

## SCIENTIFIC AND SANITARY.

A SCIENTIFIC expedition to Spitzbergen, organized by Herr Stanglin, of Stuttgart, has just left Bremen with the object of making a thorough study of the geology of Spitzbergen and of examining the fishing-grounds of the Northern waters.

On the summit of Ben Lomond may be seen the smallest tree that grows in Great Britain. It is known as the dwarf willow, and is, when mature, only about two inches in height.—*Chicago Herald.*

At the Starling hydraulic mine, in Jackson County, Ore., a tusk of a mastodon was washed out recently from beneath fifty feet of gravel. The tusk was four inches in diameter, and was porous and crumbling. Other bones of the same prehistoric animal have been found in the mine at different depths.—*Engineering and Mining Journal.*

At Berne the International Geographical Congress will adopt a long-studied plan for a map of the earth on the scale of 1-1,000,000. The elaboration of the proposed map on a large scale is regarded as important in order to destroy the illusion that the non-European countries are sufficiently known, and to show that explorers have still a great deal to do.—*Boston Globe.*

In a note published in the *British Medical Journal* Dr. Lennox Wainright states that he has found menthol, mixed with carbonate of ammonia, and used as smelling salts, the most useful remedy that he has tried out of the great number that have been recommended from time to time for hay fever. The patient says that all irritability disappears, and in many cases they get no return of the symptoms.

The deepest mine in the world is at St. Andre de Poirier, France, and yearly produces 300,000 tons of coal. The mine is worked with two shafts, one 2,952 feet deep and the other 3,083. The latter shaft is now being deepened and will soon reach the 4,000 foot level. A remarkable feature is the comparatively low temperature, which seldom rises above seventy-five degrees Fahrenheit.—*Chicago Globe.*

As has already been indicated, Mr. H. Maxim's aerial machine, now being constructed at Crayford, is nearly ready for launching. It will be propelled by a light screw making 2,500 revolutions a minute. The motive power (it is reported) is supplied by a petroleum condensing engine weighing 1,800 pounds, and capable of raising a forty thousand pound load. The real suspending power will lie in an enormous kite, measuring 110 feet long and 40 feet wide. The whole machine will weigh about 12,000 pounds, room being provided for the accommodation of passengers and their transport of from ten to twelve tons of freightage.—*Public Opinion.*

## "August Flower"

**Dyspepsia.** There is a gentleman at Malden-on-the-Hudson, N. Y., named Captain A. G. Pareis, who has written us a letter in which it is evident that he has made up his mind concerning some things, and this is what he says:

"I have used your preparation called August Flower in my family for seven or eight years. It is constantly in my house, and we consider it the best remedy for Indigestion, and Constipation we have ever used or known. My wife is troubled with Dyspepsia, and at times suffers very much after eating. The August Flower, however, relieves the difficulty. My wife frequently says to me when I am going to town, 'We are out of August Flower, and I think you had better get another bottle.' I am also troubled with Indigestion, and whenever I am, I take one or two teaspoonfuls before eating, for a day or two, and all trouble is removed."

In England some one has made the extraordinary, indeed ridiculous, proposal that the sewage of cities be pumped through large pipes laid along the railway courses and drawn off and utilized at various points along the route for agricultural purposes. All sewage rather should be transformed into a non-fermentable substance—a compost or food for vegetation in the soil, within twenty-four hours of its formation.

A DELUSION and a snare. The *Sanitary News* says: The question of the disposal of sewage is receiving a new impetus in the way of discussion. The disposal by waterways is being more strongly condemned, and disposal by artificial means advocated. The truth will come eventually that pure water cannot be obtained from streams into which sewage is emptied. *Dilution is a delusion and a snare.* Some other means for the disposal of sewage will come soon as one of the extremest necessities.

LAKE URUMIAH, in Persia, 4,100 feet above the sea, is, according to British Consul-General Stewart at Tabriz, the saltiest body of water on the earth, being saltier than even the Dead Sea. It is eighty-seven miles long and twenty-four miles broad, and contains nearly twenty-two per cent. of salt. Its northern coasts are incrustated with a border of salt glistening white in the sun. It is said that no living thing can survive in it, but a small species of jelly-fish manages to maintain an existence in its waters.

HEREDITARY influence is now stated mathematically in the following way: That the probable duration of a man's life may be known if the ages at death of his parents and grand-parents are known, and that if these are added together and then divided by six, the quotient will be his approximate term of life. If the quotient exceeds sixty, one year may be added for every five; if it falls below sixty, one year should be subtracted for every five. The presumption in this proposition is that with good fortune a man may equal, but he may not hope to appreciably or much excel, the average of his parents' and grandparents' lives.

