

"Everything, Anything Possible," Says Edison

It is doubtful, perhaps, just what new form of human energy will come to us with our eggs and bacon every morning, but we can be sure of having it as a regular item in the daily programme of events, says the New York Times. There is a general, quite vivid impression of this fact, as Mr. Thomas A. Edison sees, or rather senses, in the future.

He has emerged from the commercial aspect of the magic that lies hidden in the obstinacies of nature. Canned opera and moving pictures have their prospect for improvement, the storage battery is being manufactured to the ultimate solution of economy in traffic, the phonograph is now but a child's wonder, and Edison dismisses them with a wave of the hand, as a conjurer smilingly bows himself off the stage, in amiable acknowledgment of his trade.

"We only have five senses, that is the trouble; we have to creep through the world at the best," he says.

The Uncertainty of Invention

To the average mind there is the imprisonment of a circuitous perception. We identify with our senses everything—but mystery. A desperate uncertainty still perplexes the inspired makers of invention. A sensitive correlation between all phases of scientific discovery is the striking feature of modern experiments. These are thoughts that, as an index, point to the foresight of Edison's present activity.

He is not "dreaming" in his laboratory; there is no self-indulgent retirement. He finds himself, so he says, after three-score years of eager industry, to catch the secret whisperings of natural phenomena, a busier man than he ever was before.

Everything, Anything, Is Possible

"We know nothing; we have to creep by the light of experiments, never knowing the day or the hour that we shall find what we are after," he says.

Mr. Edison looks, as he always did, young for his years, for his time. He seems to have reached an autumn that does not change outwardly; an autumn that veils the ceaseless energy of his life.

"Now that I've retired from the commercial aspect of my work in the laboratory, I suppose I shall really work harder than I ever did in my life," he said.

"I've always got more than one thing in course of development, twenty things that I hope to do, or that I hope some one else will do. Scientific discoveries are coming so thick and fast, there are so many of us working like beavers at them, that it is appalling merely to think about possibilities in the future."

"Everything, anything, is possible; the world is a vast storehouse of undiscovered energy."

"There is a great distinction, however, between the scientific experiment that accomplishes its end and the practical adaptation of it to humanity at large. We read of wonderful things being done experimentally; but whether they can be accomplished practically is another matter."

"Shall we fly through the air?"

"Oh, yes, undoubtedly we shall, it's bound to come. It won't be the aeroplane, however, and it won't be the dirigible balloon. An individual theory may suffice to make a very interesting scientific experiment, but it is not what one man himself believes that is the solution of a problem that must come out of a universal law in nature, dependent not upon the skill of one man with one machine, but of a machine for all men."

"The aeroplane is a remarkable experiment, but it comes as a theory, controlled by the man who has that theory; and is not yet adjusted to universal uses. But I firmly believe that some day we shall know how to fly; it's only a matter of inventing a compact engine with sufficient power. It will be done. There is so much to do, though, such a lot of new discovery going on in the form of scientific experiment that promises new wonder, new sensation, new economy of life and time and money."

"What is the immediate motive power of the future?"

"Power that will be generated without steam. It's not new. A lot of them are working at it; have been working at it for some time. To generate electricity in any requirement of great power now we have to burn coal, make steam to run the dynamo. The next step is to generate electricity direct from coal itself. Coal is a carbon, the accumulation of the sun's heat, and carbon is the best combustible we know of. I haven't done it; I hope somebody will. The power is there unquestionably. We know that electricity can be generated direct from coal because it has been done as a scientific experiment, but not to an extent sufficient to call it a practical discovery. The first indications of a secret in nature that appear in experiment are always very feeble. Man is slow to understand, his five senses are not enough to gather all the meaning of experimental science."

Electrical Energy In Coal

"There is a direct electrical energy in coal?" "Of course there is. One of the difficulties we have to overcome in obtaining electricity at first hand from coal is the ashes—but it is there. We get it from zinc, iron; why not from carbon? So far, however, we have only accomplished a scientific experiment. I

haven't done it yet, I may, anyhow; I hope some one will."

Edison has joined the elect in scientific experiment. He seeks an impersonal share in the course of universal knowledge.

"Do you think the railways will eventually dispense with steam entirely in favor of electricity?"

