Correspondence.

Our Colored Regiments in Action.

To the Editor of the SCIENTIFIC AMERICAN:

In the article which appeared in the SCIENTIFIC AMERICAN of July 9, 1898, headed "Courage in Modern Warfare," special mention was made of the pluck, courage, and bravery of the "Rough Riders" as they charged up San Juan Hill. All honor to the brave soldiers who were willing to face such danger to defend the flag and honor of our country! But, since special mention was made of the Rough Riders (saying nothing about the gallant boys of the 71st N. Y. Volunteers), I think it is no more than right and just that the chivalry of the colored regulars, composing the 9th and 10th Cavalry, should not be overlooked.

Col. Roosevelt rode at the head of his troops "with the 10th Cavalry ranged alongside." "Up, up they (Rough Riders) went with the colored troops alongside of them." "The shooting of the 10th Cavalry was wonderful. Their ranks closed as fast as they were thinned;" and, when the position was won by the American forces, "the Riders cheered the 10th, and the latter cheered the Riders." Thus, we see bravery and fraternal greetings shared equally by the men who made the gallant charge. The 9th and 10th Cavalry is a fitting representation of the courage to be found in the ranks of the 8,000,000 negroes of these United States, if called upon to sacrifice their lives for their country.

Rev. JAMES MARCUS BODDY.

Troy, N. Y., July 11, 1898.

Possible Passage of the Earth Through a Nebula.

So-called "dark days," of which a number of remarkable ones have been recorded in the earth's history, have usually been explained by the presence of thick smoke due to great forest fires, accompanied perhaps by some peculiar atmospheric conditions. There have always been a few, however, who have thought that this hypothesis does not furnish a complete explanation, and the observations made on a series of such days that occurred in Siberia in 1896 seem to strengthen the case of these doubters. If we are to believe official reports, the dense smoke that covered half the continent of Asia on those days was due neither to fires nor to volcanic eruptions. It is the opinion of M. Adam Rzyszczewski, who describes the phenomenon in the Bulletin de la Société Astronomique, Paris, that the earth at that time was passing through what he calls a great cosmic cloud—perhaps a gaseous nebula. The only trouble is that in this case it would seem that the whole earth ought to have been equally plunged in the smoky substance, but he explains ingeniously the fact that it was not, as will be seen at the end of his statement, most of which we translate below:

"After collecting a large number of minute details, I am now able to present to the Astronomical Society an account of an immense cosmic cloud that covered the whole of Siberia during eleven consecutive days of the month of July, 1896. All the inhabitants of Siberian towns were astonished, at this time, to find themselves enveloped in a thick smoke, containing a large quantity of water vapor. It was generally believed that there were enormous forest fires, but dispatches from the government officials showed that there were no such fires anywhere. Besides, they indicated that everywhere was the same extraordinary smoke . . . over a territory more than 7,000 kilometers [4,300 miles] in extent, from Samara to Chita and from the Sayan Mountains to the Polar circle. The whole Asiatic continent was plunged for eleven days in thick smoke. The odor of carbon was very evident, and the sun's disk appeared like a red ball of fire. I looked at it easily through a field glass without the least fear for my sight. A perfect calm reigned in nature, but the upper layers of the smoke glided quite rapidly over the sun's disk, borne by a northwest wind. Now, since no forests were on fire anywhere, and since there were no volcanic eruptions in Northern Asia, and since, from Samara to Chita, the phenomenon presented everywhere the same peculiarities, we must conclude, it seems to me, that this was a cosmic phenomenon. Could we have been passing, for instance, through a gaseous nebula or the tail of a comet? According to the stories of farmers, whenever the grass was cut during the smoky period, the hay seemed to be poisoned, and the sheep that ate it died by hundreds. A workman who was bleaching wax in the sun found that, after the smoke had disappeared, the wax was completely red, and that it kept this color even after being melted. A civil engineer has recently published a notice on this phenomenon in the Russian Official Journal, and he upholds the same hypothesis, namely, that we were passing through a great cosmic cloud the origin of which has not yet been explained."

