How the Chinese Make India Ink.

After many unsuccessful efforts to worm the secret of the manufacture of India ink out of the Chinese, science is finally to have the last say upon this product of the Celestial Empire.

Gunpowder, porcelain, crackle-china, green indigo, and, in fact, all the very ancient Chinese products have been unveiled to us by science only; and it is science again that is to teach us how the Chinese manufacture their celebrated ink. The following is a brief *resume* of the interesting researches, crowned with success, that Mr. Dagron has made upon this subject.

It has always been thought up to the present that the Chinese manufacture their ink by grinding a special lampblack, unknown to Europeans, with a suitable mucilage discovered by them, and that the paste obtained is allowed to dry slowly like their porcelain. The light that has just been thrown upon this subject is due to the progress that has been made in micrographic studies in recent years. In fact, upon submitting a very dilute solution of the most celebrated India ink to an examination by a very powerful microscope, it has been discovered that the particles of carbon forming the basis of the ink are of a uniform diameter. Upon repeating such examination with inferior or counterfeit India inks, it is observed that the particles of carbon are of very variable and sometimes even disproportionate diameters.

Upon submitting to such control all the numerous varieties of lampblacks, it is found that none possesses this regularity of the atoms. The blacks that most closely approach it are those that have been comminuted during the manufacture and the lightest portions selected. Nevertheless, the diameters of these are still more irregular than in India ink.

This first point established, a second remained to be fixed. Is the mucilage employed by the Chinese simple or compound? Thanks to the principle established by Mr. C. Kœcklin, and mentioned by Mr. Schutzemberger in his *Traité des Matieres Colorantes*, we know that two mucilages of opposite nature reciprocally thin one another upon being mixed, and in proceeding by elimination, after analysis, we find that the compound mucilage employed by the Chinese unites in itself about the extremest thinness of the Kœcklin principle.

An India ink having been prepared according to these data, in a state of solution, and left at rest for one or more months and then decanted, it was observed that the particles of carbon more and more closely resembled those of the genuine India ink. Upon afterward allowing this liquid ink to concentrate and evaporate in a vacuum, there is finally obtained a plastic substance which, when dried, has all the characters of the best India ink. It was of interest, from a theoretical standpoint, to ascertain this latter fact; but, in ordinary practice, it seems to be much simpler and more rational to leave the ink in a liquid state than to form it into a stick, that it would be necessary later on to redissolve with some trouble.

This liquid ink has the same properties as the best quality of India ink in sticks, and serves for the same purposes, such as making drawings and washes.—*Le Genie Civil.*

The Treatment of Hiccough with Snuff.

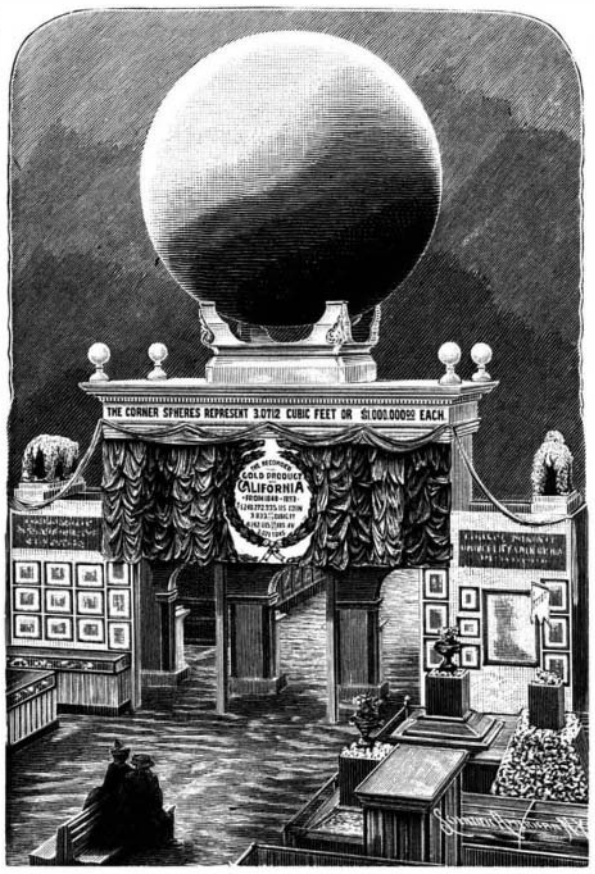
In the *Journal des Praticiens* for May 5 (*Lyon Medical* for May 20), M. Tatevossow relates a case in which he successfully combated diaphragmatic spasm, accompanied by cough or prolonged paroxysms, by making the patient take snuff until sneezing set in. Its action was immediate, the paroxysm ceased, and the continued use of the snuff caused the disease to disappear. This, it is remarked, is an extenuating circumstance in favor of snuff that the societies against the abuse of tobacco might take into account in their proceedings. —*N. Y. Med. Jour.*

An Effervescent Purgative Lemonade.

