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evation.

A GLANCE BACKWARD AND FORWARD.

As we approach the end of another twelvemonth the usual questions arise: What has been the character of the year's events? What its progress? What its promises?

Naturally those things which bear most directly and forcefully upon a man's life and study and daily labor will toward the completion of the Northern Pacific. Canada seem to him to be the most important. The business man, has undertaken a rival transcontinental railway still further the engineer, the artisan, the student, the inventor, will each north, and has done considerable serious work upon it durthe light of his individual or professional experience and hopes.

ries, inventions, and the like, which all men make note of unwonted activity in railway extension, and unwonted wissooner or later, and which give to the year its historic character. Who can name those of the year just closing ?

The task would not be so hard if each year stood alone in its work or measurably distinct, like the links of a simple chain; or if it were possible for men to pick out infallibly from the complicated tissue of current events those most worthy of commemoration. But the great work which was brought to fruition this year was begun perhaps a decade, perhaps a century ago. The invention, observation or discovery by which the year 1881 will be best known a century mass of the year's records, with its importance unsuspected it will make known to many generations. Our point of view is so close that we cannot well see the things our descendants most will, perhaps, have gone to the limbo of forgetful year. ness.

we may forget them next year, they have played a prominent part in the current history of the past four seasons.

Of one thing we can speak with confidence. Though not the best of years, 1881 will go down to history as certainly amount of the mental and material good things going.

of the coming year.

of out-door laborers and scarcely smaller armies of machin- them. ists, mechanics, iron and steel makers, and workmen in all the arts tributary to the railway system.

Northwest during the year has been unprecedented, vast fits to come to humanity than any other work of the century. acres of virgin and long neglected soil having been brought If by cultivating the specific virus of our more malignant under cultivation, vast stores of natural wealth in forest diseases the morbific elements may be deprived of their and mine having been newly opened up and made accessible malignant character and yet remain capable, when inoby new roads.

and now, as the late census has shown, the manufacturing entered upon a stage of infinite importance to mankind. center also, New York naturally feels intensely the quicken- So far the tests seem to justify the most hopeful anticipaing pulse of general activity. An index of the impetus of tions. national prosperity, we have seen in this city and across the river in Brooklyn over four thousand houses begun and many $% \mathcal{B} = \mathcal{B} = \mathcal{B}$ completed during the eleven months of the year already perhaps equally important topics crowd upon us for recogpassed, not a few of these structures covering large areas eight or ten stories high. The estimated cost of the build comets; archæological discoveries in Egypt, Mexico, and ings for which permits were granted during the first eleven months of the year exceeds fifty-five million dollars.

The lighting of our streets and squares by electric lamps was officially begun less than a year ago. The work of putting into an industrial State; and scores of other enterprises bedown mains for the conveyance of electric conductors for gun or completed at home and abroad. This is a period of a general system of incandescent electric lighting for stores, offices, and dwellings is going on rapidly. And the same may be said of mains for steam heating from central stations.

The great bridge across the East River is nearing comple-

Besides the work of civil engineering already noticed are several moreor less important ones, begun or completed, which should not be forgotten. Another line of railway communication across the great West has been completed in the Southern Pacific road, and rapid progress has been made review the past or contemplate the future in his own way, by | ing the year. Our northern neighbor has also completed the improvement of the Welland Canal, a work lately pronounced by high authority to be the best of its kind in the But there are events, achievements of labor, discove world. Our southern neighbor, Mexico, has manifested dom in greeting cordially American enterprise therein, and in the Tehuantepec ship railway scheme of Capt. Eads. At Panama the De Lesseps canal project has been seriously begun, surveys and some excavations have been made, and a heavy tribute paid to the evil genius of the climate in death and disease among the engineering staff and the small army of laborers employed. The St Gothard Tunnel through the Alps has been opened to traffic, and the projectors of the English Channel Tunnel have given earnest of their sincerity in steady and promising work in actual drifting under the sea. hence is most probably yet unreported or hid away in the The new Eddystone Lighthouse has been completed. The centennial of the birth of George Stephenson has been duly or at best but vaguely recognized, even by the man whose name celebrated in England, and duly commemorated in this country by a commendable advance in the speed of fast trains between our principal cities. Though built last year, the will see most plainly when the things we now magnify Fontaine locomotive makes its mark by actual service this

