NEXT CENTURY TO SEE MORE PROGRESS, SAYS FRENCHMAN

Rene Bache Confident Achievements of Man Will Equal if Not Exceed Past Century's Advance

BY RENE BACHE.

THE progress of invention in the next century will, in my belief be not less great than in the last 100 years; its achievements will be not less remarkable.

What we may call the century of invention began in 1820, when photography took the world by surprise. The hundred years since then elapsed have done more for the advancement of mankind in the mechanical arts than all the previous ages. They have elevated civilization to an entirely new plane.

A century from now the human race, thanks to inventions as yet unthought of, is likely to be as far beyond where we are today as we are ahead of our forebears of 100 years ago. To suppose that we are approaching a limit is absurd. There is no more end to invention than to science. Every new scientific discovery gives rise to thousands of inventions.

What was it Sir Isaac Newton said? That in the gathering of knowledge we had but picked up a few grains of sand on the seashore. We are only just beginning to invade the realms of science, and therefore are but just entering the era of invention.

Where the fine arts are concerned, it seems as if mankind could get so far and no farther. Architecture found its culmination in the Parthenon at Athens. For our best architectural ideas we go back to the ancients. We do not pretend to equal the ancient Greeks in sculpture, or the old masters in painting. Literature reached its climax in Shakespeare.

Invention, on the other hand, knows no climax, no culmination. We are climbing a ladder whose top is lost in the sky. That is where science, which deals with the concrete, differs from imagination, which inspires the fine arts. Yet, of course, without imagination there would be no invention. Who reads these words may puzzle out that paradox for himself.

There are so many things about which we know little or nothing. It is wonderful how little we know, relatively to what remains to be found out. As yet we have but touched the fringe of knowledge.

In the last 100 years America has produced at least two-thirds—probably I would not be beyond the mark if I said three-fourths—of the epoch-making inventions. A few among them are the telephone, the telegraph, the phonograph, the sewing machine, harvesting and other agricultural machines, the submarine boat, and the flying machine.

I do not know why it is, but the Europeans seem to excel us in working out details of inventions. We are foremost in originating ideas, but when it comes to developing them they are superior. We invented the flying machine, but they developed it and make better airplanes than any we have. It is the same way with the submarine boat, the task of perfecting which was left mainly to foreign mechanicians.

It is impossible to say in what lines invention seems likely to progress from this time on. Nobody can predict its trend. In the early '90s, we, in the patent office, thought that electrical invention had about reached its climax, and that chemistry would spring to the front. But it did not work out that way. Electrical inventions since then have outnumbered chemical inventions.

On the other hand, the flying machine was by no means so great a surprise as might be supposed. We expected it, notwithstanding the failure of innumerable attempts in that direction. Who can say that during the next hundred years human beings may not find out how to derive power from the sun, to harness the tides, or even to communicate with other worlds? We do not venture to expect these achievements, yet they may arrive.

During the recent European conflict about 50,000 inventions were submitted to the war department for consideration. All were studiously examined, but none proved utiligazle, I think, though possibly one or two may have been turned to account. Nearly all of them were crude and unpractical. A few would have been valuable, doubtless, if developed.

To be useful, an invention must be developed. A patent gives a man a monopoly which enables him to get capital for developing his invention; and the development of an invention is as important as the making of it. The originator of a clever idea does not deserve all the credit; the man who makes it available for use merits an equal share of applause.

If we stopped issuing patents in the United States the progress of the country would stop. There would be nobody to develop new inventions. Nobody would take hold of a new thing and put it on the market if John Smith, an outsider, could come along, grab the idea and absorb the profits.

People generally are far from realizing the value of our patent system. Holland, 20 years ago, said, "What's the use? We are surrounded by other countries—England, France, Germany, Belgium. We'll get our ideas from them, and do without any patent system of our own." They did do without it, and progress stopped right there. After a while they saw their mistake, and today Holland has one of the best patent systems in the world.

Engines and other contrivances for the production and utilization of energy since the American revolution have multiplied the power of mankind a thousandfold. If man were dependent solely upon his muscular efforts, civilization in its present state could not exist.

The reaper and thresher alone have done immeasurably more to augment the supply of food than all educational and institutional agencies put together. One could not even try to reckon the increased property values due to the steam engine, the steamship and the railroad. To figure the added prosperity given to the world by the Bessemer process would stagger imagination. Electrical and chemical inventions in the last 40 years have yielded an increment of wealth, productivity and comfort beyond computation.

Look back over those 40 years, only as far as 1880, and observe how primitive were many of the conditions of existence as viewed from our present-day standpoint. How did the people of those days manage to get along without the telephone, the typewriter, the cash register, the safety bicycle, the electric street car, the player piano, the skyscraper building with steel skeleton, the "wireless," the automobile and a multitude of minor conveniences now in common use, but then unknown?

Look back 100 years, and it is like taking a jump into the dark ages. To speak only of the family dwelling, there was no bathroom, no running water, no plumbing, no central heating system, no carpets, no wall paper, no fly screens, no means of illumination better than candles or lamps, no kitchen range and not even a match with which to light the fire!

