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LIGHT FROM THE ROCKS.

"THE ROCKS POURED ME OUT RIVERS OF OIL."—JOB.

Thousands of Barrels Per Day—Startling Facts in the Production, Sale and Transport of Oil—Ancient Methods—E. L. Drake the First to "Strike Oil" by Boring.

"A great gusher—1,000 barrels of oil per day."

Such is the report on the new oil well just opened near Pittsburg, Pa.—"within five miles

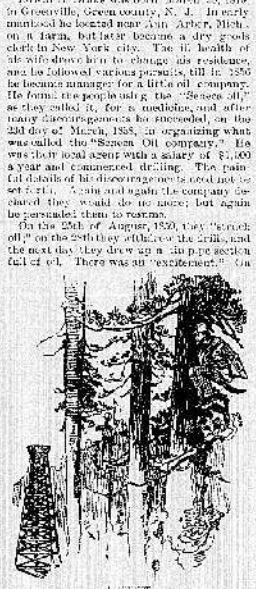
THE GUSHER WELL.

of the court house." Only thirty years ago was the first oil well in America or the world opened, and there already has the business declined till one well is said to be at one rate, and revived again only to be greater than ever. In these thirty years at least $450,000,000 have been invested in it, at least 40,000 wells have been bored at a cost of $90,000,000, and the cash receipts for the products have a slight exceed $500,000,000. Verily, a great American industry.

But it is far from being exclusively American. Indeed, the idea of using the oil of the rocks first came from Asia, and the greatest oil basin in the world is thought to be in one of the Asiatic possessions. And the greatest oil fire on record, only was by a Russian company at Baku, where a well was opened last year which spouted a column 225 feet high and yielded 1,000 tons per day for some days. In America, even at the lowest prices set known in the world, make millionaires; in Asia it bankrupted the projectors. The rates for transportation did not justify their supplying the trade in the usual way, and facilities for refining it and had to pay heavy damages to all, owners and owners.

The place name attendant on the Baku spouter reminded all previously known in the Scriptures. The Russian official speaks of the ordinary fire three of the so-called inexhaustible springs, and of the great Persian "fire worshipers" who make the roar of the natural gas, which could be heard several miles and rendered burning there almost insupportable, and after that the sand and then the oil. Sand and dust continued to be produced during all the prophet's vigorous period, and drifting into city shops, dwellings and gardens, did much damage. The oil formed great lakes sufficient to float large vessels, but for reasons given above the product was almost a total loss. For want of a pipe line or the Black sea uncorked millions of gallons sank into itself, but the owners at last managed to plug and manacle it, and by the month or the year, and in further gushing, was in a more favorable season.

As was stated above, $500,000,000 or more have been invested in American wells, pipe lines, etc., and about $500,000,000 worth of product secured, but all the figures are fascinating. In 1859 the papers printed with as



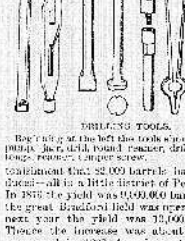
COL. DRAKE.

A SHOT.

the last day of August Mr. Drake was reclaimed in Titusville as a success, for it was known that early that the week ending 1864 at least twenty barrels a day. It soon rose to twenty-five, then gradually declined, but the problem was solved, "boring oil" was soon to be a rage. Like most great discoveries, Mr. Drake got no benefit from it. In 1865 he was so poor that the oil operators made up for him a purse of $1,500. Like James Marshall, who discovered gold in Capt. Sutter's mill race in California, he was long forgotten. In 1873 the legislature of Pennsylvania granted a pension of $1,500 a year to Mr. Drake, and was during the life of either. In 1876 he located in Bethlehem, Conn., where, on the 26th of November 1880, he died.

Many citizens like the world be required to trace the development of the oil industry, to relate how the "Seneca oil for rheumatism" became the great illuminator, how lamps were invented to use it, coal has since, the people took to drilling for it, three or four years, "starvation" because of solid and a tow one was exhibited as a specimen of the "light of other days." Equally interesting is the development of the tools for boring and pipe or "coiled tubing" and other parts of the business. It has also its amusing features, strewn into "scouts" on the lookout to discover the condition or prospects of a new well, guards to prevent intrusion, and explorers and speculators detected, for the manipulators of the stock market often have a vital interest in knowing all about a new well or a newly developing district.

