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# POPULAR MECHANICS

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# Popular Mechanics Magazine

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WRITTEN SO YOU CAN UNDERSTAND IT

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## Thirty Years of PROGRESS

By MERLIN H. AYLESWORTH

President, National Broadcasting Company

IT would seem that **Popular Mechanics** Magazine was established with an uncanny foresight that the Twentieth Century would witness scientific, artistic and industrial developments on a scale never before realized. During the past three decades this periodical has, in lay terms, chronicled the progress of a world that might otherwise have been too preoccupied to record its own achievements to the public at large.

Of the many arts and industries that have developed during the past three decades, none is more romantic or more spectacular than radio. The rapid rise of this technology has been coincidental with that of **Popular Mechanics**. Although Clerk Maxwell predicted the existence of electromagnetic waves as early as 1865, and Heinrich Hertz demonstrated such waves in 1887, radio or the transmission of intel-





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ligence through space began only with the practical experiments of Marconi in the closing years of the last century, leading to the spanning of the Atlantic with test signals in 1901. This event we recently celebrated with a round-the-world tie-up of broadcasting stations and distinguished speakers.

The intervening thirty years have seen the radio art, struggling against seemingly insurmountable obstacles, gradually gaining ground in passing from a mere experiment to a medium for commercial communication. Crashing spark transmitters of early wireless telegraphy have given way to the powerful Alexanderson alternator which in turn has made way for the silent vacuum tube transmitter. The first call for help, flashed by the steamer "Republic" in 1909 and resulting in the saving of 1,500 lives, has been repeated almost innumerable times in marine radio chronicles.

The first feeble signals across the Atlantic have been but the forerunners of an endless flow of traffic across oceans and continents to the four corners of the globe, linking all civilized nations into a world-wide chain. Radio has gone into the skies where, aboard airplanes and airships, it is bringing added safety to passengers and crews flying the air ways.

And yet the real climax of radio is to be found not in the workaday world, where its technique is in the hands of professional workers, but rather in the home, where lay hands guide its greatest destiny. That such an intricate science and art could have been reduced to a means of home entertainment and enlightenment must always remain an outstanding triumph of our scientific age.

From sputtering arc telephone transmitter to the modern vacuum tube, the radio telephone has covered much ground in the past quarter century. It has



Telephone Office of 1896,  
Showing Early Type of  
Switchboard



Modern Operator Translating Cable  
Signals from Moving Tape and  
Typewriting in Message Form

Y E S T E R D A Y

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reached its climax in the nation-wide and indeed the international networks that join tens of millions of listeners into one vast audience. Ever since the inauguration of the National Broadcasting Company's service in the fall of 1926, the future of the broadcasting institution has been assured, thereby removing the purely experimental and uncertain status of broadcasting obtaining prior to that time.

Today radio broadcasting brings to poor or rich, city dweller or farmer, an unending fund of entertainment such as no potentate in all history could command. Entering its second decade of public service, broadcasting brings the entire world to the very finger tips of the average man, woman or child, while making that entire world a single audience for the truly universal message of peace and good will.

### WONDERS TO COME

By EDWIN G. HATCH, M. E.

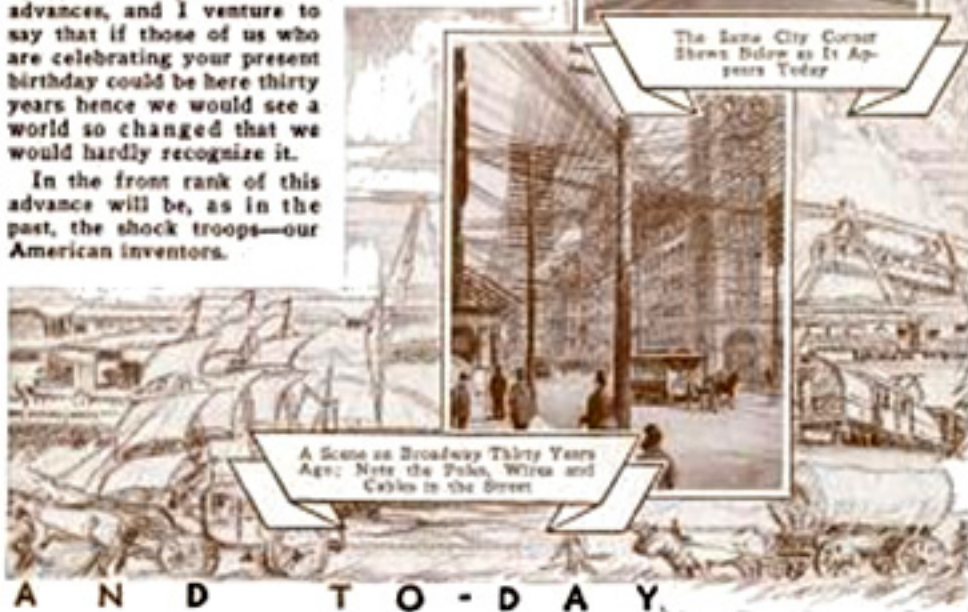
WHILE, in my opinion, the thirty years which have passed since the founding of your magazine have witnessed great advances in scientific knowledge and the development of great inventions of far-reaching application, I am just as certain that the next thirty years will see vastly greater developments still and of things so fundamentally great that it is hard to even imagine or conceive of them today.

