MAN'S AMAZING TOMORROW

By Hudson Maxim

SCIENTIST AND INVENTOR FROM THE VIEWPOINT OF TO-DAY'S ACHIEVEMENTS FORECASTS A FUTURE FULL OF MARVELOUS THINGS

WHEN primitive man crept from his warren, threw the long tousled hair from off his eyes and stood in the sunlight, the world had a far different meaning for him than it has today for the civilized man, as he steps from his residence into the bustle and business of modern life.

Everything that moved the primitive man believed endowed with life. To him life and movement were synonymous, and all sounds were voices, whether of the wild beast, the wind or the rush of waters.

By his needs he was compelled to grapple with the forces of his environment, whether of animal life or inanimate nature, and the history of man has been a history of subordination of all things to his use.

But man's upward march has been inconceivably slow and the time immeasurably long. It required eons for the dull brain and the unaccustomed hand to fashion the simple stone hatchet and knife and spear of flint or bone. He was a mighty architect who made the first shelter of logs and boughs, and he who first contrived a way to kindle fire by friction was a greater innovator than any inventor of the modern world. He who first hollowed a log with fire and made a boat accomplished a greater feat toward human advancement than the designer of a Dreadnought.

In the fierce struggle for existence man has won the mastery mainly because of his superior intelligence and skill in the subordination and utilization of means supplementing his own relatively small physical powers. Primitive man, armed with his simple weapons and intelligence, in concerted action, soon made himself master of the animal creation.

But war has always been the greatest stimulus to invention, requiring, as it does, the defense of property, life and home on the one hand and offering on the other the coveted rewards of conquest. Since that remote time when our omnivorous ancestors climbed down from their abodes in trees and fought for place in their environment and fed on every living thing in earth and sea and sky the good things of life have been for those who fought for them. Through all the ages man has hewn the living flesh from off the bones of every breathing thing, and he is master now of all the earth, and although far advanced on a very high intellectual plane yet there remain before him duties and achievements which shall far transcend anything he has yet accomplished.

RAPID DEVELOPMENT.

Human advancement all over the earth has been marvellously rapid during the last century, yet it will be still more rapid in the next century. Man has but recently broken the chains of superstition sufficiently to enable him to advance upon the lines of progress without fear of the demons and dragons of his imagination. But he is not entirely free even yet.

Mighty China, still held in the iron grip of superstition, stands halting and trembling upon the verge where science replaces magic and mystery.

A little while ago invention was regarded with distrust and the inventor was frequently looked upon as a malefactor and treated accordingly. The inventor of the umbrella was stoned. The builder of the first steamboat in England was mobbed and his boat destroyed. Even at the present time the taxes and annuities imposed upon patents in many countries practically amount to penalizing the inventor. But inventors are fast becoming more and more the recipients of honor and reward, the science is now the dominating spirit.

Future progress will be, as in the past, along the lines of man's greatest needs. With the increasing pressure of population and the inevitable exhaustion of our natural resources—coal, iron, petroleum, timber and, most important of all, the soil—recourse must be had to inventions which lie far beyond our foresight. We must invent to meet the issue or civilization must perish and mankind revert again to barbarism in scanty, scattered tribes of hunters and fishers.

The world's supply of coal and iron, it is estimated, can at the longest last but a few centuries, and the soil is being rapidly impoverished, disintegrated and carried in the wash to the sea. Cortez found Mexico a garden and the hills covered with forests. The Spaniards cleared the forests, and fields and hills are now largely a barren waste.

PEEP INTO THE FUTURE.

Comew ith me then, and let us peer a little beyond the frontiers of present knowledge and stare into the future with a "wild surmise," forcasting what man shall do to stem the tide that is setting against him, while we believe he still shall conquer greater and greater favors at the hand of destiny as the world wears and wastes beneath his tread.

Achievement will not keep us waiting, for in this age of marvels, with which the inventor is constantly surprising us, it does not do to sleep too late in the morning, else when we awake we may find ourselves laggards in the abject rear.