"Wildcatters" are those who take the risk of sinking wells in unknown territory, and when they do "strike oil" it is free of the utmost importance to the "scouts" to learn the exact character of the new well. Towns in 1889 that the most memorable contest between these two classes took place, Cherry Grove was a primeval wilderness in Warren county, and the politicians at the county seat



DRILLING TOOLS.

Reading at the left the tools shown are sand pump, jar, drill, round reamer, drill stem, pipe tongs, reamer, cutter screw.

confirmed that 52,000 barrels had been produced—all in a little district of Pennsylvania. In 1865 the yield was 9,000,000 barrels. Then the great Bradford field was opened, and the next year the yield was 32,000,000 barrels. There the increase was about 5,000,000 a year, and in 1882 America astonished the world with a total yield of 27,780,740 barrels.

Wild wild freaks and fortune play in those years in many a home. What most have been the sudden elections when Titusville sprang at one bound from a country hamlet to a city of 10,000 or more, when Oil City sprang up in the wilderness, and when thousands of acres, worth scarcely large yearly taxes, suddenly became of immense value. What lavish display by the suddenly rich, what gorgeous plumage and gaudy jewelry, what "ho-haw," as we say in Paris (Illinois), by ladies who had been "hotch up" in a cabin and head corn hardened, but must now "make the tower of Vicrup look as pa had struck oil." And how fast the satirists and caricaturists and slang makers followed the movements of the newly rich. Our language was adorned with many new and striking phrases; but why enlarge when one man has summarized the whole thing in his own person. The mere name of "Coal Oil Johnny" has a volume in it. It means everything possible in the line of reckless extravagance, the folly of a youth with suddenly acquired wealth, and a wild passion to illustrate how "the fool and his money are soon parted."

The variations of price were wonderful. "Pacific Mail" stock was a dead level compared to petroleum. The oil has actually sold as low as ten cents a barrel and as high as $20, though the average has been about $4. At first it was shipped by barges down the Allegheny, and by team and in cans and barrels by rail. Then came the once noted and greatly derided tank cars, and soon after the pipe lines which are now connected with some 21,000 wells and receive from them anywhere from 50,000 to 65,000 barrels daily. In addition they hold in storage tanks from 40,000,000 to 50,000,000 barrels, and this is the consideration which gives the speculator pause. It is not in the power of any combination yet formed to greatly "bull" an article of which so much is ready any hour for the market. There are about 5,000 miles of pipe lines and over 1,600 large iron tanks, and from Olean to New York city flow 35,000 or 20,000 barrels daily.

The export trade has far outgrown (by percentages) that in any other product. In the campaign of '84 the people learned with amazement that in one dozen years the United States had exported more wheat than in all previous years since the Pilgrims landed; but of petroleum the increase in twenty years was from 500,000 to 500,000,000 gallons per year—the latter in 1882—and its value at point of product $44,000,000. But the amount produced or exported was but a tribe to the amount sold—the former could happen but once to a barrel, but it might be sold any number of times. So in 1882, which ranks as the last very speculative year, the sales at four "oil exchanges" were:

	Barrels.
Oil City Exchange	1,601,098,000
New York City Exchange	1,645,875,000
Bradford Exchange	1,923,141,000
Pittsburg Exchange	1,295,849,000
Total	6,004,963,000

The first vein of oil struck by boring was at Titusville, Pa., on Aug. 27, 1859, and the man who did the work, who inaugurated this great industry, was an unassuming local, E. L. Drake. He read of the ancient methods of collecting rock oil in Persia and other lands of the orient, saw the American method of digging pits for it to seep into, and after long study of the subject concluded that its storage place was in the rocks and that it must be bored or dug for. Could it make a success and establish a new and profoundly American industry—for this he deserves, and oil men say shall have, a monument.

