BOTANIZING UPON A COIN.

Who has not remarked those small blackish masses which, as a consequence of too long a circulation, form incrustations (Fig. 1) upon the surface of coins, in the depressions between the images and letters? These have been studied by Mr. Reinsch, of Erlangen, whose investigations have embraced the coins—copper, silver, and gold—of all the states of Europe, and who has everywhere found micro-organisms—algæ and bacteria.

Upon scraping off with a needle the incrustation that had formed in the depressions of coins, and then placing it in distilled water and examining it under a magnification of from 200 to 300 diameters, Mr. Reinsch has detected the presence of the following bodies: fragments of textile fibers (Fig. 2, *c*), numerous granules of starch (Fig. 2, *d*), especially that of wheat, globules of fat, and a few unicellular algæ, etc. But, upon increasing the magnification, there are seen, amid all such detritus, bacteria in active motion (Fig. 2, *b*). Sometimes it is the rod-shaped sorts (oscillaroid bacteria), having an oscillatory motion (*Vibrio*, Fig. 3, *d*), or a spiral one (*Spirillum*), and sometimes the globular forms (micrococcoid bacteria). Sometimes all these forms are collected upon one and the same piece of money; but in most cases one form or another is met with isolatedly.

The globular bacteria are most frequent; the *Spirilla* (Fig. 3, *c'*) are much more rarely met with. As for *Bacilli*, these are almost always found upon copper, gold, and silver coins, under the form of from 4 to 12 jointed rods about 0·0055 or 0 0077 mm. in diameter. The terminal joints of these rods are swollen into a globular form. All these bacteria cease motion as soon as a drop of iodine or glycerine is introduced into the preparation. As for algæ (Fig. 2, *a*), the two species oftenest met with on coins are a very small *Chroococcus* (of the family Phytochromaceæ) and a unicellular species (Fig. 3, *b'*) that approaches the Palmelleæ. The *Chroococci* are hardly 0.00095 mm. in diameter, and are found collected, in 4s, 8s, and 12s, in spherical colonies that form small masses 0·02 mm. in diameter (Fig. 3, *a'*). The second form of alga (the one that approaches the Palmelleæ) is much larger, and consists of thick-walled cells having dark colored contents. In form they are related to the *Pleurococci*. Their diameter is from 0·009 to 0·01 mm., and the thickness of their walls is about a tenth of these figures. Several of these cells are found in segmentation, but not, however, so regularly as the typical *Pleurococcus*. The algæ are met with only upon old coins; the new pieces contain bacteria merely. Aside from algæ and bacteria, the incrustations upon coins contain undeveloped hyphæ, and spores of fungi analogous to those found in mould.

The fact ascertained by Mr. Reinsch is of great importance as regards public hygiene. We all know to what a degree the bacteria are propagators of contagious diseases, and certainly they could not choose a better vehicle for their dissemination than cash—that "object of circulation" *par excellence*. It would perhaps be prudent in times of epidemic to wash in a boiling alkaline solution such coins as have become coated by too long a circulation.—*Science et Nature.*

In connection with this subject, we present the following article, contributed by the editor of the *Hungarian Journal of Botany* to the September number of the *Bulletin of the Torrey Botanical Club*, of this city:

THE MICROVEGETATION OF BANK NOTES.

The recent researches of Paul Reinsch in Erlangen have revealed the occurrence, on the surfaces of the coins of many nations, of different bacteria and two minute algæ (*Chroococcus monetarum* and *Pleurococcus monetarum*, P. Reinsch), living in a thin incrustation of organic detritus composed especially of starch grains, fibers, etc., deposited upon their surfaces during the course of long circulation. This thin incrustation renders the coins very suitable for this microvegetation, but the same phenomenon is exhibited by paper money, and, indeed, by notes of clean and, to the naked eye, unaltered surface.

I have scraped off some of these minute incrustations with hollowed out scalpels and needles, and divided them into fragments in distilled water that had been boiled shortly before, and, upon examining them with lenses of high power (R. T. Beck's one-tenth inch), have seen the various schizomycetes distinctly.

I can now proceed to give a brief account of the results I have obtained from the investigation of the paper money. I have investigated the Hungarian bank and state notes, recent and old (from the years 1848–49), also Russian ruble notes, and have found bacteria upon all of them, even upon the cleanest.

On the surface of all the paper money is always to be found the special bacterium of putrefaction, viz., *Bacterium termo*, Dujardin.