The United States patent office has never done such a rushing business as at the present time. The people have turned from war to the arts of peace, and inventions are pouring in. In 1919 the increase in number of inventions submitted was 35 per cent.

A few figures showing the growth of invention in this country ought to be interesting. In 1838 the number of patents granted was 109. Evidently in those days Americans did not go in for inventing things to any great extent. But if one looks back only as far as the year when the civil war came to an end, it is found that the patents for that twelvemonth numbered not many more than 6000.

Immediately after the civil war, however, they took a jump. In 1866 8000 patents were issued, and in the next year 12,000. After that there was no material increase for 13 years. The number granted in 1880 was less than 13,000. But in 1900 it rose well above 24,000; in 1909 it was more than 36,000, and in 1917 we issued over 41,000 patents. Another after-the-war rise, corresponding to that which began in 1866, is now in progress. It seems manifest that war has a tendency to stimulate invention.

Some of our modern inventions are in reality very ancient. A notable example is the familiar safety pin, which, made of bronze, was in common use by the Romans long before Christ was born. Another is the little metal paper fastener with ends that bend over, for holding sheets together. Exactly the same contrivance was employed to fasten the leather covering upon the bronze belts of Caesar's legionaries.

The Chinese, who first domesticated the silkworm and wove its product into cloth, are credited with a number of inventions which today we regard as fundamentals of civilization, and which did not become known in Europe until several centuries had passed. Among them were paper, ink and printing from wooden blocks with raised letters. Porcelain was invented by those orientals who as early as the seventh century were manufacturing a beautiful semi-transparent ware that excited great admiration in Europe. Even now we call this kind of ware "china."

Before patents were granted, an inventor had only one way to obtain a return from his invention, and that was to keep it secret. Inventions in early days were the most valuable possessions of many families and guilds. Secret industrial processes were called "mysteries," and were most jealously guarded. Thus, for instance the secret of making Venetian glass was considered so precious that workers at the craft who strayed into other fields of endeavor were liable to be assassinated as suspected traitors.

So well was the secret of porcelain manufacture guarded by the Chinese that nearly a thousand years passed before it found its way to Europe. In the year 1710—so goes the story—the Elector of Saxony learned that a man named Boettcher had discovered the process. He shut the man up in a castle, holding him prisoner, but promising him liberty and high reward in return for a disclosure of the much-desired knowledge. Boettcher, being provided with materials and workmen to help him, succeeded in perfecting the process, and it was thus that the prduction of the famous Dresden ware was begun. Later, the secret was carried to France, where it was the foundation of the manufacture of the celebrated pottery of Sevres.

The patent system, for the reason I have mentioned, has had a most powerful influence in accelerating invention. No longer is the inventor obliged to keep his idea secret; the government guarantees to him exclusive rights in its use for a long term of years. Thus ingenuity is stimulated by prospect of substantial reward.

A record, which includes a drawing and description, is kept of every invention patented, and made readily accessible by card index classification, so that skilled examiners can with little effort determine whether an invention submitted for patent is new or old. Theoretically at least, a patent is never allowed unless the invention is new.

What a stimulus, then, does the patent system give to the development of new things! It is a remarkable fact that more new things have been developed since the beginning of the patent systems of the world, little more than 200 years ago, than were brought to light in all the previous time of man's existence on the earth.

The notion that the gentler sex possesses no aptitude for the mechanical has been generally accepted until very recent years. Nevertheless, the patent office can offer plenty of evidence to disprove it. American women are going in for invention on no inconsiderable scale. Up to the present date they have taken out more than 50,000 patents.

It is not true that women lack mechanical ingenuity. One of the most noteworthy of American inventions, the ice cream freezer, was patented in 1843 by a Philadelphia woman, Mrs. Nancy Johnson. The paper bag with a satchel botton, is a woman's invention. So likewise is the artificial "comb foundation," which saves the bee half her labor in honeycomb construction.

We are putting women into the patent office to do highly skilled work. Girls nowadays get a good modern education in the women's colleges, and they know how to use it. We have had in the patent office 15 women assistant examiners, and undoubtedly some of them will rise to be chief examiners.

The march of invention has only begun. If we watch its progress as the years go by, we shall not find that it is slowing up. There are plenty of "epoch-makers" still to appear. As I have said, to invention there can be no end. Ahead of us are waiting innumerable discoveries, every one of which will give rise to inventions.

Benjamin Franklin said that he would like to be sealed up in a wine-cask for a hundred years, and then come out and view the world as it would be at the end of that time. It has been our privileged fortune to enjoy the opportunity he so much desired. And what a privilege it has been. We can imagine how amazed and delighted Franklin would be if he were permitted to behold the mechanical and other marvels of the 20th century.

For us it would be much the same way, could we see the world as it will be a century from now, when, as we may well suppose, civilization will have again ascended to a new and different plane, and our descendants look back upon the conditions of today as primitive and uncomfortably antiquated.

