

THE FAIRMOUNT PARK BEAR PITS.

The bears cooped up in the dirty and narrow cages, in the temporary quarters provided for the animals in our Central Park, have good cause to envy their brothers of the Philadelphia Zoological Society's collection. The unfortunate brutes in the first mentioned menagerie, are dependent upon public enterprise, and doubtless will die as they have lived, in their confined boxes, unless some unwonted celerity in our city officials results in the establishment of the proposed zoological grounds, at a much earlier date than now seems probable. The Philadelphia bears are, however, the happy property of a society of private individuals, who rapidly pushed forward their undertaking from its beginning, until, in July last, it assumed a nearly completed shape, and the public were admitted to examine a collection of animals, which, in course of time, it is hoped will rival that of the renowned Zoological Gardens of London.

Our illustration, extracted from the pages of the *Fancier's Journal*, published in Philadelphia, represents the bear pits in the grounds of the Philadelphia society; and between such commodious quarters as are here depicted and the ordinary menagerie cage, the difference need hardly be pointed out. The structure is strongly built of pointed stone work, iron, and cement floors; and in the center of each pit is erected a very strong cedar pole, on the summit of which the bears perch as if enjoying the view of the surrounding scenery.

The pit nearest the foreground of our engraving contains a fine grizzly, purchased in Omaha. Pit No. 2 serves as a dwelling for three brown, one black, and one cinnamon bears, all young and not yet full grown. A pair of black bears, male and female, inhabit the third pit. The entire building was planned with much skill by Mr. C. P. Chandler, and serves greatly to add to the comfort of the animals, as well as to maintain them in healthy condition. The beauty of the surroundings, as well as the artistic appearance of the structure itself, is well represented in the picture.

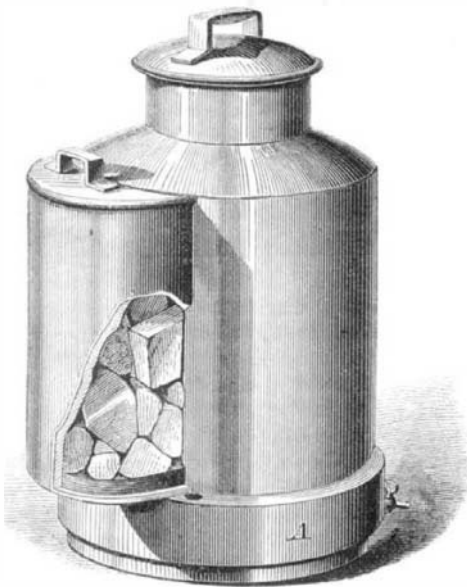
Quick Telegraphing.

Several instances of quick telegraphing have been brought under our notice of late, but the following shows the perfection to which the cable telegraph service has been brought. A message was sent from New York to London, and in thirty minutes, actual time, the answer was received in New York. Another dispatch was sent to London, to which a reply was received in thirty-five minutes, actual time. In neither of these instances was any special effort made to hurry the answers, but the party addressed sent the reply to the London office by the messenger delivering the original message.

To fully appreciate this wonderful achievement, we must consider that the distance from New York to the cable station at Heart's Content, N.F., is about 1,300 miles, that of the cable about 2,000 miles, and of the land lines and cable from Valentia to London about 300 more. Each message, therefore, was transmitted about 3,600 miles, and passed through the hands of eighteen persons, all told; consequently, the message and reply, in each case, passed through the hands of thirty-six persons and traveled over 7,000 miles in thirty to thirty-five minutes.—*The Telegraphic Journal*.

MILK COOLING CAN.

This is an ingenious device for cooling milk during transportation. The can is provided with an ice chamber, which



is suitably covered with non-conducting material, and the bottom of which is slightly inclined so as to keep the ice which is placed therein in contact with the main vessel. Recesses in this bottom conduct the water through a perforation to an annular receptacle, A, formed by soldering a sheet metal strip of suitable shape around the can. One end of this channel is closed so that the water is obliged to pass around the entire circumference to be drawn off by a faucet

at a point opposite that of its entrance. In this manner the full cooling capacity of the ice water is utilized without increasing to any large degree the bulk or cost of the cans.

Patented through the Scientific American Patent Agency, June 23, 1874, by Mr. George W. Fluke, of Mount Pleasant, Henry county, Iowa.

Stuttering.

Stuttering frequently disappears for the time in whisper-



BEAR PITS IN THE PHILADELPHIA ZOOLOGICAL GARDENS.

ing, and in speaking in an unnatural pitch of tone. These facts have been taken advantage of in the treatment of the affection, to inspire confidence in the patient that it is not impossible to conquer his defect; and the inspiration of this confidence is not without its effect in the success of a rational method of treatment.

In most instances the defect will be found, says Dr. J. S. Cohen, in the *Medical and Surgical Reporter*, to be in great part mental, and to consist chiefly in a want of consentaneous action of the involuntary muscles of respiration and the voluntary muscles of vocalization and of articulation. Here lies one of the chief indications of treatment: to secure a voluntary harmony of action between lungs, larynx, and mouth (including palate, tongue, jaw, and lips).

When a stutterer is carefully examined in the utterances of those sounds in the enunciation of which his deficiency exists, it will often be found that some portions of the organs concerned in speech are too active or too inactive proportionately to the activity of the remaining organs; and this may exist in the chest, the larynx, the palate, the tongue, the jaw, or the lips. One or several of these organs may be in defective action simultaneously.