Not the least notable characteristic feature of the year Of some things, however, we may be sure; and, though has been the increasing attention given to useful applications of electricity, due partly to rapid advances in electric lighting, but more perhaps to the prominence given to electrical affairs by the successful exhibition at Paris. The storage of electricity, so called, though not new, has been greatly not an empty or a bad one. Crops have been fairly good the developed and improved during the year. From being a world over. There have been no great famines, no wide laboratory experiment known to few it has risen to be a spread plagues, no devastating wars. The industriously promising factor in the practical application of electricity to inclined have had enough to do everywhere, and in our own every-day affairs. The employment of frictional electricity country, at least, have been able to command an average in the separation of bran from flour has been brought prominently before the scientific and milling world during the Our industries, on the whole, were probably never more year, and a successful mill using electric purifiers throughflourishing, more varied, or more reasonably hopeful as to out has been established. The electric railway has been the future. There have been no general disturbances of more extensively tested in the carrying of many thousands labor nor anything tending to throw large numbers of men of passengers at the Paris Exhibition; and ground has been and women out of employment. Commercial failures have broken for a commercial electric railway in Ireland. The been comparatively few, and every productive industry has system of telephonic stations for civic purposes begun in thriven. In many departments the work already called for Chicago has been much extended, adding materially to the and undertaken is sufficient to insure steady employment efficiency of the police system. Among the undeveloped for men and machinery for several if not all of the months' but very promising discoveries made public during the year in connection with electricity we must not forget the experi-The rapid extension of our railway system, in the older mental researches which have produced the photophone, States as well as in the newer Territories, has given and thermophone, and other applications of radiant energy in the doubtless will continue to give employment to vast armies transmission of speech. Much that is useful may come from

The researches of Pasteur among the lower forms of life, especially those associated with certain malignant diseases, The industrial development of the South, Southwest, and have given results which are perhaps more pregnant of beneculated, of making the organism as proof against the true As the commercial and financial center of the country, disease as a real attack of it would, preventive medicine has

> Enough has been said to remind us of some of the more notable results and promises of the year. A multitude of nition-progress in the industrial arts; Arctic research; elsewhere; the Atlanta cotton fair and its proofs of an undeveloped world of wealth in the South; the great works begun in Florida for the transformation of a vast swamp great things, and no man can afford either to remain in ignorance of them, or to supinely let the opportunities they offer for self service and public service go by unimproved.

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tion. The year has seen the approaches substantially finished and the work on the superstructure begun. Now ₁₇₆ nearly all the floor beams are laid. The original plans have been materially changed during the year, making the seems to hold by far the most excellent place among human with greatly increased strength, to enable it to carry railway trains of Pullman cars.

both shores. Steady progress is also making in the excava-182 tions under Hell Gate for the removal of Flood Rock. ³⁸² Safety in the navigation of our harbor and adjacent waters i has been largely enhanced during the year by the introduction of iron hulled passenger and excursion steamers.

In marine engineering the most notable progress has been seen in the building of steamships exceeding 5,000 tons and are gigantic failures? Of course all patents do not pay, 980 in the construction of the Servia. On the destructive side in these days of wild speculation, railroad bub'les, and bank we have seen the successful testing of the Ericsson torpedo | failures, it may be very opportunely asked whether thirtyboat Destroyer, the less successful testing of the Alarm, and five dollars, or a little over two dollars a year, paid to the 1981[†] the launching of some notable torpedo-boats in England.

PATENTS AS INVESTMENTS.

It has been said that the introduction of useful inventions bridge five feet wider and four feet higher above the river, actions. Unfortunately this, like many other truths, is not sufficient of itself to incite the inventive faculty. In these money-getting times mere sentiment succumbs to pecuniary The tunnel under the Hudson is progressing rapidly and gain, and, when the value of an invention is called into securely by improved methods, work going on from question, it is not its moral or beneficial effect upon the community that is considered, but rather the more practical one of its influence upon the pocket. Do patents pay ? is a question often put and frequently answered in the negative, but erroneously so. For the amount of money invested, there are few properties that have paid more handsomely. Take the leading investments of the day; how many of them up to 8,000 tons, and in the substitution of steel for iron, as | neither do all investments in any description of property; but government for a seventeen years' exclusive right in and to