

out into the dark, damp, dismal night, to return to our lodgings and fill up three pages of our journals, indignantly denying Max O'Rell's assertion, "That the English people take their pleasures sadly."

GEO. E. CARPENTER.

SCIENTIFIC MISCELLANY.

Nervous people should be relieved to know that a search of medical literature reveals no substantiated case of burial alive.

Two members of the Italian chamber of deputies propose a society for studying malaria, which keeps from cultivation 5,000,000 acres of Italy and kills 15,000 inhabitants yearly.

For the mysterious and much-discussed sea-coast sounds known as "barisal guns," or "mist puffers," Prof. Cleveland Abbe suggests that the causes doubtless vary. They may be produced by the drum fish, by breakers dashing on rocky cliffs, by the cracking of rocks in ledges, or by genuine earthquakes at the ocean bottom.

A dye that can be quickly removed by washing, stated to be made by boiling chickory with sea-water and adding pure chlorophyll to the cooled liquid, is to be carried in stock by German war vessels sent to foreign waters. It is intended especially for use in active service in tropical jungles, its purpose being to give to uniforms a dark color not easily seen by the enemy.

One of the later marvels of little things is the taking of pictures through the lens of an insect's eye. We are filled with astonishment, says Mr. F. W. Saxby, when we reflect that from a dragon-fly's head we could obtain 25,000 perfect lenses, so minute that a million of them would not cover a square inch, and yet each be capable of yielding a recognizable photograph.

A plea for hypnotism was lately made to the British Medical association by Dr. J. Milne Bramwell. He gave instances of its successful use in medicine, and asserted that, although the many patients he had hypnotized included those of all ages and mental conditions, he had never seen the slightest bad effect. He refuted the statement that a hypnotized patient could be induced to sign a large check under the "suggestion" that it was a small one. The subject, he affirmed, loses no power of his normal state, but gains others, persons of weak will being often enabled to give up vice.

The plan of travelling by tunnel to the center of Mont Blanc and then taking an elevator for a vertical ascent of a mile and a half to the summit is an amazing one, even in these days of great works. A French engineer, M. Paul Issartier, proposes a tunnel 13,864 feet long, to terminate at 1,700 feet above sea level after a rise of 600 feet in its length, and from this a vertical shaft, 10 by 13 feet in size, to the summit, 8,200 feet above. The excavating would be done from below. A strong, two-storied steel chamber would be raised on steel racks at the corners of the shaft in a 12-inch tube, and then washed away in a stream from centrifugal pumps. Before making a blast the chamber would be rolled to the other side of the shaft.

The regular increase in the area of the Po delta has been studied by Prof. Marinelli. Comparison of the Austrian map of about 1823 with the records of surveys made in 1893 shows that the mean annual increase during those seventy years has been about three-tenths

of a square mile; and from all known data it appears that the total increase during six centuries has been about 198 square miles. That is, the sea conquest of one river has added 1-600 to Italy's area in this period. The increase is continuing, and the Gulf of Venice is doomed to disappear, although Prof. Marinelli calculates that the time required to fill the entire Northern Adriatic above 44 degrees 45 minutes north latitude will certainly exceed 100 centuries and will probably be more than 120.

Some interesting observations on hail have been reported to the St. Petersburg Academy of Sciences. On April 30, 1897, M. Czernik, near Ivangorod, in Russian Poland, noted two falls of different kinds from nearly opposite directions, the hail of one being large pear-shaped grains containing a peculiar nucleus, while that of the other was transparent granules of the shape of flattened ellipsoids. The dark particles of the former have been found to consist of iron, with traces of nickel, cobalt and silicon. From the composition, Prof. Karpinsky concludes that the dust unquestionably had a cosmic origin, and reached our atmosphere from space. On an earlier occasion, volcanic dust from Vesuvius was found in hail collected by M. Czernik at the same spot.

The odor emitted by man has been held by Prof. Jager to vary according to the moral qualities of the individual. While not concerning himself with this view, Dr. A. Rethe, a German physiologist, has made experiments that lead him to declare that every person has his own peculiar scent, and he believes that there is also a family scent, of which every member partakes to a greater or less degree, and which is never completely lost by long and wide separation. Yet he maintains that the human scent is not born with us, but is acquired. The individual odor can be distinguished not only by a dog, but also by some persons of exceptionally well developed sense of smell, and one of these gifted individuals, with his eyes bandaged, successfully named more than twenty acquaintances by simply putting his nose to each in turn.

