is recorded on the astronomical calendar. It is only a minute at first, but minutes will be piled upon minutes, as the earth rolls on, until the last of July, the day will be forty-seven minutes shorter than it was under the beams of the solstitial sun.

THE PREVAILING STRIKES.

During the past year the general advance in prices has increased the cost of living very materially; for the plainer food staples the increase will average fully one-third, perhaps more. Primarily this is chargeable to the severe and long continued drought of last summer, by which the products of our farms and gardens were seriously diminished. The advantage taken of the occasion by speculative holders of the leading articles of food—grain, meat, etc.—has played a secondary but not unimportant part in effecting the increase in prices. With the steady and serious lessening of the purchasing power of their wages there has naturally arisen among wage-earners a desire for an increase of pay to enable them to maintain something like their accustomed style of living.

In many of the minor industries the desires of the workmen have been, in part at least, gratified, and wages have been raised. In the larger industries, which had begun to feel more seriously the effects of the general diminution of industrial and financial prosperity, the demands of the laborers have been met by a general closing of doors, with the assurance that the works could better afford to lie idle than to pay the increased wages asked for.

This has been the case particularly in the iron and steel industries. Early in April the men in the iron and steel works of the great centers of these industries proposed a revision of the scale of wages, to take effect June 1. The manufacturers refused to grant it, and also to accept a modification of the first proposition. The amalgamated association of iron and steel workers accordingly ordered a general strike for the scale originally proposed, on the day above named, and the order was generally carried out. The association claims a membership of 80,000, embracing nearly all the skilled iron and steel workers in the country. It may be safe to estimate that when this great body of men stopped working, four or five times as many more workmen, in the same and in related industries, were thrown out of employment.

What the result will be it is impossible at this time to foresee. That the strike will prove wholly or generally advantageous to the strikers and those whose income has been stopped by their action is doubtful, judging from the general results of such conflicts, even when they end in compelling employers to concede the scale of wages demanded. It is the common fate of these great labor wars that they come too late to be largely profitable. The wave of industrial activity—the trade "boom," as it is popularly called—has usually culminated before the attendant rise in the price of everything but labor drives the wage earners to united action for a corresponding increase in wages. On a declining market, or one soon to decline, the temporarily excessive demand for the special manufacture having been substantially met, the manufacturers have the advantage and are in a better position to bear a suspension of work than the workers are.

It is to be noticed that, with one or two exceptions, the strikers have conducted themselves with commendable sobriety and a proper regard for the rights of others. There have been no riots; and, except at Chicago, no unlawful attempts to prevent the employment of non-union men.

MISREPRESENTATION AS A LEGISLATIVE INFLUENCE.

In urging upon the favor of the House the recently passed bill to encourage the infringement of the rights of patentees, its advocates repeatedly asserted that the bill had been unanimously approved by the patent committee, and had received the cordial sanction of the Commissioner of Patents.

The incorrectness of the latter assertion was sufficiently shown last week. We are now ableto state that the former was not less inexact. A member of the committee, Mr. Jones, of New Jersey, writes us that he opposed the measure as strenuously as he could, insisting that it nullified all patents coming under its meaning; that it was retroactive, and that, in his opinion, it was unconstitutional; but the majority of the committee were against him.

The fact that there was one member of the Patent Com mittee thus opposed to the bill should have been sufficient to prevent its being pressed upon the House as a measure which had received the committee's unanimous approval. In a statement of that sort there was no room for a possible honest misunderstanding.

Diastase in the White of Eggs.

It is well known that malt contains a substance capable of converting starch into sugar, to which the name of diastase has been given. A substance resembling diastase has been discovered in the albumen of the egg, by F. Selmi, the original discoverer of ptomaines, or poisonous alkaloids, in dead bodies. Previous to his death, in August, 1881, he wrote the following letter to Ercolani:

Various consideration have induced me to assume that egg albumen contained a body that would change starch into sugar. In fact, I found that a filtered aqueous solution of albumen, when digested with a solution of soluble starch, induced this change very rapidly. This confirmed my suspicion, and I attempted to isolate this body from ordinary albumen. This I succeeded in doing by treating the albumen with three parts of water and precipitating the solution with a sufficient quantity of concentrated alcohol. The diastatic substance is in the soluble portion of it, as I was able to prove by experiments, by redissolving the albumen that had been precipitated, and making comparative experiments with that and with the substance that remained in solution after expelling the alcohol at a low temperature.