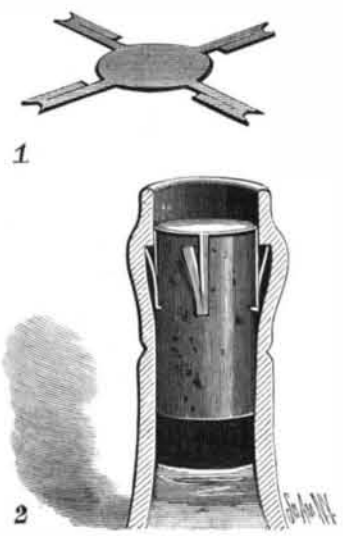
M. Rzyszczewski tells us that according to the testimony of travelers, the smoke extended to the tops of the highest mountains—an additional evidence that it was not due to terrestrial causes, for forest fire smoke, according to him, lies low, so that one can see over it from a mountain peak. Travelers were completely lost in the gloom, and a white tent could not be seen at a distance of a few hundred feet.

In closing, the writer says: "If the earth was then passing through a gaseous nebula, we must suppose that this nebula had for a vast distance a plane boundary, and that, in turning, the earth plunged Siberia into the cloud during the day, while at night it emerged into the clear space; for the nights were all fine, all the stars were visible, and there was not the least cloud or smoke; but scarcely had the day dawned when the dense smoke returned." The proof, of course, would be quite conclusive if it could be shown that on the opposite side of the globe, at the same time, the nights were smoky and the days clear; but no evidence of this kind has, apparently, been sought.—Literary Digest.

[This is in line with the ingenious claim as to cause of the drift as set forth by Ignatius Donnelly, who also holds the forest fires that raged so furiously in 1871 and again in 1881 were of cosmic origin. There are several facts to support this view regarding the fires, since large rocks more than a mile away from forest, lying in sand and sparse and scanty wire grass, were split and even pulverized by heat. A man found dead (asphyxiated), but with no marks of fire on his body or clothing, had in his pocket three silver half dollars that were solidly fused together throughout more than half their larger surfaces. All metallic substances on or about his body were also fused. What known form of heat will fuse metal and yet leave no evidence of its presence on clothing or human flesh?—ED.]

AN IMPROVED BOTTLE-CLOSURE.

To provide a bottle-closure which shall prevent a cork from being pierced or removed, Alexander McLeod, of 88 Queen Street, Brisbane, Queensland, has invented a bottle which necessitates the breaking of the neck before the stopper can be drawn.



McLEOD'S BOTTLE-CLOSURE.

The neck of the bottle, as seen from the accompanying cut, has its inner surface formed with a recess ending in a shoulder at the top. In order that the neck may be readily and evenly broken, an annular groove is cut in the glass. The cork is inserted in the neck with its middle portion nearly opposite the groove and its upper end slightly above the shoulder of the recess. To prevent the cork from being pierced a metallic plate is provided which is stamped with radiating arms, each having a spring-tongue integral with the outer end of the arm and extending parallel with the arm, as shown in Fig. 1. The widened outer ends of the arms are pointed. When the plate is applied to the cork, the arms are bent down perpendicularly, as shown in Fig. 2, and the spring tongues, when the plate rests on the cork and the arms are confined between the cork and the inner walls of the neck, will project into the recess and engage the shoulder. To bind the cork and the plate more firmly together, the points on the outer ends of the arms are bent inwardly so that they shall pierce the cork. By reason of this construction, it is evident that the cork can be neither pierced nor removed, except by breaking the neck at the annular groove.

THE establishment of the National Zoological Park, Washington, has led to the formation of many other zoological preserves in the United States. In the western part of New Hampshire is an area of 26,000 acres, established by the late Austin Corbin, and containing 74 bison, 200 moose, 1,500 elk, 1,700 deer of different species, and 150 wild boar, all of which are rapidly multiplying. In the Adirondacks, a preserve of 9,000 acres has been stocked with elk, Virginia deer, muledeer, rabbits and pheasants. The same animals are preserved by W. C. Whitney on an estate of 1,000 acres in the Berkshire Hills, near Lenox, Mass., where also he keeps bison and antelope. Other preserves are Nehasane Park, in the Adirondacks, 8,000 acres; Tranquillity Park, near Allamuchy, N. J., 4,000 acres; the Alling preserve, near Tacoma, Washington, 5,000 acres; North Lodge, near St. Paul, Minn., 400 acres; and Furlough Lodge, in the Catskills, N. Y., 600 acres.

