

SATURDAY JULY 10, 1880.

## UNIFORM TIME.

BY PROFESSOR ORMOND STONE.

It would be a great convenience to the traveling public if all the railroads of the country employed a uniform standard of time. The inconvenience of the present system is so manifest, that it is strange that a united effort has not been made before this to correct it. In so small a country as England the question is a very simple one, but in a country like ours extending over nearly sixty degrees of longitude, or four hours of time, the problem assumes a different aspect owing to the tendency everywhere to employ local time.

In selecting a standard meridian the mind naturally fixes upon Washington as the capitol of the nation and the seat of the largest and best equipped observatory. This meridian passes through the States of New York, Pennsylvania, Maryland, Virginia and North Carolina, and it is hard to imagine what good reason there is that the railroads passing through those States should not run by Washington time. The meridian of Washington is nearly midway between the termini of the three great trunk lines of New York and Pennsylvania. Nevertheless the actual standard employed by each of those roads is clear at one end of the route. Even the Baltimore and Ohio runs by Baltimore instead of Washington time. The meridian thirty minutes west of Washington passes through Michigan, Ohio, Kentucky, Tennessee, Georgia and Florida, and might be adopted as the standard for those States. In four of them it passes very near the capitol or the chief city of the State. In the same manner the roads of Minnesota, Iowa, Missouri, Arkansas and Louisiana might refer their time to a meridian an hour West of Washington; and so on, for the States and Territories lying beyond.

Such a system offers many advantages. The Western Union Telegraph Company transmits Washington time signals each day at noon to nearly all the railroad towns in a large portion of the Union. These signals might be utilized independently of the local time, and the great confusion which now exists would be done away with without greatly violating the preconceived notions of the general public. True noon would still occur within a few minutes of twelve o'clock by the standard time. In addition to the Washington Observatory, two others—the Cincinnati and the Morrison Observatories—have already adopted the standard of time which would accord with this plan, and it is to be hoped that others will follow their example.

## WATER SUPPLY OF CITIES.

DR. H. C. H. HEROLD.

The condition of the water supply of cities is now receiving increased attention from sanitary authorities and the medical profession in all countries, especially in England, where the subject has been fully investigated under government authority.

In the series of reports made to the Privy Council of England, Mr. Simon says, "That while it is impossible to make even a rough estimate of the number of persons annually sacrificed by impure water, taking the cases of enteric fever alone, no less than 6,879 deaths occurred recently in one year in England and Wales." In the admirable fifth report, Mr. Simon presents an abstract of no less than one hundred and sixty-four epidemics of typhoid fever, investigated by the department during four years, in all which cases excremental pollution of air or water—generally both—were found to be the cause of the sickness.

It is not my present intention to discuss this question as a whole, but to offer a few facts which will be important to those who rely on wells for their supply of water.

A few weeks since, a large firm whose place of business occupies an entire block in what is called the down-town portion of the city of New York, finding that the use of the water drawn from their well entailed painful results to those who drank it, directed me to make a chemical analysis of a sample of the water taken from the well in question.

The water was clear and sparkling, but had a perceptible bitter taste. The result of the analysis proved to be as follows:

Grains in U. S. Gallon.

Total Residue after evaporation	26.195
Organic or Volatile matter	5.372
Soda (Na O)	3.596
Chlorine (Cl)	5.312
Magnesia (Mg O)	2.635
Sulphuric Acid (SO <sub>3</sub> )	4.247
Lime (Ca O)	4.044
Carbonic Acid (CO <sub>2</sub> )	3.664
Silicic Acid	1.447

The above ingredients are present in the following combinations:

Chloride of Sodium (Na Cl)	6.846
Chloride of Magnesium (Mg Cl <sub>2</sub> )	1.513
Sulphate of Lime, (Ca O, SO <sub>3</sub> )	7.221
Bi-Carbonate of Lime, (Ca O, 2CO <sub>2</sub> )	2.754
Carbonate of Magnesia, 5(Mg O) 4(CO <sub>2</sub> ) 6(H <sub>2</sub> O)	4.354

I need not add, that when this report was made, the use of the well was at once discontinued, for it was palpably unfit for drinking purposes, the large percentage of Chloride of Sodium (nearly 7 grains to the gallon) was decisive of sewage or drainage contamination being present, one grain to the gallon of that substance being considered by the best authorities as the outside limit, for water fit for domestic use.—The large amount of other inorganic impurities will also be noticed by professional readers, for such a large amount of solid residue, would make it a very bad water even for boilers, on account of the Lime, Magnesia and Silica being deposited as a very hard incrustation. Lastly, the analysis shows that the organic matter is largely in excess of what it should be—5.372 grains to the U. S. gallon.

For the purpose of comparison, I offer the result of a chemical analysis of the much abused Croton Water of New York City, made by Professor C. F. Chandler about three years ago, which is as follows:—

Grains in U. S. Gallon.

Soda	0.326
Potassa	0.097
Lime	0.988
Magnesia	0.524
Chlorine	0.243
Sulphuric Acid	0.322
Silica	0.621
Carbonic Acid	2.604
Organic and Volatile Matter	0.670