Edwin L. Drake was born March 29, 1819, in Greenville, Green county, N. J. In early manhood he located near Ann Arbor, Mich., on a farm, but later became a dry goods clerk in New York city. The ill health of his wife drove him to change his residence, and he followed various pursuits, till in 1856 he became manager for a little oil company. He found the people using the "Seneca oil," as they called it, for a medicine, and after many discouragements he succeeded, on the 23d day of March, 1858, in organizing what was called the "Seneca Oil company." He was their local agent with a salary of $1,000 a year and commenced drilling. The painful details of his discouragements need not be set forth. Again and again the company declared they would do no more; but again he persuaded them to resume.

On the 27th of August, 1859, they "struck oil," on the 28th they "finished the drill, and the next day they drew up a pipe section full of oil. There was an "excitement." On

A SCOUT.

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IN OIL FIRE.

always knew without waiting for the returns just how the township had gone, for it contained but fourteen voters. From men early in 1882 set up a derrick in that wilderness and began to bore, and several alarming reports reached those who were "long of oil stocks"—that is, those who had much oil and therefore wanted the price to go up. So the woods were soon full of "scouts."

The owners surrounded the derrick with a high board fence, and had several guards, who at night kept up a random firing into the woods to scare away the "scouts." Nevertheless, one daring young man crept past the guards and lay hidden for seventeen hours inside the derrick, gaining the all important knowledge that "Number 666" was a flowing well. His fortune was made, and so was that of his employers, for they "sold short," and in a few days prices fell so greatly as to involve a total loss of $21,000,000 on the holders. It was "Black Friday" to the "bulls," and no wonder, for "Number 666" yielded 4,000 barrels a day from the start, and what was more, it proved that a new field was to be opened, and that hundreds of new wells would soon be flowing. Crude petroleum, which had been selling at eighty-five cents a barrel, declined rapidly to forty-nine cents—a figure which, for a time, stopped production on all but the big flowing wells.

"Shooting a well," or "torpedoing" is a ticklish business. The nitro-glycerine enough of it to blow up a regiment—must be poured into a canister which looks like a section of a water spout, and the same lowered very gently to the bottom of the well, so fixed with a trigger attachment that it will in due time explode. This blows out the loose sand and loosens the sand rock in which is the petroleum, and so the oil flows again. But if anything sets off the nitro-glycerine prematurely, either in the hands of the "shooter" or before he can get away from the mouth of the well, then "Good-by, John!" Cases have occurred in which a single finger was the only remnant ever found. And at least one case in which a teamster, wagon and two mules, transporting the pesky stuff, were suddenly obliterated—atomized, so to speak, for not a trace of either was ever found, not even a splinter of the wagon. It was supposed that the man drove too hard against a big stone—there was a terrific explosion, a cloud of dust, a hole in the ground and nothing more.

A blazing well is a sublime, an awful sight. Of course there are many ways in which so inflammable a substance may take fire, and formerly such a calamity was irremediable; but Yankee ingenuity has found remedies. Quite recently some brilliant triumphs over the fire are reported, the operators having rigged immense derricks and swung a mammoth "cap" over the mouth of the well, then lowered it and smothered out the fire.

Thirty years of practical work and daily experience with the fluid have not destroyed, but rather enhanced, the romance of oil. Still it excites the liveliest interest, still it inflames the imagination, and now the dream of opinent and control of natural gas have come to delighten the wonder of mankind with new wonders. That pipe man should bore deep into the earth for liquid products and harness the infernal elements to the car of progress is indeed a matter to swell the heart with pride and hope, to add proof to the theory that mind will eventually control all matter and strengthen faith in the divine origin of the intellect and the immortality of the soul. The end of the Pittsburg well is from Frank Leslie's.

THE BIG RAILROAD COMBINE.

Map Showing the Extent of the Vanderbilt-Union Pacific Chain.

"Consolidation" is the order of the day. Each succeeding combination of capital startles the public with astonishment at exceeding all that have gone before it, and now there is a combination of combinations in railroad management, which utterly dwarfs everything ever known in corporate power, and makes vast affairs as the British East India company, the Oriental and the great French enterprises seem mere "bucket shop" business in comparison.

