

## Science Siftings

BY 'VOLT'

### Artificial Sapphires.

News comes from Paris that at last artificial sapphires have been produced, after many unsuccessful experiments. Artificial rubies are now an old story. The artificial stones have all the properties, chemical, physical, and optical, of the natural gems. The only way in which experts can detect them is by finding them too perfect, as the natural gems have microscopic irregularities and enclosed imperfections that are absent from the artificial product. The stumbling block in the making of sapphires has been the color. Either the experiments could not produce the desired blue, or the stone would have a crystalline structure that made its detection easy. Now, however, M. Verneuil has submitted to the Academy of Sciences stones which he has made, colored with oxide of titanium, which, after a severe examination, are pronounced identical with true sapphires, though it is just possible that cutting them in gem form may reveal some irregularity of reflection or refraction.

### Cane-Sugar in India.

India is the greatest cane-sugar producing country in the world, the country's crop amounting to 4,000,000 to 5,000,000 tons. Notwithstanding this fact, its sugar market has been captured first by the beet sugar, and later by cane sugar from Mauritius and Java. This condition of affairs has been brought about because of the backward state of the Indian sugar-cane industry in the matter of machine appliances. It is estimated that with modern machinery and better organisation of the industry, India could produce 50 per cent. more sugar. Sugar-cane is a crop particularly well suited to the country, and in the matter of sugar production India ought to be an exporting rather than an importing country. The native mills are either the 'kolhu,' a mortar and pestle arrangement, in which the cane is bruised and pressed, or else wooden-roller mills, of which there are two kinds—the 'gundi,' consisting of two, sometimes three, upright wooden rollers, and the 'belna,' used in the Punjab and made of two horizontal wooden rollers. These mills are hard to work and do the pressing very ineffectually.

### Smoke-consuming Furnace.

At Carlsbad, Austria, a form of smoke-consuming furnace has been introduced which has been patented all over the world and has shown excellent results in practical use. The idea is a simple one, but so effective that the poorest quality of Bohemian coal, a soft lignite, may be used with a combustion of 84.7 per cent. and practically no smoke or soot. This invention insures a draft of hot air driven down on the fire from above, beating back the smoke as it endeavors to rise and consuming it completely. The coal is placed in a feeding box and slides therefrom over an inclined grate to a flat grate, until the whole surface of the two grates is uniformly covered. The inclined grate is provided at its upper half with narrow air apertures like a polygonal grate, and at its lower half with wider longitudinal apertures. The flat grate likewise has longitudinal apertures. The fire is started on the flat grate and forms an intense flame jet which extends over the inclined grate to the flues. During this operation the coal on the upper half of the inclined grate up to the feeding box gives off its gases and slides gradually downward on to the flat grate as the combustion on the latter proceeds, thereby continuously replacing the consumed coal. The necessary air is supplied to the grate through an air valve and this can be regulated in accordance with the degree of heat to be attained.

### Improvement in Sleeping Cars.

An improvement in sleeping cars that will appeal to the travelling public consists in the addition of windows in the upper berths. The construction is such that the berths can be swung and locked to the sides of the car. It is not intended that passengers shall be seated in these compartments except just before retiring and after arising. The two berths in each section occupy the full length of 6 feet 5 inches between the cross partitions of the car. Each berth is hinged to the side framing of the car, and its weight is balanced so that it may be folded up against the windows. Some of the advantages that this new type of berth is said to have, as compared with Pullman construction, should claim the appreciation of the passenger. The features of cleanliness and sanitation are important. And in addition to these a passenger sleeping in a lower berth may, when arising in the morning, fold his berth against the wall and have the entire floor space and room below the upper berth for dressing. A neat leather-seated folding chair is stored under each berth and available for use when the berth is lifted. A novel feature for the convenience of passengers is the installation in the side wall at each berth of a plush-lined steel locker provided with a Yale lock. The locks are so designed that two keys are required for opening. A master-key will be carried by the car conductor and each passenger will be provided with an individual key for the box in his berth. These keys will be attached to rubber rings, so that they may be slipped over the wrist at night.

## Intercolonial

The cable states that his Holiness the Pope has granted an audience to the Hon. Thomas Hughes, M.L.C., of Sydney, accompanied by Mrs. Hughes and their sons, and also to Rev. Gavan Duffy, of Victoria.

