

# WHAT ARE THE WORLD'S TEN GREATEST INVENTIONS?

WHAT are the greatest ten inventions of the past twenty-five years? Last July a scientific periodical offered prizes of \$150, \$100 and \$50 for the best three essays on this intensely interesting subject. Its editors were flooded with answers from all over the world and they are now publishing the prize-winning essays.

The astonishing fact about these is the wide diversity of opinion of the contestants. "No two competitors," comments the editor in charge, "selected the same set of inventions. In fact, only one invention, wireless telegraphy, was conceded unanimously to belong among the greatest ten. The vote on aeroplanes was almost unanimous—but beyond that there was not the slightest trace of unanimity."

The conditions laid down were that the "greatness" of an invention would be measured in terms of practical success and general usefulness to mankind. The contestants were limited to "machines, devices and discoveries commercially introduced in the last twenty-five years;" they must be "patentable, although not necessarily patented."

The editors who had charge of the essay contest took a test vote among themselves and found they could not agree on more than half a dozen.



Otto Mergenthaler  
The Linotype

They opened ten of the essays at random and found them to contain forty different subjects. They called for a general vote of their readers and published a list of these forty subjects to show the disagreement on the question. The vote was not unanimous even on wireless telegraphy.

The judges of the contest were Prof. H. de B. Parsons and Dr. Gustav Lindenthal. They awarded the prizes as follows:

First, William I. Wyman of Washington, D. C.; second, George M. Dove of the United States Patent Office; third, W. C. Cahall of Germantown, Pa. Of course the essays were submitted by a sealed envelope bearing the name corresponding to the cipher, so the judges could not tell to whom they were awarding the prizes.

Elsewhere on this page will be found the selections of Messrs. Wyman and Dove, together with a list of inventions arranged in the order of the vote of the scientific periodical's readers. It will be noticed that the winners of the first and second prizes agreed on only five items—the steam turbine, gasoline automobile, aeroplane, wireless telegraphy and linotype.

They are supported in these selections by a high popular vote, except in the case of the linotype, which received only 15 per cent of the votes cast.



Guglielmo Marconi  
Wireless Telegraphy

It will be observed that neither Mr. Wyman nor Mr. Dove included the X-ray machine, which was third in the popular vote. The editor in charge of the contest holds that they are right in excluding it, remarking:

"What is there to the machine but a Crookes tube and a Ruhmkorff coil, both old inventions? Is it not the discovery of the rays rather than of the machine that is of an epochal character?"

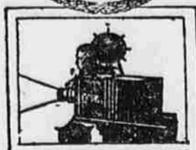
And the discovery of the X-rays, not being an invention or a patentable process, must be excluded by the terms of the contest. At first glance this would seem to exclude radium also, but radium is produced

## Astonishing Lack of Agreement Among Contestants for Scientific Periodical's Prize Essays—Unanimous on Wireless Telegraphy Only—Aeroplane Next.

from pitchblende rock by a long and intricate process, which is certainly patentable, and therefore the discovery of radium is rightly included.

The reasons given by the prize winners for their selections would absorb too much space, so they are briefly summarized as follows:

**THE ELECTRIC FURNACE**—This produces a "heat so intense as to simulate some of the primal forces of nature." It alone has made possible the production of artificial gems, carborundum (hardest of manufactured substances), calcium carbide and artificial graphite. It has reduced the price of aluminum from more than \$12 a pound to less than



Thomas A. Edison  
Moving Pictures

25 cents. It has made possible the fixation of atmospheric nitrogen and revolutionized the steel industry.

**THE STEAM TURBINE**—Has effected striking economies in steam consumption, abolished vibration, reduced engine space by from one to two-thirds, and is sending the old reciprocating engines to the scrap heap.

**THE GASOLINE AUTOMOBILE**—The benefits conferred upon mankind by the automobile are so widespread as to need scarcely any comment. Among them, however, must not be forgotten the creation of thousands of miles of improved highways.

**MOVING PICTURES**—Have transformed the people's amusements and are becoming an ever more important factor in education, science, trade and recording current history.

**THE AEROPLANE**—While this presents the least commercial utility of all the inventions considered, it is the most radical innovation of the whole to revolutionize warfare.

**WIRELESS TELEGRAPHY**—Has made possible the universal intercommunication of all the world, has robbed the sea of its terrors and saved thousands of lives.

**THE CYANIDE PROCESS**—One of the main agencies whereby the world's production of gold was trebled between 1880 and 1908. Has revolutionized the metallurgy of the precious metals.



Wilbur Wright  
The Aeroplane

**THE INDUCTION MOTOR**—This has made possible the transmission and utilization of alternating electric current and is mainly responsible for the rapid substitution of electric for steam power in the industries, conserving from 30 to 60 per cent of the energy formerly wasted in whirling line shafting and belting.

**THE LINOTYPE**—Has made it possible to set type from five to ten times as rapidly as before, has saved time and expense and made the modern newspaper.

**ELECTRIC WELDING**—Makes it easy to join the most antagonistic metals with safety, surety and swiftness. It was the first radical change that the art of the smithy had undergone in historic times.

The foregoing are the selections of the first prize winner. The following are those in the list of the second prize winner which are not included by the first:

Electric fixation of atmospheric nitrogen—Has given the world an inexhaustible supply of fertilizers, just at the time when the exhaustion of nitrate beds of Chili seemed in sight.