This new aggregation has been named "the Pacific Vanderbilt Chain." Of the first details given out some points have since been denied, but as the final consummation seems certain the public may soon contemplate a corporate entity, a national company, or a colossal "trust"—call it what you will—which owns and controls 27,000 miles of railroad and $1,195,000,000 in dollars and capital! Nearly twelve millions million dollars! These mere words and figures dazzle the eyes of a common capitalist. The germ of this consolidation, so to speak, was in the New York Central, but while it was adding line after line to its western connection, two other combinations were forming in the west. Now all are consolidated and the figures stand as follows. In the columns giving the bonded

THE VANDERBILT-UNION PACIFIC CHAIN.

debt and bonds, capital stock, mile and thousands are given, three dishes of the strong combined:

	Miles.	Bonds.	Stock.
New York Central	[illegible]	$[illegible]	$[illegible]
Lake Shore	[illegible]	[illegible]	[illegible]
Michigan Central	[illegible]	[illegible]	[illegible]
Canada Southern	[illegible]	[illegible]	[illegible]
Nickel Plate	[illegible]	[illegible]	[illegible]
Chicago and [illegible]	[illegible]	[illegible]	[illegible]
St. Louis	[illegible]	[illegible]	[illegible]
St. Paul & [illegible]	[illegible]	[illegible]	[illegible]
Union Pacific	[illegible]	[illegible]	[illegible]
Oregon Ry. and Nav.	[illegible]	[illegible]	[illegible]
Oregon Trans.	[illegible]	[illegible]	[illegible]
Kansas and Pacific	[illegible]	[illegible]	[illegible]
Chicago, Kansas & Neb.	[illegible]	[illegible]	[illegible]
Chesapeake and Ohio	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]

The Alton roads do not at this writing, but it is believed that the consolidation is complete in them, but admit that it is late. "The Chicago, Milwaukee and St. Paul also claim that it is a consolidation, but it is said that the Drexel Morgan-Vanderbilt party virtually control its management, it will in one way or another be consolidated, and may, therefore, be included. Some minor lines are yet to be consolidated, so the total capital will be very near $1,000,000,000 and the debts nearly as much.

J. Pierpont Morgan is credited with having engineered this great deal, and this is but the following out of his experience in organizing and consolidating. The actual cash paid is reported at $18,000,000, much of the stock, of course, remaining in the hands of the promoters. Of this cash the Vanderbilts furnished the larger part from their "private means"—that is, without sale of other stocks or calling on other wealthy capitalists. In short, it was simply some little money they had laid by out of their private incomes. The next series from Boston men, who own a share in Union Pacific.

SOME ROYAL PERSONAGES.

Prince Rudolph and His Bride—Portraits of Spain's New King and Queen.

The world is still gilding the marriage of Constantine, crown prince of Greece, and Duke of Sparta, with Princess Sophia of Prussia, which was celebrated by a great number and variety of royal houses and was made a great event in Athens. Herewith are presented the latest pictures of the happy couple, who, it will be observed, marry a very handsome and magnificent imperial bride.

CONSTANTINE AND SOPHIA.

While all the merry making incident to this royal marriage was going on in Greece, there was grief, or at least there should have been, in Portugal, where King Luis lay dead. He is succeeded by his eldest son, who ascends the throne as Carlos I. He is described

NEW KING AND QUEEN OF PORTUGAL.

as an amiable man, who in marrying the daughter of the Count of Paris, took to wife one of the fairest women in Europe, though himself of very moderate stature.

A Blind Man Who Could See.

A beggar was sitting in a New York street, holding out a battered hat. The following placard was hung about his neck: "Please, good people, help a poor blind man who was once rich, but who has been reduced from affluence to poverty. You will never regret it." Presently along came a pleasant faced man with a sharp, shrewd eye. He looked at the poor old beggar curiously for a moment, and then suddenly drew back his arm as though to strike him a blow in the face. The movement was only a feint, but it served the purpose. The beggar jumped back about a yard and started on a run up the avenue, winking his way in and out among the passing vehicles with wonderful skill for a blind man.—New York Sun.

She Had It on Authority.

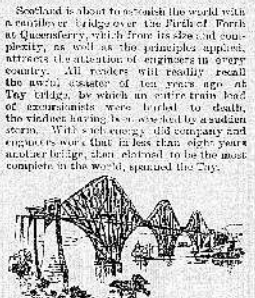
"Miss Grace is a beauty, isn't she?"
"Yes; and she knows it, too!"
"What makes you think that?"
"Because I told her so myself."—Lowell Citizen.