A novel method of measuring high temperatures, capable of accuracy within one degree in measurements up to the melting point of gold, depends upon the fact that the refractive index of a gas takes the same value when the density is reduced by diminution of pressure as when it is reduced by rise of temperature. A beam of light is divided, one-half passing through a tube of air in which the pressure can be varied and measured, the other half traversing a tube of air which can be heated electrically by a coil of wire surrounding the tube. The two portions of light are then recombined, so as to give interference fringes. The pressure of gas in one tube is varied so as to counterbalance any motion of the interference bands due to rise of temperature in the other, and the rise of temperature is then calculated from the variation of pressure.

The idea of Admiral Makaroff, the Russian explorer, that a powerful steamer can be forced directly to the North Pole, is rather startling, yet it has a basis of experience. Ice-breakers have been used since 1864 in Russia, and in their improved American form, with two screws at the stern and one at the stem, have been made very powerful, so that the *Ste. Marie*, of 3,000 horse power, easily sails through ice $2\frac{1}{2}$ feet thick, piercing ice-walls 15 feet higher. Even more powerful vessels

have been made lately. Considering Nansen's observation that Arctic ice-walls seldom reach a height of 25 feet, and that all ice not melted is greatly weakened in summer, Admiral Makaroff believes that an ice breaker of 20,000 horse power should penetrate to the Pole in twelve days from latitude 78 deg. north, forcing a passage through ice from four to seven feet thick. In practice he would use two smaller special ice breakers, as their power can be combined when necessary.

The spectroscope with which Fraunhofer made his famous map of spectral lines early in the century, contained a single prism. Greater dispersions of the light vibrations was later effected by the use of trains of prisms, and in recent investigations the spectrum has still further spread out by the ruled gratings. Even more powerful is the new Echelon spectroscope, the invention of Prof. A. A. Michelson, which is pronounced the greatest advance for many years in optical science. The light diffracting part of this consists of a pile of glass plates, each plate narrower on one side than the preceding, thus forming steps, and dividing the light into beams, each of which has traveled something like 20,000 waves more than the one behind and 20,000 less than the one next in advance. In other spectroscopes the difference between successive beams is 1 to 4 beams. In a trial Echelon at the University of Chicago, there are 20 plates, each about three-fourths of an inch thick and projecting one-twenty-fifth inch over the next succeeding plate, and with this the three components into which zeeman found spectral lines to be separated in the magnetic field are doubled and tripled. The resolving power is increased from 100,000 in the older instruments to 300,000, with the reasonable certainty that at least 500,000 will soon be reached. With the advantages of cheapness and enormous dispersion of small portion of the spectrum, the new instrument has the disadvantage of not giving a continuous spectrum.

ACROSS THE CONTINENT.

On Board the *Waesland*,

Aug. 23, 1898, 3 p. m.

We are now sailing the *St. George's* channel with a lively breeze against us. But breezes, billows, or breakers, the old *Waesland* still plows the seas with the same triumphant pride in her own safety today as she has borne for "one and thirty" years.

Our trip has been one of extreme delight to most of the party. In fact, to me, it was almost too delightful to be pleasant, if such a paradoxical term can be used. My sea sickness was hardly as much as I had hoped for, for I wanted to know what it meant. There was a longing within my breast to meet one of those "grand old storms at sea," where I could stand and watch the angry waves leap up, like raging leopards, and bite the tortuous wind; but when I saw what "agonizing groans" were brought on us by the gentle rocking of the ship, I thought perhaps 'twas best to sail on less tempestuous seas.

The first day out was beautiful. Precisely at 6:30 on the morning of the 13th inst. we were tugged out into deep water on the Delaware river, and a good pilot steered us safely past the breakers, and climbing down the side of the steamer, stepped into a small boat, which carried him and our last farewell letter back to the earth. He waved us a sweet toned "Pleasant voyage," and we were gone. The water turned greener and deeper and darker. The waves, though gentle, were beginning to roll in splendor beneath us