Correspondence.

The Best Timber for Fence Posts. To the Editor of the SCIENTIFIC AMERICAN:

Not finding any information on the lasting qualities of different kinds of wood when used for fence posts, I can give you some of my experience on this all-important subject. I look upon mulberry as being first, black or yellow locust next, then come red and white cedar. The difference between these two last does not amount to much. I have a small grove of European larches (why they are called this I do not know, as their native land is South America). Now, as I am thinking of making some fence posts of this wood, can you or any of your subscribers give me any information on the lasting qualities of the European larch? The European and American are not alike. The the plate remained inactive after having been heated European is a drooping foliage, while the American is for hours to the temperature that it reached in the JOHN L. MOORE. not.

Quincy, Ill., August 6, 1894.

The Gila Monster.

To the Editor of the SCIENTIFIC AMERICAN :

Dr. Edgar A. Mearns, U. S. A., who has been collecting specimens of birds and mammals along the Mexican boundary between El Paso and this city for the Smithsonian Institution, also acting as surgeon to the International Boundary Commission, now re-establishing the boundary monuments, tells his experience with a Heloderma horridum, or Gila monster. When bending over the reptile to cut off its head, the creature | heated. blew its breath in his face and he was instantly nauseated. A brother officer received the "monster's" breath full in the face and was at once nauseated and fell over on his back completely prostrated. The doc-plants. tor does not believe, as many do, that the "monster's" breath is fatal; but he thinks it has a decidedly upsetting effect. Neither does he think the "monster's" poison deadly. It has no fangs, but simply a series of fish-like fangs. There are no poison sacks, and what the Tertiary Aphididæ of North America. It is astonit possesses seems to reside in the saliva in the reptile's ishing that these soft-bodied and delicate-winged inmouth. This poison possibly comes from the bad di-sects should be preserved in the rocks, yet Mr. Scudder gestion of the "monster." М. Ү. В.

San Diego, Cal., August 6, 1894.

Fruchtzucker.

To the Editor of the SCIENTIFIC AMERICAN:

In a recent issue [Aug. 4, 1894], in an article on invert sugar or fruchtzucker, you state that the substance remains permanently liquid. We have received a shipment of a few casks from Dr. Follenius, of Frankfort on the Main, and find that it does not remain liquid. When the casks reached us, we found on opening them that there was over six inches of solid sugar at the bottom of each cask. On filling a saucer with the liquid and letting it stand exposed to the air, we find that it is soon covered with a hard, crystalline crust and that it will become one solid mass.

A saucer of molasses will remain fluid for months or years. Honey will ultimately "candy" and become granular, but not so rapidly as fruchtzucker.

The incrustation on the sides of the interior of the cask, which is from one half to an inch thick, becomes perfectly dry. It resembles in every way the "yellow C" sugar of commerce. So the claim that fruchtzucker will remain as a permanent fluid is very far from the ANDREW VAN BIBBER. truth

Cincinnati, August 9, 1894.

Natural History Notes.

Irritability of Plants.-In a work published a few years ago, Mr. Elfving showed that the sporangiferous tubes of Phycomyces nitens inclined toward a piece of La Quintinie, gardener to Louis XIV., raised this numiron or steel placed in their vicinity, while they were ber to fourteen. In 1820, Alphonse de Candolle enume indifferent to a plate of copper placed near them. rated a hundred and forty species. The number of Again, a certain number of other bodies, such as seal- wild species now known to botanists is over two huning wax, resin, silk, India rubber, wood, and sulphur, dred and fifty, to which may be added at least as many acted like iron, and since, among these substances, more sub-species or varieties, while the list of garden These the subscriber manipulates when calling up a there was no common property with which he could varieties, mostly with double flowers, numbers over six correspondent. For example, if he should want "122" connect the effect produced, Mr. Elfving abstained thousand, and is every year receiving fresh additions. he would press the key marked "hundreds" once, from an explanation, although he was inclined to see

said that even if bodies are not luminous in the phosphoroscope, it cannot be said that there exists no effect and the flesh is firm and has a good flavor. after the action of the radiation, for the light might excite vibrations of another and lower velocity than those that are perceptible to our eyes, and capable of giving rise either to heat effects or to other molecular actions as yet unknown. However it may be with this explanation and this hypothesis, Mr. Elfving has seen, among other facts, that 70 minutes' exposure to the bright sun of August suffices to render active a plate that 5 hours' exposure in cloudy weather leaves inert. Of course there could be no calorific effect here, since sun. On another hand, the ultra-violet rays had no preponderant action, since the light preserved its action even when it was filtered through a solution of quinine.