The *Journal des Praticiens* gives the following formula, by Dr. Constantin Paul, who recommends it on account of its rapid action (in two or three hours) and its being tolerated: Sodium phosphate, 375 grains; distilled water, 8 ounces; sirup, 1 ounce; tincture of lemon, 25 drops; citric acid and sodium bicarbonate, each, ½ drachm.

NOTES ON THE MIDWINTER FAIR.

The Midwinter Fair, like the Columbian Exposition, has passed into history, and California may be congratulated on carrying the great enterprise to a successful termination. California made the most extensive display of any of the States at the Columbian Exposition, Illinois, perhaps, excepted. The mineral resources and the vegetable productions of California, as exhibited in the two fairs, were a revelation to the Easterner.



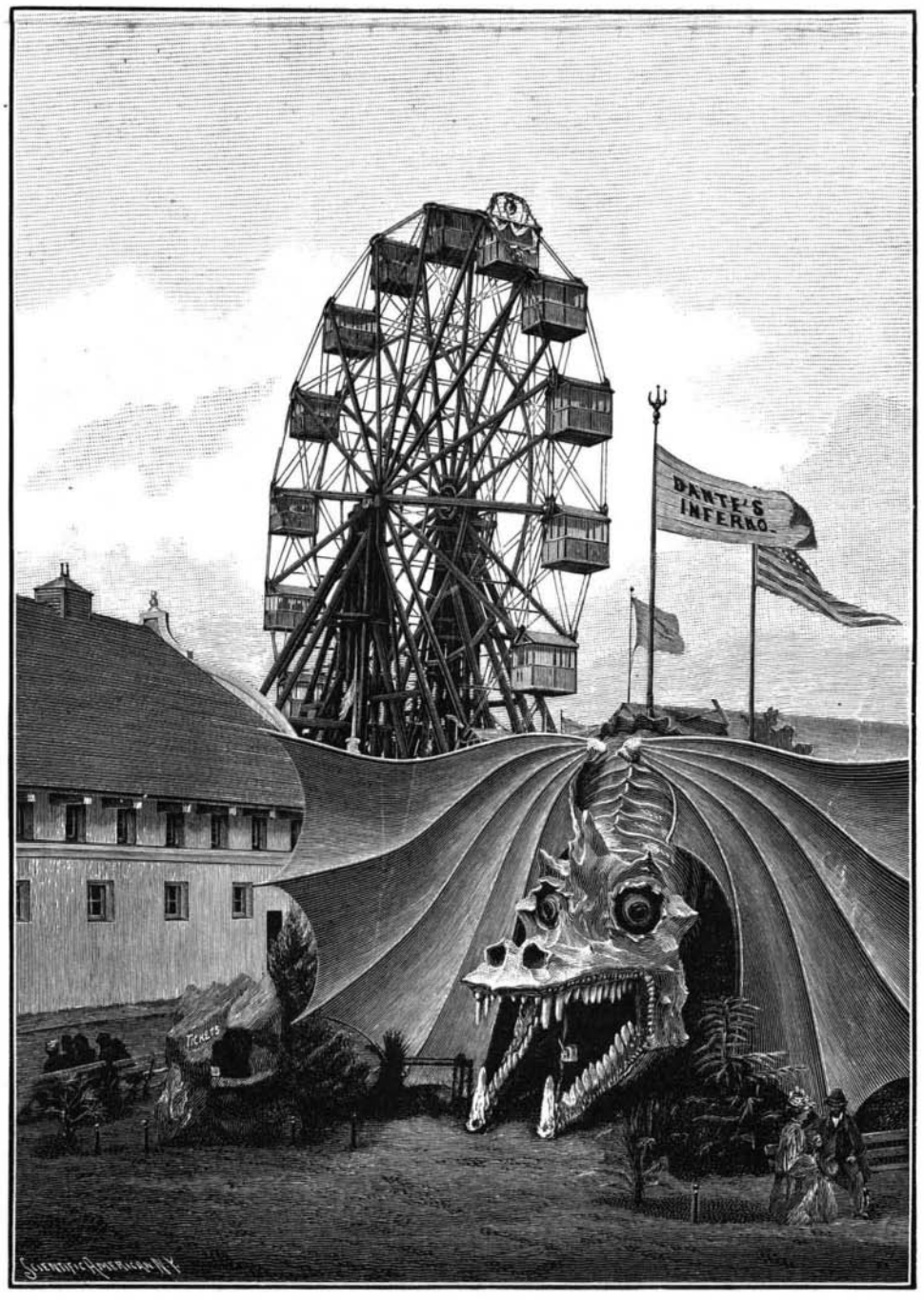
GILDED BALL SHOWING GOLD PRODUCT OF CALIFORNIA.

