Correspondence.

Test for Borax.

To the Editor of the Scientific American:

The ordinary test requires the use of a porcelain vessel in which the powdered mineral is placed in combination with sulphuric acid and evaporated over a fire, then alcohol is added and ignited; if borax be present, a fine green flame is produced. For practical prospecting purposes, I found the above cumbersome. I therefore modified the process to a simpler form. Take a small piece of wood—a splinter, or twig, or match divested of its head. Dip one end of the wood in sulphuric acid, then roll the moistened part in a pinch of the powdered mineral, so that it should be coated. Roast over the flame of a candle, or light, or embers; pour two or three drops of alcohol on the roasted mineral, and ignite. The characteristic green flame of borax will show, for a second or two, if the desired mineral be present. The process takes less time than it does to describe the same. With a small vial of sulphuric acid and another of alcohol, the prospector for borax is provided with the means for detecting the mineral. FRANK CALVERT.

Dardanelles, May 14, 1886.

Condensation of Smoke by Electricity.

To the Editor of the Scientific American:

In your issue of April 24 you reproduce from *La Nature* an article on the condensation of smoke by electricity, based on the experiments of Prof. Lodge, of Liverpool.

It will interest your readers to know that though Dr. Lodge has been the means of bringing the interesting action of the electric discharge prominently before the public recently, he is by no means the discoverer of it. Should great successes follow its application on a large scale, it is not the experiments of Dr. Lodge which will "become classical," as stated by the article you quote from, but the experiments of one C. F. Guitard, who made the discovery and carried out essentially the same fundamental experiments in the year 1850. He describes them in the *Mechanics' Magazine* of 1850, page 346. W. M. HUTCHINGS.

Dee Bank Lead Works, Bagillt, N. W., May 21, 1886.

The following is the communication to the *Mechanics' Magazine*, signed C. F. Guitard, and dated London, October 29, 1850: "Some time since, in experimentalizing on the electric state of the atmosphere, I employed for that purpose a large glass cylinder about 18 in. high and 9 in. diameter, open at bottom and having a neck at top. In placing the lower end of this cylinder in water the more perfectly to exclude the air, and allowing small quantities of tobacco smoke to enter the neck at top, the smoke, after assuming various actions, according to, probably, the hygrometric state of the atmosphere, would gradually spread itself into a cloud filling the cylinder, and at length, as successive portions came in contact with the sides of the cylinder, condense. Sometimes half an hour would elapse before this effect took place. It now struck me that if I brought a wire from an electrifying machine into the neck of the cylinder, the air would immediately become charged with electricity, which would cause each portion of the smoke to fly to the sides of the cylinder, and that thus more rapid condensation would take place. The effect produced was perfectly magical. The slightest turn of a small electrifying machine produced immediate condensation. It was astonishing to see how small a quantity of electricity produced a most powerful effect. I am not aware that attention has ever been drawn to this subject: and the question will probably arise, Has electricity anything to do with the condensation of steam in the condenser?"

African Telegraphy.

To the Editor of the Scientific American:

The system of sound telegraphy used by the people living on the border of the Gulf of Guinea, West Africa, is of interest as a primitive solution of the problem of communication through short distances. The instrument is made as follows:

Take a log of hard wood, about two feet long and about a foot in diameter.

Plane off one side longitudinally to a surface four or five inches wide. In the center of this surface mark off an elongated and somewhat distorted Greek cross. The longer arms are placed longitudinally, and occupy about one-third of the plane surface. The transverse arms are three times as broad, and extend entirely across this surface.

The natives dig out the wood within the outline of the cross, and from there gradually hollow out the whole log. The sides, beginning at the center, are trimmed off laterally toward the ends, which are rounded off.

The instrument is now ready. It will be perceived that by the method above described we have a hollow drum with four tongues in the center, each being of a different thickness, so as to produce a different sound when struck.