In the thin incrustations on the paper money I ascertained

Fig. 1.—Coin with incrustations at *a b c*. Fig. 2.—A portion of the mass magnified × 200–250: *a*, algæ; *b*, bacteria; *c*, fibers of cotton; *d*, starch grains. Fig. 3.—The same more highly magnified: *a'*, algæ (chroococcus); *b'*, unicellular algæ; *c'*, Bacillus; *d'*, Vibrio; *e'*, Spirillum.

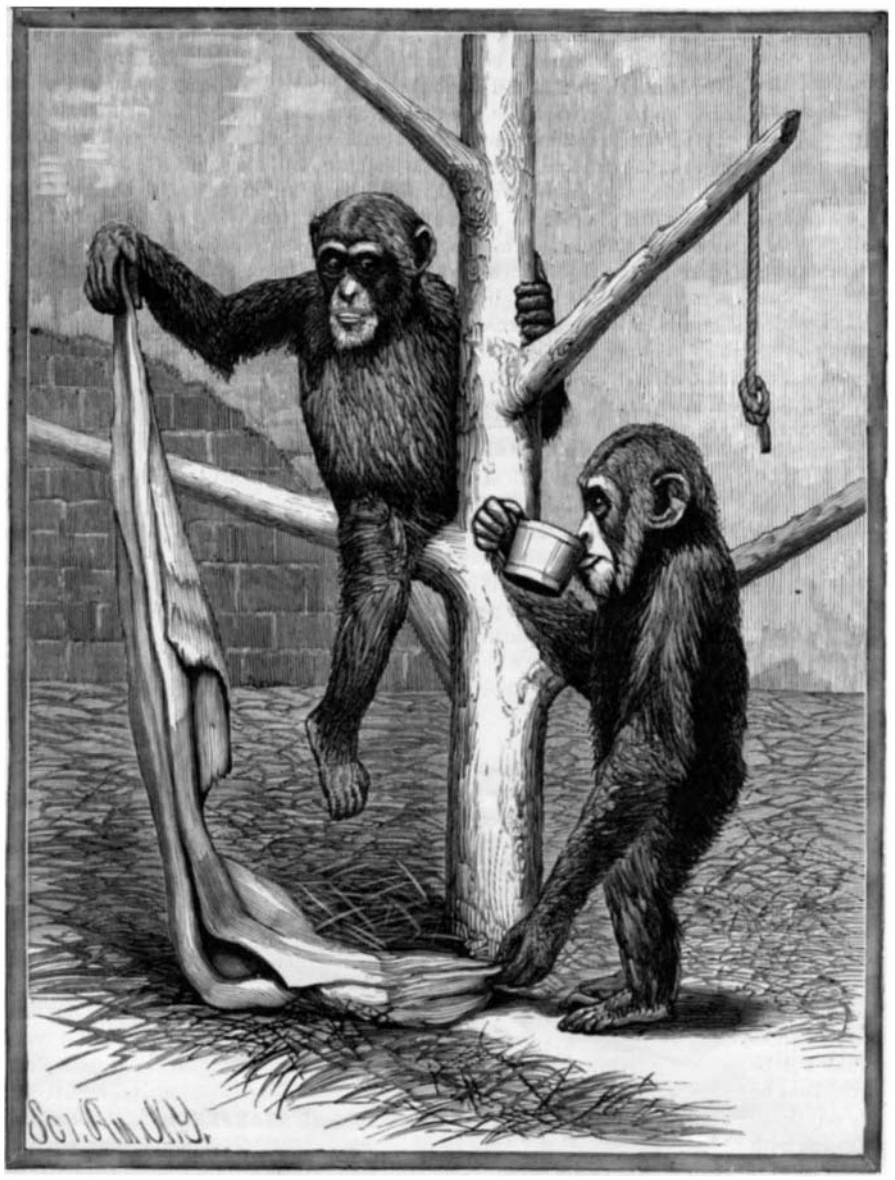
the occurrence of starch grains (especially those of wheat), linen and cotton fibers, and animal hairs, and, in this deposit upon the forint state notes, the blastomycete *Saccharomyces cerevisiæ* in full vegetation.

Various *Micrococci*, *Leptotriches* (many with club shaped, swollen ends), and *Bacilli* are also the most frequent plants in the deposit of the paper money.

