

"No, sir. I never saw Miss Kate looking better, though. She left your dog here." She and so, no officer friends of the captain's had great goings on while you were away."

This information of Mr. Green's was given with an air of refreshing innocence, and though utterly false, by the sheer force of audacious villany imposed upon Carton.

Carton received a note from his London agent that the final order was made up in Delmar v. Prideaux, and that certain funds in court were lying to the credit of plaintiff. Would he come up to draw for his client? So Carton took train for the metropolis, from whence he despatched a business letter to Captain Delmar, requesting Miss Delmar's signature to the form of receipt which he begged to enclose. This he forwarded to the Bath, where, he ascertained the Delmars were now residing. No answer was returned; but on the morning he should have been provided with the receipt, he was waited upon by a Mr. Percival, a brother practitioner, who informed him that he had been sent as an authority for Miss Delmar, through her father, to get the money.

"So they wouldn't trust me," thought Carton, sadly, and certainly this was the unkindest cut of all.

It would appear that, as soon as ever Richard left Waterton, the Delmars went back there, as Mr. Percival had directed to forward a bank-bill to their old quarters. He did so on the day he and Carton drew the funds.

Next morning the two solicitors met by appointment.

"I want to speak with you about this bill which you furnished rather prematurely to your client, Mr. Carton," said Mr. Percival.

Carton stopped him at once.

"I am completely at a loss to understand you, sir," was all he could reply.

"Did you not give directions to have this bill sent to the captain, or Miss Delmar?"

Carton looked so helplessly amazed and bewildered, that Mr. Percival repeated the question.

"I never furnished a bill to the Delmars. I never dreamt of doing so."

And Carton took from Mr. Percival the bill which the latter held in his hand.

As he read it, his face crimsoned even as Kate's did, but a quick fierce intelligence seemed to sparkle in his eyes. He ran for his hat.

"I must telegraph instantly to Waterton. Did you post that bank-order to Captain Delmar there?"

"Of course."

"I suspect the receipt you had was forged. That clerk of mine is capable of any villany after this. I see how everything occurred now."

And off he darted from Mr. Percival's office.

"No telegram can be sent to Waterton, sir. The wires were cut near it this morning."

This was the answer at the telegraph station to Carton's eager inquiry for the message form.

There was a shrewd, though quiet-looking personage with him.

"An old dodge, sir," remarked this individual; "an old dodge; but we'll hunt him up yet."

Sergeant Shady, of Scotland-yard, and Richard Carton travelled together that night. It was late when they arrived at Waterton. Carton made at once for the house where Green boarded. As he expected, the bird had flown.

"I think, sir, we had better get to Liverpool at once," suggested Shady. "Most likely he will make for there."

On to Liverpool, then, searching solemn, staid hotels, fast hotels, sly family ones, snug bachelor ones, slanty caravanserais, and all the other varieties of hotels in which travellers are usually done better than the chaps. Carton offered large rewards, the smart detectives of Liverpool were put on the alert, but for a week no trace of the defaulter could be got.

Sergeant Shady was beginning to feel gloomy.

"I am afraid we are licked, Mr. Carton," the man said; "I am afraid he has got clear off."

It was to be their last day. Carton and Sergeant Shady and Dred took their places on the outside of an omnibus. The detective was habited in the garb of a country yokel, and looked

the part to perfection. Eagerly did the two men scan every face in the human stream flowing past and around them.

A foreign-looking man, in a large beard and moustache, sat behind them. One would imagine he must have been a Newfoundlander, from the manner in which Dred kept staring at him. He seemed not to like this attention on the dog's part, and whispered something to the conductor in a low voice.

"Hollo! What is the matter with Sergeant Shady? He has jumped up, seized the foreign gentleman by the throat, and has him handcuffed in about fifteen brace of shakes! Look! the wig is gone now—and the moustache—and the whiskers!"

And, cursing in the best or the worst English he can command, Tom Green is fully recognizable.

"I knew him," said Sergeant Shady; "I knew him by the way in which the dog stared the fellow out of countenance."

When Carton saw the wretch safely lodged in gaol, pending his trial (and the miscreant openly exulted in his crime, and said he did it all through revenge and spite against the man whom he conceived had robbed him of a legacy), he went off at once in search of Kate. He knew enough now to make the captain be compliant and agreeable.

Need I say he was welcome to her, and how she sobbed and laughed, and sobbed again, and was happy at having him back?

The reader must fill in the picture.

The captain chose to live at Boulogne-sur-Mer when he became a father-in-law; and there you may yet see the noble warrior parading the Grande Rue, and otherwise improving his mind.

Carton and his wife are as happy as two may be in this wicked world, and prove in the manner of their lives how well love and law may go together—sometimes. W. B.

THE YOUNG CHEMIST.

LESSON IX—Continued.