The atom, the last stronghold of matter, will soon yield its tremendous secrets. The art of flying is still capable of great advances, and I venture to say that if those of us who are celebrating your present birthday could be here thirty years hence we would see a world so changed that we would hardly recognize it.

In the front rank of this advance will be, as in the past, the shock troops—our American inventors.



The Same City Corner  
Shown Below as It Ap-  
peared Today



A Scene on Broadway Thirty Years  
Ago; Note the Poles, Wires and  
Cables in the Street

A N D T O - D A Y.



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Left, Part of the history of Progress That Print **Popular Mechanics** is One of the World's Finest Publishing Plants

Right, a Scene in the history of the **Popular Mechanics** Building; Steel Forgers Almost as Agile as Human Ones Here Assemble the Various Sections



A Corner of the Magazine's Art Department; a Staff of Artists and Photographers Here Prepare the More than 400 Illustrations Appearing in Each Issue

## *Invention*—the REAL Estate of Man

By MILLER REESE HUTCHISON

*Famous Inventor and Head of the Hutchison Laboratory*

**MOST** values are founded upon **INVENTION**.

Real estate, as its name implies, is the alleged foundation of true values.

It is not, because—The ground itself is tilled by—**INVENTED** implements.

**INVENTED** fertilizers enrich the soil.

**INVENTED** machines reap and thresh the grain and transport it to distant points, where it is made into **INVENTED** bread by **INVENTED** devices.

**INVENTED** conveyances deliver bread to your **INVENTED** doors; it is sliced by **INVENTED** knives, served upon **INVENTED** plates, and, in many instances, actually masticated by **INVENTED** teeth.

Man's advent into the world is materially assisted by—**INVENTED** surgical instruments.

The cradle that receives him; the clothes he wears; the house in which he lives; every dollar he makes or spends; everything with which he comes in contact in his daily life—are either **INVENTED** products or are dependent upon **INVENTION** for their usefulness to him.

When his allotted time has passed, he is embalmed by **INVENTED** liquids, incased in an **INVENTED** coffin, conveyed by an **INVENTED** hearse to, and is lowered by **INVENTED** ropes into, a grave which has been dug by—**INVENTED** tools.

One who would become dissociated from all **INVENTION** would have to live in a primeval forest, utterly nude, and subsist on roots and herbs!

Truly, the *real* estate of man is—**INVENTION**.

It is therefore apparent: There is nothing on earth for which there is a greater commercial demand than for—**INVENTIONS**.

Anyone who conceives a new means, instrument or method for increasing the usefulness of himself or his fellow man—is an **INVENTOR**.

Rockefeller, Morgan, Schwab and other commercial geniuses are entitled to be reckoned inventors as are Edison, Bell, Marconi and others of their kind. The former invent industries; the latter—devices.



## NEW INDUSTRIES TO RISE

By JULIUS KLEIN

*Assistant Secretary of Commerce*

**POPULAR MECHANICS** certainly has performed a very significant function these last three crowded decades in keeping our people fully aware of the scientific developments that have played such a tremendous role in the advance of American industry and business. The wide dissemination, through this periodical, of knowledge about inventions and the other notable scientific achievements of our generation has formed an incentive to further research and has heightened the buying public's receptiveness to novel, ingenious devices when these have been placed upon the market.

The opportunities for such useful service have never been so great, so significant, as they are now; and they promise to increase with the passage of time. If our present experience is anything like that of our predecessors, it is certain that we shall see the recovery of business sharply accelerated by the rise of many new industries upon the basis of inventive genius. Inevitably, the future chronicle of these trying times will show that the foundations of great new businesses, thanks to the mechanical ingenuity of our people, had been laid in the rock-bottom stages of the slump.

In my work at the Department of Commerce I have been impressed, on countless occasions, by the fact that business men simply must keep in touch with what is happening in the world of science; because, almost



A De Luxe Car of 1913. This  
Furnished, Ready to Drive  
Away, Sold for \$7,500



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overnight, some startling new discovery may make any given activity virtually obsolete. Obsolescence is a grave menace; but, conversely, its avoidance is a harbinger of hope. Information as to vital events and trends in science and industry is a business factor of great potency, and **Popular Mechanics** has become a synonym for just such information.

