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Sail **CUNARD** ANCHOR-DONALDSON

## The Outstanding Inventions Of the Past Eighty Years

(The N.Y. Times)

1852—Elisha Gray Otis invents the elevator with automatic braking mechanism, later developed for office and building use.

1855—Gintl, an Austrian technician, shows how two messages can be sent over a single telegraph wire (duplex telegraph).

1854—Henry D. Stone and Frederick W. Howe perfect the turret lathe so that a number of tools may cut metal mechanically. The general idea of the turret lathe goes back to Stephen Fitch (1845).

1855—Robert Wilhelm von Bunsen invents the burner now used in every gas stove.

1856—Sir Henry Bessemer devises the process for making Bessemer steel.

1860—Dr. Antonio Pacinotti conceives the first continuous-current dynamo but does nothing with it. It is independently re-invented by the Belgian, Z. T. Gramme (1870-1872).

1861—Coleman Sellers of Philadelphia patents and demonstrates the first motion-picture machine of the modern type. Edison brings out the commercial apparatus in 1893.

1862—William Siemens invents the regenerative furnace. This, in the hands of two Frenchmen, Pierre and Emile Martin, is applied in making open-hearth steel (1864).

1865—William Bullcock of Philadelphia builds the first press to print from a continuous roll or web of paper.

1867—Christopher L. Sholes invents the modern typewriter. Perfected in 1873.

1868—George Westinghouse demonstrates his airbrake.

1869—J. H. Greathead designs the modern shield used in tunneling under water.

1870—Sir William Siemens invents the electric furnace for melting iron and steel.

1871—Charles Goodyear Jr. invents the well-known making machine.

1874—Thomas A. Edison devises the quadruplex telegraph, which sends four messages over a single wire. Sir William Thomson (afterward Lord Kelvin) devises the syphon recorder, which becomes indispensable in writing down cable messages.

1876—Alexander Graham Bell and Elisha Gray independently invent the telephone. Dr. N. A. Otto, of Cologne, Germany, invents the four-cycle internal-combustion engine now generally used in automobiles.

1877—Thomas A. Edison demonstrates his phonograph.

1879—Thomas A. Edison produces the first practical incandescent electric lamp.

1884—Sir Charles A. Parsons receives the first patent for his steam turbine. The modern trolley car appears. Van Driepole invents the trolley wheel and Frank L. Sprague the multiple-unit system of control. Gottlieb Daimler brings out the light compact gasoline engine of today and in 1885 drives a bicycle with it. Thus the automobile begins. Carl Benz of

Karlsruhe is simultaneously working on the automobile problem and turns out his first gasoline vehicle.

1886—Ottomar Merzenthaler perfects his linotype machine. Hall produces aluminum by an electrical process which eventually becomes commercial.

1887—Thorbert Lanston patents the monotype. The Hon. Hannibal Goodwin patents the ceiling film. George Eastman independently works out the same principle. The induction motor of Nikola Tesla appears.

1888—John Boyd Dunlop reinvents the double-tube pneumatic tire, the original invention of Robt. W. Thompson (1845) having been forgotten.

1890—Dr. Carl Auer von Welsbach produces his mantle burner.

1893—Rudolf Diesel publishes a description of his proposed engine. The first specimens are exhibited in 1898 at Munich.

1896—Guglielmo Marconi patents the wireless telegraph.

1899—Francis Elmore first actually uses the oil-floatation process for separating ores from waste. The germ of patent granted to Carry J. Everson of Denver, Col. (1886).

1900—Heroult devises his furnace for producing steel electrically.

1901—Frederick W. Taylor and Maussel White develop the modern high-speed alloy steels which have made the cheap production of automobiles and other machines possible.

1902—Professor Arthur Korn of Germany makes the first long-distance experiment in transmitting photographs by wire.

1903—The Wright brothers produce a motor-driven airplane and fly it successfully at Kitty-Hawk, N.C. Valdemar Poulsen and Reginald Fessenden independently devise successful experimental radio telephones.

1906—Dr. Lee De Forest invents the vacuum tube now indispensable in all electrical communication.

1926—J. L. Baird sends recognizable images over a wire.

### All He Noticed

The usual crop of motoring cases was before the magistrates. "Is it a fact," said the chairman of the Bench to a nervous-looking witness, "that the defendant's car went round that dangerous bend at thirty-five miles an hour?"

"Yes, your lordship," said the witness, "it was quite that speed."

"Now, sir," said the chairman, "would it be possible for you to tell the Court what gear the defendant was in?"

The witness gazed in astonishment at the chairman. "Well, now you're asking me something," he said. "But as he was travelling so fast I wasn't able to get a clear view of it, but I did notice that he had a bowler at an odd angle."

