

EXPERIMENTS WITH COAL-BURNING LOCOMOTIVES.

A series of protracted experiments have been conducted on the Pennsylvania Central Railroad, at Altoona, and Mr. S. Hume McLaurin has briefly communicated the results to the *North American Gazette*, as follows:—

"Except one single machine, the experiments were made with freight engines, and with freight trains, or rather a freight train, consisting of 40 cars, loaded with coal, in the round trip from Altoona to Mifflin and back, a distance of 164 miles, the running time being 12 miles to the hour, or 10 miles, including stops. The mode of procedure was for each engine to go down to Mifflin one day and back the next; and if, from any accident of any kind, or from bad weather or unforeseen detention, the trip did not fairly develop the performances of the engine, it went for nothing, and the trip was repeated. This 'Mifflin trip,' as it was called, was the great leading feature of the experiments, although it was preceded by another short one from Altoona to Gallitzen, on the mountain, a distance of 12½ miles. Now, in this trip, without presenting the details of evaporation, and the particular features of the several engines, I may state the notorious fact that our engine (the Phleger boiler), made it with 75 bushels of Broadtop coal, and 84 of Pittsburgh; and that, with the former, there was not an engine that came nearer than 20 per cent. of her, for Dimpfel's came the nearest, and she burned 87 bushels, besides extra wood, making some three bushels more.

"It is true that, with Pittsburgh coal, the 'Blue Ridge' came within three or four bushels of her, but it is also true that she had not the water grate connected with the crown sheet, but an upper water deflector through which the grate passed some six inches from the crown, both leading features of Phleger's boiler. The coal really used by the several engines was as follows:—

	Pittsburgh coal.
	Bushels.
Phleger's (fractions omitted).....	84
Blue Ridge.....	87
Dimpfel's.....	100
Gill & Co.'s.....	104
Baldwin's.....	104
Winans'.....	107

"Of Broadtop, I think all took something more, except Dimpfel's (87) and Phleger's (75), as above stated. These comprised all the engines tried in the regular experiments, and we claim, what, indeed, is notorious, that the results are no criterion for a passenger train. We have now a passenger engine on the East Pennsylvania road that may be seen any day at Reading, running with 18 pounds of anthracite coal to the mile.

S. HUME McLAURIN."

PITTSBURGH COAL-OIL.

Mr. Gould, of Rochester, has written a letter on the profits of manufacturing coal-oil, that makes some very remarkable statements, if not too highly colored. Quite a number of these establishments have recently sprung up in the circle of which Pittsburgh is the commercial center. In fact, Mr. G.'s statistics are, to a great extent, drawn from the purported experience of these companies.

For example:—"A Pittsburgh company—the Lucesco Oil-works—have sprung up within the last few months, at a cost of \$150,000. They employ 150 hands; they can turn out, every 24 hours, 5,000 gallons of crude oil. They assert that each tun of Pennsylvania cannel coal produces from their retorts 40 gallons of a material which, once distilled, leaves 30 gallons of a commodity or merchantable article known as crude oil, and this at 80° of gravity by the scale of Beaume. This commodity, still further treated by the refiners, yields, from every 100 gallons, about 80 gallons of finished oils, for burning and for lubrication. In short, they expect from each bushel of cannel coal one gallon of crude oil—coal costing about five cents, crude oil selling for about 35 cents. We hear of much greater things at greater distances."

Mr. G. also gives the estimated cost, as furnished by two practical manufacturers, the result of which is:—

The daily product of a coal-oil establishment is set down at.....	\$570 00
The daily cost.....	185 00

Daily profits.....\$385 00

If these enormous profits are not sadly mis-stated, those gentlemen who have invested in this business must soon realize handsome fortunes.

TELEGRAPHIC EXPLORING EXPEDITION TO THE NORTHERN ATLANTIC OCEAN.

We learn from the *Boston Traveler* that the bark *Wyman* sailed from that city on the 20th ult. on an expedition to the Northern Atlantic Ocean, to survey a route for a telegraphic cable by way of Greenland, Iceland, and the Shetland Islands, to Glasgow. The vessel has been chartered by Col. T. P. Shaffner, who goes in her, accompanied by his wife and son, and two gentlemen of Worcester.

Just previous to the sailing of the vessel, John A. Dana, Esq., of Worcester, presented Col. Shaffner with a signal flag, bearing the Masonic emblems, the square and the level. He spoke of the magnitude of the enterprise originated by Col. Shaffner, and in reference to the flag, said it would make him respected wherever he might go.

Col. Shaffner, in reply, spoke at length of the purposes of the expedition. He had received from the King of Denmark the exclusive right to lay a cable in Greenland and Iceland, and spoke of the advantages this route would have over any other in Europe, in cheapness of construction, shortness of connections, &c. He estimated the expense of laying the cable at \$1,500,000. At the close of Col. Shaffner's remarks his friends bade him and family a hasty adieu; and the vessel went to sea with wind and tide in her favor. It is expected that the *Wyman* will reach Glasgow, after completing the explorations, in ten weeks, and return to Boston in four months. Col. Shaffner proposes to make for the Gulf of St. Lawrence. He will then coast along the shores of Labrador, to Hopedale, or about 56° north latitude, sounding occasionally so as to find a deep bay for the American terminus of the cable. Thence he will pass over to South Greenland, sounding there and examining the country for an underground line, in case it should be necessary to have a line across Greenland. Thence the route will lead to Iceland, where the bays will be sounded, and the shores examined for a land line. Thence the expedition will go to the Faroe Islands, where the wires will branch—one line running southward to Scotland, so as to reach England; the other to Bergen, in Norway. The longest cable will be from Labrador to Greenland, about 500 miles; thence to Faroe Isles, 270 miles; Faroe to Scotland, 200 miles; Faroe to Norway, 370 miles.

