

## Science Siftings

By 'VOLT.'

### Cement from Beets.

It is now reported that a French firm is making an excellent cement from a by-product in the process of making beet sugar. The scum that forms when the beets are boiled, and which has heretofore been thrown away, consists largely of carbonate of lime and water, and from 70,000 tons of beet treated 4000 tons of carbonate of lime are obtained; to this 1100 tons of clay are added, the resulting product being 3162 tons of excellent cement. The scum is pumped into large tanks, where it is allowed to dry partially; finely-divided clay is then mixed with it; the mixture is thoroughly amalgamated by beaters for an hour and burned in a rotary kiln, much in the same way as Portland cement. The clinker is then removed and pulverised into cement.

### A Deadly Gas.

Strange to say, bromine, which has been used with such deadly effect by the Germans on the battlefield, is not a gas at ordinary temperatures, but an exceedingly heavy liquid. When it is used in a chemical laboratory it is a very heavy brown liquid, which begins to fume as soon as the stopper is taken out of its bottle. If the bottle is left open for a while the subtle brown vapor creeps over the edge and down the sides, finding its way slowly to the floor, and bringing death and destruction everywhere. It was first discovered in the waters of the Mediterranean Sea by A. J. Balard in 1826. Before he found it out the discovery had been made that ordinary sea salt contained chlorine, which must have been the most offensive gas known to science until Balard's time, but bromine so far outdistanced chlorine in objectionableness that its discoverer gave it the special name that it still possesses. Bromine means 'a stink,' so he called it bromine, and a stink it has continued to be ever since.

### Increasing the Heat of Coal.

When the blacksmith desires the intensest heat of which his forge is capable he invariably throws a little water upon the coal. The same course is pursued by the stoker who would get the utmost from his boilers. And the poorer the quality of the coal the more imperative the necessity for wetting it. It seems paradoxical, for from the beginning all people everywhere have regarded water as the one reliable agency for extinguishing fire. Such, indeed, it really is, if used in proper quantity, as experience has amply demonstrated. Chemistry explains the paradox very simply, however, when it informs us that water is composed of oxygen and hydrogen in the proportion of two to one. That is to say, in every molecule of the fluid there are two atoms of the former and one of the latter. Now, oxygen is the chief agent in combustion. Oxidization is a synonym for burning. The rusting of iron, the corrosion of silver, and the burning of wood are identical processes, all due to the agency of this powerful element, which is so widely distributed through all nature. To feed oxygen to flames is greatly to intensify them, therefore, this is exactly what is done, in fact, when they are fanned. Hydrogen, on the other hand, is a gas which burns readily and with the most intense heat.

Very evidently, if water is separated into its constituent elements, the oxygen and the hydrogen, no longer bound together, are able each to perform its natural functions. The former adds greatly to combustion, and the latter not only burns readily, but materially intensifies the heat. This is precisely what occurs when a small quantity of water is added to the coal fed to the flames. There is not enough of the fluid to extinguish the fire. Instead, the fire acts upon the water, dissolving the bonds which unite its component gases, thus setting the oxygen free to accelerate combustion and converting the hydrogen into fuel of tremendous heating power.

## Intercolonial

Very Rev. Dean Kiely, of Kalgoorlie, has declined the gift of a motor car from his parishioners, until the parish is free from debt.

Mr. John B. Cussen, a son of Mr. Justice Cussen, and a student of Xavier College, Melbourne, has been appointed as flight-lieutenant in the Naval Air Service.

There was a large gathering at the Town Hall, Hobart, recently, when a committee of ladies tendered an 'At home' to the Ven. Archpriest Hennebry in connection with the celebration of his golden jubilee.

It is the intention of the Government at an early date to sanction a referendum on the question of State aid to denominational schools (says the *Brisbane Catholic Advocate*). The present state of affairs is not satisfactory to Catholics. The time is ripe, and more than ripe, to re-open this most important question. Catholic schools throughout the State have proved their efficiency, and there is no tangible excuse for repudiating their claims on the Government.

The Rev. Father Walsh, of Liverpool, New South Wales, has received a post-card from Egypt, sent by one of his parishioners, Private Bert Alderson, who says:— 'We have just heard of the landing of the Australians and New Zealanders at Gallipoli, and of a fine bayonet charge, led by Father McAuliffe, after all the other officers had been put out of action.' Father McAuliffe, who was attached to the Cathedral staff at St. Mary's, was appointed chaplain to the Australian Expeditionary Force (says the *Freeman's Journal*). Word also came through that the devoted priest was doing fine work on board the ship among the wounded and dying Australians.

By the death of Sergeant Edward Rennix Larkin, who was killed in the Dardanelles, the New South Wales Parliament loses a young and popular member, who appeared to have a bright career before him (says the *Catholic Press*). The late Mr. Larkin was a man whose energy and ability enabled him to overcome almost any handicap, and from a modest start in life, he was rising very rapidly, when his patriotism compelled him to enlist in the Expeditionary Forces. He was about 33 years of age, and was educated at St. Joseph's College, Hunter's Hill. He leaves a widow and two sons, the eldest being about four years of age. St. Joseph's Old Boys' Union has suggested the establishment of bursaries for his two sons at his old alma mater. His brother was also killed in the same action.

The Cootamundra Empire Day Committee offered a valuable prize for the best essay on 'Australia's Part in the British Empire.' The competition was open to any school-boy over fourteen years (says the *Freeman's Journal*). The essays were written in the Town Hall, Cootamundra, under the supervision of a special committee. About thirty boys from the State and non-State schools of the district presented themselves for the competition. Mr. G. T. Cotterill, inspector of public schools, Young, examined the essays. A similar competition for boys under fourteen years was also held the same day. The results, as published in the local Cootamundra papers, show that the two prizes were secured by boys attending the De la Salle School. Master G. Green headed the list in the senior, and Master J. Fisher was the successful competitor in the junior division.

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