Achievement now runs on so fast that it often outpaces the adjustment of our senses, and though we pinch ourselves to prove our wakefulness still the sense of dreaming intrudes on consciousness and harasses conviction.

Many of us in still full life are able to go back far enough in yesterday to view the present through the wide eyes of wonder, while we are so fortified with expectation for the morrow that we look a second time to be assured whether or no that flock of clouds that skirts the sunset may be a fleet of airships climbing up the sky.

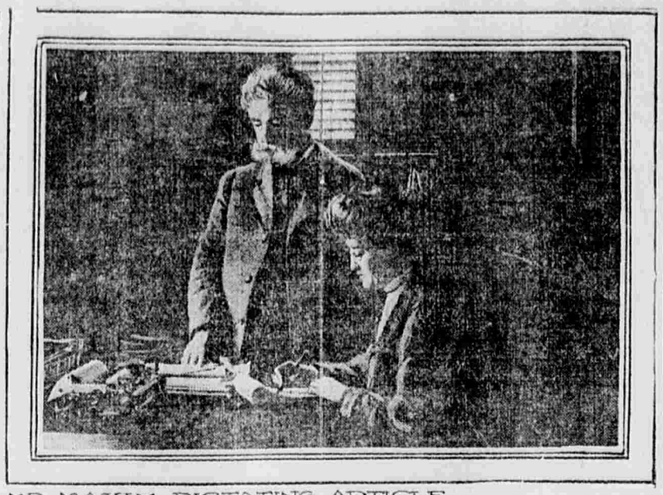
The flying machine is no longer confined to the realm of fancy or imagination, but the conquest of the air is already far advanced and the era of practical utility is near.

The wonder of yesterday becomes the commonplace of today, and the marvels of today will be commonplace tomorrow.

The debt we owe to the inventor is the difference between all that is ours to enjoy in modern civilized life and the indigence of barbarism. But for the inventor we should still be denizens of the unbroken forests, clothed in the skins of beasts.

Like Antony, the inventor has with his "broad sword quartered the world," and "on green Neptune's back with ships made cities." He has hewn highways through the granite hills and webworked the world with the iron rail.

With his instruments of science the inventor has sounded the deeps of the eternal skies. He has discovered whence Orion came, has felt the pulse of Arcturus, and he knows the fortune and the fate of a million worlds. He has seen them quarried out of chaos far beyond the troubling touch of time, and he views their onward drift toward death in the infinite night and cold of immensity.



MR. MAXIM DICTATING ARTICLE TO HIS SECRETARY

He foresees our own bright sun a paling ember on the hearth of time and reads our destiny in the scroll of the Milky Way by light that left its source so long ago that it was already old upon its flight ere Babylon was builded and when the Egyptian pyramids were still unquarried.

That human attribute the furthest above the brute and which places the intellectual man the highest above the low browed savage is the imagination. That work of the mind which most elists the imagination is the most highly intellectual.

In aerial navigation the inventor is obliged to hang his life on the hazard of his mastery of unaccustomed principles, where there are innumerable untried variables—a stunt of the imagination like taking a flight through the fourth dimension.

In the not distant future we shall have our automobiles of the air, and in the wars of the future we shall have our aerial battleships, our cruisers, our torpedo boats and torpedo boat destroyers.

But they'll be airy, frail and fairy craft, indeed, compared with the grim steel monsters of the sea.

AIR SHIPS IN WAR TIME.

Although the value of the flying machine in future wars will be mainly as a scouting craft, still its importance for that service alone is hard to overestimate, for the flying machine videttes will be at once the eyes and ears of the armies of the future, and they will have their use in naval warfare, too, for there will be the aerial torpedo scout on the lookout for torpedoes and torpedo boats, which will signal the approach of danger.

Possibly, too, we shall have our torpedo hawk, taloned with dynamite, which will swoop down out of the sky in swift pursuit of the torpedo or torpedo boat, and blow it up before it reaches its destination.

Although, as I have heretofore pointed out, flying machines could not be expected to successfully attack battle ships, coast fortifications or large cities or to do much damage with high explosives, still they might attack torpedoes and small torpedo craft with aerial bombs planted and exploded beside them under water, and it is possible that they might be very mischievous indeed.