Another fact: Heat, which has no action upon platinum, acts upon zinc. A zincrod heated with a blowpipe to the melting point and afterward cooled gives the Phycomyces, in a few hours, the most beautiful curves that can be obtained. Then, after a few hours again, the same rod becomes inactive. On the contrary, platinum, copper, cobalt, nickel, tin, lead and glass are always inactive, to whatever degree they be

All these phenomena are very surprising, and it is a rather unexpected thing to find ourselves brought to face actions at a distance by observations made upon

American Tertiary Aphids.-Mr. S. H. Scudder has sent to his correspondents, as an extract from the thirteenth annual report of the United States Geological Survey, a pamphlet comprising some account of has seen, from the Florissant beds alone, 107 specimens. The American forms comprise 32 species, divided into 15 general, while in Europe but 19 nominal species are known. There seems to be an extraordinary variation in the wing neuration of these fossil species, which

necessitates a large number of genera. Most of them

fall into the sub-family Aphidinæ, only a few of them being placed in the Schizoneurinæ.-Insect Life. A New Octopus.-Mr. Edmond Perrier recently exhibited to the French Academy of Science specimens of a cephalopodous mollusk of the genus Octopus and of a species heretofore unknown. This new species, which has been named Octopus Digueti, came from Lower California. It is of quite small size and has a short bursiform body, a moderately large head, and arms of equal length. Like its congeners, it hatches its eggs, and during the period of incubation occupies a bivalve shell, generally that of a pecten. The instinct that leads the animal to take up its quarters in a shell is a simple modification of the vaguer instinct found throughout the entire genus and that causes the animal to take shelter in cavities in order to lay its eggs and hatch them therein. As a general thing, the poulp is content with any retreat whatever, such as a cleft in a rock, a space left free between a rock and the bottom, the shell of a crustacean, etc.; but the new species under consideration makes a selection and chooses the shell of a large bivalve. Its instinct is, therefore, specialized and thus takes on an exceptional character. which is worthy of remark.

Roses.-In 1535 but four species of roses were known.

illuminated side as well as upon the other, and lasts 'Many of these crustaceans are consumed in the upper for some hours. Mr. Elfving sees here a sort of phos- Alps, and it is quite amusing to see the hesitation of phorescence formed of rays invisible to us, but to those to whom they are offered at the table and who which the plant is sensitive, and he recalls that Mr. seem to think that the crayfishes set before them are Becquerel, in his studies upon phosphorescence, has uncooked. The crustaceans are excellent, however; they attain a goodly size, their shell is well filled out,

Electrical Voltage.

The New York World prints an interesting articleon Nikola Tesla, written by Mr. Arthur Brisbane.

In answer to a question from the interviewer as to what he hoped to see accomplished by means of electricity, Mr. Tesla replied: "You would think me a dreamer and very far gone if I should tell you what I really hope for. But I can tell you that I look forward with absolute confidence to sending messages through the earth without any wires. I have also great hopes of transmitting electric force in the same way without waste. Concerning the transmission of messages through the earth, I have no hesitation in predicting success. I must first ascertain exactly how many vibrations to the second are caused by disturbing the mass of electricity which the earth contains. My machine for transmitting must vibrate as often to put itself in accord with the electricity in the earth."

