Correspondence.

The Clay Eaters of North Carolina.

To the Editor of the Scientific American:

I notice in your paper of June 9, a communication from this State refuting an article on "Carolina Clay Eaters" by Dr. Frank H. Getchell. Without calling in question any of the statements made by your correspondent, J. J. Bruner, which are undoubtedly true, yet it is also equally true that there *are* people in this State who eat clay.

My own servant girl (colored of course) often appears in the morning with her lips white with the clay upon which she has been lunching. When I asked her if she ate clay, she replied in the affirmative, and admitted that many other of the colored people in the vicinity were addicted to the same practice. Whether or not any of the white people have the same habit, I have no means of knowing. I tried to find out why they ate clay, but the girl in question could give no reason, except that it has "sort of a good taste," though not relieving hunger. J. W. GOODRIDGE.

Southern Pines, N. C.

The Deep Well of Aledo, Ill.

To the Editor of the Scientific American:

I read with much pleasure your recent articles on artesian wells. It may be interesting to the hundreds of readers of your valuable paper in different parts of the country to know that in our city, some twenty miles east of the "Father of Waters," is the deepest well in the "Sucker State," and so far as we can learn, from the data at hand, one of the deepest in the United States. The well, located in our midst, was begun in the latter part of December 1886, and with slight delays in making needed repairs, "fishing sprees," etc., has been in operation since that time, and attaining a depth at this date of 3,110 feet, without a flow—the water rising within 25 feet of the surface. Many curious formations of strata of rock have been penetrated by the drill. Two small veins of coal were passed through, neither of which was of sufficient thickness to warrant mining to a great extent. Below these were found beds of quartz rock and granite, and still below, the Trenton limestone, in which all gas west of the Ohio River is found. This was found in the neighborhood of 1,000 feet. Still below, we entered the stratum known as Saint Peter's sandstone, the best water-bearing stratum known to the geological world. In this we found a flow—as has been the case in every instance where it has been tapped—but not of sufficient head to flow from the surface—some 55 feet below. This may be accounted for by our high elevation. Not being satisfied with this, the city council ordered the work of drilling prosecuted further, in the hopes that with increased depth a stronger head might be thus obtained. No perceptible change in the stage of water took place until reaching the Red Potsdam stratum, which continues at this depth, the water remaining at the depth first mentioned. A query now puzzles our citizens as to going still deeper. Flows have been obtained in the Silurian limestone strata. The well has been an expensive experiment, costing at this time over $12,000, but our citizens console themselves in knowing they have a well, the supply of water of which cannot be diminished by twenty-four hours' continual pumping at over twenty gallons per minute. A quantitative and qualitative analysis of the water is pending at this writing, which I will forward upon its receipt from the chemist. W. P. M.

Aledo, Ill., June 10, 1888.

The Railway from the Caspian Sea to Samarcand.

The trans-Caspian railway from Mikhailovsk, on the Caspian Sea, to Samarcand, a distance east of about nine hundred miles, was formally opened on Sunday, May 27, the anniversary of the coronation of the Emperor Alexander III. The first train which passed over the whole line, and which brought General Annenkoff and his colleagues, deputations of learned societies, representatives of the press, and a number of foreigners of distinction, invited specially to share in the inauguration of the new railway, arrived at the appointed time, notwithstanding the floods between Kizil Arvat and Askabad and a considerable rising of the water of the Amu Daria, which threatened at one time to cause some delay. Here the arrival of the train was awaited by General Rosenbach, governor of the Turkestan territory, the embassy from the Ameer of Bokhara, the local authorities, and a mass of people, Russians and natives. Amid the thunder of cannon the train stopped close to the famous Tomb of Tamerlane, where the company alighted. Luncheon was served at the official residence of General Rosenbach, who proposed the health of the Czar, the toast evoking most enthusiastic cheers. Senator Semenoff, President of the Imperial Geographical Society, delivered an address, in which he dwelt upon the eminent services of General Annenkoff, who had so indefatigably labored for the completion of the great railway which had that day been opened.

The Luxury of a Rose Jar.