### Unsuitable

Mrs. Sniffens was interviewing a young man with a view to engaging him as her chauffeur.

"I must tell you just the type of man I want," she commenced. "And you must tell me if you fit the description."

"Right, ma'am," replied the applicant. "I'll tell you."

"The man I engage must be strong, straight and, above all," said Mrs. Sniffens, "he must be sharp and as tough as steel."

The applicant shook his head. "Sorry, ma'am, I won't do," he replied. "What you want is a screw-driver, not a motor-driver."

Certain insects, including ants and bees, have a remarkable power of adapting themselves to their environment. In this respect some scientists regard them as superior to mankind.

## When Comets Strike the Earth

By DR. H. H. SHELDON  
In Science and Invention

Thousands of years ago the animals which inhabited the earth were stopped in their tracks; birds were flying crazily to shelter; man, if he existed at that time, fell to his knees and prayer to whatever gods were then popular. The earth shook and swayed beneath their feet. For days they did not dare to venture forth from their shelter. And then, only because the need for food made it imperative. The earth had received the worst wallop it has had since its formation. A direct hit had been scored upon it from interstellar space.

Many thousands of years later civilized man came as we know him today, stumbled upon the peculiar scar that was left on the earth by the tremendous impact of this gigantic projectile and wondered at its peculiar shape. In Arizona, was a giant crater, 4,600 feet in diameter, surrounded by a ragged land formation, resembling a wall, about 120 feet high. It looked a good deal like one of the huge craters so evident on the surface of the moon, when viewed through a telescope.

During recent years this crater has been the subject of much investigation. It has been known by various names, the most recent, The Barringer Crater, as a mark of respect to the Barringers, father and son, who, carried on such prolonged research in its connection. Numerous theories have been advanced as to the origin of this strange crater, among them that it was the collision of the earth with a meteor, and again, that it was formed by erosion. These theories have been disproven, and we feel certain today that it was caused either by a very large meteor, arriving on the earth with terrific velocity, or possibly by collision with a comet. It must have been a most awe-inspiring sight.

Imagine, streaking out of the sky, a huge mass of material, perhaps four hundred feet in diameter, and trailing behind it a long tail of white-hot matter, burned by the heat of friction with the air! Picture this huge white-hot ball striking the earth from powdered rocks fills the atmosphere, while the earth fairly stops in its tracks, and shivers! Unimaginable explosions follow. Water in the saturated rocks, has been turned to steam by the tremendous heat caused by the impact from this giant missile. Dust cloud follows dust cloud, until it seems that the very earth is being rended apart, for miles.

Hours after, when winds have cleared the atmosphere, there is a new row of hills visible at a distance. On going close they are found to have been formed by the dust which was heaped up around the center of disturbance. They form a closed circle, and the whole resembles a huge arena formed to stage the world's most spectacular drama. Nodules of iron, perhaps still hot, are found for miles around. It is these which, centuries later, form the major clue to what took place at this point of the earth's surface.

Just what became of the comet has puzzled geologists. Extensive borings proved that it had not been buried deep beneath the floor of the crater, and the conclusion arrived at is that the meteor was completely destroyed by the impact.

If, as supposed, the meteor was composed wholly of nickeliferous iron, calculations indicate that it may have been about 4,000 feet in diameter, and weighed some ten million tons. Only a few tons of iron are now left. But this is not at all surprising, for iron quickly oxidizes when exposed to the air. That is why so few meteors are found after they have been seen to fall. The iron nodules, of which several tons have been discovered around the crater in Arizona, are those which were of a resistant nature.

But whether or not the meteor was wholly of iron is open to question. The Barringer theory is to the effect that it was composed of many fragments of iron not bound together. These formed the immense cluster which made up the meteor. If any stone had been present in the cluster it would have been ground to powder, as if in a ball-mill, and would have been separated from the comet or meteor. There are other theories, one of them, quite to the contrary, that the iron nodules must have been bound together by rocks, else small surrounding craters would have been produced by pieces from the main body by the friction with the earth's atmosphere. This rock coating might have been powdered so fine as to have completely disappeared from the region.

The nodules were probably rounded by the heat of the impact, or perhaps, they received their rounded form during their long travel before they reached the earth. The fact remains that we cannot, as yet, say exactly what the nature of this meteor was; nor can we say what velocity it had when it struck the earth.

This famous crater has often been likened to the craters which are everywhere to be seen on the surface of the moon, some of which are as much as five hundred miles across and ten miles deep. Much speculation has existed as to the possible origin of these. There is as yet no suggestion that seems more reasonable than that these, too, were formed by meteor bombardment, perhaps at a time when the moon was hot enough to have been somewhat plastic. Craters almost exactly resembling those of the moon are formed by dropping stones in soft mud. A comparatively small stone will make a very large crater, if given sufficient velocity.

