

DECLINING INTEREST RATE.

An article on the fall of the rate of interest and its influence on provident institutions, by Mr. Francis Walker, appears as under in the last pamphlet of the American Statistical Association:

In *La Reforme Sociale* (Nos. 45 and 46) for November, 1892, appears an article on the above subject by M. Cheysson, with an appended discussion by MM. Juglar, Fongerousse, Gibou, and Cheysson.

M. Cheysson declares that the present decline of the rate of interest contains elements for social and financial revolution. It especially affects provident institutions, societies for mutual insurance, etc. He first enumerates the general causes and notes their effects: The increasing amount of capital, its mobilization and entrance into the market, the competition for investments which become less and less remunerative, lead, on the one side, to a constant reduction in the rate of interest, and, on the other, to wild speculative adventure. In consequence of the fall we observe, e.g., that the 3 per cent. *perpetuel francais*, which represent a capital of 12 milliards, have risen from 70.05 f. in 1869 to 100.45 f. in 1892 (June 15). Other values have had the same history. The recent conversions of debt are also significant. In 1888 the English debt was refunded at an interest of 2½ per cent., which in 1913 will be reduced to 2¼ per cent. When the great loans, national, municipal and industrial, shall have been paid, as appears probable in the next half century, "what enterprises can be imagined to absorb the surplus?" This question M. Cheysson leaves to posterity, to whom we leave "*en meme temps que nos bienfaits l'embarras des richesses*." But for present concern it should be observed that this prospective fund will maintain the present low rate of interest if it does not, indeed, cause a greater decline. The low rate of interest makes new enterprises possible. It diverts capital to agriculture where scientific production is at last made possible. The general result is the improvement of the position of manual labor. The demand is increased, the supply remains stationary, while in addition the products of manufacture are made cheaper. The cost of lodging is above all diminished. A house worth 6,000 f. renting for 300 f. at 5 per cent., becomes 180 f. at 3 per cent. and the purchase annuity declines from 481 f. to 403 f. On the other hand, the fall of interest deprives the idle of a large part of their income—they must work or retrench. It is like a phenomenon of depreciation. It is a loss to capitalists, fundholders, and creditors, and a profit to laborers and debtors. It is, M. Cheysson declares, a "democratic phenomenon."

He notes next the special effects of the fall of interest on the accumulation of savings and provisions for old age (*retraites*). These are results which disadvantageously affect those classes which we have just seen to be favored in general. In respect of the first it is assumed as true that a diminution of savings will follow a fall in interest. In regard to pensions it has been found that they are importantly affected. Pensions are calculated on two factors—the mortality table and the rate of interest. The insurance companies of France have been compelled to revise both. They have adopted new mortality tables, and have reduced the rate of interest from 4 per cent. to 3½ per cent., not daring to approach closer the normal rate. Some of the mutuels have proceeded at hazard, without any scientific basis. This has been the history also of the civil pension fund (*caisse des pensions civiles*), in which the deficit has risen at present to 40 millions. Similar difficulties have been met in the pensions of railway service. But the greatest difficulties have been encountered in the cases of individuals and of mutual companies. With a payment of 50 f. for 30 years (until 55) the laborer obtained a pension of 410 f. at a rate of 5 per cent.; but with a rate of 3½ per cent. this would be reduced to 270 f., or over a third. Again, to obtain a pension of a franc a day, it would require a contribution for the same period of 41 f. annually at 5 per cent., but of 66.70 f. at 3½ per cent. It is this which leads the laborer to live from day to day, and to demand that the state shall make a provision for old age which is beyond "the individual efforts of the laborer."

The *societes de secours mutuels* are very much dissatisfied with the present rate of 3½ per cent. By the law of 1850 the rate of the *caisse de la vieillesse* was placed at 5 per cent.

It was reduced to 4½ per cent., in 1853, and in 1872 raised again to 5 per cent. to be reduced again in 1882 to 4½ per cent. These rates threw too heavy a burden on the fund which realized no such interest. A large deficit was created. The policy of the directors was to limit as much as possible their unprofitable *clientele*. This led to a reform in 1886, by which the President fixed the rate for the year ensuing by the average rate of the investments of the year preceding. An immediate reduction to 4 per cent. was made, and, finally, for 1892 to 3½ per cent. The history of the unengaged funds (*fonds libres*) and pension funds (*fonds de retraite*) of the mutuels has been similar, being fixed by the *casse de depots et consignations* at 4½ per cent. in 1856. But these were assimilated to the *casse nationale de la vieillesse* in 1892. The societies were greatly disturbed, and claimed that the preservation of the former rates of interest was a part of the contract with the state, for which they exchanged the restraints of recognition and approbation. Moreover, they had not been financially at liberty to take advantage of the previous high rates which were granted, but had to wait and make their payments for each pension in a lump sum calculated at the then existing rate. Those payments made before the reduction held the earlier high rates during the life of the pensioner. Moreover, they asserted that as the state guaranteed a minimum dividend to the shareholders of the railways without reduction, they, numbering 1,200,000 mutualists, giving an example of thrift, and largely aiding to prevent pauperism, were equally entitled to such consideration. The moderates asked that a double annual subvention be allotted to the pension fund; the extremists demanded a fixed rate of 5 per cent. for the smaller pensions.