But the torpedo craft will have their quick firing sky guns then, with which, coupled with the searchlight, they will sweep the heavens, and the attack will be dangerous work.

Aerial naval tactics will include the use of the thunder head to mask maneuvers. When the cloud hung navies war and ride the storm to battle, then conjecture will attend the fall of slaughtered combatants and wreckage from the sky, to know if it be Jove or man that thunders there. Think of it! By and by we shall be able to cast the earth loose and round the ecliptic with the Pleiades, leave the earth road and cup race with Jupiter on the cloud way, or go tobogganning down the sky slide.

It will be great sport to outrace and override the thunderstorm, and there in the bright sunlight look down upon the rolling, seething mass of cloud spitting fire like an angry cat. We shall then seem to have nature at a disadvantage.

The more highly scientific war enginery becomes the more the game of war will be one that can be played only by the most scientific and enlightened nations. More and more will home and country be defended by machinery and less by blood. Fewer and fewer men will be obliged to engage in the trade of war, and more and more will be able to devote themselves to peaceful pursuits. Less and less will war be the arbiter of nations, for the difficulties and the expense will become so prohibitive that wars will no longer pay.

The aerial navy will be a great bulwark of peace and a vary great step toward the permanence of peace. The inventors of deadly war engines place in the hands of scientific and enlightened nations means of controlling wars.

DEATH DEALING ENGINES.

Within the next few years torpedo boats propelled by motorite, a fuel compound of nitro-gylcerine and gun cotton, will be driven at a speed of 50 miles an hour in nearly submerged position, and will be able to rush in upon any battleship and sink it under full gun fire. Automobile torpedoes, driven by this same means, will have a speed 50 per cent greater than present torpedoes and more than double their range, but other revolutionary methods will doubtless be invented to combat with these terrible wasps of the sea.

On land battalions will close in deadly combat over an intervening space of two miles, or more, and fight without sound or smoke. But when an enemy's position shall have been discovered, then smoke- producing bombs will be thrown to blind his eyes to the movements of the attack, and the night torch bombs will keep him exposed under their bright light. War will become more and more a matter of science and money, and the soldier will become less and less a warring factor, until the spirit of war wears out and men shall war no longer.

It has been truly said that the degree of civilization of a people may be estimated by the quantities of nitric and sulphuric acids consumed. But what are we to do when the great niter beds of South America, the world's only supply, shall have been exhausted—and they are being rapidly depleted?

The problem of fixation of atmospheric nitrogen by the electric current has already been solved and it requires but little further development to meet all needs.

Ammonia and all kinds of nitrates produced artificially, are among the immediate possibilities of the future. It requires but a sufficient quantity of cheap electrical energy to refertilize all our fields from the atmosphere. But heat and power we must have and in ever increasing quantities.

Were every river and rivulet dammed to its source the fall to the sea would not produce power enough for man's future use. Whither, then, must he look? Will he devise some practical engine for the utilization of the solar rays? It is estimated that the amount of energy received by the earth from the sun is equal to that of a continuous Niagara 75,000 miles wide—wide enough to encircle the earth three times.

But the discovery of radient matter, if it do not prove a "will o' the wisp," may yet lead us to the discovery of a means of tapping the mighty storehouse of internal molecular energy.

The corpuscles of which molecules are composed are estimated to have a velocity of 90,000 miles a second—half the speed of light. This means that in a pound of ponderable substance there is sufficient energy in action to equal that of a one-pound projectile hurled at a velocity of 100,000 miles a second. Such energy is perfectly inconceivable.

The energy of impact of such a one-pound projectile would be sufficient to melt and volatilize and expand to ultimate tenuity 50 tons of cast iron.

If a man discovers the key to unlock this storehouse of energy, he will be able to make a playhouse of the world and to reduce the cost of living so that labor will be at a premium as a source of amusement.

WIRELESS SKY ROADS.