THE BIG FORTH BRIDGE.

IT IS ONE OF THE WONDERS OF THE MODERN WORLD.

Nothing It Has Not Been Built—Its Form Is Due to the Awful Disaster Which Swept Away the Tay Bridge and Engulfed a Train Load of Passengers.

Scotland is about to astonish the world with a cantilever bridge over the Firth of Forth at Queensferry, which from its size and complexity, as well as the principles applied, attracts the attention of engineers in every country. All readers will readily recall the awful disaster of ten years ago at Tay bridge, by which an entire train load of excursionists were hurled to death, the viaduct having been swept away in a sudden storm. With such energy did company and engineers work that in less than eight years another bridge, then claimed to be the most complete in the world, spanned the Tay.



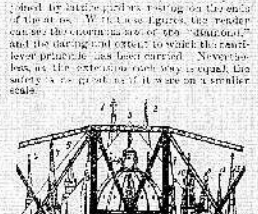
THE FORTH BRIDGE.

Sir Thomas Bouch had taken in hand the job of spanning the Firth of Forth, and planned a huge structure, grandly and magnificently work done, and it was when the Tay disaster put an end to the project at once and forever. In the natural reaction of horror there was a general protest against any bridge, and a very excusable feeling that no safe one could be built. In the time, however, the matter was submitted to three eminent engineers, Messrs. John Fowler, W. H. Barlow and T. E. Harrison. After careful inquiry they decided in favor of a cantilever of a plan jointly devised by Mr. Fowler and Mr. Barlow, and the bridge thus arranged. It is now rapidly nearing completion.

By a glance at the accompanying engraving, and the following figures the reader will see what enormous difficulties they had to overcome; and but for the right little, little of ingenuity, in the middle of the Firth, the new bridge would have had an impossibility. Half island is but a little more than half island, it is 1½ miles long and 1½ miles wide, the channel is nearly 1 mile wide, the depth is over 300 feet deep, and yet the railway tracks on a level with the approaches on each side, is not feet above ordinary tide. Perhaps such a obstacle will a bridge sufficient to support the heaviest traffic and resist against the greatest wind pressure ever known in Europe, and was indeed a task for engineers. Yet all engineers and scientific men admit that they have overcome it.

The structure is briefly described as a "cantilever truss composed of steel and the largest of its kind in the world." The main spans of the cantilever are 1,700 feet, or nearly a mile, and to perspire inch it is 500 and thirty-four times as long as Brooklyn bridge, or, therefore, more than three times the combined span of a well proportioned three-span bridge of the same length and a maximum running load of two engines to the foot or 1,200 tons to the span. It is 50 feet wide for the North Pacific Railway company, and is provided with engine and carriages to cross there, and have one header to each passenger on the line, but before the train reaches the bridge, as passengers will certainly feel the pressure of such a monster, they will see the structure they are about to pass over.

The cantilever has the shape of an elongated diamond, and there are four massive piers supporting the four gigantic "legs" on which, are piles, the remaining arms and these extend outward to meet the other halves. Thus it is an ingenious trick of adding to the overwhelming focus into a mark, to make it balance and dance in a string, given some future time of the necessity for such an unusual balancing time. The middle cantilever is longer than the other two, its base being 470 feet long, while the arms are 350 feet. The greatest height of the edge above the piers is 350 feet, and there are the cantilever beams are still 150 feet apart, so they are joined by lattice girders resting on the ends of the arms. With these figures the reader can see the enormous size of the "diamond," and the daring and genius to which the cantilever principle has been carried. Nevertheless, as the extension each way is equal, the safety is as great as if it were on a smaller scale.



BRIDGE AND BUILDINGS COMPARED.

1. Cologne cathedral. 2. Old St. Paul's, London. 3. Great Pyramid. 4. St. Peter's, Rome. 5. Pyramid Gizeeah. 6. Chartres cathedral. 7. St. Stephen's cathedral, Vienna. 8. Strasburg cathedral. 9. Church of St. Martin. 10. Antwerp cathedral. 11. Florence cathedral. 12. Hotel de Ville, Brussels. 13. Salisbury cathedral. 14. Hotel des Invalides, Paris. 15. St. Paul's, London. 16. Bell Harry Tower, Canterbury. 17. The Monument, London. 18. Temple of the Giants, Agrigentum. 19. The Baptistery, Pisa. 20. Pantheon, Rome.

