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THE NOBEL BEQUEST TO SCIENCE.

Look at it from whatever point of view we may, it must be admitted that the present age is pre-eminently the age of science. Whatever the future may have in store, it is certain that the past history of the race cannot show another period in which human life was so completely envired, dominated and impelled by a master influence as it is to-day.

Of all the forces above mentioned, religion—as is natural and right—has left, and will continue to leave, behind the most enduring monuments of its work. But it cannot be said that even this beneficent influence has, in any age, impressed itself upon the life and works of the race in the supreme degree that science is doing in the latter half of this century.

The world has lately witnessed a striking evidence of the tendency to give the claims of science their rightful recognition in the splendid bequest which was made by the great Swedish inventor, Alfred Nobel. In leaving his vast fortune of nine millions of dollars for the promotion of science and the furtherance of civilization, he has not only endowed systematized and individual scientific research, but he has planted in the minds of men a valuable suggestion, which will not fail to bear fruit in the years to come.

The will provides that the income from Mr. Nobel's fortune shall be divided into five equal portions, which are to be distributed as follows: One-fifth to the person having made the most important discovery or invention in the science of physics, one-fifth to the person who has made the most eminent discovery or improvement in chemistry, one-fifth to the one having made the most important discovery with regard to physiology or medicine, one-fifth to the person who has produced the most distinguished idealistic work of literature, and one-fifth to the person who has worked the most or best for advancing the fraternization of all nations and for abolishing or diminishing the standing armies, as well as for the forming or propagation of committees of peace.

Now the measure of stimulus which will be given to scientific investigation and social advancement by the announcement that five prizes, each of \$60,000 to \$80,000 value, are to be bestowed upon successful invention and discovery, depends in the first place upon the realization by the world at large of the bona fide nature of the bequest, and further upon the public conviction that five separate fortunes are actually to be bestowed every year.

The scheme is so novel and the reward so fabulous—being far beyond anything in the way of money value before offered for human competition—that it will possibly receive but a passing thought from the majority of busy workers in the world of science. But if the bequest is upheld in the courts of law and the awards are duly made for the first year's inventions, the immediate effect of Nobel's plan cannot fail to be very far reaching. It will undoubtedly give a powerful impulse to all scientific research and experiment.

In saying this we are well aware that it has been from time immemorial one of the unspoken and unwritten boasts of the votaries of science that their rewards consist in the honor and esteem which their researches win for them—that they work for the pure love of their calling, and gladly forego the more lucrative pursuits of life. As a matter of fact it was this consideration which originally led to men's making a distinction between a profession and a trade—the old idea being that the professional man worked for his profession and the tradesman for pelf. Whatever truth there may once have been in the distinction, it has faded to a very specter of its former self in these latter days. Nevertheless the fact remains that modern millionaires are not made in laboratories, and that wealth is rarely to be found by way of the student's desk or the professor's study.

And yet it must be confessed that if wealth and all that it can bring is due to any one set of men more than another, it is due to the scientists, who give us from time to time those great fundamental truths upon which the industrial achievements of our complex modern civilization depend. Close the laboratory of the man of science and our boasted march of civilization would be brought to a full stop; and yet it is a fact that the great majority of these pioneers who unlock to the world the great truths upon which the industrial and much of the social fabric of our modern life is built up, reap practically nothing of the harvest of wealth for which they have done the sowing.

To such men in particular, and to that class of inventors which has the genius for discovery but no faculty to transmute its ideas into wealth, the bequest

of Nobel will come as a richly merited but too long delayed reward.

TWO HUNDRED MILES ON A BICYCLE IN ONE DAY.\*

New York to Philadelphia and back, a distance of two hundred miles, in 21 hours and 54 minutes, does not look so formidable a feat in retrospect as it did when a few days ago the writer lit his lamp and said good-bye to the night clerk of the Astor House, New York, at 1:50 A. M. and took the two o'clock ferry to Jersey City. That the journey was made with comfort and with never at any time sufficient fatigue to spoil the real pleasure of the trip is to be attributed to a good constitution, careful judgment as to speed, which varied from eight miles an hour to twenty, according to the road, and last, and above all, to the perfection of that mechanical marvel of the last decade of this century—the pneumatic bicycle.