A delightful perfume for halls and parlors in dwelling houses or hotels can be easily procured at this season of the year, and it is such a pure yet delicious odor that it charms every one. It is simply a rose jar, which should be opened for about one hour every morning and then carefully closed. A writer in one of our English contemporaries describes the best method for stocking the jar, and in doing it suggests the preparation of the rose stock should be detailed to the care-taking member of the family, who never forgets anything. Gather the rose petals in the morning; let them stand in a cool place, toss them up lightly for one hour to dry; then put them in layers, with salt sprinkled over each layer, in a large covered dish—a glass butter dish is a convenient receptacle. You can add to this for several mornings, till you have enough stock—from one pint to a quart, according to the size of the jar; stir every morning, and let the whole stand for ten days. Then transfer it to a glass fruit jar, in the bottom of which you have placed two ounces of allspice, coarsely ground, and as much stick cinnamon, broken coarsely. This may now stand for six weeks, closely covered, when it is ready for the permanent jar, which may be as pretty as your ingenuity can devise or your means purchase. Those with double covers are the best, and very pretty ones in the blue and white Japanese ware, holding over a quart, can be bought for a few shillings.

Have ready one ounce each of cloves, allspice, cinnamon, and mace, all ground (not fine); one ounce of orris root, bruised and shredded; two ounces of lavender flowers, and a small quantity of any other sweet scented dried flowers or herbs. Mix together, and put into the jar in alternate layers with the rose stock, and a few drops of oil of rose, geranium, or violet, and pour over the whole one-quarter pint of good cologne. This will last for years, though from time to time you may add a little lavender or orange flower water, or any nice perfume, and some seasons a few fresh rose petals. You will derive a satisfaction from the labor only to be estimated by the happy owners of similar jars.

An Interesting Memory Test.

Mr. H. H. Ballard publishes in the *Journal of Education* for May 3 the result of a test of the memories and receptive powers of school children. The sentence, "Your redemption from the distress into which you have fallen is in your own hands, and in nowise depends on forms of government or modes of election," was carefully read to one of ten selected pupils, who repeated it as exactly as possible to the next scholar, and this one to the third, and so on to the tenth. The tenth pupil wrote down what he received from the ninth. In one case the sentence emerged from this process as "The redemption of your distress is in your own hands;" in another it was "The invention, which has fallen into your own hand;" and the sentence had dwindled into this already at the sixth pupil. In another case the sentence was whispered, instead of distinctly read, and the process of calling on the imagination when the senses give no clear impression is illustrated in the result, which was, "The attempts into which we have fallen during the government election are very low." In the Pittsfield, Mass., high school the sentence reduced to, "Redemption is in your own hands, and depends upon no formal government nor love." In the senior class of another high school, in which the average age of the pupils was eighteen years, the result was, "Our redemption for our destruction has nothing to do with us." In still another high school it was, "Your distress into which you have fallen is by no means the fault of government." A set of eight-year-old pupils reduced it to "The redemption that lies in your hand is done;" and the first class of the high school in the same town made it "Your redemption into which you have fallen is your own fault." In one school the experiment was modified: Two pupils from each of five grades were selected, and the sentence clearly read aloud to them all. After a minute's interval, each of the ten wrote down what he could of the sentence. The sentences written by one pupil of the highest, one of the middle, and one of the lowest grades were these: "Your redemption from the distress into which you have fallen lies in your own hands, and in nowise depends on the government or manner of election;" "Your redemption from the distress into which you have fallen is in your own hands, and depends in nowise upon the forms of government or the modes of election;" "Your redemption and distress in which you have fallen depends on yourself, and in nowise on the government or its mode of election."

Although not one of the ten got it perfectly accurate, yet many were very near it, and they all show how much more the wear and tear on the sentence is in passing through ten mouths than through one. By the other process one accumulates the combined inaccuracies of all, and one pupil with a very poor receptive organ in the middle of the ten prevents the circulation of a good repetition after him. After this the sentence was passed through the ten pupils arranged in order of grade, and issued as "Your redemption from the distress into which you have fallen depends entirely upon yourself, and by no means upon the forms of government or helps from education." The sentence here selected is quite a difficult one, but an easier one from Emerson was hardly more successful. The sentence was: "All things are double, one against another—tit for tat, an eye for an eye, a tooth for a tooth, blood for blood, measure for measure, love for love," and the result, "All things are good for one another."

