

This is to be as logical a study, briefly related, of Edison the man, as space will allow. I desire to trace the combination of strategy, inspiration and human shrewdness that have been neglected in any general survey of the inventor who has placed America in the foremost rank of the scientific world, among such men as Roentgen, Koch, Haeckel, Loeb and others searching and achieving brains of the world. Known to the entire world as a great inventor, there has been a tendency among the few writers who bave met him personally to flavor their description of him with a literary touch that is as fictitious as the stage picture of Shakespeare's apothecary. Through all the information which has been given to the public of Edison's personality I seem to have traced this literary inaccuracy an emphasis of the stooping shoulders, the negligee attire, the abstracted manner, the untrimmed hair, the sudden finsh of gentus to the eye, the inroad of mysterious acids on his clothes. He has been pushed to the center of the world's stage as a dramatic character, the wigard of that most incomprehensible chamber of magic to the scientific eye, a laboratory.

1 confess that I approached Edison with something akin to the feeling a child has for a conjurar.

Would be be so enraged at an interruption of his communings with a fluid secret in a tiny bottle before him, and accidentally hurt explusive chemicals at us, or would be be in some pleasant ex perimental mood that would induce him to exhibit a few harmless laboratory tricks for our amusement?

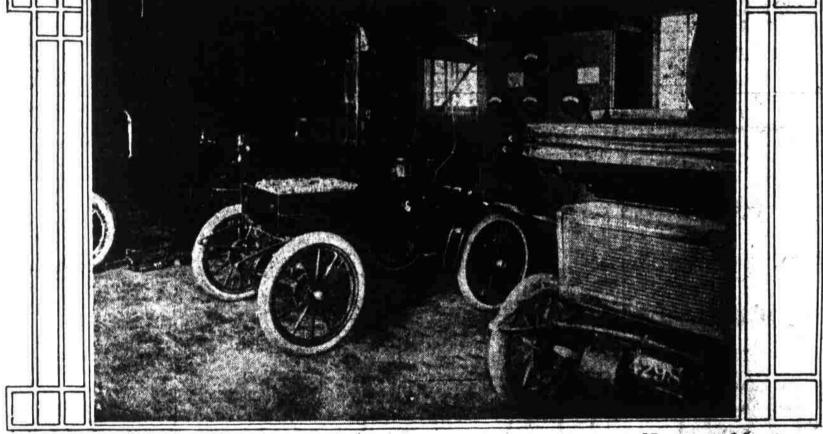
Or would be wave us aside and send us away with only a deeper reverence for the mysterious secrets of his soul. ! am not ashamed to confess to this wondering timidity, adult though I am.

It isn't anything to approach imaginative idlers like great painters, or great novelists, or great statesmen, but when it comes to tracing an imagination that has made ghostly traditions, commercial commonplace facts there is no telling what such a man may do at any moment. Say what you will, Edison has harnessed his imagination to supernatural imps, and driving them in through one moor of his inbratory has sent them out again at the other end literally reformed and even amusing demons.

No doubt there are scientists and chemists, mechanics and mathematicians in the Edison works that by the very force of their uncompromising training consider the great inventor as a dreamer, but that is exactly the amazing wonder of him which no knowledge of exact science can

Take the dreamer out of man and you Sestroy the divining instinct of life, that guseen, unknown land between man and his maker. The miracles of Edison's discoveries are to the scientist desperately reasonable, and to label his exact experiments as mere vaporings from dreamland enrages him. Still say what he will the inception of almost any new invention has appeared first to the inventor in a most y stage of development.

Edison's own story of the new storage hattery which he has just com-pleted, and of which he told me much in detail, it was based upon the inventor's high esteem for the prolific promises there are in mature, for as he said, he could not



THE NEW STORAGE, BATTERY WILL DRIVE AN AUTOMOBILE ONE HUNDREDMILES

be it is because he had always been so punctiliously chivalrous and just to her in his laboratory, that nature has rewarded him by lifting her veil to him so often.