Like all big things which are symmetrical, the Forth bridge does not at first view seem near as big as it is, yet, when one compares its height with that of other noted structures, the result is astonishing. The great pyramid of Cheops is considered a big thing, as it is 480 feet high, yet it barely exceeds the great diamond of this bridge by a few feet. St. Peter's, at Rome, which is 448 feet high, might stand just under the higher central span of the "diamond." Cleopatra's Needle would scarcely be noticed alongside of one of the lower piers, and the noted Porcelain tower at Nankin, China, would terminate fifty-two feet below the railroad track. But the Washington monument would still overtop all the foregoing, as well as the bridge; old St. Paul's, London, would go near fifty feet above the center, while from the top of the Eiffel tower one could look down on the "diamond" at such an angle that only the head and shoulders of a man on it would be visible.

One of the engineers of the Forth bridge has devised a simple but most ingenious method of illustrating the principle of a cantilever bridge. Two men sit in adjacent chairs, their outstretched arms on each side grasping beams which pass under them. The downward pressure of their arms and the upward edge of the beams make the diamond, and in the two hands nearest to each other they grasp a brace which represents the latticed girder. Attaching a weight of stones to the outer hand of each of course tends to pull them over outwardly—that is, away from each other—but as they grasp the central brace the weight of the stones thus holds it up and supports a heavy man sitting on it. The cantilever bridge is of English origin, but has been adopted by American engineers.

The importance of this bridge will be apparent by a glance at the map; the Firth of Forth extends so far westward into Scotland, the deep channel of the river going farther, that this bridge greatly shortens all the lines of eastern Scotland. At present the fastest trains between Edinburgh and Perth require about two hours and a quarter, by Stirling or Burntisland. When the bridge is completed the run can be made in one hour. Nearly half of Scotland will be so much nearer in time to London.

THE MARITIME CONGRESS.

Some Points Regarding Its Work and Its Members.

The members of the Maritime conference now in session at Washington, for the purpose of fixing a code of action for vessels meeting on the high seas, have no unimportant task before them. The multiplication of vessels of different kinds and sizes during the present century has rendered a code necessary, as perfection is can be made. Since fifty years the application of steam has necessitated a course for steamers calling large steamers from lack of sailors, besides largely adding to the number of vessels. It is quite evident, therefore, that the very limited action which

VERNEY. VERBRUGGEN. INSERT.
CHEN KIEN TAI. SHENKING.

has been therefore taken, and resolved mostly to England and America, is now insufficient, for it was not developed code for the ships of a century ago, but became inadequate.

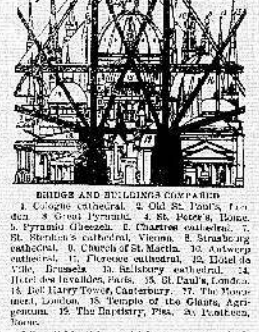
Among the members of the commission are: Baron la Spada, representing Austria, a man well versed in international law and experienced in maritime affairs; Frederick W. Arthur, representing Siam, first cousin to the Siamese legation in Washington; Lieut. Commander of the United States navy, is serving for the United States delegation; Capt. F. S. Malmberg, of Sweden, is chief of the nautical meteorological bureau of Norway; Capt. P. P. Salvesen, a Norwegian, is a member of the Swedish navy; Capt. A. H. Bailey, a native from China, is an American and has lived in the service of the Chinese government for many years. Another member of the delegation are Chinese; one of whom is commander Chen Ngen Tai, of the Chinese navy. Then there is Dr. F. Steinberg, of Germany, and Theodore Verbrugge, of Belgium, both prominent members of the commission.