Civilization can grow no larger than the boundaries of transportation and communication will permit. Cities overgrow themselves because adequate transportation is lacking. The old time farm, the mountain height, the forest deep, the lonely lake, will soon burst from isolation, for the flying machine will people them with a teeming population. High speed and convenience of travel annihilate distance. The remote becomes near, the stranger a neighbor, and widely separated communities a united neighborhood.

Among the possibilities of the future will be the wireless electric sky roads, or zones of electric energy, leading from center to center of population and industry, along which flying machines will pass to and fro, drawing their energy from an electric system stretched along the earth, thus obviating the necessity of each individual flying machine developing its own energy. Flying machines will carry electric meters, and the consumer will pay for the energy used just as he now pays for the electric current which lights his residence.

When the flying machine shall have come into general use many strange structures will be contrived for the reception and storage of them, or, we may say, flying machine garages, where daily pilgrims from country to city and return will house their aerial equipment, and from which they will take flight for home when their day's work is done.

The broad expanse of the Hackensack meadows may possibly spring into great usefulness with the wide introduction of the flying machine.

As land values always accord with supply and demand, the flying machine will bring vastly increased areas of suburban land into the market and values will be enormously enhanced. Many a poor farmer will be made glad from the sale of his unyielding acres to the city man dropping in upon him from the sky.

There is a very great and constantly growing demand for diamonds for use in the arts. I once conducted some experiments at Faraday House, in London, and succeeded in making some microscopic diamonds by electro deposition. I have intended to again take up this matter on a larger scale. I am confident that we shall soon see diamonds produced cheaply and of large size by electro deposition, either by the method I tried in London or by some other.

DEATH TO MICROBES.

The greatest achievement that awaits the genius of mortals is a practical and efficient electro-chemical means whereby microbes—the most dangerous and deadly enemies of mankind—may be attacked and slain within the living tissues, lymph and blood without injury to the living cells of the body.

With all our present might of mastery the rich and poor, the strong and weak alike, tremble and turn pale before the ghost-boned shade of the pestilence whose breath is blight, whose touch is death.

Although great advancement has been made in the successful combat of disease by the discovery of antitoxins and by improved methods of treatment, and by the discovery of new remedies that are more or less specific, still, the most virulent of the deadly micro organisms are but little impeded yet in their dance of death by all our science.

I prophesy that in the near future a victim of tuberculosis, scarlet fever, pneumonia, tetanus, hydrophobia, smallpox, leprosy, or any germ disease may be electro-chemically treated in such wise as to destroy every disease germ or his affliction in a day. This is something to which electricians, chemists and medical men should give weighty consideration. What a boon it will be when that house shall be built wherein the unclean may enter at one door and pass out at another clean! He who shall do this thing will be the greatest benefactor of mankind in all the history of the race past and future.

3,000 pounds of choice meat give away Barbecue day at Saltair, Thursday, Aug. 13.

NOTICE TO ALL UNDERTAKERS IN THIS INTERMOUNTAIN REGION:

Professor Carl L. Barnes of Chicago will on Tuesday, the 11th inst., open a school of anatomy, sanitary science and embalming in Salt Lake City.

He will also lecture upon and demonstrate his wonderful discovery, the "MICO" process, a method of preserving the dead effectually superceding the present arterial method. These lectures will be free to all members of the profession. Address P. O. Box 1477, Salt Lake.

SUNDAY EXCURSIONS,

Via D. & R. G. R. R. Aug. 9th.

To Provo Canyon 7:30 a. m. $1.2
To Pharaoh's 8:15 a. m. 5

Returning, leave Provo Canyon 2:45 p. m. and 7:15 p. m., arriving Salt Lake 5:40 p. m. and 10:00 p. m.

Trout and chicken dinners at Upper Falls and Spring Dell.

Experiments Made to Test New Automatic Safety Appliance.

A TRAIN on the main line of the Burlington road, going at a speed of 50 miles an hour a few days ago, ran past a block signal which stood at "danger," and was automatically brought to a full stop 1,100 feet beyond, says the Chicago Record-Herald.