### LABOR FREED BY INVENTION

By WM. GREEN

President, American Federation of Labor

**B**ACK of mechanical inventions are the scientists in their laboratories and the practical engineers who put service to use in our every day world. In our work shops, our factories and our great service agencies are the workers who put inventions to work producing the things that the world wants. During the past two decades there has been extraordinary productivity both in the laboratories and in the field of applied science.

The tools and the materials of the work shops have been revolutionized. In other civilizations leisure was gained by using slaves to do the work. Mechanical power and machine perfection have given us mechanical slaves. Reckoning in the terms of man power, a Yale professor estimates these power machines put at the command of each individual the equivalent of one hundred and sixty-



The First Factory of the Ford Motor Company Which Was Organized in 1902



One Section of the Dearborn Plant of the Ford Company as It Appears Today



## Popular Mechanics

THE WHITE HOUSE  
WASHINGTON

My Dear Mr. Winchell:

I am interested to learn that Popular Mechanics Magazine has reached its thirtieth milestone. As a record of progress, achievement and education its career has been one of constant satisfaction. In reviewing my congratulations on the anniversary I express the hope that it will go forward to even greater success in a significant era of national development.

Yours truly,

Mr. H. B. Winchell, Jr.,  
President,  
Popular Mechanics Magazine,  
Chicago, Illinois

five slaves. The mechanical crane has lifted heavy loads off men's backs; the steam shovel has taken them out of the ditch; power switches give them long distance control; the teletype enables them to write messages in a far distant office. These machines are symbolic of the revolution that has come in work habits. Obviously these mechanical slaves should be providing our industrial workers with that leisure necessary for wider interests and greater activity in public affairs.

## WIRELESS TO SUPPLY FUTURE POWER

By A. W. ROBERTSON

Chairman of the Board, Westinghouse Electric & Manufacturing Co.

**H**ISTORY has no precedent for the fifty-year growth of the electrical industry! This progress was made possible by the alternating current system. The electrical appliances which are seen at every turn and the power plants and transmission lines which dot the landscape are living tributes to Westinghouse, Edison and other pioneers who had the foresight and ability to make practical application of electrical knowledge.

Today, we stand on the threshold of television. Already, radio broadcasting stands somewhat blocked for lack of sufficient channels. The entrance of television with its even greater requirements of wave channels complicates the situation. Who will free this jam!

Artificial lighting is in great need of improvement. To get three or four percent of visible light we throw away ninety-six or ninety-seven percent of invisible radiation as heat.

The transmission of electrical power through space without the use of wires remains to be accomplished. Radio transmission of power may solve this problem. One application alone, the delivery of radio power to operate airplanes, would completely revolutionize our present systems of transportation!

The electrical industry is well aware of its responsibility to the public of continuing the electrical progress started by early pioneers. It promises in the next half century, advancements which will dwarf into insignificance its developments of the past.

The electrical industry will fulfil this promise!

## "OUR RACE MOVES FORWARD"

By DR. WILLIS R. WHITNEY

*Director of Research, General Electric Co.*

THERE have probably always been people who complained of too much "mechanics" in our civilization. I imagine that when some early pack-carrier, his load on his back, lagged on the way enough to be overtaken by the ox-team which resistlessly followed his path, he hung his load on the tail of the wagon and perhaps even climbed aboard.

The ox-drivers, in their turn, when canal boats were an innovation, anticipated the doom of "bull whackers" and worried about their future. But they climbed aboard the canal boat because a thousand tons of freight could now be carried as easily as one was before. Later some of them opened service stations of one kind or another along the canal.

Later on, worry came to canal-boat men when the mechanics of railroading rose over the horizon. Railroads carried more per man than any other device. They expanded so rapidly as to create demands for more and better men.

Now the train crew in turn, like the original porters, see new carriers pass, and they say, "Those lazy automobile drivers, always sitting down, without having to fire the boiler or work the brakes, are the scourge of our race. They spell idleness." But each railroad man gets an automobile as soon as possible and is happier than ever.

As the mechanics of flying grow more popular, it is quite probable that many of us will climb aboard, while others clear new landing fields or set up along the way service stations of one kind or another. That seems to be the way things actually happen on progressive main highways.

Always the best of men, possibly too lazy to do things as they have been done for generations, are finding new means to broaden their horizons and enrich their souls, and always the rest of us condemn their idle ways—but soon adopt them. And so, condemning and accepting, with a frown and a sigh at the inevitable in prospect, with a smile and a laugh at its consequences, our race moves forward.