bread cake, made last evening as follows: The cake when baked weighed about three quarters of a pound. A large tablespoonful of fine, dry, clean snow was intimately stirred with a spoon into the dry flour, and to this was added a tablespoonful of caraways and a little butter and salt. Then sufficient cold water was added to make the dough of the proper usual consistence (simply stirred with the spoon, not kneaded by the warm hands), and it was immediately put into a quick oven and baked three quarters of an hour. It turned out both light and palatable. The reason," adds the writer, "appears to be this: the light mass of interlaced snow crystals hold imprisoned a large quantity of condensed atmospheric air, which, when the snow is warmed by thawing very rapidly in the dough, expands enormously and acts the part of the carbonic acid gas in either baking powder or yeast. I take the precise action to be, then, not due in any way to the snow itself, but simply to the expansion of the fixed air lodged between the interstices of the snow crystals by application of heat. This theory, if carefully followed out, may perchance give a clew to a simple and perfectly innocuous method of raising bread and pastry." And stop the discussion as to whether alum in baking powders is deleterious to health or otherwise.

NEW AGRICULTURAL INVENTIONS.

An improved gate, invented by Messrs. P. W. McKinley and George L. Ellis, of Ripley, O., is designed for general use. It is operated by cords and pulleys, and can be opened without dismounting from the horse. It is constructed so that it cannot sag, and is not liable to get out of order.

An improved apparatus for pressing tobacco has been patented by Mr. F. B. Deane, of Lynchburg, Va. It consists mainly in the construction of a suspended jack, arranged to travel over a row of hogsheads, so that a single jack gives successively to each hogshead the desired pressure.

An improved combined harrow and corn planter has been patented by Mr. M. McNitt, of Hanover, Kan. In this machine the opening, pulverizing, planting, and covering teeth are combined with a single frame.

A machine, which is adapted to the thrashing and cleaning of peas and seeds, and for cleaning all kinds of grain, has been patented by Mr. J. J. Sweatt, of Conyersville, Tenn.

Mr. Amos M. Gooch, of Farmington, W. Va., has patented an improved corn planter, which drops the fertilizer simultaneously with the seed, and is provided with a device for pressing the soil around the seed, leaving over the seed a portion of loose earth.



Fig. 2.—TOP OF GREEK VASE.

An improved machine for harvesting cotton has been patented by R. H. Pirtle, of Lowe's, Ky. This machine carries two vertical cylinders armed with teeth or spurs, and two inclined endless belts provided with teeth. The teeth of the cylinders and the belts remove the cotton from the plants, and deliver it to a receptacle carried by the machine.

Messrs. Julius Fern and Samuel Bligh, of Oneonta, N. Y., have patented an improved power for churning and other purposes where little power is required. It consists in the combination of a drum and weight, a train of gearing, and a pallet wheel arranged to oscillate a balanced beam.

An improvement in the class of feed cutters in which two or more knives work between parallel bars attached to the cutter box, has been patented by Messrs. J. N. Tatum and

Reading and Eyesight.

M. Javel, in a recent lecture, tries to answer the question, "Why is reading a specially fatiguing exercise?" and also suggests some remedies for this fatigue. First, M. Javel says reading requires an absolutely permanent application of eyesight, resulting in a permanent tension of the organ, which may be measured by the amount of fatigue or by the production of permanent myopy. Secondly, books are printed in black on a white ground; the eye is thus in presence of the most absolute contrast which can be imagined. The third peculiarity lies in the arrangement of the characters in horizontal lines, over which we run our eyes. If we maintain during reading a perfect immobility of the book and the head, the printed lines are applied successively to the same parts of the retina, while the interspaces, more bright, also affect certain regions of the retina, always the same. There must result from this a fatigue analogous to that which we experience when we make experiments in "accidental images," and physicists will admit that there is nothing more disastrous for the sight than the prolonged contemplation of these images. Lastly, and most important of all in M. Javel's estimation, is the continual variation of the distance of the eye from the point of fixation on the book. A simple calculation demonstrates that the accommodation of the eye to the page undergoes a distinct variation in proportion as the eye passes from the beginning to the end of each line, and that this variation is all the greater in proportion to the nearness of the book to the eye and the length of the line. As to the rules which M. Javel inculcates in order that the injurious effects of reading may be avoided, with reference to the permanent application of the eyes, he counsels to avoid excess, to take notes in reading, to stop in order to reflect or even to roll a cigarette; but not to go on reading for hours on end without stopping. As to the contrast between the white of the paper and the black of the characters, various experiments have been made in the introduction of colored papers. M. Javel advises the adoption of a slightly yellow tint. But the nature of the yellow to be used is not a matter of indifference; he would desire a yellow resulting from the absence of the blue rays, analogous to that of paper made from a wood paste, and which is often mistakenly corrected by the addition of an ultramarine blue, which produces gray and not white. M. Javel has been led to this conclusion both

from practical observation and also theoretically from the relation which must exist between the two eyes and the colors of the spectrum. His third advice is to give preference to small volumes which can be held in the hand, which obviates the necessity of the book being kept fixed in one place, and the fatigue resulting from accidental images. Lastly, M. Javel advises the avoidance of too long lines, and therefore he prefers small volumes, and for the same reason those journals which are printed in narrow columns. Of course every one knows that it is exceedingly injurious to read with insufficient light, or to use too small print, and other common rules. M. Javel concludes by protesting against an injurious assertion which has recently been made "in a neighboring country," according to which the degree of civilization of a people is proportional to the number of the short-sighted shown to exist by statistics; the extreme economy of light, the abuse of reading to the detriment of reflection and the observation of real facts, the employment of Gothic characters and of a too broad column for books and journals, are the conditions which, M. Javel believes, lead to myopy, especially if successive generations have been subjected to these injurious influences.

Phosphorescence.

M. Nuesch records, in a recent number of the *Journal de Pharmacie*, some curious observations regarding luminous bacteria in fresh meat. Some pork cutlets, he found, illuminated his kitchen so that he could read the time on his watch. The butcher who sent the meat told him the phosphorescence was first observed in a cellar, where he kept scraps for making sausages. By degrees all his meat became phosphorescent, and fresh meat from distant towns got into the same state. On scratching the surface or wiping it vigorously, the phosphorescence disappears for a time; and the butcher wiped carefully the meat he sent out. All parts of the animal, except the blood, acquired the phenomenon over their whole surface. The meat must be fresh; when it ceases to be so, the phosphorescence ceases, and *Bacterium termo* appear. None of the customers had been incommoded. It was remarked that if



Fig. 1.—ANCIENT GREEK VASE.

R. C. Harvey, of Danville, Va. The improvement consists in arranging the knives so that one begins and finishes its cut in advance of the other.

Mr. William Bradberry, of Darrtown, O., has invented an improvement in reciprocating churns. The aim of this inventor is to utilize the resistance of the milk as a source of power. To accomplish this a peculiar combination of mechanism is required, which cannot be clearly described without an engraving.