Two pieces of bamboo, the size of a man's wrist and about two feet long, are selected and stripped of the hard outside, which leaves the soft, pithy portion for use. This bamboo is of a peculiar kind, free from knots and solid throughout. With these sticks, used in a proper manner on the four tongues of the drum, a combination of sounds is produced which, in connection with time as used in music, forms a perfect telegraphic language, readily understood by the initiated, the air being the transmitter. With this simple instrument the natives of the Gulf of Guinea readily communicate with each other for a distance of a mile at least on land and a much longer distance by water.

Messages can be sent long distances in a short time by parties at different points passing them along from one to the other.

The writer has seen canoes coming down a river from the bush markets signaling people in the town, and giving and receiving general news at a distance of fully three miles. BERTRAM SPARHAWK.

Waltham, Mass.

History of Telegraphy.

To the Editor of the Scientific American:

The 17th of last April was the centenary of Baron P. J. Schilling, the inventor of the electro-magnetic telegraph, born in Revel, Russia, 1786.

His first experiments with copper wire as electrical conductor were begun in 1810. In 1812 he successfully exploded a mine across the Neva, by means of an electric current. The same experiment was publicly repeated in 1814 on the Seine at the triumphal entrance of the Russian Czar Alexander the First into Paris.

In 1815 Baron Schilling began to investigate the action of electrical currents on a magnetic needle, and in 1820, after numerous experiments, he constructed the first electro-magnetic telegraph.

The Czar Nicholas, inspecting the invention at the house of Baron Schilling, had written on a piece of paper, "Je suis charme d'avoir fait ma visite a M. Schilling,"* and these words were afterward transmitted by telegraph without any mistake.

In 1837 Baron Schilling received an imperial order to connect St. Petersburg and Cronstadt by a telegraph line; unfortunately, the inventor's untimely death—25th of June (7th of July) of the same year—prevented the realization of this plan.

Baron Schilling's contemporaries, as it so frequently happens, were entirely unable to appreciate his great invention; so, when, explaining it before a scientific committee, he proposed to hang the wires on poles, his plan was received with laughter and derision: "Your invention is pure nonsense, and your *airy* wires are truly ridiculous." Such was the answer from the scientific body.—*Translated from the Russian Journal, The Universal Illustration.* L. GOLDENBERG.

No. 1 Ann Street, New York city.

*"I am charmed with my visit to M. Schilling."

Harmony of Colors.

By harmony of colors we understand colors placed side by side in such a manner that they do not injure the effect of each other; rather, on the contrary, complete each other, *i. e.*, they gain in intensity.

Those who are familiar with the harmony of colors can, by using objects of familiar use, make such selections in fitting up apartments, in dressing, etc., so that with the greatest simplicity they are able to produce a more favorable effect than is possible with the most extravagant expenditure without a sense of harmony in color.

A merchant, dealing in colored goods, can very greatly improve the appearance of his stock by knowing how to group them in such way as to produce a harmonious effect. Very often, owing to a lack of taste with reference to colors among dealers, it will be found that the silks in one shop will appear much fresher and brighter than in another. This difference in effect of the colors is, however, nothing more or less than that one merchant arranges his goods so that the colors are in harmony, while the other does not follow any definite plan. In the first instance the goods gain, while in the second they lose in intensity of color. The attention of the ladies is particularly called to the importance of harmony in colors, for most of them in the selection of their colored dresses, bonnets, and trimmings, produce the greatest discord in the composition of the colors. Harmony in color does not depend on the will or caprice or personal taste of an individual, but it is based on the unchangeable laws of nature, which we shall immediately discuss.

Red and Green.—A red body reflects green rays, while, on the other hand, a green body reflects red rays. Therefore green is the color which completes red, and similarly red is the color which completes green. Both colors, therefore, gain in intensity.

Blue and Orange.—A blue body often reflects orange rays, and inversely an orange body will frequently reflect the blue rays. Orange is, therefore, the complementary color of blue, and *vice versa*, therefore each color intensifies the other.

Violet and Greenish Yellow.—A violet body reflects greenish yellow, and inversely a greenish yellow body reflects violet. Both colors, therefore, complete each other, and intensify each other.