Wireless telegraphy had been confided to him by nature 20 years ago, he told me, when the Lehigh Valley road successfully used it in their freight department service. At that time be flashed a message from earth to a kite two miles in the air above. Just at that time he was in tremendous favor with Dame Nature, she gave him an idea for the incandescent lamp, which obliterated for a lime his interest in wireless telegraphy.

After the lamp came experimental improvements in automatic telegraphy operating at high speeds, when nature drew his attention to the audible sounds produced by the vibration of a stylus he was using in connection with the instruments, to this he applied his knowledge of acoustics and the telephone mechanics, with the result that he produced the phonograph. And so it seems to have been with him all along the line. Instead of feeling as wizards of old have done, that nature was a daugerous, awesome specter to be withstood and feared, he has seen her beauties, approached her with confidence, and found that she holds only the most endearing principles for humanity at large.

Edison is not a wizard, he is a sturdy, sunny souled, hard headed son of Ohio he great Buckeye State.

He has what all great Americans of the present day reveal especially, the temperament of youth. He may some times, because it has been

a storage battery to lead and acids. May | him, fall into an outward semblance of | added, "but I can't hire men with logithe fictional scientist, the man of abstruction and silent mystery, but get him among old friends, and he will tell better stories and listen to old ones as generously and with as keen a pleasure as or-

dinary hearty human beings. Because Edison is a prophet, chosen to advance the power of his fellow men over bindering exactitudes, acarcely warrants that we picture him with any theatrical exaggerations. However, this dramatic flavor has been so liberally mixed with the soild commercial results of the Edinon factory at Grange, N. J., that it in as a pretty tinsel vell adorning the busi ness aspect of everything there. Literally, perhaps, it is inevitable, because the main force, the impelling power, the indefinite magic of definite outcomes and incomes at the Edison works, takes source in the prophetic imagination of Thomas A. Edison, the inventor of its

It is a place of magical things, achieved by imaginative prescience.

In spite of the many clever assistants I met at the works, in spite of their exact reasoning, their scientific experience and even their experimental caution, take Edison away and there would be no more wonderwork forthcoming

Edison bimself expressed the idea this way: "No man of a mathematical habit of mind ever invented anything that amounted to much. He hasn't the imagination to do it. I don't know anything cal imagination.

Edison will be exactly 59 years old next February: he is still a young man, in spite of the pressure at which he has played his life

In the laboratory buildings, where all experimental labor is done exclusively, there are only a little over a hundred men employed; in the adjoining factory. where the phonograph and the moving picture machines are made, there are over 2,500 employes in the season.

If is in the laboratory that the spell of Edison's imagination is over all, and yet the secrets are open to any technical ob server, because there is really no scientific question about them. Edison would not fearlessly answer, since it is not the natural evolution of experimental changes that counts, so much as it is the char acter and a certain audacity of imagina tion in the mind of the inventor who is conducting them.

Edison works with no apparent executive system. You may hunt atmost any where for him in the various departments of his laboratory at any time. No one knows how many secrets are fer-menting in his brain, nor the sequence of their development. Odd corners, enclosed works in the plain brick buildings of the aboratory, were shown to me as places where he snatched a little sleep when too

where he aparts home.
absorbed to go home.
bead mechanic, Fred Ott, probably His head mechanic, Fred Ott, probably the man who is closer to the magic of Edison's achievements than any other technical man, spoke of the period when the abonegraph was quarries. We never the chie coom, night or day, for weak,

till it was done," he said. "Our meals were sent in and we slept here." "Afraid the whole thing would go up n smoke?" I asked.

We were sure enough, but we "No. wanted to get through—to do it."

Now Fred Ott voiced the germ that Edison had introduced right there. To do it!

To nail the dream together so that if would never fall apart again. Yes, and to keep it up to date; to inoculate it with the virus of newly applied discoveries, year in and year put, so that it should be not merely a bit of still life, but a progressive energy, alive every minute. Edison himsif carried all the weight of

constantly impending failures to a trium-

phant practical value.

