

Correspondence.

Ingrowing Toe Nails.

To the Editor of the Scientific American:

In a recent number of your valuable paper I noticed that an inquirer was advised for the cure of an ingrowing toe nail to slit the center of the nail.

I think a much better way is to thin the surface of the whole "top" of the nail with glass paper (sand paper), say No. 2, or finer, as best suits the case; keeping the nail short in the center, allow the corners to grow till they are a little beyond the flesh; place a little double of cotton cloth between the sore place and the edge of the nail. All this being done, the relief is immediate and the cure certain. C. R. W.

Philadelphia, Pa.

Cutting off a Bottle.

To the Editor of the Scientific American:

I noticed in SCIENTIFIC AMERICAN, No. 4, July 26, that W. J. M. asks how to cut the neck off a large bottle without breaking it. If he will fasten the bottom of the bottle to a chuck on a wood lathe with melted resin, and then revolve the lathe at a high rate of speed, he can cut it as true as a straight edge by holding a piece of thin, soft iron wire on the spot where it is desired to cut it off, keeping it there till the wire gets red hot, then project a little water on the hottest part of the wire, when the neck will fly off. This is the best way it can be done, and is the way French ware is cut off in glass factories, only the chuck is hollow.

If the bottle to be cut is thicker in one place than another, the cut may not be quite as true.

R. WAGNER.

Beaver Falls, Pa.

Cutting Glass Bottles.

To the Editor of the Scientific American:

I have had good success in cutting off glass bottles, both round and square, up to half gallon in size, by cutting carefully clear around with an ordinary glass cutter, then placing the bottle in a lathe, or on a microscope turntable, or on any apparatus that would allow it to turn steadily and smoothly (suspending by a cord from ceiling might do), then revolving it at a speed of 50 to 75 revolutions per minute, and directing the flame of a blowpipe on the mark made by the glass cutter; in a half to two minutes, the bottle will crack the greater part of the way around, when the blowpipe can be removed, and by gentle traction upon the two parts, they will separate very readily; if not, a few drops of water on the unbroken part, or better, a wet string laid on the mark, will usually complete the operation. I never had any success with any other plan, and always spoiled the bottle until I hit upon this, and would advise W. J. M., question 2348, in your issue of July 26, to try it, practicing upon a few smaller bottles first.

The main thing is to heat the glass evenly clean round.

D. H. CAPWELL, M.D.

Van Horne, Ia.

Submarine Vision.

Mr. Hermann Fol, in a lecture upon "The Impressions of a Diver," delivered before the Nautical Club, of Nice, and published in full in the *Revue Scientifique*, gives, among other things, some interesting observations made by him upon submarine vision by means of the diving suit with which the laboratory installed by him at Nice is provided. According to Mr. Fol, the illumination of the bottom of the sea resembles that of a room without windows, which receives its light from a glazed aperture in the center of the ceiling. If the diver, after reaching the bottom, looks upward, he will see a large, circular, luminous space, that may be considered as the base of an inverted cone, of which his eye occupies the apex. The periphery of this circle is more or less ragged, since the surface is never absolutely calm. The rays of the sun are pale, and penetrate in moving waves that resemble what we see in a room near the seaside when the Venetian blinds are down and the rays of the sun, reflected from the movable surface, illuminate the ceiling.

The diminution in the intensity of the solar rays is very rapid, and at about 95 feet they are almost completely diffused. At the moment that the sun is descending toward the horizon such a darkness suddenly supervenes that one would be led to think that night had arrived. There is an angle at which the proportion of the rays reflected to those refracted becomes so unfavorable to the latter that the illumination of the bottom abruptly diminishes.

The transparency of the water varies greatly along the coast from one day to another. When the water is relatively clear it absorbs so much light that, at a depth of 95 feet, when the sky is overcast, it is impossible to see plainly enough to capture very small animals. It is impossible under such circumstances to distinguish a rock at a distance of more than 25 or 26 feet in a horizontal direction. If the sun is shining and the water is limpid, it is possible to see a brilliant object at a distance of 65 feet, perhaps even at 75 feet.

But, under ordinary circumstances, it is necessary to be content with half of these figures.

