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SCIENTIFIC AMERICAN SUPPLEMENT

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EXPLOSION IN A GREAT SEWER.

The main sewer of the drainage system of St. Louis, Mo., was destroyed July 26 by the explosion of vapor of petroleum and naphtha mixed with air, the vapors being derived from the drainage of oils set loose by the late fire at the oil works of the Waters-Pierce Oil Company. The high water in the river caused a blocking of the mouth of the sewer, and in consequence of the lighter gravity of the oil it was retained in the sewer, floating upon the water, thus generating the vapors and mixed air that was by some unknown cause ignited, with most disastrous effect, blowing up a building with about 1,000 feet of the street and the tracks in the Iron Mountain Railway yard. Six persons were killed and many injured. The narrow escapes are thrillingly described in the local papers. The water mains were broken, requiring the shutting off of the water in the entire neighborhood. The fact that oil naphtha and gasoline were escaping into the sewer since the fire in the oil works seems to have been known to the city authorities, but no attention was given to the dangerous condition of the sewer until the final catastrophe has stirred the city of St. Louis as to the responsibility of allowing a magazine of explosives to accumulate under their feet. When will people and authorities learn that the vapors of petroleum and its products are as powder when they are mixed with air in confined places, and only requiring a light or a match at any point of escape to evolve an earthquake?

THE RAILROAD STRIKES.

In our last and present issues we present our readers with some views of Homestead and of scenes connected with the steel works, where the recent strike of the steelworkers took place. Much comment was excited throughout the country by the events at Homestead, the attack on the Pinkerton watchmen, and the encampment of the State troops near the town. The actions of the strikers on this occasion rose to violence and murder, and those who to all appearance were peaceful workmen, when incited by the occasion of a strike appeared in the guise of open rioters. Claims were made that the works were patrolled and that the property therein was guarded by the strikers. Some of their leaders appeared as suppressors of violence. But the fact remains that violence was done, lives were lost, and the steel company was excluded from its own works by the strikers.

All this affected a private corporation, the Carnegie Steel Co. Within a few days a new strike has been inaugurated which affects what is to all intents and purposes a public service—the railroad. A strike is in progress among the employes in the car yards at Buffalo, and now it is an open question how far this strike will extend, and what damage it may inflict upon the transportation interests of the country. The railroad, upon which all depend for their most urgent and everyday interests, a factor which enters into the life of the humblest as well as of the richest, is the pivot of action.

The workmen have struck; the leaders of the unions appear in their usual role as deprecators of all violence; and cars are burned, obstacles are placed on the track, and threatened and executed violence and destruction of property are the order of the day. The strikers, as a body, are not, perhaps, active participators in these actions, but they are fully accessories to the crime. They are the witnesses of riotous actions, and stand idly by without so much as protesting or objecting to what is done virtually in their name. If railroad property is destroyed, the destruction is attributed to the strikers. It is possible or probable that it is directly executed by the lowest elements always to be found in large bodies of men, but in doing nothing to prevent it, and in making necessary military troops to be transported hundreds of miles to do riot duty, the strikers as a body assume a responsibility which will do much to deprive them of any semblance of public sympathy in their struggle. It seems as if when a body of men become strikers, they part with their manhood. It is not so much in the submission to the dictation of their leaders, for this has in it the elements of military discipline, but it is in being silent or active accessories to the deeds of violence which the same leaders find it convenient to deprecate.

Service in the employment of a railroad is analogous to the position of a soldier or sailor. The employer, the railroad company, is the ostensible one against whom the strike is directed, but the public is the real party attacked, and the actions of the railroad employes in their strikes have much of the aspect of a desertion in face of the enemy or of a mutiny at sea. When perishable freight is left to go to destruction on the tracks, when goods whose immediate delivery means a business success or failure are not forwarded, those responsible for it are enemies of the public. The desertion of a train, full of passengers, midway between two stations is an offense against the public, of incomparably greater extent than it is when reckoned as one against the company.

