

that at which water can be supplied through such canals in more favored sections.

Wells are to be bored, an abundance of water being obtainable at a depth of fifty feet or less in any portion of the rice belt, and the water drawn by electrically-operated pumps. Each farmer will have his own well and will be independent of his neighbors and of drouth, thus insuring an uninterrupted cultivation and a constant crop of rice. A centrally located power plant will supply power for the wells, rice mill, harvesting machinery, trolley lines, warehouse trucks and equipment, lights for the plantation roadway, store and dwelling houses, and possibly heat in winter time as well as the means of cooking all the year round.

Prof. Knapp, president of the National Rice Growers' Association, which has just closed its session in New Orleans, has long held that a solution of the costly plan of canal irrigation—receiving water supply from rivers and bayous—would be solved by the pumping process and be followed by an increase of 100 per cent in the rice output in Louisiana and Texas within five years.

#### THE WORLD'S VOLCANO RECORD FOR 1902.

The New York Times has compiled a most interesting and scientifically valuable list of the world's record of earthquakes and volcanic eruptions from April 10 to September 23. The list shows an almost continuous series of earthquakes, eruptions, tidal waves and lesser strange phenomena throughout the summer. Seismologically, the year has been one of the most remarkable recorded in history. The extraordinary eruptions of Mont Pelée and La Soufrière form only a small portion of the general disturbance to which our earth has been subjected. The list is as follows:

April 10—News received of volcanic activity at Unalaska, Aleutian Islands.

April 18—Earthquake in Guatemala, Mexico, Amatlan, San Juan, San Marcos, Escuintla and Santa Lucia, killing 1,000 persons, injuring 3,000 others, and rendering 50,000 homeless.

May 3—Mount Redoubt, in Alaska, erupts.

May 7—First eruption of St. Vincent.

May 8—First eruption of Mont Pelée, destroying St. Pierre and its 30,000 people.

May 12—Mount Colima, near Guadalajara, Mexico, becomes active.

May 13—Severe earthquake felt at St. Thomas, Danish West Indies.

May 15—Mount Soconusco, State of Mexico, becomes active, causing many casualties and a few fatalities in Aquespala, Laverga and Comitán.

May 18—Earthquakes in the southern part of Portugal.

May 18—Second eruption of St. Vincent.

May 20—Tidal wave destroys a portion of the village of La Carbet, Island of Martinique.

May 20—Basse Pointe, Martinique, inundated by mud.

May 21—Earthquake experienced at St. Augustine, Fla.

May 24—Mont Pelée resumes and continues with great force for several days.

May 28—Earth tremor registered at Bayonne, N. J., and at Chattanooga, Tenn.

May 30—Another eruption of La Soufrière, accompanied by a severe earthquake.

May 31—Sulphurous exhalations from Mount Trabochetto, between Nice and Genoa, Italy.

June 2—Announcement of eruption of Mount Blackburn, in southeastern Alaska.

June 4—The Gussygran, a mud volcano near the village of Kobe, in Caucasia, erupts, killing several persons.

June 4—Landslide, Mount Grigna, near Lake Lecco, Switzerland, kills two noted scientists.

June 6—Another violent eruption of Mont Pelée.

June 8—News received of the eruption of Tacana, in Guatemala, accompanied by violent earthquakes which razed many buildings in several towns. One thousand persons killed.

June 9—Columns of steam rise from Mount Rainier in Alaska.

June 14—Discovery of slight elevation of localities in Pennsylvania.

June 14—Still another violent eruption of Mont Pelée.

June 15—Strong earthquake shocks in Sicily.

June 19—Mass of slime ejected from Pelée, practically destroying the town of Basse Pointe.

June 20—Disastrous earthquake shocks in Tyrol.

June 21—Volcano Pichincha, in the Province of Manabi, in Ecuador, becomes active.

June 22—Violent earthquake shock at Cassano al Jonio, in the Department of Calabria, in Italy.

June 24—News received at San Francisco of the eruption of the volcano of Kilauea, near the city of Hilo, Island of Hawaii.

July 1—Earthquake shocks in Salonica, European Turkey, causing heavy loss of life and great damage to property. On the same day, also, earthquake shocks

were felt simultaneously in twenty towns in Asia Minor, causing the collapse of many houses.