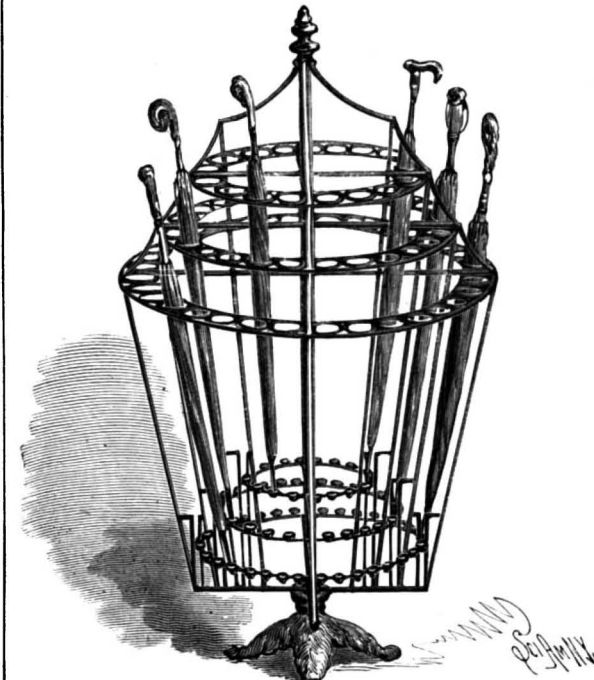
Mr. Fol concludes from these facts that marine animals move about as if in a fog, and cannot avoid surprises. Our fishing apparatus would prove unavailable for capturing animals that were capable of seeing to some distance. There is another point that Mr. Fol insists upon, and that is that a submarine boat cannot see its way under such circumstances. Provided it be swift, it will not have time to back astern when it sees some large obstacle loom up before it, since, at the moment of distinguishing the object, the boat would not be more than 30 feet distant therefrom. It will always be obliged to get its direction before plunging, and to navigate over a known ground, whose bearing has been carefully taken. Submarine navigation is thus confined within limits that man cannot widen, since it is impossible for him to modify the transparency of the water.

The color of the water varies from blue to greenish, according to its degree of clearness. Even at a depth of 30 feet objects take on a bluish tint, and at 75 or 95 feet the light is already so blue that animals of a dark red color, such as the *Murex plalomus*, appear to be black, while the green and bluish algae seem very light in comparison. Upon rapidly ascending to the surface, the aerial landscape appears red to the eye that has got accustomed to this blue light.

The red rays are the first ones extinguished. It is the blue rays that, being the least absorbed, penetrate to the greatest depth, and it is precisely these rays that act with the most energy upon the photographic plate. Thus fall the objections that certain scientists, with a persistency that does no credit to their notions of physics, have urged against the use of the photographic plate for finding to what depth daylight penetrates water.

NEW UMBRELLA OR PARASOL EXHIBITOR.

The engraving shows an umbrella or parasol exhibitor recently patented by Messrs. Abraham Y. and



KNISELY'S UMBRELLA OR PARASOL EXHIBITOR.

John P. Knisely, of Steelton, Pa. This exhibitor consists of a series of light annular frames of different diameter, arranged at different heights and supported by light rods. The lower annular frames contain cups for receiving the tips of the umbrellas, while the upper annular frames contain series of rings of sufficient size to receive the body of the umbrella or parasol. The support thus formed is arranged to turn on the upright rod, so as to render the entire contents of the exhibitor readily accessible.

The device, although light and compact, will hold a large number of umbrellas.

Natural Gas Notes.

An Oakland, Cal., note, under the date of July 15, says that the wildest kind of excitement was created north of Oakland by discovery of natural gas in abundance on one of the ranches north of Lake Merritt. The gas vein was discovered while a farmer was boring an artesian well on his property, and when ignited the flame is over 80 ft. high and burns with a roar that can be heard for miles. The well has been plugged, and a number of others are being bored by way of experiment.

At Pomeroy, O., three miles back of town, gas was recently struck at a depth of 400 ft. The pressure was so strong that the tools were blown out of the well; oil, rock and dirt being blown high in the air.

The excitement by reason of the discovery of natural gas west of Meadville seems to increase rather than diminish. The drill is going down in the well near the Cussewago Mills, and has reached the depth of about 800 ft.

A gas well has just been drilled in Coshocton County,

O., that yields 300,000 ft. of gas daily. It is 600 ft. deep. Its horizon is in the shale below Berea grit.

