

## Science Siftings

### BY 'VOLT'

#### The Shape of Eggs.

There was recently held before the Zoological Society of London a mathematical discussion of the difference in the shape of eggs. A few eggs, like those of the owl and the tortoise, are spherical, or nearly so; a few, like the grebe's or the cormorant's, are elliptical, with symmetrical ends; the great majority, like the hen's, are ovoid, or blunter at one end than the other. The hen's egg is always laid blunt end foremost. Eggs that are the most unsymmetrical are also eggs of large size relatively to the parent bird. The yolks of eggs are spherical, whatever the form of the entire egg may be. This has been shown to be due to their being enclosed in a fluid, the 'white,' which makes the pressure everywhere on the surface of the yolk practically constant.

#### Famous Engineering Feat.

The final obstruction to the Loetschberg tunnel through the Bernese Alps was pierced on March 31, after five and a-half years' work and the expenditure of £4,000,000. It is the third longest tunnel in Europe, being about nine miles. St. Gothard tunnel is nine and one-quarter miles long, and the Simplon twelve and one-half miles. The Loetschberg tunnel is designed to give the Simplon Tunnel Railway line a direct connection with the railways which traverse Switzerland from north to south. It means a direct through route from Milan to Berne, and thence to Calais and Boulogne. The distance from Milan to Calais by this route will be nearly eighty miles less than the existing routes. It will afford the traveller from London a direct route to Milan, avoiding the old roundabout routes by way of Mont Cenis and through the St. Gothard and the Simplon. Fifty lives were lost during the work of construction and several hundred persons were injured.

#### World's Largest Locomotive.

The Atchison, Topeka and Santa Fe Railway Company is just completing in its Topeka shops the largest railway locomotive in the world. It is an articulated compound engine, and it is for use in hauling freight trains over the Arizona grades. This locomotive is 121 feet long. It will be operated tender foremost as the great length of the boiler obstructs the view of the engineer. Oil will be used for fuel, as no man could shovel coal into it fast enough to keep up the 225 pounds of steam pressure required. The boiler is of the sectional non-explosive type. The locomotive has duplicated compound air pumps, power reversing apparatus, and two electric headlights, one in front and one at the rear. The locomotive weighs 750,000 pounds, and rests on ten pairs of driving wheels, two leaders under the pilot, and two trailers under the cab, making twenty-four wheels under the locomotive itself and twelve under the tender. The articulated type of locomotive is in reality two separate sets of engines with their wheels connected by one long rigid boiler of tremendous steam capacity. The rear engine is rigidly attached to this boiler, while the forward engine supports it by a massive slide so as to let the locomotive go around the curves.

#### Laying Bricks.

There are now eminent consulting engineers who are engaged by industrial heads to study their establishments from top to bottom with a view to finding by scientific study the methods of working, accounting, and handling labor which will improve on the old traditional habits. Some extraordinary results have been attained. What scientific management means is admirably illustrated by the story of bricklaying, as told by an expert. Ordinarily a brick mason makes eighteen different sets of motions in laying a single brick. He bends over, in the first place to pick up one brick, and in lifting it he lifts ten pounds of brick and about a hundred pounds of brick mason—the upper part of his own body. In laying 1000 bricks in a day's work he lifts 100,000 pounds of brick mason. This was an obvious waste of labor. So a common laborer was hired to put the bricks where the masons would not have to stoop for them. Another thing is that when a mason picks up a handmade brick, which is always a little thicker at one side than the other, he tosses the brick up, turning it over until his touch tells him which side is the top before he puts it in place in the wall. The cure for this was to have all the bricks piled top up before they were brought to the masons. Then, further, every one has seen the mason tap his brick several times to settle it into the mortar—more waste of time. The cure was to make the mortar thinner, so that the weight of the brick would settle it into the right position. This was scientific management, 'motion study.' It raised the day's work for the average brick mason from 1000 up to 2700 bricks a day, and in individual cases to much higher figures. The mason made only six motions where he used to make eighteen.

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## Intercolonial

The new brick church at Wallabadah, near Tamworth, was opened and blessed by the Right Rev. Dr. O'Connor, Bishop of Armidale, on Sunday, May 14.

His Grace the Archbishop of Melbourne, accompanied by the Very Rev. Dean Phelan, V.G., attended the farewell levee given by his Excellency the Governor at Government House on the 18th ult. The Hon. J. G. Duffy, K.S.G. (Executive Councillor), was also amongst the numerous company, which was representative of the public, professional, and commercial life of Melbourne.