The existence of a diastatic substance in egg albumen is of great physiological importance, which may be stated as follows:

The albumen contains glucose, and the yolk of egg contains starch; the latter is changed into sugar when it reaches the albumen and is thus converted into nourishment.

Artificial Diastatic Ferment.—To make artificial diastase, *i. e.*, a combination of albuminoids with phosphates and other salts, the white of eggs is diluted with two or three parts of water, filtered, and decanted. The albumen is then precipitated by somewhat less than 100 c.c. of alcohol; the precipitate is collected on a filter, washed several times with water, and allowed to drain until gelatinous. It is then taken from the filter and stirred up with water, to which has been added some bibasic or monobasic phosphate of soda, then heated to boiling.

The coagulum formed is them separated fron the liquid · in case it resulted from treating it with bibasic phosphate it is neutralized with the monobasic phosphate. The solution contains an albuminoid substance which foams greatly when shaken up with air, and which converts starch into sugar at ordinary temperature.

Experiments were also made to ascertain the power which phosphate of soda alone possesses of producing sugar from starch. Comparative experiments with a solution that contained the same amount of phosphate as the albuminoid substance, proved that the saccharifying power of the latter is three times as great as that of the phosphate solution alone. Probably other salts would increase the action of this diastase.—*Chemiker Zeitung.*

Preservation of Rubber.

Every one who uses vulcanized rubber is aware that the articles made of it will, in a longer or shorter space of time, get hard and brittle, so as to be useless. Hempel has been investigating the cause of this hardening, and has come to the conclusion that it is due to the gradual evaporation of the solvents employed when vulcanizing it. He has been trying to find some method of either preventing this evaporation, or of replacing the solvent by some other one. In this he was quite successful. If the india-rubber was put directly into the solvent it always absorbed too much of it, but the object was attained by putting the article in an atmosphere saturated with the vapor of the solvent, rubber stoppers, tubing, etc., which is perfectly elastic, is protected and prevented from spoiling by putting it in a desiccator or large glass box, in which is an open vessel of ordinary kerosene.

Simply sealing hermetically in a glass vessel preserves india-rubber for a long time. It is totally useless to try to keep it in a wooden box. As far as practicable it is to be kept in the dark. Old rubber that has become hard is softened in a very short time by putting it in a vessel with vapors of bisulphide of carbon. The action of bisulphide is, however, too powerful if it lasts too long, hence it must be taken out and put in the vapor of kerosene afterward. This simple regenerative process does good service for hard stoppers; but tubing generally does not get fit to use again, as the little cracks and checks that form when it gets hard cannot be closed again.—*D. I. Z*

Dangers of Coal Gas.

Some old questions have lately been investigated anew by M. Pobek, of Breslau, with reference to the injurious elements of common coal gas. This investigator has examined gas both before and after combustion, in order to determine the causes of any deleterious effect which it may be found to produce. He finds the chief source of danger in unburnt gas to be carbonic oxide. In some cases where a stream of gas escaping from a leaky pipe traverses ground not previously saturated, it deposits the hydrocarburets which give gas its characteristic odor, and afterward diffuses in dwelling-houses without its presence being perceived. In such a case the danger of explosion is added to that of poisoning; although explosions are seldom caused in this way, because the definite proportions necessary to an explosive mixture are not present. M. Pobek insinuates, however, that poisoning may supervene even when explosion does not take place. When gas is burnt under unfavorable conditions, M. Pobek is of opinion that the most injurious result is the excess of moisture which is thereby produced. There is no analysis given of the particular description of gas that formed the subject of M. Pobek's experiments; they must, therefore, be taken in a very general sense.

Hygiene Among the Chinese.

The "Heathen Chinee" has not a few revilers who are ever ready to point to features in his social character which render him an undesirable neighbor. The medical officer of the State Board of Health of San Francisco has, however, something to say in favor of the Celestials. In his report lately presented to Congress he states that he never knew any disease or pestilence originating or spreading in the Chinese quarters of the city. He admits that they live quite close, and attributes their healthy condition and immunity from disease to their frugal life. "They eat to live, and do not live to eat. They are clean in their habits, and they drink no whisky. I have never seen a drunken Chinaman in my life. They consequently obtain a better resisting power to the attack of disease. They constantly wash themselves, and keep themselves and their clothes clean. The death-rate is greater among the whites than among the Chinese; greater with adult white people than with adult Chinamen. There have been no epidemics among them; and there has been less smallpox among them than among the whites, the ratio of population being allowed."