Undoubtedly it is the pneumatic tire above everything else that has doubled the distance which can be covered on the bicycle for a given amount of fatigue, and in this respect it holds the same relation to the solid rubber tire that this did to the iron tire of the primitive bone shaker. The writer speaks from experience, and as he wheeled his "safety" aboard the New York ferry at 11:30 the same night, his mind ran back to his first mount of twenty-two years ago—a veritable wood rimmed, iron tired, 70 pound "bone shaker" of the late 70's. And just here, be it said, no subsequent century or double century run has afforded the supreme satisfaction that was felt at the close of the first long run—forty miles—on this cumbersome compound of buggy wheels and bar iron. The next machine, purchased in 1876, had a larger front wheel, forty-two inches in diameter, and the iron tires were replaced by strips of half round rubber, which were tacked to the rims. Then followed the "spider" or "tension" wheel, and the bone shaker gave place to a fifty-two inch roadster, built by the Coventry Machinist Company, England. On this, in 1881, during a fortnight's tour, the writer made a run of one hundred and sixty miles in one day. That was sixteen years ago, and it was as much as anything else to test the relative merits of the "ordinary" and the "safety" types that the present two hundred mile trip was undertaken. The one hundred and sixty mile journey was made on faultless macadam roads and at a time when the writer was probably more vigorous than he is in his fortieth year; and moreover, in the present ride, only eighty-eight of the two hundred miles of road could be called really first class. Altogether, the capacity—if we might use the term—of the pneumatic, as compared with the ordinary bicycle, for touring, is probably about as two to one, and it is the pneumatic tire, and in a lesser degree the higher gear, that have made the difference.

The start from Jersey City was made at 2:20, and the first stretch of the journey to the further side of Newark was about as excruciating a piece of riding, taken as it was in the dark, as can be found in all America. The course leads across the Jersey meadows by way of the "plank road," over which the riding is only a trifle less rough than over the mile of cobble stones by which it is approached, or the three miles of rough Belgian blocks which extend from the plank road through Newark. On the further side of Newark the macadam is reached. It has taken an hour and twenty minutes to jolt this ten miles by lamplight, and the nervous irritation has already taken some of the fine edge off one's condition. But with the macadam road comes the first peep of day, and taking to the side path, the five miles to Elizabeth are reeled off at a swinging gait—but somewhat warily, for it is yet dusk. Another mile of stone paving through Elizabeth and at last, on turning sharp to the right, the swift, easy stroke of our eighty-four gear announces that one is on the truly magnificent twenty-three mile stretch of macadam from Elizabeth to New Brunswick. Here a gait is struck that varies from seventeen to twenty miles an hour, and for the next one and one-half hours the miles are reeled off over an undulating road that runs through the pretty villages of Roselle, Cranford and Westfield and through Plainfield and Metuchen to New Brunswick. This is the very beau ideal of cycling, and at this speed the cool, early morning air goes singing by in a way that makes one think there must be a brisk head wind to contend with. But the smoke wreathing lazily upward from the cottage chimneys shows that the air is perfectly still. At a quarter to six we are crossing the stone bridge over the Raritan River into New Brunswick and bumping over our enemy the stone pavement.

The clay road from New Brunswick to Kingston—15 miles—makes one painfully aware that he has left the macadam behind, and the wheel is turned from road to side path and from side path to road in search of the most eligible track. Much of this road is rocky, especially between Franklin Park and Kingston. Here we are on historic ground, for it was over this very route that Washington made his famous counter-march from Trenton to New Brunswick—a piece of

\* Notes of a journey a wheel recently made by one of the editors of the SCIENTIFIC AMERICAN.

skillful strategy that marked the turning point in the War of Independence.