"Well, what we need most to perfect, to improve, that means of transportation is a new generation of railway men. Most of them are getting old, slow to see and hear the progress of events."

The wizard smiled dryly and his eyes twinkled mischievously.

"The railways are old-fashioned."

"The men who run them are getting old. There may be an exception, more than one,

technical opinions against it. The other one was running smoothly, easily. But these were merely questions for the men who run the railways. The inventors had worked it all out for them, anyway."

"A new generation of railway men will adopt new motive power?"

"Why not? We haven't half demonstrated the forces of water power yet as a universal energy in engineering. The Pacific railway is using it somewhat, to be sure—but well!" That was all up to the new generation.

"Can the tides be utilized to run dynamos to any important purpose?"

"No, the energy of the tides is not great enough to generate sufficient motive power. I don't believe that will work out."

"Will the sun's rays be harnessed to do the work of machine powers?"



A BEAUTIFUL DREAM RUDELY DISPELLED

Harnessing the Rays of the Sun

"As a scientific experiment that's already been done. In fact, in a small way, there is a practical demonstration of it, I believe, in the West. In Arizona I saw a thirty-horsepower motor run by the rays of the sun by reflecting the sun's rays in mirrors and focusing this light upon a copper boiler."

"Oh! but we don't know! Quite probably there is a motive power in the light of the sun as it reaches the earth that may be utilized some day. The indications of scientific discovery are so amazing and the co-relation of all its various forms of progress are so intimate that we just begin to find out how feeble we really are to cope with them. Look at bacteriology, what wonderful advancement there is in it."

This was a new interest that the Edison

factories had not considered, but it was an indication, a chance suggestion of the increasing scope of Mr. Edison's sweep of scientific activity.

One of the gentlemen who presides over the commercial destinies of the Edison factory in West Orange, N.J., described Mr. Edison as an "optimist who was inclined to elaborate the scope of his inventions." So much is due to this "optimism," however, that it would seem to be a special responsibility of the times to encourage it.

"I've been five years and a half trying to get my storage battery perfected; that was a long pull, it came hard, but it has come. They're making them out there as fast as they can," said Edison, waving a hand in the direction of the storage-battery building. There was no optimism about this. The storage

now is to get a vehicle that will conform to the efficiency of the batteries. I am told that by January next an electrical taxicab will be seen in New York."

At the offices of the Edison Company it was said that it would be quite feasible, were it necessary, to make a reduction in fares with the electrical taxicab over the taxicabs now in use.

"The storage battery is literally ready?"

"Yes, that's done. You see, after testing them for a certain length of time they began to run down. Then I recalled them and began to study on the problem again. It was found, however, that those in use did not run down any further, as we expected, but retained a fixed degree of energy somewhat less than we had at first estimated," said Mr. Edison. "The effect of these batteries upon street traffic has already been widely explained."

"Nothing new in the phonograph?"

"Improvement, considerable improvement, I think. Instead of the two-minute record we used to have we now have a four-minute record, which means that we can reproduce musical compositions with more delicacy and accuracy than could be done before."

This has been acquired by doubling the number of threads on a record from 100 to 200. This required new machinery, a new material out of which to make the record, and an entirely different style from the old one in use before.

It had been announced that Edison was perfecting the discovery of a way to make black diamonds, treasures that are very scarce and expensive, but are used chiefly for drilling in the mining of precious metals.

"I have not discovered a way to make, artificially, the black diamond, but I am working on it, among other things that interest me. The discovery, if made, is not one that the general public would fully appreciate, but its importance to the mining world is very great. At present the black diamond is used for drilling, but it is very rare and very expensive. The advantage of an artificial black diamond would render millions of dollars' worth of precious metals lying undiscovered in the earth today accessible to the miner. I hope someone will discover it if I don't. It ought to be done as a vast industrial necessity of modern progress in scientific experiment."

"Experiments indicate that the black diamond can be made artificially?"

"There is an indication, but while a practical theory is a good lead, it is not a sure thing; but there is probably 85 per cent of the earth's hidden treasure untouched because of the lack of facilities to drill them out of the rock to the surface. That is incentive enough to the inventor, if he needs any."