We are quite sure that the Arizona Crater is actually due to a meteor. It is likely to strike the earth again? It is possible that such a large crater might be formed by the impact of a comet. The answer to this question, disturbing though it is, must be in the affirmative. In a news item in the New York Times of last January an item states: "The huge red ball, with a shower of sparks in its train, flattened at the rear and seemed half the size of the moon as it reached its zenith. Its yellow and red tail was described as being approximately twenty times the diameter of the ball, and 'increasing in brilliancy as it reached the eastern horizon the meteor illuminated the darkened sky and against its radiance, the white dots of stars paled and faded together, hazy spheres' beyond their view below the artificial horizon of skyscrapers."

There would be no reason for great surprise if a meteor even larger than that which struck in Arizona years ago should strike tomorrow, or even in the next hour after this is read. It is one of the chances we must take.

Geologists estimate that the earth encounters from ten to twenty million meteors everyday, and that as many as a trillion strike the sun every second. Most of these are of negligible dimensions, mere dust specks which burn up as soon as they strike our atmosphere. Meteors of sufficient size to give the appearance of falling stars can be seen in the sky any evening at the rate of seven or eight per hour. One must be away from city lights to encounter this number. On the average, there are perhaps, as many as a hundred every year of sufficient size to reach the earth without having been consumed by air friction. They may weigh anywhere from a few pounds to as much as seventy tons, the weight of the largest meteor ever discovered, which was located in Southwest Africa. There is no reason to believe that we are immune from possible bombardment by large meteors which might strike in an even more vulnerable spot, and which would create an interesting, though disastrous experience.

## Nautical Elevator Is Feature of New Submarine

Buoy Main Feature of Device Fitted With Wireless and Phone

A new device for rescuing men from sunken submarines has recently been invented by Herbert F. Good, of Philadelphia. The distinction belongs to his invention and others designed to accomplish the same purpose is that it is built as an integral part of the submarine and is, therefore, immediately available in case of need.

The main part of the device consists of a buoy which operates as an elevator. A tube reaches from the floor of the submarine to its deck and aids in carrying the buoy from the sunken submarine to the surface of the water. By a system of water-tight doors a man is enabled to enter the buoy from the submarine and is then raised to the surface.

The buoy is fitted with both wireless and telephone, making it possible to communicate with other ships while at the same time keeping touch with the men in the submarine below.

In this buoy a man can be sent up from the submarine, attach the wireless in a few moments and put the ship in touch with other vessels, even though the customary wireless inside the submarine is put out of commission.

The man in the buoy stays there until aid is received. He can report progress of the rescue and at any time be transferred to the rescuing vessel. The buoy may then be lowered to the stricken submarine and the men, one after another, can be sent up and taken aboard. Provision has been made so that the last man can leave as easily as the first.

When all have been taken from the sunken submarine it is possible to use the cables attached to the buoy to draw the submarine into shallow water or even aid in raising it.

Advantages claimed for the device are: location right in the submarine where it is available at instant notice; the buoy above the surface aids in locating the exact position of the sunken submarine below the waters while at the same time wireless messages may be sent; and all operations are activated by two forces always at hand in a submarine—man power and water power.

## Dart Found in Skeleton

Of Prehistoric Beast

Angus, Neb.—Buried beneath the shoulder blade of the skeleton of a mammoth elephant that roamed the Nebraska plains 250,000 years ago was found by excavators a Polson-type arrowhead.

Discovery of the dart, believed to have been shot from a bow, supports the theory advanced in recent years that Nebraska was populated by a nation of prehistoric Indians who hunted the giant beasts of interior North America.

The skeleton was found in a high bank on the farm of Ross Brooks, southwest of here. The shoulder blade alone measured nearly five feet long and three feet wide. The Polson-type arrowhead was first discovered in Texas, where scientists found the darts imbedded in the skeletons of prehistoric buffaloes.

The grounds of the concert-hall which he sold to the district council," Jones replied.

## Good Grounds

They were travelling to the city together.

"Heard the latest news?" said Jones. "Our village is to build a new concert-hall."

"That's news indeed," said Bray. "Who told you?"

"That fellow Brownson," said Jones. "He's fearfully delighted."

"But Brownson isn't a bit musical," said Bray. "What grounds has he to be pleased?"

"The grounds of the concert-hall which he sold to the district council," Jones replied.

## Homesickness Cured



There's a long grind between entering college and the graduation exercises. The telephone helps bridge many difficulties as the following incident shows:

"However do you get along without Horace?" asked Mrs. Sparkles who had called to console Mrs. Rathburn following the departure of her young son to boarding school.