The older and simpler rules are referred, of course, especially to sailors. It is always seen essential, where two ships meet at sea, that one should be a guardian to guide them to prevent collisions. The simple naturalists look upon the ship, and the Indian is to cut the two ships meeting. Steamers have an universal rule to pass to the starboard. When two steamers are about to come head, the starboard, the one taking the other on starboard must give way. When one ship is following another, she must keep away from the starboard side. There is such a fashion, a rule which works badly. Detailed steamers must give way to all sailing vessels. Steamers require all payment to be made to the steamer in case of accident, and insurance in case of collision will be by the interest of a sail and be settled by a steamer.

On the other hand, the steamer is a big, a great advantage, speed is not a virtue, she is nearly always longer on time. It is well known that some of the captains of the ocean greyhounds prefer to run at full speed in a fog, so that in case of collision the damage, shall be in her favor and against the sailer. Besides the commission will attempt to make these advantages more equal, and it is probable that the end will be a good way will be taken from sailers, and the speed of steamers in a fog will be limited.

Lights and fog horns must necessarily be taken up and the code of "The light question is very important, and the penalty fixed for any vessel not carrying lights at night should be very severe. There has been a good deal of inattention in this respect by sailers who either neglect to put lights out, or to keep them burning, thus endangering their lives and the lives of others. Fog horns are said to be inefficient. Those used on sailers cannot be heard for more than half a mile, and on steamers the sound of machinery and other causes seriously interfere with that of their fog horns. The Chinese has a gong, which is considered more efficient, having three times the range of the fog horns and ten times its life. It is not improbable that the commission may adopt gongs for the world.

Then attention is required as to the position of the lights of vessels lying in harbor or at sea. It is essential that lights be carried at the highest possible point. Those at present in use will doubtless be continued without change, the only innovations being from additional lights. While lights can be seen further than colored lights, and there seems to be need for change in this respect, there should be one brilliant head light which is unobscured by rigging and can be readily seen. In steamers the strong electric light, being more intense than the colored light, has often obscured them. Then pilots are not able to distinguish colors readily. For these reasons it is proposed to have to do away with the colored side lights and replace them by one white head light.



DE BEAUX. SALVESON.
MAIMBERG. COTTMAN.

From these few instances it is apparent that there is plenty of points for discussion by the commission. Since the advent of steam the character of vessels has become much diversified, especially as to size. There is still the little fishing vessel, as in the early day, when vessels of about the same size were all that were seen on the ocean. But since then the ocean leviathan, such as the City of Paris, has come, and where 100 years ago there was one vessel on the sea there are doubtless ten today. More than this, the nations heretofore making little pretense to maritime importance, like Germany and Russia, are striving to make themselves felt on the ocean. It is quite probable that the work of the commission may in future be noted as one of the chief events of the century.

"I never speak to my inferiors," said Reginald de Brokangle, haughtily.

"No," replied Smith, "I don't believe you ever do. Did you ever meet any?"—Munsey's Weekly.

SOME BLIND WONDERS.

MEN WITHOUT SIGHT WHO HAVE ACCOMPLISHED GREAT THINGS.

One Who Surveyed, Built Bridges and Rode to Hounds—A Sightless Cricket Player—Blind Poets, Scientists and Theologians.

Today it is proposed to discuss the remarkable things which have been accomplished by persons deprived of sight.

Where the list properly begins the writer will not attempt to say. The genesis of this list will appropriately commence, if not with, the dawn, the beginning of the Christian era with Eusebius, the blind theologian. Accounts vary as to the time he lived. One says that he was born near the close of the third century, about A. D. 265, and that he died at the age of 340 in the year 340. The bulk of evidence, however, forces us to the conclusion that he was born about 315 and died in 360 at the age of 20 years, twenty of which were spent in total blindness. It is greatly to the credit of this man, whose light went out forever just as he was emerging from infancy, that in the few short years he lived, enshrouded in perpetual darkness, he should become one of the best known of the early Christian writers, and be known even to this day as one of the fathers of ecclesiastical history.

SOME BLIND POETS.

Henry, the author of the "Poetic Life of Wollaston," was born blind. He early exhibited wonderful imaginative faculties, which were turned to good account in the production of the book mentioned. The unique character of the work caused it to have a wide circulation, making the name of Henry, the minister, more familiar to the rhyme loving common people of the British Isles than that of the most scandard prose writer.