The two new species of algæ described by Paul Reinsch are very rare on paper money. The green *Pleurococcus* cells have been observed in some cases on 1 and 5 forint state notes, and the bluish-green minute *Chroococcus* on the border of the 5 forint state notes.

The vegetation of the paper money is, according to my researches, composed of the following minute plants:

1. *Micrococcus* (various forms); 2. *Bacterium termo;* 3. *Bacillus* (various forms); 4. *Leptothrix* (species?); 5. *Saccharomyces cerevisiæ;* 6. *Chroococcus monetarum;* 7. *Pleurococcus monetarum.* From a hygienic point of view an investigation of the commonest household objects, and especially of books etc., used by students, may not be superfluous.



YOUNG CHIMPANZEES.

Valerian for Superficial Wounds.

At a recent meeting of the Societe de Biologie, M. Arragon brought forward a new method of dressing wounds, by which, he declared, their healing was hastened and the pain was made to disappear at once. The method consisted in the application of compresses wet with a decoction of thirty parts of valerian root in one thousand parts of water. Of fifty patients treated in this way, with only two had benefit failed to result, whether the wounds were lacerated or contused, but it is expressly stated that the treatment is of no avail in deep wounds. In one instance, warm injections of the decoction were used for otitis media. The anodyne effect is attributed to the action of the valerianic acid on the terminal nerves, and an antiseptic influence also is credited to the remedy.

Gas Tight India Rubber Tubing.

An elastic rubber tubing perfectly gas tight and free from smell has been urgently needed for many years; in fact, the impossibility of making satisfactory gas connection for gas apparatus which requires to be movable has rendered the use of gas as a fuel in many cases a most objectionable nuisance. A tubing by Mr. Fletcher, of Warrington, Eng., is made of two layers of rubber, with pure soft tin foil vulcanized between. It is said to be perfectly and permanently gas tight under any pressure, and free from smell after long continued use, while it retains the flexibility and elasticity of an ordinary rubber tube.

YOUNG CHIMPANZEES.

The chimpanzee is generally admitted to be the highest species of the apes, because its anatomy compares more favorably with that of man than any other of the monkey family. The adult measures nearly five feet in height. Its body is covered with long blackish-brown hair, which is thick upon the back, but scant upon the fore part of the body; at the sides of the head the hair is very long, and hangs down in the form of whiskers; the eyes are rather small; the lips are thick, and admit of great protrusion. The hands and feet are nearly naked, and the hairs of the forearm are directed toward the elbow.

The chimpanzee is a native of the Guinea region of West Africa. It has only been within the last few years that living specimens have been exhibited in this country. Our Zoological Gardens, Philadelphia, have now two interesting individuals of this species. Although they are comparatively young, perhaps not older than six years, yet they have an extremely antiquated appearance. I heard a countryman say to a bystander that he "guessed they were 70 years old, easy." One of them has such a great fondness for an old blanket, that he carries or drags it with him wherever he goes. Even if he desires to climb to the extreme top of his cage, the blanket must go along, although it greatly retards his progress. He knows its use, but does not always use it judiciously. Thus, on an oppressively hot day in July, I have seen him reclining for twenty minutes or more, entirely envelopod in the blanket, with the exception of his face, looking at the spectators with a comical and pouting expression. I saw one, when teased and disappointed by its keeper, throw itself upon the floor, and roll and scream vehemently, very like a naughty child in a tantrum. A board shelf was placed across their cage for them to climb upon. This they soon found could be used as a spring board, and nothing seems to give them more pleasure than, when there is a good audience, to steal gently to the center of the board, grasp it tightly with all fours, and spring violently up and down, causing the board with themselves to vibrate rapidly, and producing at the same time a loud, jarring noise. They then seem to greatly enjoy the startled and amused looks of the spectators. Perhaps one of their most human actions is languidly to recline, and holding a straw in one hand, listlessly to chew at its tip, while the eyes are rolled vacantly around. It may be that they are then building "castles in Spain." A lady observing a chimpanzee thus engaged, said he was thinking of liberty and his sunny home. But I do not for a moment suppose he was dreaming of and longing for his native home—the luxuriant and balmy forests beside the calm-gliding Gambia—but rather saying to himself, "Isn't it most time for that bossy and consequential cousin of mine to bring me my boiled rice and milk?" C. FEW SEISS.

The Length of the Meter.

The result of the latest investigations by Prof. William A. Rogers, gives the length of the meter as 39·37027 inches.