Although the test, as thus applied, is too complex to allow valid inferences to be drawn from it, it at any rate shows how difficult it is to repeat accurately what has been heard, as well as how little confidence is to be placed in the declarations of persons reporting the very words of a conversation held weeks or months before. It illustrates, too, in a simple form, the process by which a simple tale becomes an elaborately embellished narrative by passing through several hands, and perhaps it indicates that the powers of careful attention and retention need more systematic training than is devoted to them in the ordinary school work.

A Great Telephone Switchboard.

Nothing more, perhaps, shows the progress made in telephoning than the fact that such an enormous switchboard is necessary for transmitting the business of a station as the one being constructed at the central telephone office, on Cortlandt Street, in this city. A reporter on one of our daily papers thus describes it:

The upright back of the board is pierced with thousands of brass-lined holes, technically known as "spring jacks," and above each hole a number is stamped. Each subscriber whose wire runs to the switchboard has as many of these holes as there are sections in the board. And it is by connecting one of the holes bearing his number with a hole belonging to the "number" called for that the operator gives him the desired connection. The approximate length of the switchboard—which is undoubtedly the largest in the world—is about 300 feet. So expensive are the polished hard woods and electric appliances employed in its construction that the total cost will be about $350,000. It is expected that about September 1 it will be in readiness to receive the wires. The Metropolitan company have purchased several lots uptown, and intend to there erect a building which will almost duplicate the down town building, big switchboard and all. The site is on the south side of West Thirty-eighth Street, between Broadway and Seventh Avenue. The "Twenty-first Street" and "Thirty-ninth Street" exchanges will be consolidated in the new building, which alone will cost about $250,000.

Theory of Diamagnetism.

According to many physicists, Weber and Tyndall among others, diamagnetic bodies take, under the influence of magnets, a state of polarity opposite to that which is taken by iron under the same conditions, and this opinion has become classic in teaching. M. Blondlot, however, according to *Cosmos*, has demonstrated that in reality diamagnetic polarity does not exist at all; and that, following the opinion of Becquerel, all substances and the air itself are, in reality, paramagnetic, a diamagnetic substance being only a substance less magnetic than the air. He recalls, in the first place, the experiments which led Tyndall to his conclusions. A bar of bismuth, placed on a coil and submitted to the action of a powerful electro-magnet, takes contrary poles to those which a bar of iron takes under the same conditions. The experiments of M. Blondlot show that bismuth becomes magnetic in the same manner as iron, but that the change in its polarity arises from the fact that the medium which surrounded it is more magnetic than itself, when the medium is air. He replaced the bar of bismuth by a tube filled with a weak solution of perchloride of iron in methylated spirits. This tube is magnetic, and becomes magnetic in the same manner as the bar of iron when it is in air, a medium less magnetic than itself. But when it is plunged in a vessel containing a *concentrated* solution of perchloride of iron, a medium more magnetic than itself, it becomes magnetic like the bar of bismuth of Tyndall's experiment.

The International Fair at Buffalo, N. Y.

The city of Buffalo, N. Y., is preparing to hold a world's fair from September 4 to 14. All industries are to be represented there, from fine art to bicycling. All tastes are to be catered to. It is proposed to make it the inaugural of a series of annual exhibitions. The affair is under the management of the Buffalo International Fair Association. They have purchased ninety acres of land, and propose to erect thereon the largest fair building in the world—450 feet long and 300 feet wide, and two stories high. Special provision is being made for the exhibition of live stock of all kinds, bench show of dogs, and the like. All classes of manufactured products are to be shown on the second story of the building. A very large list of premiums for animals of all kinds is published. We wish the fair every success, and trust it will become an annual feature of the State's progress.