As one picks his way down the rocky hill into Kingston, the first glimpse is had of "the distant towers, the antique spires," of picturesque and historic Princeton, crowning the opposite hill and forming, with the dense massing of its ancient trees and the far perspective of the rich valley beyond, one of the choicest landscapes that the writer has seen in either hemisphere. Princeton, 54 miles from the starting place, is to be the first checking point, and as mine host of the inn is yet abed, the local night watch signs the Century Road Club certificate, and attests that this much of the journey had been completed at 7:20 in the morning. A cold bath, a rough crash towel, poached eggs and tea—the last our invariable beverage on a long trip—consume forty-five minutes, and shortly after 8 A. M. the wheel is once more humming its merry tune over the crisp surface of new macadam. The twelve and a half miles to Trenton are made in forty minutes; this is followed by some heavy jolting over rough pavement through Warren Street, and a ride across the broad expanse of the Delaware, by way of the combined railroad and highway bridge.

One is now in Pennsylvania, and it is good-bye to fast riding and the careless, swinging gait of the past twelve miles. The roads proper are rough, sandy and positively unridable; but the wheelmen have worn out a good side path through Bristol to Torresdale, a distance of sixteen miles. And here let it be said that however good its surface may be, there is more nervous strain and therefore more exhaustion in following a given distance of crowded side path twelve or eighteen inches wide than in riding twice the distance on a broad thoroughfare. On this run there are fifty-eight miles of such riding, and usually there is but one path. This necessitated a slow-up for every wheel that was met, and to the risk of collision was added the effort of repeated acceleration. From Torresdale to Frankfort, eight miles, the road is macadam, modified—greatly modified—by recently laid car tracks, and from Frankfort, by turning to the right at Rising Sun Lane, the celebrated Broad Street is easily found. And here at the far end of its long vista one sees, yet several miles away, the towering mass of the City Hall, crowned with its giant statue of William Penn. It is a glorious finish to the century run, this four or five mile spin over the asphalt of a great city thoroughfare, gay as it is with the bright costumes and glittering machines of a thousand wheelmen. Broad Street is a truly noble thoroughfare, and I could recall only two others that had impressed me as being more grand and spacious; those were Pennsylvania Avenue, Washington, and Collins Street, Melbourne. The latter is the pride of Australasia, and probably the finest thoroughfare of its kind in the world.

The stamp of the Hotel Lafayette was placed on the checkingsheet at 11:36, and the next hour and a half was divided between a cold bath, a moderate lunch of steak and boiled rice, and a lounge. At one P. M. one was in the saddle again, and on turning into Broad Street the first genuine disappointment of the day was realized in the fact that the fresh summer breeze which had blown on the side on the outward journey had turned to the north and was now well ahead. This, with an 84 gear to push, meant a careful husbanding of strength, and the original intention of making faster time on the return trip was abandoned. Trenton was passed at 4 P. M., and 5:10 P. M. found the cold bath and the crash towel again in requisition at Princeton. This was followed by the regulation meal of brown bread, poached eggs and tea, and at six P. M. one was again speeding by the classic lawn and shade trees of Princeton University. In another hour and a quarter the spires of New Brunswick were peeping above the distant trees, and a few minutes later the wheel was humming its merry tune over the welcome macadam of the famous Elizabeth turnpike. The sun was westering, and with its decline the wind had died down. The invigoration that always comes with the cool evening air on an all day ride such as this was upon us, and home and a soft couch were again within reach. The glorious twelve mile stretch to Plainfield was swept over at just a twenty mile an hour gait, and here a dismount was made to light up for the concluding twenty-six miles to New York. It was intensely dark, and speed was slackened accordingly. The only memorable portion of this concluding stretch was the nerve-tormenting Belgian block, cobble stone and plank road jolt and jar through Newark and the Jersey meadows. The Astor House at City Hall Park, New York, was reached at a quarter to twelve, where our ally, the cold bath and crash towel, prepared the way for surely the most sweet sleep that ever fell upon weary eyelids.

The only after effect noticeable on the next day was a numbness of the hands, due to the vibration of so much riding over Belgian blocks; otherwise the trip will be remembered principally as a successive panorama of lovely country scenes. That the trip was made without fatigue was due to careful diet for a couple of months previous and judicious husbanding of strength on the trip. For the guidance of all

tourists who like to travel far afield in a limited vacation, the writer has this to say: Vary the speed entirely according to the road, riding easily when the road is trying, and briskly when it is favorable, and do not—unless you feel that you must—try to ride two hundred miles in a day.