EDELWEISS is to be protected by law in the Austrian Alps. The Emperor has signed laws passed by the Diets of Styria and Carniola forbidding the removal of the plant with its roots, the sale of it to tourists, and exportation in large quantities.

Science Notes.

The exports of tools and machinery from Stockholm and the other eastern Swedish ports have practically doubled during the last five years, and in 1897 were valued at £384,444. In 1893 their value was only £195,110.

Prof. A. Liversidge states that when solid carbon dioxide is examined under the microscope, it presents along its edges projecting wire-like crystals, which have branching filaments issuing from them, apparently at right angles, resembling somewhat the groups of minute crystals seen in crystallized iron, gold, and ammonium chloride.—Proc. Australasian Association.

We are pleased to note that Prof. W. R. Brooks, of Smith Observatory, has had the honorary degree of Doctor of Science conferred on him in recognition of his astronomical discoveries. Prof. Brooks' cometary discoveries exceed in number those of any other living astronomer, and include those of the highest scientific interest and value. A large proportion of these discoveries were made with telescopes of his own construction, and that they were of the highest optical excellence is proved by the good record they have made.

The question to what extent the alkaline earth salts in drinking water affect the decay (caries) of teeth has of late been studied in several quarters. Statistics have been collected by Rëse in several localities in Bavaria and by Foerberg in Sweden. These have revealed the interesting fact that the extent of decaying teeth bears a definite relation to the hardness of the water, in other words, to the quantity of calcium and magnesium salts in the earth through which the water passes. The harder the water, the better the teeth; the smaller the quantity of these salts, the greater the decay of the teeth.—Südd. Ap. Ztg.

Very complete experiments in support of the theory of warning colors, first suggested by Bates and also by Wallace, have been made in India by Mr. Finn, says 'The Independent. He concludes that there is a general appetite for butterflies among insectivorous birds, though they are rarely seen when wild to attack them; also that many, probably most birds, dislike, if not intensely, at any rate in comparison with other butterflies, those of the Danais genus and three other kinds, including a species of Papilio, which is the most distasteful. The mimics of these butterflies are relatively palatable. He found that each bird has to separately acquire its experience with bad-tasting butterflies, but well remembers what it learns. He also experimented with lizards, and noticed that, unlike the birds, they ate the nauseous as well as other butterflies.

H. Kraemer finds that methylene blue has the advantage of being a decisive reagent for mucilage in plants; only some lignified cell-walls otherwise take up the color, and the stain may be applied by proper manipulation to dry as well as to fresh plant material. Fresh specimens of leaves, etc., are left for several hours in a solution of methylene blue, 0·4 gm. in 95 per cent alcohol, 100 c. c.; afterward cut sections and transfer each to a slide with a few drops of a similar solution, in which four-fifths of the alcohol is replaced by an equal volume of nearly anhydrous glycerin. The mucilage cells are stained blue in a short time, and after covering the specimens they may be kept indefinitely, the contrast between the stained and unstained portions becoming more marked as time passes. Dried material should first be softened in water, then transferred to strong alcohol prior to cutting sections. —Am. Journ. Pharm., lxx., 285.

Only by degrees are the marvelous qualities of our London atmosphere becoming known. No city in the world can boast such a peculiar aerial composition as that which the inhabitants of the metropolis have served to them daily and nightly, without money and without price—for neither the government, County Council, nor vestries have yet attempted to tax the highly nutritive air which we breathe. Most people think that our atmosphere consists of practically nothing. Quite a mistake. It is both meat and drink. A paper contributed to the Transactions of the British Institute of Preventive Medicine states that even in a suburb the dust particles number 20,000 per cubic centimeter in the open air, and 44,000 in a quiet room; while in the city the totals per cubic centimeter were 500,000 when taken from a roof, 300,000 in a court, and about 400,000 in a room. In other words, the air of the square mile is 900 per cent thicker than in the suburbs, which is in accord with the general experience that fogs are both more dense and more frequent over the center than in the outskirts. But what is especially interesting is to learn that although dust is the great carrier of micro-organisms, there is only one of these articles per 38,000,000 atoms of dust. Thus it is calculated that a man could live in the metropolis for seventy years and only absorb 25,000,000 microbes into his system from the air, or about the same number as he drinks in half a pint of unboiled milk. Of course, there are other serious objections to dust; but it is something to know that there is only one microbe to many millions of motes.—London Telegraph.