Hermann Tourentius, a blind Swiss, born in 1649, became one of the principals of the University of Berne, the author of a poetical dictionary of rare merit, besides works on history and botany.

John Milton, the great English writer of prose and verse, best known as the author of "Paradise Lost," was totally blind during the last years of his life. Properly he may not be ranked with the blind, having had forty-six years of daylight, in which to complete his studies before impenetrable and perpetual night shrouded him in its inky gloom. I have only mentioned him in this connection in order to open the way for a broad assertion, viz.: That two of the greatest poets known to history, Milton and Homer, were both blind.

Thomas Blacklock, D. D., one of the most learned men of the Eighteenth century, was born in 1721 and died in 1791. He was blind at the age of 6 months. Notwithstanding the disparaging circumstances under which he labored, Dr. Blacklock became one of the most eminent men of the times. He was the trusted friend of Burns, the free thinker, and of Burns, the Scottish lyric. A contemporary writer, speaking of the polished doctor, said: "He was a child of humble parentage, but has now won for himself, before his, has raised what men call the middle age, the designation of an accomplished scholar, a cultivated thinker and a poet of high order. His accomplishments, won under the most oppressive disadvantages, give us a wonderful exhibition of the powers of mind to overcome seemingly unremovable obstacles." Dr. Blacklock was an ordained minister, but his friendship for Burns, as mentioned above, caused the Kirk to rebel against their shepherd, which finally resulted in the doctor's expulsion. Had Blacklock never loved the immortal Robert Burns poetry, perhaps never have been known to the world of letters. The author's poet was on the point of slipping for the West Indies, when a letter from Blacklock caused him to change his mind, and saved to the world one of its greatest writers of verse.

A GREAT NATURALIST.

Francois Huber, the Swiss naturalist, lost his sight very early age, became an eminent entomologist, and wrote on bees, ants and other insects. His son, Pierre, and a servant named Burnens aided him in making many valuable original observations on the habits of these creatures. Although his servant and son received the credit of his many works and papers, it was admitted by all that the master was the master mind in the preparation of their many able papers on entomology, zoology and metaphysics. Many believe that Huber would have lost his reputation in his special branches as either Pliny or Cuvier would had he have had the use of his eyes.

SURVEYS, BRIDGES AND SURVEYOR.

John Metcalf, a native of Knaresborough, Yorkshire, England, in 1717. At the age of 4 years a hard attack of the measles struck him totally blind—so blind that the brightest rays of the sun gave him no perception of light. Yet he did and give up to despair. A cultured lady overcame him while he would be vanquished the faculties of his organ grows stronger. Not so with John Metcalf. It seemed only to heighten his natural energy. At first he learned music, and at the age of 15 was the best expert violinist in all England. When he matured, it was natural he was engaged of a horse, a small farm and a horse and carriage. At the age of 21 he was a well known character, engaged in the opinion of carriage drivers through the crowded streets to and from places of amusement. Besides the street work he frequently engaged to carry passengers to York, a distance of sixteen miles. In all this he was never lost, and had not the slightest idea of the route he was to take. Once a passenger in Boston, he for one day amused one day by the conversation of two women, one of whom he correctly located as a so called fortune teller.

"It's perfectly wonderful the things he told me," she said. "He told me, without my giving a word, that I was either married or that I would be married within a year. Now, how could he tell that I was really married?"

"It was strange," replied the other woman, evidently as credulous as her companion. "What else did he tell you?"

"Well, he said that there was a dark cloud hanging over me now, but for me not to get discouraged, for it would soon pass away, and everything would come out all right."

"Well, I declare!"

"Then, he said that one of my friends would be very sick soon, and that he would die before the year was out and leave me a great deal of money, and I'm sure I know I just was there is."

"Do you? Who is it?"

"Oh, I ought not to tell you. My husband says those fortune tellers tell that to everybody, but I don't see why it should be true in my case. Strange things than this have happened."

"That's true."

"I'm sure he told me a great many things he couldn't have known beforehand. Without asking me hardly any questions, he told me all about my husband, said how he looked, and how many children I had, and how old I was and all that."

A professional fortune teller can usually find out all he wants to know by asking "a few questions," so s