Correspondence.

Removing River Obstructions.

To the Editor of the Scientific American:

In your issue of the 16th inst. I noticed an article on the removing of sand bars, etc. The idea of floating or washing out obstructions of this kind in rivers is not new to me, as I have advocated the system for the Mississippi, with its wonderful shiftings, on the following plan. Have large flat bottom boats with heavy steam machinery, and supplied with fans or force pumps whose power would be conveyed to the object to be removed through hose weighted so as to drag on the bottom when the power is being exerted against the obstruction. The hose (one or more) to be put out from the forward part of the boat and adjustable to the depth required. In the after part of the boat, and at proper depth below the surface of the water, have revolving attachments, constructed so that they will draw the water from under the center of the boat and throw a swell toward each side, which will carry a quantity of the floating or dislodged matter beyond the channel. To prevent creating an obstruction by the settlings down stream, it would only be necessary to run further down each time the route is gone over. To keep a river open in this way it would require boats to be stationed at such distances as could be gone over each day, or as occasion required, and I believe the cost would be much less than dredging, and certainly always leave a clear channel.

R. H. ANDREWS.

Washington, D. C., Sept., 1882.

NATURAL HISTORY NOTES.

Insectivorous Plants.—A. F. W. Schimper, in the *Botanische Zeitung*, gives a detailed description of several insectivorous plants native of North America. He describes in this paper more fully than has been done before the ascidiform leaves of the side-saddle plant (*Sarracenia purpureu*), and has determined that the products of decomposition of the insects and other organic substances found in the "pitchers" enter the cells of the leaf, as is shown by the changes which take place in the protoplasm of the cells thus affected. In these cells the author noticed a phenomenon closely resembling that described by Darwin as occurring in *Drosera*, under the name of "aggregation of protoplasm." In *Sarracenia*, however, the aggregations consist of a concentrated solution of tannin—a substance always present in the cell sap. Of North American *Utricularia* (bladder warts), *U. cornuta* was especially examined and found to present several very singular points of structure. The plant possesses no true root, the rhizome branching into several root-like organs, which bear the bladders in great quantities, and which the author believes to be homologous with the floating leaves of the aquatic species. The bladders are similar in form to those of *U. vulgaris* (but want the "antennæ"), as is also their histological structure, which he describes in detail. They contain, in addition to inorganic bodies, small animals and algæ, especially diatoms, rotifiers, and crustacea. The animals were never found alive, but usually much swollen and decomposed; and this was also the case with the diatoms, the contents of the bladders being apparently poisonous to both animals and plants. The hairs of the bladders appear to act as organs of absorption; and in the contents of their cells changes were observed similar to those described in the cases of *Sarracenia* and *Drosera*. As in *Dionæa*, an excess of nutriment is injurious to the plant.

The Elephant in Ceylon.—At a meeting of the Leeds Naturalists' Club, the president (Mr. B. Holgate, F.G.S.) related some curious particulars which had been furnished to him by the Rev. R. Collins, of St. Silas's Church, Hunslet, who has spent twenty-five years in India and Ceylon. Mr. Collins states that elephants are not now allowed to be shot, as they once were, but are permitted to wander at will in the forests belonging to the government. They live to the age of about one hundred and thirty years, and "come of age" at forty. There are three sizes of them in the same herds, and when they are young the size that they will attain is pretty nearly known by the number of their toes. Those which grow to the largest size have eighteen toes, five on each of the two fore feet, and four on each of the hind ones. Those which grow to a medium size have seventeen toes, five on each of the fore feet, as before, and four on one hind foot, and three on the other. The least size of elephant has sixteen toes, five on each fore foot, and three on each hind foot. No Singhalese elephant has a fewer number than sixteen toes. The mahout, or elephant driver, rules his elephant by means of an iron hook, with which he touches a most sensitive part behind the ear, which causes the most unruly elephant to become submissive. When Mr. Collins was in Kandy, an elephant which had killed its keeper, and which had been shot in the head before it could be captured, had to undergo the operation of having the bullet extracted, which was performed by the native doctors, the elephant lying quietly down while the mahout kept his hook on this sensitive part. The elephant drivers are a drunken set of men, and sometimes, while drunk, will treat their charge unmercifully, and the elephant itself is an animal which bears grudges—the result being that nearly all elephant keepers are sooner or later killed by their elephants.