When asked if he did not feel a little worried about taking a current of a quarter of a million volts, Mr. Tesla said :

"I did at first feel apprehensive. I had reasoned the thing out absolutely; nevertheless, there is always a certain doubt about the practical demonstration of a perfectly satisfactory theory. My idea of letting this current go through me was to demonstrate conclusively the folly of popular impressions concerning the alternating current. The experiment had no value for scientific men. A great deal of nonsense is talked and believed about 'volts,' etc. A million volts would not kill you or hurt you, if the current vibrated quickly enough-say half a million times to the second. Under such conditions the nerves wouldn't respond quickly enough to feel pain. You see, voltage has nothing to do with the size and power of the current. It is simply the calculation of the force applied at a given point. It corresponds to the actual pressure per square inch at the end of a water pipe, whether the volume of the water be great or small. A million volts going through you doesn't mean much under proper conditions. Imagine a needle so small that the hole it would make in going through your body would not allow the blood to escape. Imagine it so small that you couldn't even feel it. If you had it put through your arm slowly, that would be, electrically speaking, a very small voltage. If you had it stuck through your arm with great rapidity, going, say, at the rate of a hundred miles a second, that would be very high voltage. Voltage is speed pressure at a given point. It wouldn't do you any more harm to have a needle shot through your arm very rapidly-that is to say, with high voltagethan it would to put it through slowly. In fact, if it hurt you at all, the slow operation would probably hurt more than the other. The question of danger is simply the size of current, and yet if a big enough current should be turned against you and broken with sufficient rapidity--if it should, so to speak, jerk back and forth an inconceivable number of times to the second--it wouldn't kill you. Whereas, if applied continuously, it would simply burn you up."

An Automatic Telephone.

The Mutual Automatic Telephone Co., of Philadelphia, has an invention which is designed to obviate the annoyance and difficulty attending the obtaining of connection with other parties through the operations of a central office, as under the present system. With the automatic system a small keyboard, containing four keys, marked respectively "hundreds," "tens, "units" and "release," is attached to each telephone. The rose has been the subject of numerous scientific "tens" twice, and "units" twice, and then ring the

private line. When one subscriber calls another and

in this phenomenon a sort of effect of irradiation con- monographs and floricultural disquisitions, and its culbell. When through with the conversation he nected with the internal structure of the active tivation affords employment to thousands of human press the next button, which is the "release," and the beings. The species that has been cultivated from the line is thrown into its normal condition. Each subbodies.

In 1892, Mr. L. Errera attributed the fact to a sort of highest antiquity is supposed to be the Rosa centifolia, scriber has a metallic circuit (two wires) for his use, hydrotropism. It is known, in fact, that the Phy- the cabbage or Provence rose, a flower that possesses and when he calls another subscriber the service is comyces nitens avoids humid surfaces. If, then, we in an eminent degree the admirable qualities of the absolutely secret, and is, to all intents and purposes, a admit that iron diminishes the hygrometric state in its tribe.

vicinity, it will be understood that the sporangia of Crayfishes that do not Change Color in Boiling. - no reply is received by the automatic system, it is bethe plant will undergo on its side an apparent attrac- A certain French writer was once joked for having cause the person called up is not in his office or is busy. tion that will be a real repulsion on the opposite side. called the lobster the "Cardinal of the Sea," under the "The manipulation of the keyboard is extremely simple But, on another hand, iron is scarcely hygrometric, supposition that this crustacean was naturally reddur and, moreover, very hygrometric substances, such as ing its living state. It is a well known fact that lobssible.

Mr. Elfving has recently returned to the question in species of crayfish that preserves, even after boiling, "manual" system service. With the automatic system making known some new facts. Thus, platinum, which the bronze-green color that it possessed while living. no battery will be used at the subscriber's place of busihas no action upon the Phycomyces under ordinary cir-cumstances, becomes active if it has been exposed to mountainous stations—at Bourg-d'Oisans, France, and only battery used in the automatic will be at the centhe sun. This new property manifests itself upon the at Sainte-Marie and at Saint-Etienne de-Cuines, Italy. 'tral station in operating the automatic switches.

and can be learned in a few minutes. With the "automatic" system there are no operators required at the potassa and chloride of calcium, having no action upon ters, crabs, crayfishes, and shrimps become red or rose-central station, every subscriber being his own operthe Phycomyces, Mr. Errera's explanation is not admis- colored only upon being boiled, yet Mr. De Confevron, ator. Because of these conditions, a lesser rate can be in the Bulletin de la Societe d'Agriculture, describes a made for service than the present rental paid for the

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