July 7—Large boulders and gases ejected from Tulsa, a small volcano in the Indian Territory.

July 7—Guvesne and Zelisova, in European Turkey, partially destroyed by an earthquake.

July 8—Volcanoes of Miravallis and Ricond de water up the Harvey Canal, killing countless millions of fish.

July 8—Volcanoes of Miravallis and Ricond de Vieja, in Costa Rica, reported to be in active eruption.

July 9—Severe earthquake shock at Bunder Abbas, Persia, doing much damage.

July 9—Three severe earthquake shocks at St. Vincent, Danish West Indies.

July 10, 11, 12—Loud detonations from Soufrière volcano.

July 1—Fresh eruption from Mont Pelée.

July 12—Violent earthquake shock in Caracas, damaging towns of Guarenas, Guatire, Valencia and La Guayra.

July 17—Other severe earthquakes at Kingston, St. Vincent, Danish West Indies.

July 27—Destructive earthquake shocks in California, doing much damage to property in Los Alamos, San Maria, and Santa Barbara. Simultaneously a series of severe shocks was felt in Nebraska, the Dakotas and western Iowa, and did damage to property.

August 13-15, Japan—Eruption in small Island of Torishima; the inhabitants, 150 in number, disappeared, together with houses.

August 25, Italy—Mount Alto in eruption.

August 27, Philippines—Earthquake in the Island of Mindanao; sixty natives killed.

August 30, Venezuela—Earthquake shock at Carupano at 9 A. M.; disturbance accompanied by noise which was heard along the whole shore of the Caribbean Sea.

August 30, Martinique—Mont Pelée in violent eruption; said to have killed 2,000 people.

September 1, Martinique—Mont Pelée again active, the eruption surpassing in force that of May 8.

September 6, Italy—Vesuvius spouts flames.

September 8, France—Earthquake shocks at Pau.

September 8, India—Severe earthquake in Bengal.

September 9, St. Vincent—Contour of island changed by eruption of La Soufrière.

September 9, Greece—Stromboli in full eruption.

September 16, Mexico—Water spouted from a lake frightens Indians and whites.

September 17, Philippines—Macon, Taal and Balusan volcanoes unusually active.

September 22, St. Vincent—Violent eruption of La Soufrière; cable repair ship "Newington" working five miles from shore forced to steam away at full speed, effecting a narrow escape.

September 23, Jamaica—Sharp and violent earthquake shock felt throughout the island.

September 23, Ecuador—Severe earthquake shock felt at Quito, followed by violent storm.

#### TWO RIVAL AIRSHIP ASCENTS.

On September 29 E. C. Boice, in the airship which Santos-Dumont left behind him, made an ascent from Brighton Beach. The Santos-Dumont ship rose steadily to a height of about 1,000 feet and was headed for Sheepshead Bay. Hardly had Mr. Boice set off on his journey when Leo Stevens started upward from Manhattan Beach. Stevens' ship rose to a height of about 1,000 feet, headed due west, traveled about 1,000 yards, when the motor became disabled. The machine alighted on the top of a telegraph pole.

Boice had not much better luck. The Santos-Dumont was brought to a sudden stop because, as its navigator stated, one of its ropes fouled the propeller. The ship descended after having been in the air for about fifty minutes.

Stevens and Boice seemed to have their airships well under control. Boice sailed a mile and a half and landed in a vacant lot. Stevens succeeded in covering about three-quarters of a mile. During the trials an eight-mile wind was blowing from the northeast. Boice's trip from start to finish was almost directly in the teeth of the wind. Stevens, on the contrary, was compelled to drift along with the wind.

