

two outer ones for trains to run at five miles an hour, for way passengers; the inside line fifteen miles per hour. The upper street to be supported by iron colonnades. The sub-street to be lighted by areas near the side walk in the main street.

Making Trees Imbibe Colour.

Newest among what Mr. Tennyson calls the "fairy gifts of science," we notice an invention of Mr. Hyett to make trees imbibe colour while growing. The results were exhibited lately at the *conversazione* of the Cirencester Royal Agricultural College, in the form of beautiful sections and planchettes of wood, stained with various hues. Metallic salts are introduced in the substance of the growing tree, apparently carried up by the sap, and forced into the fibre and cells of the stem. So we can make our forests play the part of their own stainers and grainers, and cut down a pine already prepared to imitate expensive walnut or exotic mahogany. There is only one thing left to desire—that, after being thus stained, the wood could be induced to grow into the forms of tables, chairs and wardrobes. Nor shall we despair of such a result, since the Americans have long talked of a machine into which you put raw cotton at one end, and by-and-by there emerges at the other a calico shirt, hemmed, starched, ironed, with the buttons all on, and neatly marked. —*London Telegraph*.

Perchloride of Lead.

M. Nikles, professor of chemistry at Nancy, recently announced to the Academy of Sciences that he had succeeded in obtaining perchloride of lead, a curious substance derived from the only compound of lead and chloride, and which now must be called protochloride. The latter is obtained directly by subjecting lead to the influence of chlorine by the application of heat, or else by treating litharge with hydro-chloric acid. It crystallizes in needles, is volatile and cannot be decomposed by heat. M. Nikles has obtained the new compound by exposing the protochloride to the action of a current of chlorine in a solution of lime. The perchloride thus obtained is a yellow liquid emitting a strong smell of chlorine, and is a powerful agent for communicating that element to other substances. It will dissolve gold, and produces, with aniline and the analogous compounds, those beautiful colors for which those substances are so remarkable. With morphine, it yields a color similar to that of the horizon at sunrise; and with brucine, a rich cherry-red. Now, brucine and strychnine, both vegetable bases extracted from *nux vomica*, are very difficult to distinguish from each other, and here perchloride of lead steps in as a useful agent; for it so happens that it does not produce red with strychnine, as it does with brucine, and may therefore be used to distinguish one substance from the other. It serves the same purpose with regard to morphine and the other alkaloids of opium; it will likewise detect bicarbonate of lime in potable water by producing a yellow tint, and help to distinguish salts of lead from those of bismuth since it precipitates the former from their solutions and not the latter. It

will carbonize cane-sugar and not glucose, and blacken aniline without producing any effect either on fecula, starch, or dextrine. Like other perchlorides, it combines with ether to form a very caustic compound, which attacks both gold and platinum, besides other metals. —*Mechanics' Magazine*.

Talkers and Writers.

To *talk* well and to *write* well are quite distinct accomplishments, although they are sometimes found united to a high degree in the same individual; often, however, it is quite otherwise. Poor Goldsmith occurs as a familiar example. The observations he let fall in company with his literary colleagues were so notoriously flat and pointless as to provoke the remark that he "wrote like an angel, and talked like poor Poll." Other great talkers, famous wits, have written so little that their reputation rests on bon-mots and anecdotes recorded by others. But even when a great talker is also a great writer, it is rarely through his own "remains" that we appreciate his conversational abilities; we owe that privilege to the bands of camp-followers who pick clean the bones of deceased celebrities. Johnson's reputation, in this respect, owes more to Boswell than it did to himself. The unreported talker shares the fate of the singer; after his departure from the scene, his fame remains a matter of faith and tradition, which people believe in because their fathers have told them so, but the proof of which is for ever silenced.

A new explosive compound.

A new explosive compound which may be susceptible of some practical applications has been described by Mr. Peter Griess. It is a salt named by the author "nitrate of diazobenzol," which is prepared by passing nitrous acid through a solution of aniline in four times its volume of alcohol. The gas is passed through this solution until the addition of ether to a small portion causes the copious precipitation of white acicular crystals. When this point is reached the whole of the reddish-brown liquor is mixed with ether; the crystals are then allowed to subside, and separated as far as possible from the mother liquor. They are then taken up with cold dilute alcohol, and re-precipitated by the addition of ether, when they are obtained as long white needles. When obtained, they must be treated with the greatest care. They must be dried in the air or over sulphuric acid. Heated even below 100 deg. Centigrade they explode with tremendous violence, far surpassing that of fulminating silver. The destructive action of the explosion is extreme. Iron plates several inches in thickness were found smashed to atoms when something more than fifteen grains of the substance was exploded upon them. Friction, pressure, and concussion also cause the explosion. The smallest particles accidentally dropped upon the floor of a room, when dry, exploded when trod upon, emitting flashes of light. It may be well to repeat the author's caution that the manipulation of such a substance necessitates the greatest precaution. —*Mechanics' Magazine*.