A New North American Rose.—Dr. Geo. Engelmann describes, in the *Bulletin of the Torrey Botanical Club*, a new species of rose that appears to present peculiar botanical and horticultural features. It was discovered by a party of botanists, consisting of Dr. Parry and Messrs. M. E. Jones and C. G. Pringle, while they were riding along a road skirting the shores of All Saints' Bay, in Lower California. Forming as it did a most conspicuous and agreeable feature in the arid landscape, with its finely divided foliage and showy pink or white flowers, it at once attracted the attention of the whole party. It has been named *Rosa minutifolia* by Dr. Engelmann, who describes it as "a most striking and lovely species, distinguished from all other roses by its minute deeply-incised leaflets." The species is quite peculiar among its American congeners, and even among the roses of the Old World, so that it is difficult to determine its true position. As seeds have recently been collected, we may hope to soon see the plant in cultivation.

The Colors of Flowers.—In a lengthy and interesting article by Grant Allen, in *Nature*, on "The Colors of Flowers, as Illustrated by the British Flora," the author says: "The different hues assumed by petals are all, as it were, laid up beforehand in the tissues of the plant, ready to be brought out at a moment's notice. And all flowers, as we know, easily sport a little in color. But the question is, Do their changes tend to follow any regular and definite order? Is there any reason to believe that the modification runs from any one color toward any other? Apparently there is. All flowers, it would seem, were in their earliest form yellow; then some of them became white; after that a few of them grew to be red or purple; and, finally, a comparatively small number acquired various shades of lilac, mauve, violet, or blue. Some hints of a progressive law in the direction of a color-change from yellow to blue are sometimes afforded us even by the successive stages of a single flower. For example, one of our common English forget-me-nots, *Myosotis versicolor*, is pale yellow when it first opens; but as it grows older it becomes faintly pinkish, and ends by being blue like the others of its race. Now, this sort of color-change is by no means uncommon; and in almost all known cases it is always in the same direction—from yellow or white, through pink, orange, or red, to purple or blue. Thus, one of the wall-flowers, *Cheiranthus chamæleo*, has at first a whitish flower, then a citron-yellow, and finally emerges into red or violet. The petals of *Stylidium fruticosum*, are pale yellow to begin with, and afterward become light rose-colored. An evening primrose, *Œnothera tetraptera*, has white flowers in its first stage, and red ones at a later period of development. *Cobœa scandens* goes from white to violet; *Hibiscus mutabilis* from white, through flesh-colored, to red. The common Virginia stock of our gardens (*Malcolmia*) often opens of a pale yellowish-green; then becomes faintly pink; afterward deepens into bright red, and fades away at last into mauve or blue. Fritz Müller noticed in South America a *Lantana* which was yellow on its first day, orange on the second, and purple on the third. The whole family of *Boraginaceæ* begins by being pink and ends by being blue. In all these, and many other cases, the general direction of the changes is the same. They are usually set down as due to varying degrees of oxidation of the pigmentary matter.

Milk as a Curative Agent.

Under the above heading a writer in *Harper's Weekly*, after a warning in respect to the quality of milk to be used, the necessity of good pasturage and pure water for the cows, as well as the care in keeping the milk in a cool, cleanly place, treats as follows on the digestibility of milk and its benefit to dyspeptics for complaints.

The writer's views so accord with the experiences of one of the editors of this paper in the use of various kinds of milk in an obstinate case of dyspepsia on a member of his family, that we are able to indorse the writer's recommendation of a milk diet for the ailment he specifies.

Milk has the power to absorb obnoxious gases and effluvia from the air around it, and it should not be forgotten that the purest butter that ever was made may become tainted and poisoned in one short hour by objectionable surroundings.

Comes now the question of the digestibility of milk.

A glance at a table of the composition of cow's, ass's, and goat's milk would naturally convey the impression that that of the goat is the richest. This is so, but it is on that account the more difficult of assimilation. It cannot, therefore, be recommended for the very delicate, but it is a grand adjunct to the diet of those who are just beginning to regain strength after long, severe illnesses. A residence at the seaside to induce a healthy appetite, and a diet consisting largely of goat's milk, would restore many a convalescent far more speedily to health without the aid of drugs than anything I know of.

A course of goat's milk may often be taken with advantage in the autumn by those who suffer much from cold during the winter months, but who do not care to take cod-liver oil. The extract of malt would go well with it as a tonic adjunct. The milk ought to be taken on the principle of little and often, not drunk wholesale.

Ass's milk contains a larger proportion of water, more lactine, and less oil and caseine. This is the reason it is so easily assimilated, and is so often prescribed by the physician for patients who have delicate digestions. It is possible that it may be of a somewhat too laxative nature for some, but this is easily corrected.