As regards the solution of chloride of silver in ammonia the chloride may be got—first by evaporating away the ammonia, or by pouring into the ammonia an acid, when the chloride will be deposited. The chloride, having been isolated from its solution by any of these processes, may be treated for the purpose of extracting the silver, either by means of metallic zinc, as described in Lesson VI, or by the process of admixture with a carbonated alkali, and subsequent fusion, as described in the same Lesson.

Although chloride of lead is partially soluble in water, it is insoluble in a mixture of alcohol and water in certain proportions. Hence, by adding alcohol to a watery solution of the chloride of lead, the chloride will be thrown down, when it can be reduced to the condition of metallic lead by mixing it with a carbonated alkali, and exposing to heat as described for silver; or by treatment with metallic zinc, as for chloride of silver, but this process of reduction is rather slow.

Chloride of mercury may also be reduced to the metallic state by similar treatment, only quicksilver being an exceedingly volatile metal, the process of reduction should be conducted in a glass tube, and instead of an open fireplace, the mere flame of a spirit-lamp will be sufficient. The mercury will be found to sublime and to collect in minute particles on the inside of the glass tube. By touching these particles they can easily be made to cohere into one globule. This plan of reducing chloride of mercury to the metallic state, by means of a carbonated alkali (although not the best) is mentioned in order to demonstrate the existence of an analogy in this respect between it, and silver and lead.

LESSON X.

SPECIAL REMARKS CONCERNING MERCURIAL COMBINATIONS.

Materials required.—Some calomel (protochloride of mercury); aqueous solution of bichloride

of mercury in hot water (two grains to one oz of water); a specimen of mercury; some ether in stoppered bottle; alcohol; solution of albumen (white of egg) in water; some tinfoil; hydrochloric acid; nitric acid; a plate of gold (a sovereign); spirit lamp, and watch glasses.

In the previous remarks on these three metals, silver, lead and mercury, scarcely an allusion has been made to any points of distinction between them, except those bearing reference to the qualities of their three chlorides. But it must not be imagined, however, that there do not exist other qualities of distinction between them equally well marked, but it was important to expatiate on the distinction of the three chlorides, because it is most valuable as a qualitative indication, and because it effects the grouping together of silver, lead, and mercury in a way most useful to the analyst. The qualities of mercurial combinations will be specially investigated in this lesson. As a preliminary to this investigation, it will be necessary to inform the young chemist of two distinct series of salts of mercury. Thus 200 parts by weight of mercury unite with thirty-six of chlorine, forming a chloride, which is called the *protochloride*. 200 parts may also unite with seventy-two of chlorine forming a chloride, which is called the *bichloride*. In short, compounds of mercury, such as are ordinarily met with in the course of analysis, admit of generalization, as *proto* compounds and *bi* or *per* compounds, whereas, this remark does not apply to the usual compounds of lead and silver, and it is necessary to distinguish between these *proto* compounds and *per* compounds as their properties are very different. On referring to Lesson IX, it will be observed that an emphasis was laid on the necessity of employing an excess of mercury in order to form the protonitrate of mercury. Heat should not have been used in that case also and a violation of either of those precepts would have given a mixture of pernitrate with protonitrate of mercury. It is very easy to make a persalt of mercury unmixed with a persalt, but not quite so easy to effect the reverse, making a persalt unmixed with a protosalt. It is therefore recommended that specimens of persalts required by the young chemist for manipulation, be purchased at the druggists'—not made by himself. J. W. F.

(To be continued.)

HAIR.—A German, with the laborious and useless plodding characteristic of his countrymen, professes to have counted the hairs on the heads of four women of different complexions, and has just published the results. On the head of the blonde (light hair and blue eyes) there were 140,419 hairs; on that of the brown-haired woman, 109,440; on that of the black-haired woman, 102,962; and on that of the red haired 83,740. Although there was this disparity in the number of individual hairs, each crop was about the same weight. The average weight of a woman's hair is stated, by the same authority, to be 14 ounces.

A SOCIETY of French historical antiquaries met once a month at Metz, with the avowed purpose of rehabilitating Joan of Arc, by proving that she was not burnt at all, but was married, had children, and died quietly at Metz. They have already published one extract from the *Mercurie Galant* of October, 1686, edited by Vizé, from which it appears that one father Vignier, of the Oratory, discovered at Metz, and had transcribed before a notary public, a manuscript which states that in 1436 Joan came to Metz, where her two brothers met her, and at once recognized her, though they thought she had been burnt long ago. Then, to test her, "lui donna le Sieur Ficole un cheval, le Sieur Aubert Rouille un chaperon, le Sieur Grogné une épée et la ditte pucelle sauta sur le cheval très-lestement," at the same time telling "Nicole a thing or two, which proved her identity to his satisfaction at any rate. By-and-bye she married Mons. des Armoises, chevalier; and Father Vignier is lucky enough to find the very marriage contract, dated 1436. These antiquaries meet to dine, no less than to trace out all about the Pucelle, and call themselves "La société du Banquet Jeanne d'Arc."