

dered adhesive by some such material as mullage or printer's ink, sulphuric acid of suitable temperature is then allowed to act on that portion of the glass. The hydrofluoric acid generated in this way would etch the glass on the places printed. When completed the whole is washed off with warm water and lye.

### SCIENCE AND OTHER NOTES.

**AMBER.**—The yield of amber of the German Ocean is increasing. During the year 1880 it amounted to 815,000 pounds, and was obtained by means of steam-dredging machines, while in 1879, it amounted to 280,000 pounds. In one place 158 overseers and 300 workmen, and in another 500 workmen, were occupied.

**PUBLIC INSTRUCTION OF PARIS.**—The municipal budget of instruction for 1882, of the city of Paris, amounts to 23,000,000 francs, of which 99,700 francs are for higher branches; 1,641,793 for middle, and 14,990,800 for primary; 2,851,740 are for special primary; 1,250,400 for professional, technical, and special; 427,600 for the associations of public instructions and orphanages; 1,996,600 for asylums, etc.

**GLYCERINE MIRRORS.**—Glycerine separates the silver from an ammoniacal solution of silver nitrate, produces a more perfect mirror than aldehyde. The separation of silver is incomplete without the employment of heat. Upon the addition of a solution of potassium hydroxide, the separation is effected without heating. Alcohol and ether promote the separation of the silver in the hot solution. It is said that the mirrors are brighter in dark than in light.

**BULLFROGS.**—According to the *Vienna Landt. Ztg.*, English agents are busily scouring over Austria for the purchase of bullfrogs, paying for them at the rate of 30 to 40 fl.—\$18 to \$15—per 1,000. They are packed in moss-lined perforated boxes and expedited to England and Holland. A Mr. Krelago, of Harlem, Holland, one of the largest garden owners of that country, and a Mr. Smith, of England, purchase these interesting animals for their storehouses, to consume the many insects and cockroaches.

**SCOURING.**—A Paris correspondent says: "The paper manufacturer who would send a skilful, intelligent workman to Japan, to study the uses to which paper is put there, and to select judiciously those which may be introduced here, would be sure to amass a great fortune. The great changes of the coming age will be the uses to which glass, paper, and porcelain are going to be put. London jewelers find gas and glass their best shields from burglars; glass floors, counters and shelves are getting common. Porcelain and earthenware walls are beautiful and recommended by many advantages."

**MICROSCOPES.**—The power of the microscope has been increased so greatly by modern science that it will magnify objects of about 100,000 diameters. Unassisted human vision can perceive no objects smaller than the three-hundredths inch in diameter; but the microscopist, with the best instrument, is able to examine monads one-hundred-thousandth of an inch in diameter. Beyond this is obscurity. Scientific men estimate that the ultimate particles or atoms composing all matter can be no smaller than one twenty-millionth part of an inch in diameter.

and it appears to be barely probable that they will ever be revealed to the human eye.

**SIGNIFICATION OF "STERLING."**—When, during the middle age; the commercial England of to-day was only a feeble infant, its commerce so to say, stood under the tutelage of that most famous union of the free hanseatic cities of North and Middle Germany, embracing Brugge on the west, Novgorod, in Russia, on the east, and Bergen, in Norway, on the north. These hanseates were called "Easterlings," by the English, that is, the eastern merchants, and England was so much dependant upon them that their money was the circulating medium of the country. One pound "sterling" signified one pound of the money of the Easterlings. Times have changed considerably since then.

A COMPARISON of the wealth of Great Britain and the United States has recently been made by Mr. Mulhall, well-known as a capable and painstaking English statistician. He estimates the total wealth of the United States at \$49,770,000,000, and that of Great Britain at \$40,640,000,000. This, however, includes the lands of both countries, deducting which leaves the United States with \$42,000,000,000 of "wealth proper" against \$38,940,000,000 for England. The increase of wealth in the United States during the last decade has been at the rate of 35 per cent.

A SUCCESSFUL EXPERIMENT.—"I have been told," said Mr. Dubious, watching the great steam hammer in the rolling-mill, "that a good hammer-man can break the crystal of a watch with that thirty-ton hammer." "Yes, sir," said the hammerman, "it can be done." "I should like to see it," said Mr. Dubious, eagerly, feeling in his watch pocket. "I can do it, sir," replied the man. "And will you?" replied Mr. Dubious, drawing out his watch. "Come, I am anxious to see it tried." He laid his watch on the great anvil plate. The hammer rose up to its full height and the next instant all its ponderous weight, with a crushing force that shook the ground for an acre round, came down on that watch. "There, sir," said the hammerman, quietly, "if you don't believe that crystal is broken, just stoop down and you can see it sticking to the hammer." Mr. Dubious swallowed a whole procession of lumps and gasps before he could speak. "But I forgot to say," he exclaimed, "that it was to break the crystal without injuring the watch." "Oh, yes," said the hammerman; "yes I know; I have heard that rubbish myself, but it's all gammon. I don't believe it can be done. But you can break the crystal every time."—*Furlington Hawkeye.*

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