"John and I were certainly very anxious and would have just worried our lives out had we not arranged for Horace to call us on the telephone twice a week. In fact Principal Chapman explained to us what an advantage it was to have students call their parents at regular intervals.

"In most cases he said the charges of these calls are reversed to be paid at the home telephone. "He said, too, that it made the students more contented and homesickness has practically disappeared." Just another example of the important part played by the long distance telephone in family life.

## You expect much from reading these ads.

The cup test of Red Rose will not disappoint.

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## Modern Family Has Wide Interests

Chicago.—It is not only the laundress that the modern family sends out of the home in its trend away from self-sufficiency, a University of Chicago statistical study has found, according to a recent report.

By comparing figures for 1900 and for 1920, Dr. John Dollard offers percentages to show that almost every economic activity of the family, from tending the furnace to planning the interior decoration, is gradually being put into the hands of specialists outside the home, as well as education, religious training and recreation and other functions. His conclusion, however, is that this trend does not necessarily mean the decline of the family, but results in an extension of its interests.

Some of the contrasts sketched by Dr. Dollard the university reports as follows:

"Where formerly women remained at home, doing house and family work, with only one woman out of every seven employed outside the home, one woman in every four was a breadwinner in 1920, and out of every three working women in 1920 one was married.

"Between 1900 and 1923 the average attendance of children in public schools increased 100 per cent, and expenditures for public schools increased 4.1 times as fast as did the number of families. Teachers are taking children away from their parents for longer periods and at tenderer ages.

"Between 1922 and 1927 the number of trained workers in urban recreation programs increased from 11,600 to 20,600. The weekly attendance at moving picture theatres tripled between 1922 and 1930.

"The number of Sunday school scholars increased 45 per cent, during the last 30 years and the average contributions of church members indicated that at least 50 per cent, increase was made in purchasing power, while such practices as saying grace at meals declined.

"The loss of certain functions by the family need not mean its decline, however. It will rather offer the opportunity for a more effective integration." Dr. Dollard declares.

"The disintegration of family functions," he observes, "is undoubtedly accompanied by widened interests."

## BLACKHEADS

Don't suffer any longer from these unsightly blemishes. Overcome them at home. Get 2 oz. Pinkettes from your druggist. Sit down with a face cloth, apply with a circular motion and the blackheads will be all WASHED AWAY. Satisfaction or money returned.

## for RHEUMATISM

Put Minard's into a warm dish. Rub liniment a little on the sore spots. It will soothe and soothe. You'll get relief!



## TO KEEP THE Children Healthy

When they're "off colour" give them Dr. Carter's all vegetable Little Liver Pills. Safe, acting gently on bowels and liver, they soon bring back smiles and high spirits that healthy youngsters should show.

25c & 75c red packages. Ask your druggist for CARTER'S LITTLE PILLS

## ACIDITY FOR 10 YEARS

Before he Found the Remedy

Many people endure suffering unnecessarily. This man did. If he had known ten years ago what he knows today, he would have been spared a great deal of suffering.

"I feel I must write a few lines in appreciation of your Kruschen Salts. I have suffered for 10 years from chronic acidity of the stomach. I tried nearly everything, until I was advised by a friend to try Kruschen, which I have taken for the last two months, and I am pleased to say I have had no return of the acidity."—W. B.

Kruschen Salts swiftly neutralizes acid, takes all the torment out of it, and gently expels it from the system. And by stimulating your organs of elimination to perfect regular action, Kruschen will prevent this harmful acid from ever accumulating again. After that you'll experience no more misery after meals. Kruschen will keep your inside clean and serene. Pure and invigorated blood will be sent coursing to every part of your body. You'll feel wonderfully energetic and well. As healthy and hearty as it is humanly possible to feel.

And melted in the morn at last.

Whence came they? Whither would they go? Think of them,—things so faultless—fair,—

'Mid the black shipping down below! In through the rose and gold they passed, And melted in the morn at last.

Ah, can it be, that they had come, Where Thames in sullied glory flows. Fugitive rebels, tired of some Seccluded lake's ornate repose, Eager to taste the life that pours Its muddier wave 'twixt mightier shores?

We ne'er shall know: our wonderment No barren certitude shall mar. They left behind them, as they went, A dream than knowledge ampler far; And from our world they sailed away Into some visionary day.

—William Watson, in "Collected Poems."

## Now Has Five Children

When I was first married I had a miscarriage and felt perfectly miserable. I took three bottles of Lydia E. Pinkham's Vegetable Compound and later gave birth to a fine baby boy.

"I now have five children; I always take the Vegetable Compound during pregnancy and it helps me. It benefits my sisters-in-law too." Mrs. W. J. Zinstott, R. R. No. 2, Lakefield, Ontario.

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