The Mungoose as a Rat Killer.

The introduction of the mungoose into Jamaica as a cure for the once formidable rat pest on the sugar plantations is said to have proved a notable success. The sugar rat is a huge white bellied fellow, measuring ten inches in length of body, his long tail adding ten inches more to his length. Formerly the damage done to the sugar plantations of the island by these rats amounted to something like half a million dollars a year, rising to a quarter of the crop in seasons of special ravages. About five years ago the mungoose, whose zeal as a snake and rat killer is well known, was imported from India. As a result the plague of rats has been greatly diminished, with a saving in sugar of not less than 25 tons of sugar on each estate. There is also saved the expense of rattage, formerly amounting to hundreds of dollars a year.

Iron and Steel Production in 1881.

THE report of the Secretary of the American Iron and Steel Association for 1881, just completed, gives the following summary of the year's work: Production of pig iron in net tons, 4,641,564, including 21,086 tons of spiegeleisen; production of all rolled iron, including nails and excluding rails, 2,155,346 tons; Bessemer steel rails, net tons, 1,330,302; open hearth steel rails, net tons, 25,217; iron and other rails, net tons, 488,581; production of iron and steel street rails included in above, 21,554; crucible steel ingots, net tons, 89,762; open hearth steel ingots, net tons, 146,946; Bessemer steel ingots, net tons, 1,539,157; blister and patent steel, net tons, 3,047. Production of all kinds of steel, net tons, 1,778, 912. Production of blooms from ore and pig iron, net tons, 84,606. Imports of iron and steel, $61,555,078. Imports of iron ore, gross tons, 782,887. Exports of iron and steel, $15,782,282. Production of Lake Superior iron ore, gross tons, 2,336,335; production of iron ore in Jersey, gross tons, 737,052. Total production of iron ore in census year 1880, net tons, 7,974,705.

Production anthracite coal in census year 1880, net tons, 28,646,995. Production of bituminus coal in census year 1880, net tons, 42,420,581. Production of anthracite coal in 1881, gross tons, 28,500,016. Miles of railway completed in 1881: 9,650 miles of railway track in the United States, December 31, 1881, including double track and siding estimated, 130,000. Iron ships built in the United States in the fiscal year ending June 30, 1881, 42.

Flying Machines for War Uses.

GERMANY and Russia are both pushing forward experiments in flying machines for use in war or otherwise. It appears that the direction in which these are working is the only one likely to be successful. It ignores the ridiculous inflated gas-bag, which is enormous in size, difficult and costly to fill in war, and floats—a gigantic derelict—at the mercy of every current of air, a huge mark for the first gunner who can hit and bring it to the ground. Baumgarten, in Germany, and Baranovski, in Russia, adopt the principle of the inclined plane pressed against the air, and thus capable of making some attempt at least to regulate its own course. In the kite the force that presses the inclined plane is the hand of the boy acting through the string. In the sail of the boat the resistance of the water to sidelong motion keeps the sail pressed against the wind. In flying machines the pressure is given by an engine carried by the machine and acting by means of fans of one sort or the other. The difficulty at present is the weight of engine and fuel; but with the development of electrical practical knowledge we may fairly expect to see accumulators which will supply the maximum of power with the minimum of weight. Then the problem of flying in still air will be solved. Whether we shall ever be able to ride the storm is another matter.—*Pall Mall Gazette.*

For the Preservation of Wood.

A new wood preserving process has been invented in France by M Jacques. He first impregnates the timber thoroughly with a simple solution of soap, mixed with an acid—preferably phenic acid. This causes the fermentation, in a few days, within the wood, of a fatty acid, which is insoluble in water, and impregnates the remotest fibers. The reaction of the acid on the soap does not take place until a portion of the water has evaporated. It is claimed that more perfect impregnation can be had in this way than with creosote, and there is no danger of the washing out of the preservative from the exposed surfaces, as when sulphate of copper is used. The government commission on technical railroad operation in France is said to favor this process.—*The Metal Worker.*