In conclusion, the writer would advise all wheelmen who may not be accustomed to vigorous exercise to preface a century run or an extended country tour with a little preliminary training. In the present case this amounted to little more than living up to simple hygienic rules for a few weeks before the journey, as follows: Rise at six A. M., drink juice of half a lemon in water; cold sponge bath; two or three mile ride on wheel at a lazy gait; breakfast of shredded wheat and milk, poached eggs, brown bread and tea; for lunch, steak (no potatoes), brown bread and cooked fruit, stewed rhubarb preferred; for dinner, roast beef or mutton, vegetables (no potatoes), brown bread, cooked fruit and tea. Half an hour later a fifteen or twenty mile spin, starting quietly but coming home at a good gait. Then a rub down followed by cold sponge bath and bed not later than ten P. M. On the road the diet was just the same, supplemented by an occasional raw egg and sherry (the latter carried in small flask in tool bag) at any convenient roadside house or farm. Do not drink on the road, and you will not be troubled with thirst.

#### A NEW LIBRARIAN OF CONGRESS.

It is reported that President McKinley has decided to appoint Mr. John Russell Young, of Philadelphia, to be librarian of the new Congressional Library. Mr. Spofford, the present librarian, in a letter addressed to the President, declined to be considered in connection with the more responsible and laborious position of librarian of the new library, on account of advanced years. Under the act passed by the last Congress the reorganization of the library will be made on July 1, and Mr. Young will assume the duties of librarian immediately upon confirmation by the Senate. The salary of the librarian will be \$5,000 per annum, and he will have the appointment of the assistant librarian, who will receive a salary of \$4,000. It is understood that Mr. Young will tender this place to Mr. Spofford, and that the latter will continue to give his services to the library, with which he has been connected for thirty-five years. Provision is also made under the new law for a superintendent of the new library building, at \$4,000. This place has been given to Mr. Bernard R. Green, who has rendered such efficient service during the construction of the new library building. There is also to be a superintendent of copyrights, with a salary of \$3,000. It is satisfactory to note that the government has at last seen the fallacy of attempting to link a learned profession like that of a librarian with a clerkship.

Mr. Young, who is a lifelong friend of Mr. Spofford, was born in 1841 at Downingtown, Pa. He was educated at grammar and high school, and began his newspaper career at the age of sixteen years. He acted as war correspondent during the greater part of the civil war. He held important positions on the Philadelphia Press, the New York Tribune and the New York Herald, and during his residence in London, while having charge of the foreign news service of the Herald, in 1877, Mr. Young was invited by Gen. Grant to accompany him on his famous tour around the world. Mr. Young wrote many brilliant articles describing the scenes and incidents of the tour and afterward recast and published them under the title of "Around the World with General Grant." He returned to New York in 1879, and occupied a position on the editorial staff of the Herald, which he retained until his appointment as minister to China. He returned to the United States in 1885, and since that time he has been connected with the Evening Star, of Philadelphia.

#### NEW RAPID HARBOR MAIL SERVICE.

The plan of discharging the foreign mails from steamers while waiting at quarantine, to a harbor steamboat, specially provided with facilities for sorting the mail, went into effect in New York Harbor for the first time on July 1, 1897, and worked very successfully.

The mails were placed in bags for western and eastern cities while on the steamboat and delivered at the Battery, Jersey City, and near the foot of West Forty-second Street, from whence they went forward without delay by the first trains to the respective western and eastern sections of the country.

It is expected that from ten to twenty-four hours time will be saved by this arrangement, while the general post office in this city will be saved much additional work.

At Chita, the chief town of the transbaikal district of Siberia, a museum has been established already. It contains rich collections relating to Buryate Buddhism, as well as objects belonging to natural science, archæology, and mining. The museum has a little botanical garden annexed.