He's as tenacious as a buildog once he gets a hold of an idea, and you can't scold him or coax him to let go. Before he reaches for a thing he "smells around" thoroughly to see it it's worth while, and, whenever he falls to get the intended result, he does not blame antural causes or bad workmanship; he just says: "It isn't neture that's wrong; it's me. I'll keep at it till I know more."
There is an experimenting room in the laboratory devoted to the improvement of the phonograph. A. F. H. Wangeman, who hears a striking scremblanes to Edison bimself, is master of correspondence here. He has surprises to show, if he wishes, that are not yet, so the market. I heard one of them under piedge of enemy. "We know nothing definite about around." he said. "It waster reason at times and tumbies specme. I'll keep at it till I know more."

that we cannot record. We had trouble at first with soprano voices, and late with violin and 'cello solos. We only put 'cello solos on the market about four months ago. No day is exactly like anhad done things. other. There is a constant though minute atmospheric change going on about us, so we try everything, no matter how absurd it may seem at the time, in an effort to catch nature in a scientific trap." What I heard will not be on the market for a year. Edison's policy is to mistrust a merely friendly aspect of nature till be has acquired her assur-

MAKING A NEW PECOPD IN THE PHONOGRAPH DEPARTMENT

ance of its practical truth. We found Edison in the chemical de partment of his laboratory. Something in a copper dish was steaming ever a blue flame on a work-bench in front of him, and he lay far down in his chair apparently watching it. Some young men in shirt sleeves were quietly occupled in the same room, mixing and measuring chemicals.

us frequently by accident, but it is still

one of the secrets of nature. We are

experimenting constantly to get perfect

tone. There is nothing now, however,

There is a theory, probably supported by data, that there are times when to approach Edison when in one of these seemingly abstract silences is a breach never to be forgiven. I had heard about this, and so induced Mr. Wangeman to advance with me.

He may have heard us approach his chair, and he may not, but he did not turn around. Mr. Wangeman is a scien tist of the physically independent type,

so he told him what he wanted. I was never more impressed with the nonsense I had read about his melodramatic mannerisms, his winard dignity and his resemblance to bhakespearean apotheraries than when he jumped from his chair and we met cordially. I have met much more assumption of greatness in celebrities of equal fame, but with

fewer practical achievements.

Edison is not a dandified man, he is not stoop-shouldered, he is not slow or ponderons, or technically mysterious. hair is only just turned gray, and though his trousers were not creased, nor his shoes patent leather, he had that indescribable dignity one finds in a Westerner that a New-Yorker has to work hard for.

It is the dignity of power .n restraint. There is no word that exactly measures the difference between the wave that lans the shore and the wave that is in the mid ocean. One tells of the shallows at a glance, the other of the unfathomable pos-

sibilities. Edison is the sort of Westerner who could ride a scheme till it dropped under him and never lose heart of ultimately finding one that wouldn't drop. He has waiting courage, and no matter how circumstances blind him, he keeps right on feeling his way by little things till they grow big enough for him to see, because

what he believes, generally will be. Edison has the habit of mental concen tration of clearness, exactness. When he is talking you know that it is in perspective, because he punctuates with sharp, or loud, or softer tones of the voice. He is colloquial in his language, he has no well rounded sentences, no pretty affectations of technical form, and if he doesn't hear you at once he pounces on you with a virile "what?" that permits no misunderstanding on either side.

He is only slightly deaf, and the talk about his necessity to watch the lips of another to understand him is fictional

I asked him what he was doing about the new storage battery. He tossed his head impatiently, while the telerant lie of a patient man contradicted the first impression, and he began to talk. "Those fellows out West don't seem to

eatch on," he began crisply. "Just be-United States now they seem to think I haven't done it. I'll show 'em next spring: they'll be on the market then. I'm building a new factory out here to make 'em in, but I didn't want to put 'em on the market till I knew they would do the work." He paused, staring straight shead, and I waited, for, as I thought. he was adjusting to make clear, as he habitually has done in his experiments. "I have proven that my storage battery does the work; they are being used in New York on trucks today, but I limited the number I put out to make the thing experimental. I've been testing over 20,000 of 'em right here in the laboratory. and they're all right now. They can do the work and it means a solution of the crowded traffic problem in all great cities." Another panse came, and he re-newed the talk with more vigor.