Report from Calf Creek, W. Va., says a big gas well was struck on the Sheets place. The actual measurement gives the flow of gas as 3,000,000 ft. every 24 hours.

A description of the newly discovered well at Chittenango, N. Y., which is creating such an excitement in its vicinity, states that the first vein of gas was struck at a depth of 950 ft. It was a weak vein and was soon exhausted. A stronger vein was reached at a depth of 2,651 ft., another at 2,690 ft., a third at 2,875 ft. None of these veins lasted for any length of time. At a depth of 2,884 ft. a vigorous vein was uncovered, but this soon ceased to be interesting, for on July 9, at a depth of 2,904 ft., the drill opened a vein that made the subscribers to the enterprise smile. The escaping gas was confined to an inch pipe, which ran out into the street. The gas was then fired and the blaze was 5 ft. in diameter and rose to a height of 15 ft. It was allowed to burn for 26 hours, and a large number of persons visited the well during this time. When a reporter visited the well recently, the drill had penetrated the earth to a distance of 3,013 ft. The contracts call for a well 3,023 ft. deep, and drilling will be stopped when that limit is reached. Since the last vein was reached, the gas has been used as fuel for the engine, and no trouble has been found in keeping the steam up to 150 pounds. The gas is conveyed to the fire box through a pipe which fits loosely into the mouth of the well. Consequently, but a small part of the gas is carried to the engine. The remainder escapes into the air.

The prolongation southward of what is known as the Cincinnati axis should give in some parts of Kentucky and Tennessee one or more gas fields. Then the Indiana gas field is a prolongation of the Ohio oil field, but on another axis. It might be inferred that there should be another gas field in North Illinois, but that is not the case. Throughout Northern Illinois there are a few isolated areas which furnish gas in small quantities from the Trenton, but nothing in commercial quantities. This is due to the fact that the great axial elevation of the Trenton brings it too near the surface for the gas to be retained. In Western Indiana on a prolongation of the great Illinois axis is an area of territory which will produce gas from the Trenton limestone in liberal commercial quantities. That is a distinct field from the Indiana gas field at present operated. Then in Southern Illinois there are two axial lines which will no doubt produce gas in large commercial quantities.

New wells are being struck, with good results, at Muncie, Ind., at a depth of 900 ft.—*Light, Heat and Power.*

James W. Queen.

James W. Queen, founder of the house of James W. Queen & Co., Philadelphia, died on July 12, at Crescon, Pa. Mr. Queen was about seventy-eight years old. When a boy Mr. Queen entered the employment of John McAllister, then a well known optician on Chestnut Street. When McAllister retired, Mr. Queen, together with W. Y. McAllister and Walter B. Dick, succeeded to the business under the firm name of McAllister & Co. In 1853 this firm was dissolved and J. W. Queen started at 924 Chestnut Street. In 1855 Samuel L. Fox was taken into partnership. The firm is now controlled by Samuel L. and Edward B. Fox. In 1868 Mr. Queen retired from business and traveled extensively, visiting nearly all civilized countries. Until last year he enjoyed excellent health. He leaves a widow, but no children.

James W. Queen's reputation was of the highest, and he was noted for his integrity. Mr. Queen was very skillful as a manufacturer of delicate instruments for scientists, surveyors, and chemists, and his reputation in that direction was worldwide. He had for a long time past represented in this country the leading European makes of electrical apparatus for measurements, etc., and had lately gone into the manufacture of such apparatus himself.

Money Order Postal Card.

Germany and Austria intend to increase the facilities of the postal traffic. Amounts of one gulden (Austrian money) or two marks (German money), or less, may be transmitted in future by buying postage stamps for the amount required, which are pasted on the back of a card, where they are canceled at the post office, like the postage stamp on the front of a card which pays for the postage. The addressee of such a card takes it to his post office, and receives the amount indicated by the postage stamp on the back of his card.

EIGHTEEN words have come into the language—probably temporarily, most of them—to denote the act or state of electric killing. They are as follows:

Electromort, thanelectrize, thanatelectrize, thanatelectrisis, electrophon, electricise, electrotony, electrophony, electroctony, electroctasy, electricide, electroponize, electrothenese, electroed, electrocution, fulmen, voltauss, and electrostrike.—*Garratt.*