Cow's milk most invalids can take. It is often an advantage to give it in conjunction with a little aerated water; and in cases where it has a tendency to turn sour or disagrees with the stomach, it should be mixed with a little lime water. It should be remembered, however, that lime water must not be taken for any length of time without intermission, or evil results may follow. Cream, if taken fresh in the morning, and if it can be well borne—which it usually can—is an excellent tonic and restorative. It should be taken with breakfast, and the more fresh it is, and the more good and pure the milk from which it has been taken, the better will be the result. The cream of goat's milk is probably better than even that of the cow.

Skim milk is very nutritious, but, of course, being deprived of a large proportion of cream, it is not calculated to sustain the animal heat so well.

It is not every invalid who can take buttermilk, but it has, nevertheless, much to recommend it as a cooling nutritive summer drink. I might almost claim for it tonic properties; however, there is no doubt that, taken an hour or two before any of the ordinary meals of the day, when a feeling of emptiness and fatigue is experienced, it is of great service. The delicate should have it as fresh as possible.

Milk, talking physiologically, is demulcent, and therefore of great service in many cases of cough and lung irritation, as well as in dyspepsia. I need hardly say a word about the virtue of milk as a medicine for those suffering from consumption. In this case it ought to be drunk warm from the cow; it is certain then to be unadulterated. Too much of it can hardly be taken, so long as it agrees.

In all kinds of internal irritabilities, even in dysentery itself, milk is invaluable, and the emollient effects of milk warm from the cow are well marked in cases of chronic or winter cough.

A Sliding Mountain in Oregon.

The government engineers engaged upon the ship canal around the rapids where the Columbia River cuts through the Cascade Mountains, and the engineers of the Oregon Railway and Navigation Company, whose railroad runs beside the government canal, have discovered that a point of the mountains, of tremendous height and three miles in extent, is moving down an incline into the river. The fact of a moving mountain is strange, but not incomprehensible. It seems, says an intelligent correspondent of the New York *Times*, that the great river and the ravines that point to it have cut their way down through a superincumbent mass of basalt into a substratum of sandstone. This sandstone, we will suppose, presents a smooth surface, with an incline toward the river; the river cuts under the basalt into the sandstone, and the natural effect is for the superincumbent basalt, acting like a similar formation of ice in a glacier, to slide down hill.

The same gentleman says, on the authority of Mr. Thielson, engineer in chief of the Western Division of the Northern Pacific Railroad, that when an examination was made a year ago of a disused portage tramway past that point, the track was found to be twisted as much as seven or eight feet out of the true line in some places, caused beyond doubt by a movement of the mountain. It seemed certain to Mr. Thielson that there was a movement of a tremendous mountain spur opposite this piece of road. The correspondent goes on to say:

"It is a fact well known to all river men that above the Cascades, where the river is tranquil, the waters cover a submerged forest, whose trunks still stand with their projecting limbs to attest some wonderful phenomenon. It has been a query in the minds of all as to what convulsion of nature or process of time caused this overflow of waters. Over thirty years ago I saw the dead trunks standing beneath the waves, and the interest in this connection was increased by learning from the Indians that among their traditions was one that ages since the mountains rose precipitously at the river's side, and a great arch of stone spanned the river from shore to shore, and that their canoes passed under it. Tradition further says that in course of time a great earthquake threw down the arch and blocked the river, causing the cascades as we see them now. It is not often that Indian tradition is so specific in detail. As the records of the aborigines of this region are very transient, it is possible that this story rests on some fact of natural history of not very remote occurrence. Joining tradition and speculation with the discoveries and deductions of science, we must conclude that some convulsion of nature has thrown great masses of rock into the stream sufficient to deaden its flow for eight miles above and to submerge the forests just above the rapids. Mr. Brazee, who has been engineer of the navigation company that owned the Portage road around the falls, informs me that he has watched the movements of the mountain for twenty years, and that it is no myth."

Barnard's Comet (D 1882).

This telescopic comet was discovered by Mr. E. E. Barnard, on September 14, 1882, in right ascension, 7h. 17m. 33·7s.; north declination, 16° 14′ 52″. It was then near the star Lambda Geminorum. On the mornings of 24th and 25th inst., I observed it in Canis Minor, about three degrees N. E. of Procyon. It is moving southeast about one degree daily, and nearly on a line drawn from Epsilon through Lambda Geminorum.

It is a bright telescopic comet in the 9 inch reflecting telescope, round, without tail, and somewhat condensed at the center. Observers with only small telescopes will be repaid for their trouble in looking it up and watching its motion among the stars. It is increasing in brightness.

WILLIAM R. BROOKS.

Red House Observatory, Phelps, N. Y., Sept. 25, 1882.

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