Indigo and Yellow.—Indigo reflects yellow, and yellow indigo rays, hence they are complementary and intensify each other.

It would carry us too far to describe all the other colors which are complementary.

All spectral colors are complementary, that is, the two colors lying opposite each other; for instance, the upper carmine and the intermediate green.—*Lithographer and Printer.*

Not so Bad for the Farmer.

Grain growers and other tillers of the soil, who feel like complaining at the low prices of farm produce now prevailing, should remember that agricultural interests are not alone in the matter of depreciation of prices. The fact is that during the past seventy years farm products have increased largely in price, while manufactured articles have decreased. An interesting comparison of prices for farm produce is shown in the following table, compiled for the *Milling World:*

	1816.	1886.
Wheat, per bushel	$0 44	$0 99
Oats, per bushel	15	41
Corn, per bushel	20	46
Barley, per bushel	25	80
Butter, per pound	12	32
Cheese, per pound	6	10
Eggs, per dozen	5	12
Cows, per head	15 00	50 00
Hay, per ton	5 00	17 00
Straw, per ton	4 00	15 50
Sheep, per head	75	2 00
Farm labor, per month	8 00	18 50

Certainly in "the good old times," so often regretfully referred to, farmers were not overpaid, and these figures show that farm labor has during seventy years increased over 100 per cent, and the selling prices of farm produce have increased from 100 to 400 per cent. On the other hand, the comparison of manufactured articles shows large decreases, as may be seen in the appended figures:

	1816.	1886.
Steel, per pound	$0 17	$ 0.12
Nails, per pound	12	4
Broadcloth, per yard	16 00	4.00
Wool blankets, per pair	15 00	7.00
Cotton cloth, per yard	30	12
Calico, per yard	25	6
Salt, per bushel	$1 00 to 4 00	15 to 25

Here are enormous differences against the manufacturers and in favor of the farmer. It would appear that agriculture has really been favored at the expense of mechanical industry, and the grain growers and general farmers should cease to consider themselves the only class of victims of the present depressed business conditions.

The Flying Dutchman.

"The cruise of H.M.S. Bacchante, 1879–1882," is the title of a book compiled from the private journal, letters, and note books of Queen Victoria's two grandsons, Prince Albert Victor and Prince George. The Princes have given a very creditable account of their journey around the world. Their experience with the phantom ship, the so-called Flying Dutchman, which they encountered near Sydney, is thus described:

"July 11, 1881.—At 4 A.M. the Flying Dutchman crossed our bows. A strange red light, as of a phantom ship, all aglow, in the midst of which light the masts, spars, and sails of the brig, 200 yards distant, stood out in strong relief. As she came up, the lookout man on the forecastle reported her as close on the port bow, where also the officer of the watch from the bridge clearly saw her, as did also the quarterdeck midshipman, who was sent forward at once to the forecastle. But on arriving there no vestige nor any sign whatever of any material ship was to be seen, either near or right away to the horizon. The night being clear and the sea calm, 13 persons altogether saw her, but whether it was Van Dieman, or the Flying Dutchman, or who else, must remain unknown. The Tourmaline and Cleopatra, who were sailing on our starboard bow, flashed to ask whether we had seen the strange red light at a quarter to eleven A.M.

"The ordinary seaman who had this morning reported the Flying Dutchman fell from the foretopmast crosstrees, and was smashed to atoms. At a quarter past four P.M., after quarters, we hove to, with head yards aback, and he was buried in the sea. He was a smart royal-yard man and one of the most promising young hands in the ship, and every one feels quite sad at his loss. At the next port we came to, the admiral also was smitten down."

THE King of Servia, according to the journals, has issued the following: "Whereas it is irrefutably proved by science that the so-called antiseptic treatment of wounds yields more beneficial results than all other methods, we are pleased to order that henceforward the said antiseptic plan of treatment be solely employed in all the hospitals of our kingdom, and that corrosive sublimate and iodoform be used until our further disposition."