THE London *Electrician* describes and illustrates an electro-magnet for use in eye surgery, brought out by Tatham Thompson, of Cardiff, being a modified form of Snell's instrument. It is about two and a-half inches long and weighs five ounces. It has been successfully used to ascertain whether the foreign body is of steel or of a non-magnetizable metal; to move the fragment from an inaccessible part of the eye to one favourable for its extraction, and to remove it from the surface or even the retina of the eye without cutting or lacerating the delicate tissues.

THE Supreme Council of Hygiene of Austria has been engaged in discussing the advantages of erect as compared with slanting writings, and the official report of Drs. von Reuss and Lorenz points strongly in favour of the former. According to the London *Educational Times*, they point out that the direction of the written characters has a marked influence on the position of the body. In "straight" writing the scholar faces his work, and is spared the twist of the body and neck which is always observable in those who write slantwise, and one common cause of spinal curvature is thus obviated. The erect method is, therefore, expressly recommended for use in schools in preference to the ordinary sloping lines.

THE Metropolitan Electric Light Company, Manchester Square, London, has a central station that illustrates in an admirable manner the advanced practices with regard to such works. The arrangement of the dynamos in this plant is shown in the illustration reproduced from *Industries*: There are ten alternating dynamos coupled directly to the shafts of the engines, each generator having its separate engine. The engines are triple expansion, running at 350 revolutions per minute, indicating a total of 2,000 horse-power. In addition to these large engines and generators there are four direct current exciters for starting the dynamos, driven directly by four small engines. Only two of the exciters are necessary, but they are duplicated for emergency use. There are also storage batteries that can be used for the same purposes. This idea of building engines and dynamos as a single machine was brought into use to

meet the requirements of electric lighting on shipboard, where space is limited, but the plan is meeting with considerable favour in other uses. The method of mounting these engines and dynamos presents some good points. The greatest care was taken to avoid the least vibration in the machinery and engines, and the dynamos were placed upon a foundation of blue brick and cement, seven feet deep. The foundations stand in a pit without touching its sides, and rest upon a quarter-inch of felt, so as to be practically insulated as regards sound. The felt is covered with lead to keep it dry and to prevent decay.

REMARKABLE discoveries have recently been made at the Lick Observatory, according to reports received from Mount Hamilton. Professor Holden, the director of the high telescope observatory, has secured the big telescope better photographs of the moon than have been taken anywhere else, and the work of photographing goes on every hour when the satellite is visible. The other night a luminous white spot was discovered on one of the moon's mountains, and it was agreed that the presence of snow there was indicated. The moon appears to be a dead desolate waste of played-out volcanoes and cooled-off lava beds, without atmosphere.

ONE of the novelties at the Frankfort Electrical Exhibition is an electric piano or electrophone, devised by a Berlin solicitor, Dr. R. Eisenmann. This description of it is necessarily a trifle "technical": The invention consists in attaching a series of small electro-magnets to a listel running parallel with the keys of the instrument, one magnet being fixed above each string. One of the ends of the electro-magnetic wire is fastened to a metal rail, which, by the gentle pressure of a pedal, becomes connected with the electric current, while the other is brought in contact with a metal spring, which, when the key is struck, cuts out the current by the interpolation of current arresters, a microphone being applied in this case. On pressing the pedal and striking a key the current flows through the windings of the corresponding electro-magnet, and through the microphone, the latter intercepting the current in exact proportion to the number of vibrations of the string. It is thus possible to prolong the sound as long as may be desired. The continuity of the sound, the strength of which depends on the force of the pressure of the key, imparts to the instrument the characteristic tones of the organ. But the results of the electrical action are found to be most surprising in the bass, the sounds emitted being described as a blending of the tones of the bass-viol, violoncello and bassoon. The centre notes of the instrument do not show any appreciable alteration in intonation; while the higher notes are said to bear a strong resemblance to the strains of an æolian harp.

LATEST PHASES OF ELECTRICITY. — It would hardly be supposed that the firefly and the glowworm could give points to the electrician in the matter of illumination. The fitful light of the one and the modest glow of the other do not appear to excel in any respect the brilliancy of the arc-light or the brightness of the incandescent lamp. Professor Langley has shown, however, that our best sources of light are surpassed by nature in one very important respect: the production of light unaccompanied by heat. Of the energy supplied by gas and oil for lighting purposes much more than 99 per cent. is given out of heat. Even in the electric arc-light the waste is 90 per cent. and in the incandescent lamp 94 per cent. The insect world is much more economical. The most careful measures made with the delicate balometer fail to show any sensible heat in the light of the firefly. There is no reason why nature should not be successfully imitated in this respect, and Professor Hertz hopes to make a practical application of his discovery in a method of obtaining better results than we now do from our present ordinary means in getting electrical vibrations similar in every respect to those of light but of greater wave-length. By modifying his original apparatus he has some prospect of producing waves so much shorter that all of them will be luminous; in other words, of developing a new source of light without heat. The result if successful will be an entirely new method of illumination differing as widely from the electric lights as they do from gas light and lamp light, and surpassing them all in economy and comfort.—*Charlatan.*

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