SHIP CANAL ACROSS THE ISTHMUS OF DARIEN.

A party of American engineers, under the charge of the Navy Department, are about to proceed to the Isthmus of Darien, to search for a practical route for a ship canal across the isthmus; they are instructed to explore the coast of the Caribbean Sea, with a view to test the statements of Gisborne and Cullen (Englishmen) that there is such a depression of the eastern Cordillera as to admit of the easy construction of a ship canal; the country west thereof to the Pacific Ocean being without any considerable elevation. Should the party not be able to find the gap of depression referred to by reason of the overlapping of mountains or other causes, they may proceed to the Pacific side of the continent, and seek a practical route for a canal along the line traversed by Surgeon Caldwell, U. S. N., in 1857. This gentleman, inspired by the reports of old residents in respect to the existence of a region nearly level stretching across the continent, proceeded with a small party from the excellent bay of San Miguel, several miles in a north-easterly direction, up the navigable river Savana, and thence east, across the country to a point regarded as not far in a direct line from the Atlantic. Here, on account of the dearth of provisions, Dr. Caldwell was forced to close his tour and return to the Pacific coast. His conclusions, as reported to the Navy Department through his commanding officer, Com. Mervine, are as follows:—

1. That the summit level of a route from Principe northerly to the Atlantic is within eight miles of the Savana river, and being but 160 feet above the ocean level, will not prove insuperable to engineering skill in constructing a ship canal.
2. That there is a low tract of land extending from the summit level east to the Atlantic.
3. That a gap in the eastern Cordillera exists near the northwestern limits of the Caledonia Bay, on the Caribbean Sea. From the tops near the summit level

referred to, such gap in the mountain was described, and through it the great sea beyond. This was afterwards lost to the view of the explorers by the overlapping of mountain ranges.

The new exploring party are to have every desirable facility for prosecuting their survey, and among other things a balloon, from which observations of the country may be taken by experienced aeronauts, through the use of what is called an "instant-type." This gives the most minute objects, which are brought out by use of the microscope. Ravines, gaps or depressions thus discovered may, it is held, be easily found and explored, so as to demonstrate reliably whether there is such a route as has been so often asserted by both British and American officers or not.

ARTESIAN WELLS DENOUNCED.

The Santa Clara (California) *Farmer* pitches into the artesian wells of that place in a most awful manner. It says:—

"Artesian wells, rightly used, are a blessing—but abused, they become a curse. This unnatural irrigation, this flooding orchards, gardens, &c., has proved and will prove the greatest bane. The valley of Santa Clara is one of the finest valleys in all California, or it was, before the advent of 'artesian wells,' with a soil and climate equal to any county in our State, and superior to many. We have made critical examination of the result of this profane irrigation, and not a solitary instance have we found where we do not see a blight in some degree, and it is rapidly increasing. Within two years many fine and flourishing garden will have become so diseased as to literally die out. This system, as now practiced, is contrary to all principles of science. The fruit raised by the irrigation system is neither so high-colored nor so rich and juicy; the trees that produce the fruit look succulent in their branches; they do not ripen their wood well, and thus become subject to be destroyed by cold and frost. Trees and plants raised under this system, make long naked 'tap-roots,' and consequently bear fruit upon the extremities of their limbs. Artesian wells, if here and there only, would be well enough; but the system of irrigation should only be in accordance with nature's plans; the earth must not be deluged; gentle showering over the foliage at the evening hour to cleanse and refresh, is always good, and that is about all that is needed.

"But there is a great evil that will soon be felt at Santa Clara; in fact, it is now felt. The earth is parched up, and bitter and grievous complaints come from all quarters, for it is found that the evil is increasing. All the surface water of the entire country is drawn off by means of artesian wells—drawn down to their chancels, and then sent up again in one stream, instead of 10,000, through all the pores of the surface earth. Millions of gallons of water are hourly carried from the surface earth of Santa Clara valley, and emptied into the bay, thus changing all the plans of the Deity, and impoverishing and drying up the earth's surface, and unless this system is banished, the land of that famed valley will become almost worthless."

CLOCKWORK LOCK.

"Another novelty is one produced by an ingenious locksmith in Frankfort-on-the-Main, with a view to construct a strong box without any keyhole, and which even the owner himself cannot open. Inside is a clockwork, the hand of which the owner places at the hour and minute when he again wants access to the box. The clockwork begins to move as soon as the lid is shut, and opens the lock from the inside at the moment which the hand indicates. Time dependent upon the owner is the key to the lock—a key which can neither be stolen from him nor imitated."

[This paragraph, first taken from a German periodical, has been going the rounds of the daily and weekly papers, as something extraordinary novel and wonderful. Our cotemporaries, in bat-like ignorance of American inventions, do not seem to be aware that the invention is of American origin, and that such locks are now manufactured by the Automatic Lock Company at Milford, Mass., as the invention of our countryman, Mr. Holbrook.

PRICE OF GAS.—The price of coal gas to consumers in London is only 4s. 6d., sterling, per 1,000 cubic feet. For the same quantity, New York gas would be 10. 6d., or two and a third times dearer. Cannel coal in London is about the same price as it is in this city.