Under the earth, and over the earth since Edison has shaken off the commercial shackles of his genius, are the broader fields of his sensitive industry to pry into their mysteries. The air itself is being compressed into utility, he says.

"There is an attempt being made now to gather the nitrogen of the air and use it for fertilizing purposes of the earth," he said, and, jumping out of his chair, he stretched his arms wide apart in sheer distraction of the scientific possibilities of the future.

"But we are told the earth will some day tumble into the sun—and after that?" asked the interviewer.

"Oh, in a few billion years that may be, but in a billion years what can't we accomplish?"

Mr. Edison is conservative; he objects to the sensational vagaries of fanciful scientific experimenters.

"Put it all down as it is, won't you?" he urged, and it was done.

Journey Across the Continent of Africa

VIEWING the book just issued under the authorship of A. F. R. Wollaston, the Belfast Whig says: "A volume dealing with the southern half of the African continent which enters considerably into the multifarious facts of interest to naturalists is something of a novelty in its way. Still more when it happens to be the work of an observer who is quite clearly very thoroughly trained and thoroughly enthusiastic. So marked is the latter characteristic one could easily imagine Mr. Wollaston undertaking the expedition merely for the fun of the thing. He undertook the journey, however, owing to the suggestion of a friend, the late Professor Alfred Newton, of Cambridge, who shortly before his death wrote Mr. Wollaston, 'I am rather like the poor girl in one of Dickens's books, who exclaimed that Africa is a beast, and accordingly have never been able to take any real interest in the country, finding nearly all African books of travel to be duller than anything short of Bradshaw.' It is quite probable had Mr. Wollaston's friend lived to read his volume he would conceivably not only have been delighted with its freshness and ability, but even still more gratified to find the manner in which his suggestion came to fruition. Mr. Wollaston's point of view is well expressed:—

"Africa is a beast. It is true, but a beast of many and varied moods, often disagreeable and sometimes even dangerous to body and soul; but withal she has an attraction which can hardly be resisted, and when once you have come under her spell you feel it a duty to uphold her reputation. 'So I have attempted, for the benefit of those who have a misconception of the country to convey something of the feel and smell of Africa as it appeared to me on hot and hilly roads, on winding waterways, and on cloud-girt mountain sides. The book contains no tales of thrilling adventures and hairbreadth escapes, nor are there records of 'bagged' elephants and lions. The first half of the book is occupied with the time spent by the British Museum Expedition in Ruwenzori, while the rest treats of the countries through which Caruthers and I passed on our way from Uganda to the West Coast. Though geographical research was not a part of the object of the expedition, many of the districts which we visited are almost unknown to Europeans, to Englishmen least of all, and are here described for the first time."

The passage will in a general way help to show what there is in store for the reader. As already indicated, Mr. Wollaston's main preoccupation was that of the naturalist. Ever since the discovery of

the great range of the Ruwenzori Mountains in Equatorial Africa by Stanley in 1888, he remarks, they have attracted the attention of naturalists in all parts of the world, especially in Europe and America. Interest of course was due to the isolated position and the great altitude attained, giving assurance of a rich and peculiar fauna and flora. With a view to benefiting the British Museum he determined, if possible, to be the first in the field. Eventually a party of five started on their journey, including the author, who undertook to look after the health of the various members and to form botanical and entomological collections. The botanical results are already available, having been published in the pages of "the Journal" of the Linnean Society last January. Mr. Wollaston pays a high eulogium as regards the zoological results obtained by the other members of the expedition, while it is also decidedly to the point to learn that the Ruwenzori range has now been investigated as completely as is possible at present, with the exception to some extent of the western heights lying within the Congo territory, which were not thoroughly explored owing to the hostility of the natives."