"People seem to forget that you can't make a battery that is warranted to work right as you can a dynamo. A battery is a thing of chemical action, it is not a bit of solid machinery. I wasn't going to put out a futtery that I couldn't guarantee.

problem solved is this: We haive the traffic for vehicles in crowded streats because we cut their length in two when we do away with the horse; then we halve it again by greater speed, which prevents congestion." It was clear that be was a bit sensitive about the criticism of the delay, because it revealed an unfair lack of confidence in a man who

"I don't usually talk much. I prefer to produce, and when I do so my work will hold good. Why, I've been experimenting and perfecting this, just as I have any invention intended for the market. Mind you, an inventor can make a beautiful thing to show much quicker than he can perfect a thing that must work. We're very commercial round here," he added, with a shrewd glint of pride and satisfaction in his blue eye, as he stamped his two feet squarely on the ground in emphatic assurance of this fact.

Once Edison has transformed a dream iato a tangible reality he is all business, for he added: "What we wanted this battery to do it is now doing in the New York streets—that is, a minimum space, reduced weight, a 40-mile run with a truck capacity of one ton and one charge at a little more than one-half it costs to keep a horse vehicle running now. I've done it, and next spring our factory here will be making them."

Then he returned to the impatience of the public again: "They cannot expect me to finish a job like this as if it were a bit of machinery. Why, even a locomotive has contrary streaks, and that is plain steam, not a complicated chemical action like a battery. That's why it has taken time to make sure." And he was sure. There was no mistake in the shake of his head, the nervous clasp of the hands stretched at arms' length behind it. Confident that it was done, he felt at liberty to recall the dream stage of this, his latest invention.

"You know, it happens sometimes when things get slow around here that I suffer from ennul," he said, with a semi-comic regret in his voice, which set us all laughing, because Edison is an inexhaustible working battery himself. "Well, when I get one of these speils I generally go into things pretty thoroughly, and although I was sure that a storage battery could be made (because I didn't think that Nature could be so mean as to confine herself to a lead battery), the important question in my mind was to know just exactly what was required of that battery. So I had a complete census of vehicles taken in New York, a report of the congestion and the average speed. I saw at once that if a storage battery could be made there would be use for it," and he paused with a whimsical smile. "Of course, the question of reducing weight disposed of the lead battery. I knew that some new lead battery. I knew that some new combination of chemistry eliminating lead must be found. So I began experimenting, for a long time with no result. Then one day there came just a nibble, just a little bit of something; then that disappeared, and for a long time I got nothing. Still I kept at it, little by little. coaxing it along, but no result. I felt perfectly sure that Nature held the se-cret, and that it wasn't ber fault. 'It's me,' I said to myself, 'not Nature that's wrong. And so it was, for at last I got it, negative and positive, without leading the chemical action that conditions would alter and make everything unreliable. We had some trouble with them after we alter and make everything unreliable. We had some trouble with them after we first put them out in New York. Couldn't understand it, till we found out that, instead of using distilled water, the drivers, unable to find any, had gone to drig stores and purchased carbonic water, the gases of which partly destroyed the action of the rest. There is no knowing what I can do with it. I've no doubt I can reduce it to half its present size, but it's small enough now for all purposes." 'The phonograph, at least, is complete," I suggested.

I suggested.
"Oh, no! The phonograph is a useful
thing, and it's wonderful to see what
pleasure it has given; it is the poor man's. music, but we are experimenting, im-proving, discovering new things all the

And that is just the secret of Edison's success; he never reaches the final word of discovery. His imagination is always of discovery. His imagination is always luring him into hypaths that no one ampects. In addition to his better-known patents granted in connection with the development of the electric lamp, the telegraph, telephone, the one-milling machinery and storage batteries, his inventions include vete recorders, typewriters, electric pens, vocal engines, addressing machines, methods of preserving fruit, cast-iron manufacture, wire drawing, electric locomotives, moving picture machines, the making of plate glass, compressed all tile shows clearly that it is not so much the result of wizard's magic as it is a pinin, canseless genius for work the inaginative audacity of a poet and hard-hended business, which combine to make the man indiano.