While the test was being made a score of the foremost operating men of the United States, representing railroads from coast to coast, either rode on the train or watched from the side of the track the operation of the new automatic device for stopping trains when the engine crews have disregarded the warning signal.

The experiment was conducted for the benefit of the joint committee of the American Railway association, of which F. C. Rice of the Burlington is chairman. The joint committee is made up of members of the train rules and safety devices committee of the association.

Shortly before the experiment was tried the operating men sat in a room in the Burlington Company's Aurora quarters and listened attentively while the most complex train orders known were transmitted a distance of 118 files, received, repeated and "O. K'd" by telephone instead of telegraph. Within a short time the board of control, appointed by the interstate commerce commission under an act of Congress for making an investigation of block signaling and safety devices, will be given a similar experience.

Regarding the operation, or as it is technically called, the "dispatching of trains," by telephone, all the operating men were enthusiastic. With one accord they declared that the day of the telegraph for use in the railway service is rapidly passing.

With respect to the automatic stopping of trains where signals have been disobeyed, the railway experts were not so certain. Although cautious in approving such radical departure in operation, they all agreed that a decided step in advance had been made in the direction of absolutely preventing collisions of any kind between trains on a single or double track. With this character of railway wrecks eliminated, fatalities on American railways would be reduced by a very large percentage.

The new device operates the block signal and when that is at danger a spring is set which opens a valve on the locomotive and sets the air brakes. After several tests at varying speed, which were made at Eola, just west of the city limits, the operating men admitted that trains could successfully be stopped even when the engineer was using his steam. They were inclined to believe, however, that a few more minor improvements would have to be made to insure the operation of the device in winter weather and to obviate the weakening of the track at the point of connection between the device and the track.

The train which was used consisted of an engine and three heavy cars and was in charge of Mr. Rice. The first experiment was at a speed of about twenty miles an hour, when the train was stopped within one hundred feet of the signal. Then the train backed down to get a two-mile start and was under full headway when the signal was passed.

Those on the train felt no jar or discomfort when the "emergency" application of air was made by the sudden opening of the air valve. The emergency application is the most sudden and violent application of air brakes that can be made. The installation of the device on a single track is such that two trains coming from opposite directions will automatically be brought to a full stop before they can possibly collide. The mechanism which operates the signals and also the automatic stop is such that the passing of trains over the rails automatically stores the electricity for the operation of the entire device.

Through the efforts of Daniel Willard, vice president of the Burlington, and W. W. Ryder, superintendent of telegraph, the Burlington has taken an advanced position in the use of the telephone. Yesterday the dispatcher at Aurora transmitte "revenue movement" orders, which require great care and exactness, to the agents at Neponset, 100 miles distant; Kewanee, 95 miles; Galva, 104 miles; Altoona, 110 miles; Oneida, 114 miles, and Watago, 118 miles away. By an improvement discovered by Mr. Rider the volume over the circuit was so increased that the order was as distinctly heard as though the operators were in the same room with the dispatcher.

TOAD EATS CHICKENS: A MYSTERY SOLVED

S. D. Shumway Discovers New Obstacle to Poultry Industry.

Now, this isn't a fish story, nor is it not a real estate booster's story, but it is plain, straight facts. It shows what wonderful results can be obtained with our glorious climate and the aid of Mr. Shumway's chickens.

For some days past, it has been noticed around the Shumway home that the little chickens were fast disappearing. At first this was laid to the usual enemy of the chickens, the hawk. However, the keenest vigilance failed to find the feathered robber who was despoiling the hen houses. Yesterday morning, with wrath in his eye, Mr. Shumway determined to watch for his chicken thief. He ensconced himself in one of the stables, and after a little waiting, what was his unbounded surprise to find that a huge toad was in violent pursuit of what he had hoped would one day grace his table. Not being content with seeing his toadship catch one chicken, Mr. Shumway waited until three had been dispatched. Then he wreaked dire vengeance on the despoiler of his farmyard. To come down to plain facts of the case, the toad, after being caught and killed was found to weigh exactly five and one-half pounds, and it will be safe to say there will be no further depradations from that source. —Arizona Republican