"While we were here, within sight as it were of Ruwenzori, it may be a good opportunity to say something about the history and geographical position of what was until recently the least known mountain region in Africa. Like many other places of which but little is known, Ruwenzori has been the subject of all manner of extravagant guesses and the founded statements. The name, which is the mis-spelt corruption of a native word of very doubtful meaning, is entirely unknown by the people living on any side of the range; it is true that there is a village near the northeast corner of Lake Albert Edward called Rumoro, but this can hardly have any connection with the name of the mountains. There is certainly a little historical authority, and to my thinking more of romance, about 'the Mountains of the Moon,' but Ruwenzori seems to have been generally accepted, and after all it is not an ill-sounding name. It is common to speak of it as a mountain, but it is in reality a range of mountains with at least five distinct groups of snow-peaks. It has been described as the highest mountain in Africa, at least 20,000 feet high, with an extent of thirty miles of glaciers; its height as determined by the Duke of the Abruzzi is slightly less than 17,000 feet, so that both Kilimanjaro and Kenya are higher, and ten miles would more than cover the extent of the glaciers. Another mistake that has been frequently made is to describe Ruwenzori as the 'great African watershed' and the 'Congo-Nile waterparting.' As a mat-

ter of fact all the water that runs from Ruwenzori finds its way eventually into the Nile system."

Mr. Wollaston, it will be observed, has a great respect for the true facts of a matter as distinct from conjectures merely. He experienced two striking contrasts, as in that part of the journey where it was really practicable to walk in the course of a couple of days from hot plains grilling under the Equator, as he expresses it, "to a land of Alpine frosts and snows, where our helmets and mosquito nets gave way to furs and blankets, and the camp fire no longer served to scare away the lions but to warm the shivering traveller." Once fairly established on the east side of the Ruwenzori range and settling down to systematic work a note of humor creeps in. The natives were not long in discovering that they could add to their incomes by giving help, and hence "hyraxes, gigantic rats, bats, mice, worms, beetles, chameleons and snakes came pouring into Elhungs, when once it was found that there were people mad enough to pay for such follies." Pursuing his own particular work in the expedition, Mr. Wollaston notes that while the trees in the wooded slopes are not of a great size, scarcely bigger than forest trees in England, the greater density of the foliage and the thick undergrowth and so forth produce a dampness and darkness that are quite foreign to an English wood. He has something to say of the pigmy people whom the expedition encountered, in addition to all the many details arising out of daily explorations in the moving up and down the east or west slopes of the Ruwenzori range. And a chapter on the vexed question of conditions in the Congo Free State is marked by a somewhat unusual feature which ought not to be overlooked, although having nothing to do with the object of the expedition itself. He is disposed to discount a great deal of the popular impressions current regarding the alleged atrocities. He writes in summing up—the chapter is well worth referring to as a plain statement based on a first-hand knowledge of the facts or of the country itself—in this fashion:—

"In conclusion, I would say that I have not lightly nor without deliberation appeared to range myself on the side of what very many people consider a criminal regime. I recognize most fully the honesty of the motives of the people who wish to redress evil, and I recognize most fully the existence of many evils in the Congo Free State."

The volume has several appendices, one on the approximate times and cost of travel in Uganda and the Congo Free State, and another giving a few hints for African travel in general, which are calculated to prove of practical service to travellers venturing that way into the wilds.

A correspondent of the Globe, writing from Edinburgh, says:—Three interesting letters are published today (Thursday). They were written by Sir Henry Raeburn in 1803-4, and prove (1) that Raeburn never met Burns, and (2) that his bust painting of the poet was not from life. Raeburn executed the work at the order of Cadell & Davies, the London publishers, from a portrait by Nasmyth. In one of the letters we get a glimpse of Raeburn's fees. He says:—"I have twenty guineas for a portrait the size of Burns's." Raeburn dates one of his letters from York Place. Whether this was Nasmyth's studio I know not, but it may interest your readers to know that Nasmyth's studio was at No. 47, York Place, almost opposite the well-known Episcopal Church of St. Paul, the incumbent of which in the 'eighties was Mr. C. J. Ridgeway, B. A., now Bishop of Chichester.

The American lecturer who tried to persuade the women in his audience the other day that their own hair was a prettier, not to say less obstructive, sight than their spacious hats, ignored the warnings of history. No matinee hat of today is so high as the lofty headdresses worn by Marie Antoinette, which were the despair of poor simple-minded Louis XVI. But when, deprived of all possibility of being able to see a performance at the opera, he presented his wife with an aigrette of diamonds in the hope that it might supplant a headdress forty-five inches in height, the queen promptly had the diamonds incorporated in a new headdress which was taller than all its predecessors, and called her priceless coiffure "A l'economie du siecle." The lady was clearly born before her time. She should have lived to buy bargains at the summer sales.