Selected Matter.

THE FIRST WATCH IN THE JURA MOUNTAINS.

A house trader from Chaux-de-Fonds in the Swiss Jura which at that time counted but few houses, brought from the interior country a watch home with him. These dwellers of these far-off regions very probably had never seen such a mechanism, but a young man lived there, who, besides the simple trade of his father, a blacksmith, had, from early childhood, evinced an unquenchable passion for all kinds of mechanism combinations requiring reflection. The watch got out of order, and was confided for repairs to this, at that time, fifteen-year old boy Daniel Jean Richard Bressel. He took it down, found the defect, and put it together again. He had meanwhile studied the entire mechanical arrangement, made a drawing of each part, and went to work to make a new one, for which purpose his inventive genius was forced to supply the lacking tools. Suffice it to say that in one and a half years he had manufactured the first watch in the Jura. When Bressel died at Locle in 1741, lurative business already had taken sent in this poor pastoral region, which, little by little, has become such an eminent source of wealth to the entire country.

"And when dying leave behind us
Footprints on the sands of time."

—*Jeweler's Circular.*

SURETY'S LIABILITY.

We had occasion, after the original trial of the case of Crathern vs. Bell, to refer to its peculiar circumstances. The matter has since been up for argument before the full Court of Queen's Bench, for Ontario, resulting in a decision in favor of the plaintiffs, Messrs. Crathern & Caverhill of Montreal. The facts may briefly stated as follows: The defendant Bell by written agreement guaranteed to the plaintiffs the payment by one of their customers, of two promissory notes in their favor of $751 each, with a limitation that he should not in any case be called upon to pay more than $751. In other words the defendant undertook up to amount of $751, to make good any loss which plaintiffs might sustain upon the notes in question.

On the maturity of the first note the debtor was unable to pay it in full and applied to Mr. Bell, his surety, for assistance. The latter thereupon gave his note for the requisite amount, which he discounted and applied the proceeds to the payment of the plaintiff's note at the bank for collection. The plaintiffs learned in due course of this payment but were not advised of the means whereby the funds were procured. Default was afterwards made on the second note, which the defendant was called upon to make good. Then, for the first time, it was communicated to the plaintiffs that the defendant had assisted in the payment of the first note. This was relied upon as discharging Mr. Bell, to the extent of that assistance, from his liability on his guarantee.

Under the circumstances it is held by the Court that there was no default in payment of the first note, and that the advance made by the surety to the debtor before any default had taken place was not a payment by the defendant in satisfaction of his liability to the plaintiffs. Accordingly the defendant is condemned to pay the full amount of the second note. The law is very strict in the rules required to be observed by creditors who seek to retain the liabilities of sureties. Still as this decision shows, a like good faith is necessary to be observed by sureties themselves. If they chose to make their arrangements with the debtor without the knowledge of their creditors in such a way that the creditors position may be effected injuriously, they may find themselves held to their original liability.—*Monetary Times.*

COLOR RELATIONS OF METALS.

In a paper on the color relations of copper, nickel, cobalt, iron, manganese, and chromium, lately read before the Chemical Society, Mr. T. Bayley records some remarkable relations between solutions of these metals. It appears that iron, cobalt and copper, form a natural color group, for, if solutions of their sulphates are mixed together in the proportions of twenty parts of copper, seven of iron and six of cobalt, the resulting liquid is free from color, but is gray and partially opaque. It follows from this that a mixture of any two of these elements is complementary to the third if the above proportions are maintained. Thus a solution of cabolt (pink) is complimentary to a mixture of iron and copper (bluish green); a solution of iron (yellow) to a mixture of copper and cobalt (violet); and a solution of copper (blue) to a mixture of iron and cobalt (red). But, as Mr. Bayley shows, a solution of copper is exactly complementary to the red reflection from copper, and a polished plate of this metal viewed through a solution of copper salt of a certain thickness is silver white. As a further consequence, it follows that a mixture of iron (7 parts) and cobalt (6 parts) is identical in color with a plate of copper. The resemblance is so striking that a silver or platinum vessel covered to the proper depth with such a solution is indistinguishable from copper.

There is a curious fact regarding nickel also worthy of attention: This metal forms solutions which can be exactly simulated by a mixture of iron and copper solutions; but this mixture contains more iron than that which is complementary to cobalt. Nickel solutions are almost complementary to colbalt solutions, but they transmit an excess of yellow light. Now the atomic weight of nickel is very nearly the mean of the atomic weight of iron and copper, but it is a little lower, that is, nearer to iron. There is thus a perfect analogy between the atomic weights and the color properties in this case. This analogy is even more general, for Mr. Bayley states that in the case of iron, cobalt, and copper, the mean wave length of the light absorbed is proportional to the atomic weight. The specific chromatic power increases with the affinity of the metal for oxygen. Chromium forms three kinds of salts, pink salts, identical in color with the cobalt salts; blue salts identical in color with copper salts; and green salts, complementary to the red salts.

Manganese, in like manner, forms more than one kind of salt. The red salts of manganese are identical in color with the cobalt salts and with the red chromium salts. The salts of chromium and manganese, according to the author, are with difficulty attainable in a state of purity. He thinks these properties of the metals lead up to some very interesting considerations.—*Chemical Review.*

A GREEN varnish for metalic objects, which is said not to lose color in the light, may be prepared by precipitating a solution of finely powdered sandarac of mastic in strong potash lye, after diluting it with water, by copper sulphate or copper acetate, and then dissolving the washed and dried green precipitate in oil of turpentine.