His Grace Archbishop Kelly opened and blessed St. Joseph's Schoolhall at Wollongong on Sunday, May 21, in the presence of a vast concourse of parishioners and local residents. The Cardinal was to have been present, but another engagement prevented his attendance. His Grace was assisted by the Rev. Fathers Walsh, Dunn, and Loneragan, of the Wollongong parish, in the religious ceremonies. At the conclusion of the Archbishop's address £350 was collected towards wiping off the debt on the new hall.

In addition to the proposed celebration at St. Patrick's Cathedral on the Sunday following the Coronation, arrangements have been made for a children's demonstration in the Cathedral on June 22, the day of the Coronation (says the *Advocate*). About 2000 children attending the senior classes in the Catholic primary schools of the city and suburbs will take part, and the songs and choruses on the programme will be exclusively confined to the Empire and Australia. Addresses will also probably be given. The programme will be sent to the country schools, and carried out there wholly or in part, according to local circumstances.

Mrs. Bridget McGrath, of Spencer street, Melbourne, widow, who died on April 14 last, by her will, dated November 15, 1906, left estate valued at £2523, to be disposed of as follows:—Cottage at 73 Punt road, St. Kilda, to St. Vincent's Hospital; cottage at 75 Punt road, St. Kilda, to the St. Vincent de Paul's Orphanage for Boys; cottage at 79 Punt road, St. Kilda, to the St. Joseph's Home for Destitute Children. The testatrix directed that her personal estate be sold, and that out of the proceeds £300 should be paid to the building fund of St. Mary's Star of the Sea Church, West Melbourne; £50 to the Little Sisters of the Poor; and £50 to the Sisters of Charity, East Melbourne. The residue of the estate is bequeathed to friends of the testatrix.

The Rev. A. L. Cortie, S.J., of Stonyhurst College, England, who was selected by the Royal Society and the Royal Astronomical Society, England, to be chief of the Government official expedition to the Southern Hemisphere in connection with the recent solar eclipse, is now the guest of the Jesuit Fathers at Riverview (says the *Freeman's Journal*). The expedition attracted world-wide interest, and the results of its observation were awaited with anxiety by astronomers. It was, therefore, only natural that a large gathering attended Father Cortie's lecture on the solar eclipse, illustrated with lantern slides, in the College Theatre, Riverview. A special boat conveyed the guests of the Jesuit Fathers to the picturesque grounds of the college, where for an hour and a-half they listened with rapt attention to the details of Father Cortie's 28,000 miles trip for possibly a three and a-half minutes' (actually a minute and a-half) observation of the solar phenomena.

Right Rev. Mgr. Fowler, of the United States, who some years ago spent some time in Sydney, and delighted large congregations with his beautiful and eloquent sermons, passed through the city recently on his way to Manila (says the *Freeman's Journal*). While here he was received by his Eminence the Cardinal, whom he said he found looking better and younger than when he saw him last, seven years ago. He also called to see his old friend, Monsignor O'Haran, at St. Vincent's Private Hospital, and was the first one permitted to see and speak with the patient since his advent to the hospital. He found him looking remarkably well for one who had gone through such a severe illness. It is a source of regret that the Monsignor could not have remained here long enough to have given one of those eloquent and soul-thrilling discourses that have made him so popular everywhere he has been.

The happy inspiration of his Eminence the Cardinal of inaugurating Australian Day on the Feast of Our Lady Help of Christians was joyously received by the schools throughout the archdiocese (says the *Freeman's Journal*). Australia's National Hymn was a patriotic feature of the celebrations, and right well did young Australians vocally render homage to the glowing sentiments contained in the Very Rev. Father O'Reilly's patriotic composition. Generally the day was observed as a holiday. In years to be, the fruition of the Cardinal's work will be realised, when, speeding on to its glorious destiny, Australia will look back with pride to the year 1911. Speaking at the Cathedral Schools' annual meeting the Cardinal said for the first time the fete was inaugurated for the children as a real Australian Day. It was most desirable that the children should have one day to show their enthusiasm and love for their native land. Some of the newspapers said that fair play had not been shown except to those who were from Ireland. England, however, has St. George's Day, Scotland St. Andrew's, and it was only right Australia should have its own day.