#### COLLIERS FOR THE BRITISH NAVY

The British Admiralty has introduced another new type of vessel into the navy, which, although not a war vessel in the strictest sense of the word, will nevertheless play an important part in a naval engagement. This new vessel, for which many firms have been invited to submit tenders, is described as a floating "coal depot," with a capacity of no less than 12,000 tons. The design of the ship is very ingenious, the hull being divided into two immense holds by an opening which extends all fore and aft, and from the double bottom to the deck. These holds are in turn divided by a lower deck, which leaves a space of about seven feet in height below it. Shoots are distributed all over the deck, and the coal in the

main holds forces itself through them, with very little trimming, into bags fixed below them. When the bags are full they are conveyed by an ingenious device toward hoists in the central passage, and from the deck are loaded into the vessels alongside. It will be possible to coal two ships simultaneously by this method, and the supply will be continuous and speedy. It will thus be seen that the coaler is practically mechanical and will need very little attention. The British Admiralty contemplate equipping all the coaling stations with ships of this type.

#### SCIENCE NOTES.

In the course of an article on animal sense perceptions, in which special attention is directed to nauseous or offensive odors as a means of protection, the editor of the Zoologist warns his readers against regarding animal etiology too much from the human standpoint. Because animals cannot speak, we must not assume that they have no modes of communication; it is by no means certain that the ordinary explanation of "warning colors" is the true one, while the evil smell of the durian fruit does not render it distasteful either to the orang or to man himself.

There is on exhibition in London a large collection of relics of great archaeological value discovered by Prof. Flinders Petrie, the famous Egyptologist, and Drs. Grenfell and Hunt, during the past year among the ruins of ancient Egypt. One of the most interesting relics is a specimen of headgear very similar to the present Panama hat in style, computed to be some 2,000 years old. The last year's exploration into Egypt's past covers every historical period of the country, but the most important scientific result has been the accurate connection of the prehistoric and the historic times. An unbroken stratified series of deposits, ranging over four or five centuries of the earliest kingdoms, has been found in a town which had the ultimate fate to be inclosed as the temenos of Osiris.

The death of Virchow, following the deaths of Pasteur, Helmholtz and Darwin, seems to leave the world without men of science as great as those it has lost. Great Britain, in the establishment of its new order of merit, has selected Lord Kelvin, Lord Lister, Lord Rayleigh and Sir William Huggins as the four students of science to be honored. In addition to Mr. Herbert Spencer, whose claims for recognition are somewhat different, Sir Joseph Hooker and Sir William Stokes may be placed in this group. When, on the occasion of Virchow's eightieth birthday last year, Lord Lister brought greetings from Great Britain, he was the only man whose work could be placed beside Virchow's; but while his method of antiseptic treatment in surgery has been one of the greatest advances in medicine, it is in some respects an isolated discovery, and can scarcely claim equality with the immense work accomplished by Virchow and Pasteur. Lord Kelvin is the only living physicist who might be ranked with Helmholtz. Darwin has no peer.—Popular Science Monthly.

#### THE CURRENT SUPPLEMENT.

The launch of the new White Star liner "Cedric" has been deemed of sufficient interest to warrant the publication in the current SUPPLEMENT, No. 1397, of a well-illustrated descriptive article on the vessel from the pen of Mr. Harold Shepstone. The first American attempt at introducing the alternating current for electric traction on roads of standard gage is soon to be made on the Washington, Baltimore and Annapolis line. Since the single-phase current is to be used instead of the usual triple-phase, the road marks a radical departure in electrical railway practice. For that reason the paper by Mr. B. G. Lamme on the line may be regarded as of exceptional value. Prof. James Dewar continues his thoughtful history of cold and the absolute zero. Madame Curie in a brief note tells of the atomic weight of radium. Automobileists will doubtless be interested in a most copiously illustrated description of a novel fore-carriage built on the Riegel system. Mr. Otto F. Hunziker concludes his entertaining review of the existing methods of cultivating anaerobic bacteria. Numerous short articles and the usual Consular Notes and Selected Formulæ will also be found in the current SUPPLEMENT.

#### A SICILIAN CYCLONE.

Dispatches from Rome state that a terrible cyclone swept over Catania, Sicily, and that the town was flooded. Many houses, including the Villa Bellini, have been damaged. The railroad suffered seriously. Mt. Etna showed signs of activity, and Stromboli was still erupting.

The discovery of niter deposits in Death Valley has started a rush to the perilous region. Five hundred men are waiting at Ballarat for information as to which portion of the desert is the best for prospecting. It is said that the deposits are as rich as those of Chile.