On the afternoon of St. Patrick's Day Mr. Nicholas Larkins, formerly senior Superintendent of Police, died at his home, Stanmore, Sydney. Deceased, who was born in New Ross, Wexford, Ireland, 72 years ago, had a truly successful career. He joined the New South Wales Police Force in 1863, and thence onward his upward march was regular and rapid.

Mr. F. Kenneth McDonall, who is well known in Sydney literary and scientific circles, has been appointed editor of the *Brisbane Catholic Advocate*. Mr. McDonall (says the *Freeman's Journal*) has devoted much of his time to the study of solar physics, and has done some valuable and original work in investigating sun spot phenomena. Mr. McDonall as a Catholic controversialist possesses a first-class reputation, and is one of the most capable writers in Australia. He has contributed to many scientific journals at home and abroad.

We (*Catholic Press*) understand that the Very Rev. Father Lynch, C.S.S.R., and companions, leave Australia for the Philippines on April 19, by the Yawata Maru, the Japanese mail boat. Father Lynch will be greatly missed in Australia, and his wonderfully successful missions will be long remembered. In preparation for his work in the Philippines, where he will have charge of 40,000 Catholics, he is now studying the Spanish language. The prayers and the regret of the Catholic people of this country will go with the zealous and eloquent Redemptorist to his new and strange field of labor.

Mr. Michael Campion Carey, a well known bookseller of Ballarat, died a few days ago after a brief illness. Deceased, who was 77 years of age, arrived in Victoria in 1851. He settled in Ballarat early in 1852, and followed the occupation of a digger for several years. He was an eye-witness of the revolt at the Eureka Stockade, and was acquainted with a number of the leaders in that movement. Subsequently he adopted the profession of a school-teacher. Mr. Carey, who was a native of Dublin, was a classical scholar and held first-class qualifications as a mathematician. He was a life-long total abstainer. Deceased was for many years associated with musical affairs in Ballarat, and was for a long while a member of the choirs attached to the Catholic churches in the district.

Friday (says the *Catholic Press*) was St. Patrick's Day, but Saturday was the day on which the Irish of the metropolis and their descendants, to the number of 20,000 or thereabouts, made their real holiday. If anything, the attendance was slightly ahead of the average of previous years. Wherever one turned in the city during the morning he met countless wearers of the shamrock, and more than a quarter of our citizens wore emerald favors. Early in the day the children from all parts of the city and suburbs began to make for the Agricultural Grounds in charge of the Brothers or of teachers representing the nuns, and it was not long before thousands of boys and girls had taken possession of the arena and its surroundings. Though a trifle hot, the weather was ideal. His Grace Archbishop Kelly and the Hon. W. J. Denny, Attorney-General of South Australia, were present in the afternoon, and from a dais they viewed the display by the children. Shortly after four o'clock his Grace the Archbishop in a brief speech introduced the Hon. Mr. Denny, who delivered an eloquent address. It was computed that there were over 20,000 persons present on the grounds during the afternoon. On Friday evening a national concert was held in the Town Hall, when his Excellency Lord Chelmsford, his Grace Archbishop Kelly, the Right Rev. Mgr. O'Brien, and a very large representation of the clergy and laity were present.

The Irish national concert on St. Patrick's night in the Melbourne Town Hall was given in the presence of Sir David Gibson-Carmichael (the State Governor) and Lady Gibson-Carmichael. There was an audience of about 2500 people. His Grace the Archbishop of Melbourne, at an interval in the concert, said they had met to celebrate their national festival with the self-same enthusiasm that had characterised their predecessors. Their only regret was that they were about to lose the genial personality, the cultured taste, and the stimulating influence of the Governor and Lady Carmichael. They wished her Excellency to carry with her some small memento presented by her Irish-Australian friends. It was in the shape of emu's eggs, embellished with the Irish ornaments of the shamrock and the harp set on a silver map of Australia. His Excellency in the course of a brief reply said: It is one of the best characteristics of the Irish people that, wherever they go, they are among the best citizens you find. Till we were going away I had no idea how kind you are. I have received many letters from people I have never seen wishing us prosperity. I had one this morning from a little Irish-Australian girl, who sent me a shamrock. Once more I must say that I thank you all for the pleasant time we have had in Australia, and for all the kindness which has been shown to me by Victorians, no section of whom has been kinder than the Irish people.