Irregular respiration is to be overcome by voluntary efforts at rhythmical respiration at the will of the teacher, being regulated by some movement which the patient may see and follow, or some sound which falls upon his ear at stated regular intervals. In similar manner, gymnastic exercises of the tongue, lips, jaw, and larynx are instituted, either with or without the enunciation of sounds, as the case may seem to require, or as may best suit the condition of the patient for the time being. Finally, exercises in reading and in speaking are made to suit the special defect which is being combated. Thus, words and sentences are arranged in which the defective sounds recur with more or less frequency, and at more or less regular intervals; and these are repeated more or less slowly at first, and afterwards with more or less rapidity and in varying rhythm. In this manner the patient is gradually educated to bring the defective movements under voluntary control; and as he progresses in the cure his voluntary movements gradually become individually unconscious, like the fingering of the instrumental musician; and in this way he becomes rid of his defect.

An interesting discovery of a life-sized female bust in pure silver has lately been made at Herculaneum. A discussion has arisen whether the work was originally cast or chiseled, but there is little doubt that the former hypothesis is correct. The head is that of a beautiful young woman; but the features have not been identified with that of any other extant head.

Engineering Two Thousand Years Ago.

Perhaps some of the most remarkable remains of ancient engineering are those which were discovered by excavations made some ten or twelve years since, a short distance from Rome, and near the ruins of the ancient city of Alatri. This city was surrounded by massive walls, and located on a mountain, or elevated point, and ill provided with water. About 150 years before Christ, as we learn from a Roman inscription, an immense aqueduct was built to bring water from a neighboring mountain better supplied with that element. We are furthermore told that this aqueduct was 340 feet high, supported upon arches and provided with strong pipes. The topography of the country, moreover, assures us that the water supply could not have been conducted into the city, even over such high supports, except by pipes—an inverted siphon—the lowest point of which must have been some 340 feet below the point of delivery, or under a pressure of at least ten atmospheres, 150 lbs. per square inch.

The excavations already alluded to show that the aqueduct must have been of large size, as the piers of the arches are not less than 5 feet 9 inches in breadth, while the total length of the siphon must have been between four and five miles. The question naturally arises: How, and of what material, was this syphon built? As iron pipes of large dimensions, if of any dimensions at all, were not known at that era, we can look only to masonry or woodwork for the material of such construction. Possibly a clue has been found to the mode of their construction by a subsequent discovery, near the same locality, of a field, supposed to have been the site of an ancient parade ground near this once walled city of Alatri. A complete system of underground drainage has been revealed at a depth of about 7 feet below the surface of the field, effected by a well constructed system of pipes made of fire clay, each about 18 inches in diameter. It is possible that such a pipe, of larger dimensions, and strengthened on its exterior by a strong and massive bulwark of masonry, may have been the means of conveying the water into the city. But however that end might have been attained, the work was certainly a most wonderful feat of engineering, considering the condition of the mechanic arts of that early day. The excavations and discoveries thus brought to light, and so fully confirming the truth of the ancient inscription, were conducted by order of the present Pope, and under the immediate supervision of the well known Italian scientist, Father Secchi.—*Iron*.

LIGHTS FOR GREENHOUSES.

J. L. N. publishes, in the *English Mechanic*, an account of a novel mode of fitting lights in greenhouses and forcing frames, which facilitates the transmission, removal, and putting together of horticultural buildings. It consists in making the lights in two or more rows for the roof of a greenhouse, each light being capable of being raised, and, if necessary, turned over or removed, by means of a hinge joint, one part of which is fixed to the framing of the roof or the garden frame, and the other to the light, the connection being made by a removable pin. Iron "set-opens" are attached to each light, to keep it open to any required degree, and these being connected by suitable gearing, all the lights in a house can be opened simultaneously.

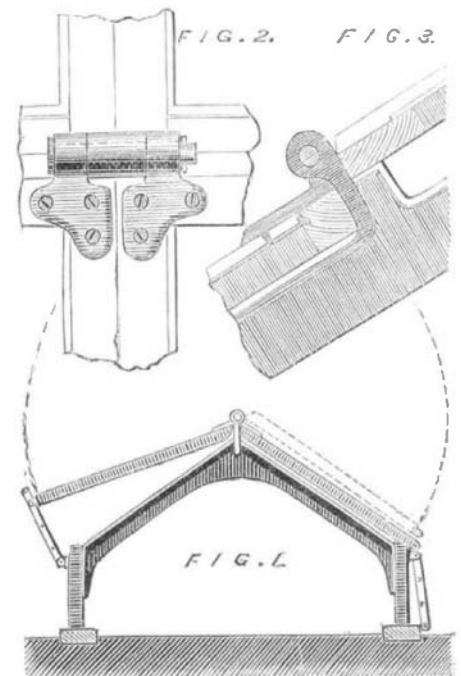


Fig. 1 is a section of a well known and very useful horticultural appliance, showing the light partly open, and also, by the dotted lines, how it may be thrown completely over when required. Figs. 2 and 3 represent top and side views of the hinge, as applied to greenhouse roofs, by which it will be seen that the lights may be thrown over completely, removed altogether, or partially opened, with the minimum