

being so great, and making it impossible for the French manufacturers to make their china as cheaply as their foreign neighbors, various devices have been tried, but with little success. In order to compete, wages have been reduced to the lowest point, and still the manufacturers are said to have lost money. The coal that is employed is necessarily costly, as a smokeless, long-flame variety is required. Many of the factories burn wood only, as that produces a purer white than the very best kinds of coal; but wood is dearer than coal. It is consequently only used in firing the muffles, and in the finest grades of porcelain. A few years ago a new process was tried, that baked the porcelain in a short time; but the cost made the process impracticable. It was under such circumstances as these that one of the most progressive houses in Limoges was induced to employ petroleum or residuum oils as a fuel, to accomplish which, an American firm using the Wright burner was requested to make a trial with the fuel. There was very much doubt and fear connected with the experiment; but after a time it was attempted, and the results were far better than anticipated. The heat was shown to be absolutely pure. No gases or smoke in any way discolored the china, which came from the kiln much whiter, and in better condition, than when it is fired with the best of wood. In the muffles there was a decided advantage. The delicate colors, which show at once the presence of the slightest quantity of gas, were perfect. "This new discovery," says Consul Griffin, "promises to revolutionize the whole porcelain industry." It is estimated, that, by employing these oils, there will be a reduction of about 15 or 20 per cent in the making of china. The only question now is the present classification of residuum oils in the customs tariff, as the present duty on petroleum — 120 francs per ton — is prohibitive; but strong pressure is being brought to bear on the French Government to have fuel oils classified as fuel, which pays only 1 franc 30 centimes a ton. New life is given to an industry that was seriously threatened; and it is hoped that the French porcelain will be brought to a greater state of perfection by this new American invention.

#### MEXICAN ARCHÆOLOGY.

MR. CARL LUMHOLTZ writes, "Since I wrote last, I have had an interesting though sometimes rather rough time of it, crossing Sierra Madre in December and January. We had snow several times, and the grass is of poor quality, so I lost altogether thirteen of my animals. There are three Sierras to cross at an elevation of about nine thousand feet: you may therefore easily imagine what a rough country it is to traverse in the winter-time, making our own trails. I had thirty men and about a hundred animals, and I pulled through all right. My camp is now near Casas Grandes in Chihuahua, where my animals are resting. The scientific result is very satisfactory so far. The most interesting things I came across were some wonderfully well-preserved skeletons in a series of caves. In some of the caves were small villages; others were reserved as burial-places, and here I dug out several of the above-mentioned skeletons, the porphyry pulp having preserved for centuries the corpses so well as to be made into some kind of mummies. The features on some are complete, even hair and eyebrows still there. These people were of small stature, and bear a striking resemblance to the Moqui Indians of the present day. In the eastern slopes of Sierra Madre I also dug out many mounds, and every day brought to light fine stone implements and beautiful pottery. I might profitably spend two years in excavating mounds only; but I am going on with this kind of work only till the end of April, when I start out again in the mountains. Among the fossils found on the western slopes of Sierra Madre, near Nacory, is a huge horn six feet eight inches long and twenty-six inches at the largest circumference, probably belonging to some extinct bison. Many birds and plants (about two thousand) were found. I am entirely confident of the success of the expedition. Next time you will hear that I have found people alive in the caves. There is a wonderfully rich field before me, and I know that my expedition will bring greater results than anybody at present anticipates. But the expenses are far greater than I expected. My animals only cost three thousand dollars. In December and January I paid wages each month, re-

spectively, \$1,000 and \$1,025. I mean to reduce my force; but a small party cannot well travel here, as there are plenty of Apaches, and farther south any amount of bandits that are equally bad. I now have a fine gang of men and every thing in regard to outfit complete, speak Spanish fairly well, am on excellent terms with the Mexican Government (they imprisoned lately for three years an inspector who stopped my provisions last fall), and the field before me is of exciting interest. But more material support will be needed, if I shall not have to go just with two or three men. Still, I am determined to do even that, because I must accomplish my aim. I am now on a fortnight's trip to the United States to see some friends that I think may give me further support, and on the 26th or 28th of April I expect to be on the march again."

#### HEALTH MATTERS.

##### Influence of Exercise on Digestion.

DR. STRENG, in a lecture before the Medical Society of Giessen, on "The Influence of Exercise on Digestion," an abstract of which appeared in the *Lancet* for March 7, states that he concludes from his own experiments that this influence is of a retarding nature. His experiments, however, suffer from the fact that he always injected 300 cubic centimetres of water before obtaining the contents of the stomach, so that the proportion between gastric juice and water continually varied. The first experiments in the clinic at Giessen were made on two dogs. Twenty-five grams of meat suspended in 300 cubic centimetres of warm water were twice injected into the fasting stomach; and after one feeding, the dogs were compelled to remain for three hours in absolute bodily rest, while after the other feeding they were made to take active exercise. After the three hours, the contents of the stomach were obtained and analyzed. The quantity did not essentially differ in the two cases: the experiments consequently tended to prove that exercise does not influence the time required for digestion. The chemical analysis also detected no difference. The same results were obtained by substituting the white of an egg for the meat. The experiments were then repeated twenty-five times on three men with healthy stomachs. Two of these suffered from sycosis, and the third from insipient muscular atrophy. They were fed each time with 200 grams of minced meat, a bun, a plate of bouillon, and three spoonfuls of mashed potatoes, and the contents of their stomachs were obtained four hours and a half afterwards. The exercise after meals consisted partly in gymnastics, partly in walking. Absolute rest was obtained in bed. These experiments gave the same results as those on the dogs, the difference resulting from the chemical analysis being especially imperceptible. The author therefore concludes that the gastric function is in no way influenced either by muscular action or by absolute rest.

#### LETTERS TO THE EDITOR.

\* \* \* Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

The editor will be glad to publish any queries consonant with the character of the journal.

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

##### The Pollination of Zea Mays.

THE brief report, in *Science* of March 27, of the interesting experiments with American corn at Cornell University does not give the results of the control tests, and thus fails to prove that removing a number of the tassels from a corn-field increases the yield of the emasculated stalks. The standard given for comparison is the yield of certain stalks under abnormal conditions.

The experiments of Darwin, Gaertner, and others, make it probable that the fertilization of a monoecious organism with the male element of another individual of the same species increases the vigor of the progeny, and, conversely, that self-fertilization either results in sterility or a weakened progeny.

Applying this biological law to the corn-field in question, it might be claimed that the stalks which were allowed to tassel were self-fertilized to an abnormal degree, and thus were weak-