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SCIENTIFIC AND SANITARY.

The Broken Hill Mine in South Wales, Australia, whose output of silver for a long time averaged over 200,000 ounces per week, has recently made an extraordinary record. For the week ending June 2 the yield was no less than 675,913 ounces of silver, 1,822 tons of lead and 575 tons of copper, the total value being about \$533,000.

Electric welding has been used to remedy blowholes in defective castings by first drilling or chipping out the defect; and then heating the casting around the blow-hole in a gas or oil-flame blast. Scraps of steel are then introduced, and the electric arc is applied to melt them. The result is said to be a perfect joint, without seam or flaw of any kind. The practical value of such a method is apparent.

In Berlin there are several electrical victorias run by storage-batteries, and guided by a man who sits in the driver's seat. In Paris there are also three or four steam and electrical carriages which are permitted by the authorities to travel over the streets. They apparently work with smoothness and certainty, roll along swiftly, and only frighten a few horses. In New York City there are two electric carriages which occasionally arouse the sightseers on Fifth Avenue and in Central Park; but there is no general demand for conveyances of this kind.

M. Girard, chief of the Paris municipal laboratory, in late researches concerning the bacilli of cholera and typhoid fever, has once more proved the efficacy of acids in destroying microbes. He finds citric acid to be the most useful and powerful of all. One gramme, he says, added to a quart of tainted water, will destroy all the microbes that may be in it. Consequently, he recommends the use of natural lemonade as an excellent beverage at all times, and especially during epidemics. If necessary, a little bicarbonate of soda can be added as a means of neutralizing the acidity of the lemon.

The warm climate of India often makes the ordinary precautions against the undue expansion of rails in a railway track quite useless. For instance, it is stated that on a portion of the Rajputana Railway several miles of the permanent way were laid with Belgian rails which were all right in the morning, but exhibited a serious change during the heat of the day, the rails deflecting in and out fully three inches in a length of twenty feet; yet the expansion plates used had been increased from  $\frac{1}{4}$  to  $\frac{1}{2}$  and even  $\frac{3}{4}$  of an inch, but to no purpose. Perhaps the numerous derailments recently reported may be attributed to the same cause.

Although the sugar-cane has been known and cultivated by man for thousands of years, its seeding has never been observed until 1893, and then, by a strange coincidence, it occurred and was noted by competent observers in widely separated points. Java and the British Indies. Some of the seeds were sent from both points to Barbadoes, and planted with extraordinary results. Scarcely two of the seedlings were alike, and the differences between individual plants were so great as to make the latter scarcely recognizable as belonging to the same species. One in particular is described as having long roots springing from every joint in the stem. In the ordinary cane these roots spring from the lowermost,

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Reference kindly permitted to the Lord Bishop of Toronto.

For particulars, address The Rectory, Uxbridge, Ont., or E. A. McCreith, Esq., LL.D., Toronto General Trusts Co., Toronto.

and occasionally from the second or third joints above the earth. It is said that many new and superior varieties will result from this planting and that possibly some may be produced that will seed regularly.

It is now proposed to make ice by allowing natural gas to expand from its high initial pressure down to, or near, that of the atmosphere. Nature having done all the preliminary work of compression and cooling, the gas is ready to absorb heat from its surroundings immediately upon being released from confinement. All that would be necessary would be suitable coils or chambers into which the gas could be allowed to expand. It has been calculated quite plausibly that, with an ordinary gas-well, furnishing 1,500,000,000 cubic feet per day, about 50 tons of ice could be turned out daily at an expense of about 50 cents a ton. The gas, of course, after use would retain all its virtue for heating, and could be used, as at present, in manufactories and in private houses. In a certain way, therefore, this plan may be regarded as a proposal for affording something for nothing; a desideratum to which many in this world are constantly looking forward.

Bell Telephone Company,

Walkerton Agency, May 15th, '94.

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