

CHEMICAL RESEARCHES ON SUGAR REFINING.

The following account of experiments by M. Emile Monnier, in refining sugar by the use of sulphurous acid gas, is taken from the *Chemical News*:

If sulphurous acid gas be conducted into a chamber containing coarse sugar the latter is promptly bleached, and about three-fourths of the coloring matter is entirely destroyed, while the sugar undergoes no change whatever in composition. After this treatment the sugar smells strongly of sulphurous acid, which presents no inconvenience in the process of refining.

To bleach sugar in this manner, for 1,000 parts by weight of sugar about four parts of sulphur must be burned and the gas conducted into the chamber. When the operation is once set going, the proportion of sulphur may be notably diminished. The sulphur is converted into gas by combustion in a little furnace placed at the side of the chamber. When the action is complete, the sugar is dissolved in water, and its sulphurous acid neutralized by a small quantity of lime. This lime may be previously converted into acetate of lime by M. Pellet's method, that is, by crushing it with a little syrup; for 1,000 lbs. of sugar three or four lbs. of lime are requisite in the form of acetate.

M. Monnier has been at great trouble to ascertain whether the sulphurous acid gas thus used modified the sugar so as to produce a certain amount of grape or non-crystallizable sugar, and he has convinced himself that sugar bleached in this manner undergoes no change whatever. The quantity of non-crystallizable sugar found by analysis after the operation in question was, in each case exactly equal to the amount which the sugar contained before being bleached, namely, on the average about 2.15 per cent. In all these experiments the sugar was exposed about forty-eight hours to the bleaching action.

The above process gives most striking results with exotic sugars, which are highly colored; with lighter colored samples the bleaching is not so marked; but in the former case, two-thirds to three-fourths of the heterogeneous coloring matters are eliminated completely.

THE MUTE DETECTIVE.

"No dogs admitted, sir," said the porter to a gay assemblage, as a young man and his dog appeared at the entrance.

"You must leave him behind if you go in."

"Very well," said the young man; "stay about here, Prince till I come back."

And he joined the crowd within. By and by the young man wished to refer to his watch, when, behold! the chain had been snapped in two and the valuable time-piece was gone. He considered the case a moment, and then a sudden thought flashed through his mind. So, stepping out, he whispered the fact to the porter, and gained permission to take his dog in for a minute or two.

"Look here, Prince," said he, "you know dog, my watch is stolen," and he showed him the empty pocket and the cut chain. "Do you understand, old fellow? In there, sir, is the thief. You find it my good doggie, and I'll get you a famous treat. You understand, do you?"

Prince wagged his tail and gave his master a very knowing and cute look, and then the two stole quietly into the place. Quickly the dumb detective glided around the people, smelling away at this one's coat and that one's chain, until at last he set his teeth firmly into the coat-skin of a genteel looking man, and could not be shaken off.

The young man quickly made known the case to the bystanders, who had gathered around him, and had the thief's pockets duly searched. Six other watches were found upon him, which he had gathered up in the course of the morning, and which the rightful owners were glad to get their hands on.

Prince selected out of his master's property in a twinkling, as that was all he cared for, and gave it to him joyfully. It would have taken a very keen policeman to do the work so neatly and quickly, and all agreed that he merited as good a dinner as a dog could have. A good beef bone and a bowl of milk, however, abundantly satisfied all his wants, and then he was just as ready to do the same favor over again.

THE CAMPHOR OF CHINA.—Up a branch of the river Tam-ay lies the town of Mban-ka, navigable by large junk, which carry down from thence the valuable produce of the camphor tree (*Laurus camphora*). This important branch of trade is employed as a monopoly by the Chinese government, who pays the Chinese mandarins, who have obtained the camphor at the rate of about \$5 per picul of 133½ pounds. Having obtained the camphor at this favored speculator can retail it for \$27. Upward of ten per cent of the drug is lost by evaporation during the transit, owing to the dogged conservatism or stupidity of the dealers in continuing to pack it in wood instead of tin cases. In Labuan the writer subsequently met with giant camphor trees of a different class (*Dyobalanops camphora*), ranging to a height of from 150 to 200 feet, their iron hard roots winding through the soil for sixty yards from the trunk, and even at that distance as thick as a man's thigh. The camphor, however, is found in the form of solid concretions in the crevices and fissures of the wood, and can only be obtained by cutting down the tree. Together with the hard crystalline masses thus found there is also an essential oil, believed to be camphor in an imperfectly formed condition, which though artificially crystallized, does not produce camphor of so good a quality as that which is naturally solidified in the cavities of the wood. The commercial camphor of Formosa is of a more volatile kind, and obtained by dry distillation from the wood, the branches, and the leaves of the plant alike. This vegetable secretion is not, however, confined to the true camphor laurel, being also found in other lauraceous plants, especially cinnamon.

GIVING JOY TO A CHILD.—Douglas Jerrold, the famous English wit, wrote many beautiful things, but no thought more fresh, sympathetic and loving ever dropped from his pen than this: Blessed be the hand that prepares a

child to say when and where it may bloom forth. Does not almost every body remember some kindhearted man who showed him a kindness in the dulcet days of his childhood? The writer of this recalls himself at this moment as a barbed wire standing at the wooden fence of a poor little garden in his native village, while, with longing eyes he gazed on the flowers which were blooming there quietly in the brightness of a sunny morning. The possessor came forth from his little cottage, bent the whole week at work in the garden. He had come into his garden to gather flowers to stick into his coat when he went to church. He saw the boy, and breaking off the most beautiful of his carnations—it was streaked with red and white—he gave it to him.

Neither the giver nor the receiver spoke a word, and with bounding steps the boy ran home. And now here, at a vast distance from that home, after so many events of so many years, the feeling of gratitude which animated the breast of that boy, expires itself on paper. The carnation has long since withered, but now it blooms afresh.

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