In some way the relations of the three parties, the public, the railroad, and its employes, should be so regulated that strikes would be impossible. It is an absolute certainty that in a strike riotous proceedings will be indulged in. But, irrespective of such aspect, the public has most explicit rights to the services of railroads. But for the franchises and extraordinary privileges awarded them, the employes would be engaged in other pursuits. Their very places are the creation of the public, and they are its servants. Their offenses and desertions from duty in face of the public requirements have a special element of ill. The law, in some way, should be invoked to make the punishment of strikers, active agents in destruction of property and in the impeding of traffic, very severe. As it now stands, the privilege is accorded them of interfering with the rights of citizens that outnumber them many thousand times over, and those affected by the interference with traffic do nothing.

A board of railroad commissioners, backed by proper statutes—statutes which would bear upon the railroads as well as upon their employes—should be able to do much to make strikes on railroads a thing of the past. The deserting soldier, the mutinous sailor, deserve consideration almost as fully as the crew of a passenger train that desert it when miles distant from any town, or who bring all transportation on a road to a standstill by open riot. As surely as the railroad companies should be held to responsibility in their treatment of employes, so surely should employes be held to responsibility in their treatment of the public, whose servants they are and to whom their very existence, as a body of employes, is due.

The American Association.

The forty-first meeting of the American Association for the Advancement of Science began at Rochester, N. Y., August 17. Professor Joseph Le Conte, of California, the president-elect, said in his opening remarks: There are three divisions of research which are worthy the efforts of human intellect. They are religion, fine art, and science—three sisters destined to co-operate in elevating the nature of man. What can be greater than to be reckoned as a student of the three? The pursuit of scientific investigation is, without doubt, the greatest honor of the time, and I, as the president of this body, personally have been honored beyond my due in receiving this office. I have met with the body since 1851. You remember the great names that were registered at these meetings. There we saw Dana, Guyot, Peirie, Agassiz, Hall, and many industrious men. But let us not cling to the past and honor it solely. We must not underestimate the present. The golden age is ahead of us and not behind us. The last time I met with you was in 1860. Then came the war and my removal to California. I lost the stimulating effects of the young men. We are apt to think that we teach and educate the young, my friends, but they react on us, and we educate only in proportion as we are educated. Last of all, let me say I will require your constant forbearance. The qualities that I possess do not permit me to preside at meetings of bodies. I have lived in the world of thought and not in the world of men. If this were a political meeting in which there was to be any strife I would have resigned immediately, but a body of scientific men are a law unto themselves.

"The Immediate Work in Chemical Science" was the subject of the address by Albert B. Prescott, the retiring president, who said, in part: The realm of chemical action, the world within the molecules of matter, the abode of chemical atoms, is indeed a new world and but little known. "The atomic theory" has more and more plainly appeared to be the central and vital truth of chemical science. As a working hypothesis it has directed abstruse research through difficult ways to open accomplishment in vivid reality. As a system of knowledge, it has more than kept pace with the rate of invention. As a philosophy, it is in touch with profound truth in physics, in the mineral kingdom, and in the functions of living bodies. As a language, it has been a necessity of man in dealing with chemical events. Something might have been done, no doubt, without it had it been possible to keep it out of the chemical mind. But the atomic theory has come to be more than facile language, more than lucid classification, more than working hypothesis, it is the definition of the known truth in the existence of matter.

The stimulating truth of the atomic constitution of the molecule, a great truth in elastic touch with all science, excites numerous hypotheses, which, however profitable they may be, are to be stoutly held at a distance from the truth itself. Such are the hypotheses of molecular aggregation into crystals and other mineral forms. Such are the biological theories molecules polymerizing into cells, and of vitality as a chemical property of the molecule. Such are the questions of the nature of atoms, and the genesis of the elements as they are now known, questions on the border of metaphysics. Let all these be held distinct from the primary law of the atomic constitution of simple molecules in gaseous bodies, an essential principle in an exact science. The chemist should have the comfortable assurance, every day, as he plies his balance of precision, that the atom-made molecules are