Some day, and it may not take a century to span the time—H. G. Wells' mythical "atomic engine" will be working, and in that event all we will have to do will be to turn a couple of pounds of old lead or scrap iron into the hopper and, presto! out will come endless stores of energy to perform the various labors of life and give us what we want in the way of light, power and heat at virtually no cost.

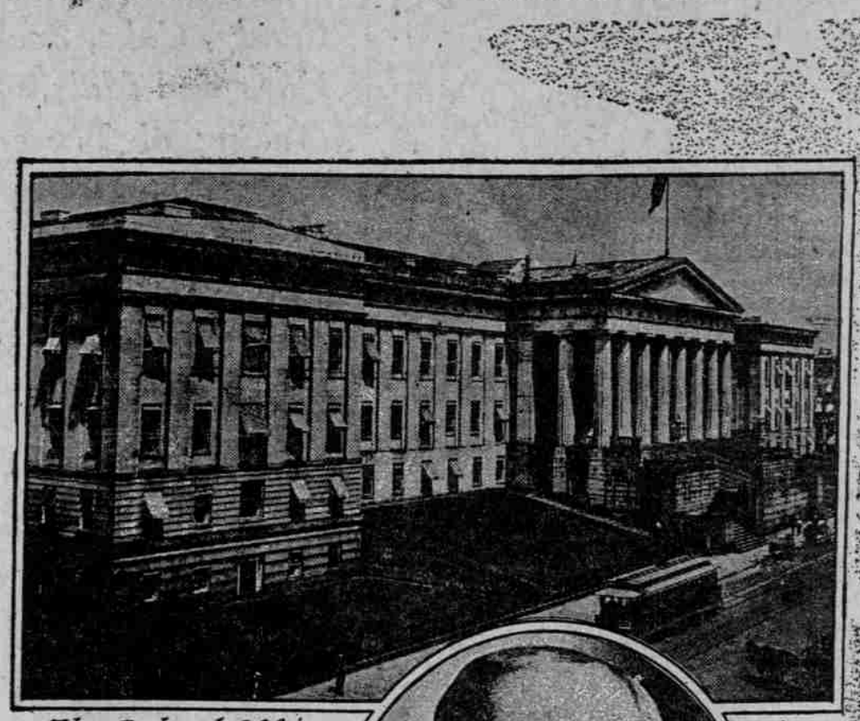
"Shucks!" you say. But that is what they said a hundred years ago when the "dreamers" were scanning the possibilities in the realm of science for the next century. That was what they said of Eli Whitney's cotton gin; of McCormick's reaper; of Langley's flying machine; of Edison's talking machine; of the wireless telephone and telegraph, and of all the other marvels of this 20th century.

Only the other day a learned scientist engaged in research work in this country said:

"A few years from now I venture the world will not be talking about the Jugo-Slavia problem or the ties that bind Argentina and Bolivia. You will find the most conspicuous thing out of the year 1920 may turn out to be some such thing as Rutherford's discovery anent the possibilities of the helium gas particle. Why? Because he has given the world of science something new from which wonderful new inventions may grow."

Who knows how soon the scientific world may unlock that secret hinted at by Sir Oliver Lodge—the unlocking of the atom? Lodge, et al., you will recall, have said that once the secret of the atom is unloosed unending stores of energy will lighten the burdens of mankind.

When such a renowned scientist as Edison begins to talk about new machine that may enable us to communicate with the spirit world, what may we expect within the next era? Science now is evolving principle after principle; in a few years will come the inventors who will combine these principles into unheard-of inventions.



The Patent Office.

James T. Newton, Former Commissioner of Patents.

TALKS WITH ROOSEVELT

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do a task and had then shamefully abandoned them to the mercy of the foes who know no mercy.

"Those are the shadows proper for Shadow Lawn; the shadows of deeds that were never done; the shadows of brave words that were followed by no action; the shadows of the tortured dead."

With his final gesture the hours was on its feet. It was storming the platform as he reached toward the exit, throwing himself through the group on the platform after the manner of the expert in such work and in a moment was on the sidewalk boarding the car that was to take him to another meeting on the east side.

Two years later I referred to this speech in the course of a chat, saying his close was quite the best thing I had ever heard him do.

"Down front," said I, "you could almost see the ghosts rising at your call."

"Yes?" he answered in query form. "Well, Mr. Wilson is not dead yet. He is a very fortunate man if he does not live to be tortured by many, many ghosts."

(THE END.)

Democrat Will Be Lonely.

OLYMPIA, Wash.—When the next state legislature meets here in January, E. F. Banker of Winthrop will have the honor of being the lone democratic representative in Olympia. Out of 92 members of the lower house elected November 2, 89 are republican, two farmer-labor, and Banker is the sole survivor of the democratic organization. He was a member of the last legislature and author of the Banker bill, which became a law, providing for the state reclamation board.

Name of Money Preferred.

SEATTLE, Wash.—Two brothers named Ruebsamen had their names changed to Mooney in the superior court because they said their friends had called them Mooney from early childhood. The name Ruebsamen literally translated means "turnip seed" they told the court, and their friends had been for many years calling them "Moon Face" or "Mooney" because of the fullness of their faces.