#### LOTTERY INDUCED PATENTS.

Our attention has been called to the methods of an Eastern patent firm who, in order to increase their business, are offering money prizes for inventions considered and pronounced as most meritorious by a board of awards operating in connection with the firm. "The offer of such a prize," writes a well known patent attorney, "serves as a bait for the unsuspecting inventor, inviting him to spend his money in a lottery scheme, the fruits of which are far more disappointing and disastrous than were those of the Louisiana Lottery, now prohibited by law. The only prize which a reputable attorney can offer is superior work, the earnest application of his energies to the securing of claims commensurate with the merits of invention, and the obtaining of patents which will stand the scrutiny of skilled attorneys, and pass muster in a court in which they may be the subject of adjudication. Such a prize makes one's patent reward one for one's inventive genius, as it is only a good patent that can be disposed of with profit. The legitimate reward of genius is not a prize in a lottery scheme, nor is it a silver medal worn or carried about the person; but it is the solid cash which a patent with well drawn claims will realize for the inventor."

The evils of this "lottery prize" process of working inventors are so glaring that Congress will probably abate the whole scheme during the present session. Senate bill 1057, introduced by Senator Hansbrough, March 22 last, aims at this result. It provides: "That hereafter it shall be unlawful for any person or persons, firm or corporation, engaged in procuring and prosecuting patent claims to offer or award to their business correspondents or clients any gift, prize, or chance to win one, medal of honor, certificate of stock, or any other article or thing of real or supposed value, intrinsic or otherwise; and any person or persons violating the provisions of this act shall be deemed guilty of a misdemeanor, and on conviction thereof shall for each offense be punished by a fine of not less than five hundred dollars, and not more than one thousand dollars, or by imprisonment at hard labor for not less than six months nor more than one year." Other sections of the bill provide for the proper enforcement of section 1, as given above.—The Age of Steel.

#### DEATH OF PROFESSOR DE VOLSON WOOD.

Prof. De Volson Wood, of the chair of mathematics of the Stevens Institute of Technology, Hoboken, N. J., died June 27, aged 65. He graduated from the Albany Normal School in 1853, and two years later from the Rensselaer Polytechnic Institute, Troy. He was appointed professor of civil engineering at the University of Michigan the same year, which place he held for fifteen years. He then received a call to the chair of mathematics at Stevens Institute, and later to the chair of mechanical engineering. He was a member of the American Society of Civil Engineers, the American Society of Mechanical Engineers and of the American Association for the Advancement of Science. He was the first president of the Society for the Promotion of Engineering. He was the author of many text books on mechanical engineering.

#### ELECTRIC LIGHT AND SAILORS' EYESIGHT.

Owing to the intensity of the electric light used on board of men-of-war, men are frequently affected with eye complaints, which in some cases have led to total blindness. It has been observed that eyes in which the iris is not heavily charged with pigments, that is to say, gray and blue eyes, are more likely to be injuriously affected than brown eyes. These eye troubles are ascribed to two causes, viz., the intensity of the light and the action of the ultra-violet rays. Oculists recommend the interposition between the eye and any powerful light of a transparent substance which will intercept the ultra-violet rays, such as, for instance, uranium glass, which is yellow. The French naval authorities supply dark blue glasses for the use of those men who have to do with search lights, etc., and the cases in which injury has been caused to the eyes were those of men who had neglected to use these spectacles, which, however, do not appear to afford any protection against the ultra-violet rays.—Revue du Cercle Militaire.

#### DEEPENING THE ST. LAWRENCE.

The Dominion government proposes to complete the deepening of the St. Lawrence River from Quebec to Montreal this season. Already about \$3,500,000 has been expended to make the 160 miles of river of a depth of 27½ feet. It will require \$500,000 more to finish the work, and that sum has been voted to the Minister of Public Works for the purpose.

The government also proposes to construct three new wharves at the center of Montreal harbor. The Minister of Public Works says that Montreal harbor is in a poor condition for shipping, and he proposes to take immediate steps to remedy it. After the close of Parliament he will visit Belgium and Germany with an engineer to inspect the harbors in those countries, in order to devise the best plan for the improvement of Montreal harbor.