A conspicuous object in the Mechanical Arts building of the Midwinter Fair was a huge gilded ball, which is shown in our illustration, made from photographs taken by Mr. A. W. Cornwall. This large globe, which surmounts the pavilion of the College of Mining of the University of California, was intended as one of those great object lessons which appeal to the eye and are remembered long after the dry statistics have been forgotten. The ball showed the total recorded gold product of California from 1848 to 1893, representing $1,248,272,935 in United States coin, a weight of 2,071 tons, and a bulk of 3,833 cubic feet.

The small globes at the corners represented 3 0712 cubic feet of the precious metal, value $1,000,000. This is not the only globe representing the amount of gold mined, for Nevada County exhibited a ball which showed the total gold product of the county as $205,000,000.

After looking at the ball for a few minutes, the visitor gained some knowledge of where the present wealth of California sprang, and was doubtless glad to reach the open air, where there was less chance to indulge in day dreams on the potentiality of riches. The Firth wheel at the Midwinter Fair afforded a magnificent bird's eye view of the entire coast, including San Francisco Bay, the Golden Gate, the Pacific, and the ranges of wooded hills surrounding Concert Valley. At its foot a dazzling panorama was spread out. Owing to the elevation of the grounds, the highest line of vision is 305 feet above the Pacific. The wheel is 100 feet in diameter, which added to the height of the platform and the site carried visitors about 150 feet over the average level of the grounds. The total weight of the wheel and its sixteen cars was 192,000 pounds. The steel shaft weighed 18,000 pounds. The total capacity of the cars was 160 passengers. The towers which supported the wheel weighed 800,000 pounds. The method of propulsion was entirely different from that employed in the Ferris wheel, a cable system being employed in place of cogs. The wheel was driven by a reversing engine of 200 horse power. About twenty minutes were occupied by the trip. At night the wheel was brilliantly illuminated with incandescent lights.

Near the wheel is seen the huge dragon whose fiery eyes and yawning mouth were a terror of little folks. A huge hollow rock at the left formed a ticket office. A touter or "barker" dressed in the costume of Mephistopheles called attention to the wonders and horrors of Dante's Inferno.



FIRTH WHEEL AND THE DRAGON AT THE MIDWINTER FAIR.

Fire Caused by Electric Lamps.

Fire occurred in the business portion of Victoria, B. C., on the 5th ult. Fortunately the loss was only $15,000, and the records would show the origin "unknown," but for experiments made after the fire was extinguished. In the upper story of a dry goods house, several thirty-two candle power incandescent lights were installed. One of the lights was connected with a long insulated wire, and several feet of spare wire allowed the moving of the light from one portion of the room to another. Through ignorance or carelessness, the globe was laid on a pile of goods. The fire occurred shortly after the light was turned on at the power house, which goes to prove that the globe was placed on the goods during the day. The tests were made in the room where the fire originated, and were reported in the *Victoria Times* as follows: "There is no longer the slightest doubt as to how the fire started, as two tests have shown that the incandescent light will ignite cloth. Last evening, in the presence of Mr. Hutcheson, Chief Deasy, representatives of the *Times*, and a few others, a child's woolen hood was tied around the 32-candle light, the latter having been turned for ten minutes previously. Steam came from the wool almost immediately, and then smoke. At the end of eight minutes the hood was on fire and the globe burst. A similar test was made the evening before, and the cloth ignited in six minutes. Wool is the least inflammable of fabrics, and the test last evening was as severe as could be desired. All danger in this connection can very easily be avoided, either by hanging the globes free from anything that will take fire or by placing guards around them."—*Fire and Water.*