The state assistance for the pensions of the mutual societies began in 1852, at the time of their origin, with a fund of 10 millions, giving a revenue of 510,000 f. This soon became insufficient, and the income of the fund was increased by successive annual appropriations until the total in 1891 was 960,000 f. This subvention is distributed among the "approved" societies according to the payments to the pension fund, the number of participants, and the number of the latter over 55 years of age. This gives those societies having a large honorary list a great advantage. It also causes the societies, in their eagerness to get a large portion, to economize unduly. As the capital value of the pension payments is alienable, and returns to the societies, a large amount of property in mortmain is formed. M. Cheysson, in view of the existing deficit, and the importance, socially, of encouraging and preserving the societies, advocates a special annual appropriation by the state. It should be applied first to increasing the income of those pensions which have been established since the lowering of the rate of interest,—since 1892—and to those of an "alimentary" character, e.g., those of 360 f. and under. The general effect of the fall of interest, M. Cheysson repeats, is to the advantage of the laborer, especially as respects the habitation and the family. The rise of wages and the fall of prices both improve his condition, and give him a better opportunity to save. Credit, moreover, is easily obtainable, and becomes possible to the agriculturist. But the great advantage is as respects the housing. It becomes possible with money at 2½ to 3 per cent. to rent and purchase a house in fifteen to twenty years, where formerly rent alone could be paid. This means the consolidation of the family, which has been said to be the most secure insurance for old age.

MYSTERIOUS FIRES IN MILLS.

It has been suggested that electricity might be the cause of igniting dust, and account for some of the mysterious mill fires that periodically occur, and thus assume that a new lurking danger in flour mills has been discovered. Now the causes of these so-called mysterious fires are not far to seek. They are simply gas, naked lights and matches on one hand, carelessness and badly arranged or dirty mills on the other. Electricity has little or nothing to do with it—more probably nothing. That frictional electricity can be produced from a fast running belt is a well-known axiom. A common amusement of apprenticeship days thirty years ago was for the knowing boys to insulate themselves by standing upon a piece of plate glass or porcelain tile, with head un-

covered, under a running belt, and astonish the new apprentices in the mysteries of initiation by making their hair stand on end, or draw sparks from their fingers when pointed at the belt. In the dry atmosphere of a flour mill the machines—especially the rolls with new and light belts—become slightly charged with electricity, though whether this surcharge of electricity is a source of danger is extremely doubtful. To get rid of it is an easy matter, but where the shafting is carried from continuous iron columns it will pass off of itself to the earth.

The theory of dust explosions is nothing more or less than that of rapid combustion. The weight of fuel that can be burned in a given space depends upon the quantity of air passing through that space in a given time. The more minute the division, and the greater the speed in which the air is diffused among the fuel, the greater the effect. The finely divided particles of dust being diffused in the air, are brought into intimate contact with the oxygen which is necessary for their combustion, and consequently when ignition takes place (from gas jet or naked light in a dust impregnated room), it is very rapid, in fact, an explosion. The rate of combustion depends upon the fineness of the fuel, and its diffusion with the necessary amount of air. Some fuels will burn more rapidly on account of their chemical constituents, but nearly all material of a vegetable origin will burn if disintegrated into fine dust.

Coal, wood, or even road sweepings will explode under favorable conditions. Wood is, excepting perhaps charcoal, the most dangerous; for instance when disintegrated to the fineness of dust from a sandpapering machine, it is highly inflammable and requires to be isolated in a separate building in consequence, for safety. An explosion of gunpowder is an example of rapid combustion of a chemical combination, but if burnt in the open air burns with a harmless flash, but confine it within a limited space and the instantaneous expanding of the gases produced by the rapid rate of combustion explodes with powerful effect—owing to the rate of the production of the gases of combustion being so much greater than that necessary to dislodge the air and allow of their escape. So with stove or flour dust explosions. Given a proportionate admixture and diffusion of air with fine dust, confine it in a limited space, then apply the match, a naked light, gas jet or a lamp, and you have an explosion at command. It is not essential that this should be done in a mill or in connection with machinery in motion. It will occur anywhere—in a coal mine, a ship's hold, storehouse, or the laboratory of the experimentalist.—*Milling World*.

PELEE ISLAND, LAKE ERIE.

A correspondent who resides on Pelee Island, Ontario, in replying to some enquiries about the island and commenting on some remarks of the editor thereabout, uses the following language: "I fear that your questions and implied doubts, though couched in the words of another, do in fact reflect quite closely your own conception of this green isle of rest. Now I may perhaps concede that Pelee and Paradise are not precisely convertible terms. But really the Island is far from being the deserted spot your friend's fancy paints, or the wilderness you knew it some twenty years ago. There is scarcely today ten acres in one spot of the original forest standing. Vineyards, orchards, wide fields and homesteads dot the surface in every direction. The vast marshes, forming over one-half our total area, have been drained. Where at the time of your visit lay a wide morass, at the home of wild fowl, snakes, turtles and mosquitoes, there now lie thousands of acres of the richest land in Canada, over whose surface wheat fields, corn fields, meadows—and even vineyards are to be seen; and indeed these are fast spreading over the entire surface. 'I speak that I do know and testify that I have seen,' and I cordially invite your personal inspection during the coming summer, with such choice spirits as your fancy craves. I have a shanty among the maples."

—Sheep ranchers about Calgary report that their stock have wintered with very little loss. Mr. Stewart, whose headquarters are near Carstairs, on the C. & E. railway, states that out of a band of 3,250 sheep which he placed on the range last fall, only seventeen have been lost.