Preservation of Sugar-Producing Plants—Until George W. McMullen of Chicago invented the process of preserving cane and sugar beets it was not possible to make sugar except from perfectly fresh plants; consequently it could be done only dur-

ing the harvest season. The result is a great increase in the supply of food in the form of sugar.

High speed steel—by heating Tungsten steel to an almost melting temperature and then cooling, a hardness is produced that was hitherto unknown. Tools so made are able to cut at such a speed that they become almost red hot without losing either their temper or their cutting edge.

Tungsten filament lamp—Gives the same illumination for a little more than one-third of the energy required for the carbon lamp.

Pneumatic tires—"What the track has done for the locomotive, the pneumatic tire has done for the vehicle not confined to tracks." It made the motor car possible.

The order in which Messrs. Wyman and Dove placed their selections illustrates the variety of opinion on the relative importance of these. Mr. Wyman's list is as follows:

Electric furnace, steam turbine, gasoline automobile, moving pictures, aeroplane, wireless telegraphy, cyanide process, induction motor, linotype, electric welding.

Mr. Dove's list is:

Electric fixation of atmospheric nitrogen, preservation of sugar-producing plants, high speed steel, Tungsten filament, aeroplane, steam turbine, internal combustion motor vehicle, pneumatic tire, wireless telegraphy, composing machine.

The names of those who gave to the world the inventions in the two foregoing lists are:

Electric furnace—Henri Moissan, the Cowles brothers, Hall, Acheson, Heroult, Borchers and Birkeland.

Steam turbine—Sir Charles A. Parsons.

Gasoline automobile—Gottlieb Daimler.

Moving pictures—Thomas A. Edison.

Aeroplane—S. P. Langley, the Wright brothers.

Wireless telegraphy—Guglielmo Marconi.

Cyanide process—MacArthur and Forrest.



Gottlieb Daimler  
The Automobile

Induction motor—Nikola Tesla and Ferraris.

Linotype—Otto Mergenthaler.

Electric welding—Elihu Thomson.

Electric fixation of atmospheric nitrogen—Bradley, Lovejoy, Birkeland, Eyde.

Preservation of sugar-producing plants—George W. McMullen.

High speed steel—F. W. Taylor and White.

Tungsten filament—Just, Hanaman and Coolidge.

Pneumatic tire—John Dunlop and Bartlett.

### SCIENCE AND INDUSTRY.

Fastidious automobile drivers who can indulge themselves in the luxury of ordering a car after their own views and ideas, now insist on being measured for the car and have the wheel and various other parts used in the operation of the cars made to fit their anatomy. For instance, a long-legged man needs a little more room than one of shorter limbs, and in order to get the right measurements one automobile building concern has supplied principal agents with a frame by which prospective patrons may readily fix the right point for the greatest comfort. The height of the seat and the tilt of the footboard and the location of the wheel may all be arrived at by means of adjustable parts.

The policy of many of the larger telephone companies of this country is to cut out the unlimited service and establish in its place the measured service, and the object of this change is largely to cut out the many frivolous and unnecessary calls which are made where there is no limit on the number or length. This object has been only partially secured by the measured system, and the telephone officials are contemplating the adoption of a new meter by the use of which telephonic service will be measured in the same manner as the delivery of gas and electricity. The new meter measures not the number of calls, but the duration and exact number of minutes the instrument has been in use is shown, and the charges made accordingly.

### Ohio's Meanest Man.

An Ohio boy wanted to join a "corn club" and contest for the prize of the biggest yield. But he had to drop out, explaining in a letter to the governor that his father would neither allow him the use of the acre of land required, nor the time to prepare and cultivate the ground. When the contest comes on for the meanest man in Ohio, that farmer father will be a long way toward the front to start with.

## AT TOLEDO THEATRES

### "THE LIBERTY GIRLS"

With Matt Kennedy, "Everybody's Favorite."

"The Liberty Girls" with Matt Kennedy, a jolly aggregation of comedy dispensers and musical purveyors who have an entirely new line of up-to-date entertainments will hold sway at the Empire Theatre for the week. The united efforts of Matt Kennedy, the comedian toward, Carl George, the clever German comedian; Jos. Ward, a light comedy juvenile; Oliver DeGrant, the silver-voiced tenor; Gene Gomez, impersonator, etc. This strong cast makes the opening extravaganza, "The Alimony Club," one of the most humorous conceits in one act and three scenes during which is also introduced a burlesque on "The Mikado," and they are also responsible for the laughter that marks the progress of the closing act of the performance, "The Troubles of Adolph." The author of the two burlesques has provided many musical and dancing numbers and the management of the company has supplied an abundance of pretty costumes of original design. In all the star olio there are many splendid vaudeville acts, including Gene Gomez, a female impersonator who rivals Julian Eltinge for artistic and popular ability. The real feature will be The Flying Sherwoods who presents their famous death-defying venture, "Leaping Through Space."

## Dinner Stories

Mrs. Newlyrich, having come into a fortune through a lucky strike, set up a country home near a big city, where she lived in style. One day, while she was showing some of her



old-time friends about the place, they came to the poultry yard. "What beautiful chickens!" the visitors exclaimed. "All prize fowls," haughtily explained the hostess. "Do they lay every day?" was the next question. "Oh, they could, of course, but in our position it is not necessary for them to do so."

The conduct of too much modern financing recalls Reginald Manning. He was a clubman of good birth, had marvelous success at bridge and poker, but whenever he tried his hand at the races he was sure to lose. "Reggie," a man said to him one day, "how the deuce is it that you always win with the cards and lose with the horses?" "Well, you see," said Reginald, "I don't shuffle the horses."

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