

“Take any number of tumblers; fill up one with distilled water, another with ordinary drinking-water from a pump, rain-water-but, or other supply, and the rest with various samples of water more or less contaminated with organic impurities such as sewage water. Add to each of them, drop by drop, Cond’s Fluid (crimson) till the contents begin to assume a decidedly pink hue. This effect will be produced, in the case of the distilled water, if pure, by a single drop; more will be required by the drinking-water, which, after standing a little while, will show some signs of muddiness; and a still larger portion by the other samples, in which a brown precipitate will soon form. The quantity of fluid required and the amount of muddiness produced in each will be the measure of the relative impurities of the several waters.”

Here is a method by which the photographer can readily purify sufficient water to last for a few weeks’ use:—

“Pour into a hogshead of offensive drinking-water one wineglassful of Cond’s Fluid, and mix with a stick or lath. Generally this quantity will render it as sweet as fresh water: should it require more, add half a wineglassful. So long as organic matter remains—which is known by the pink colour of the fluid gradually vanishing—add the fluid. If a trace too much has been used, continue stirring, or immerse a stick or lath, and the colour will disappear. Let it stand, and any suspended matter present will subside or filter.”

Where water is required absolutely pure, the simplest mode of procuring it is to mix with permanganate of potash and distil; the result will be water of unusual purity.—*Photographic Journal.*

Miscellaneous.

Electric Lamp for Miners.

An electric lamp for miners has been submitted to the French Academy of Sciences by MM. Dumas and Benoit. They do not claim the merit of the first idea, but state that hitherto they have met with no apparatus perfectly suitable for the purpose, although experiments relating to it have been made with good results by MM. Du Moncel and Despretz. The new apparatus consists of three essential parts—a small voltaic battery, a Ruhmkorff’s induction coil, &c., and one of Geissler’s illuminating tubes. The whole are so arranged as to produce a light sufficient for the miner to work in an atmosphere where other lamps would be extinguished. The light produced is cold, or rather does not heat the tube in which it is produced, and it is inaccessible to gas. The entire apparatus is perfectly isolated; it is quite as solid as the lamps now in use; no injurious or disagreeable emanation proceeds from it; and it can be instantaneously lit or extinguished at pleasure. It will act for many consecutive hours without the light diminishing, and without any particular attention being required. The workman will have only at long intervals to agitate the charcoal with a wire. The greatest difficulty to contend with was the association of a battery of such an intensity with a coil constructed in such a manner that the bulk and weight of the apparatus should be as limited as

possible, and with a light of very great regularity to endure for at least 12 hours. MM. Dumas and Benoit state that they are certain of being able to reduce the dimensions of their apparatus still further, although it is now already sufficiently portable for its purpose.

Mr. Glaisher’s Balloon Ascents.

The attention of the scientific world has lately been called to the balloon ascents of M. Glaisher, and several interesting facts have been brought to light which deserve to be recorded. It appears that when the voyagers reached the clouds they found themselves surrounded with a dense mass of moisture, about two thousand feet in thickness, which, being passed through, a beautiful clear blue sky presented itself, with the mass of clouds floating below. After this, being above a mile and three-quarters from land, they could not perceive any clouds, but the air seemed to possess such expansive power that the balloon shot up very rapidly, so that Mr. Glaisher failed to obtain a photograph of the scene below. Several pigeons were thrown out, but dropped as heavy as a stone. Blindness began to be felt at five miles’ altitude, and M. Glaisher’s last entry of the thermometer was *minus* five, or thirty-seven below the freezing point. Subsequently he saw but was unable to register, the barometer at 10°, after which he became almost unconscious; and when they had attained an altitude of six miles Mr. Coxwell’s hands turned black and he began to faint. M. Glaisher then recovered sufficiently to hear his companion say, “I have lost the use of my hands: give me some brandy to bathe them.” The temperature was then below zero; and the water in the vessel supplying the wet-bulb thermometer was one solid mass of ice. At this point, the aeronauts seemed to incur great risk; for while M. Glaisher could not move, Mr. Coxwell was seized with intense cold, and everything seemed now to depend upon the latter gentleman, whose self possession and ease seemed quite wonderful. M. Glaisher says, “it was quite characteristic of Mr. Coxwell,” For he had never seen him without a ready means of meeting every difficulty when it has arisen; and so it proved, for just at this juncture, as the hoar frost surrounded his neck, and his hands were helpless, he seized the line between his teeth and pulled the valve open until the balloon took a turn downwards.

The height attained was certainly unprecedented, and from the description which has appeared in the daily papers, written by M. Glaisher himself it seems to have been attended with no ordinary danger. M. Glaisher wisely concludes his interesting scientific notations by observing, that “it would seem from this ascent that five miles from the earth is very nearly the limit of human existence. It is possible, as the effect of each higher ascent upon myself has been different, that on another occasion I might be able to go higher, and it is possible that some persons may be able to exist with less air and bear a greater degree of cold; but still I think that prudence would say to all, whenever the barometer reading falls as low as 11 inches, open the valve at once; the increased information to be obtained is not commensurate with the increased risk. (See Mr. Glaisher’s paper on another page of this number.