

THE AGE OF THE AUTOMOBILE

AMONG the recent inventions designed for utility, pleasure or comfort none has attracted so much attention as the automobile. Primarily intended only to afford a speedy, comfortable means of locomotion, the use of the horseless carriage has been subjected to constant extension until at the present time its employment as a pleasure vehicle is almost subordinated to its application to other purposes. The automobile has entered the fields of business, of sport and of war. The automobile motor, fitted to a business vehicle, has proved its usefulness in the streets of our larger cities, wherein the horseless fire engine, ambulance and patrol wagon are also daily becoming more familiar. Its many advantages for these purposes scarcely need enumeration, economy of operation and cleanliness heading the list. At present the first cost of the automobile is somewhat too high to admit of its universal adoption, and, besides, in the hands of a careless or inexperienced user it is too liable to be dangerous. These objections bid fair to be eliminated in the near future by improvements in the automobile itself. When this shall be accomplished, the horseless age will almost be here, and the service of man's old time servant and friend as a factor in the business world will be relegated to the background.

Modern warfare, with its customary greediness, has claimed the automobile for its own. Nothing else is attracting so much attention in European military circles, and our own war department is waiting and watching sharply for developments, besides experimenting for itself. The possibilities of the horseless carriage are illimitable, and its availability and efficiency need no demonstration. In actual warfare, for transportation purposes, the use of the automobile would be manifold, while self moving gun carriages for destroying life, and automobile ambulances for saving it suggest themselves immediately. In this, as in all other automobile matters, the French have taken the active lead, and if continental Europe again becomes a battlefield the French automobile will prove a very important factor. The advantages of the automobile over the horse are too many to be enumerated. There are a few drawbacks to its exclusive use, the most serious of these being its liability to get out of order, but improvements will remedy that shortcoming and all of the others.

In France experiments with military automobiles have been carried on since 1897, and the machines have amply justified their adoption. The ease and rapidity with which the French generals have been enabled to move from place to place without fatigue while conducting maneuvers or sham battles have delighted them, and they are enthusiastic in their praise of the automobile. During the 1898 maneuvers General Jamont, one of the leading French commanders, found that he could easily cover 50 miles in one day and see for himself the exact disposition of his troops, a feat impossible on horseback. During the September maneuvers this year better results have been obtained. This year, also, automobiles were used for the transportation of food, ammunition and supplies and proved to be brilliant successes. The saving in cost and in other respects over horse transport is estimated at 20 per cent. Several models of automobile trucks were used, among them the Scottie, the Dion-Bouton, which hauls other wagons, besides carrying supplies itself, and the Dietrich. Some of these were made up into trains and attained an average speed of six to seven kilometers (about

four miles) an hour. It is estimated that 24 of these automobiles could replace an army corps of 50,000 men at a distance of 120 kilometers in one day, which would be impossible under the old system of horse transport without an impracticably large number of horses. This is the field in which military automobiles will find their greatest usefulness. For they are admirably suited to the needs of this branch of the service and are immeasurably superior to horse drawn wagons for most purposes.

It is intended to replace native porters whenever practicable and to avoid the difficulties of water navigation on those African rivers that are filled with cat-

detracting from the little that is left of picturesque fighting, the efficiency of the automobile gun is not open to serious doubt. The United States army

has adopted it for field service. It is a 7mm. Colt automatic rapid fire piece, shooting 450 shots a minute and having a range of 180 degrees right and left. The gun, with its carriage, can travel 35 miles an hour on fine roads, and it can make proportionately good time across country or on poor roads. European countries have likewise been

quick to see the advantage of mounting light guns on rapid, easily moved and easily protected carriages.

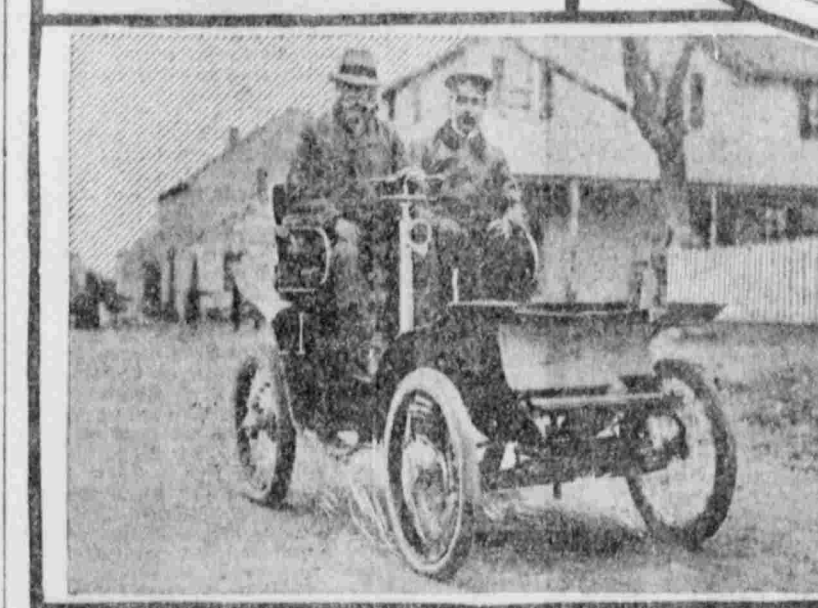
There is a general impression that the United States leads the world in automobile affairs, as in so many others. This is due, no doubt, to the enthusiastic reports of our Sunday papers. Though "automobilism" is main-



AUTO-MAIL WAGON.



AT THE MILITARY MANOEUVRES. 40 MILES AN HOUR.



A MILE-A-MINUTE MACHINE.



JOHN JACOB ASTOR AND HIS RACING AUTOMOBILE.

ing rapid strides here, and American ingenuity may confidently be trusted to overcome the lead of other countries, at present we are still near the tail end of the procession. From statistics gathered from all civilized countries a short time ago it appears that almost all of them hold within their bounds many more automobiles than this country. The cause, or rather the chief cause, is the execrable condition of so many of our country roads. In comparison with the splendid highways of Europe, most of our roads deserve classification with the mud streaks of China. Such a condition is in itself a standing disgrace to America, but the efforts now making toward its alleviation will go far to make the automobile a familiar sight even in our smallest villages. During the past year, figures for which are not yet available, American manufacturers have been turning out automobiles at a great rate, so that when reliable statistics are again gathered the United States will probably be found to have overhauled most of its European competitors in the horseless race. A recent feat of an American automobilist has attracted the attention and wonder of Europe. John Brishen Walker, the well known publisher and educator, almost succeeded in scaling Pike's peak with his machine. His experiences in descending the mountain while endeavoring to keep his fiery mount from running away with him

Not alone in France have the military advantages of the automobile been seen and taken advantage of. All the other European nations are keenly alive to the fact that an increased efficiency of transport means an enormous increase in the effectiveness of an army, and they are devoting much thought to the subject. Germany follows close in the footsteps of France in military matters, save when she is in the lead herself, and the pet of the German emperor and people—the army—is well provided with military automobiles.

Italy, Russia, Austria and Belgium are not far behind in the race, and the last named country has introduced the horseless wagon into the Congo. There

are rapid. To see the automobile doing good service in central Africa, half a century ago sunk in blackest barbarism, is indeed an evidence of progress.

Although the dream of the American artist, who recently saw in his mind's eye a regiment of automobiles charging down hill in lieu of cavalry, will probably never be realized, automobiles are being extensively adopted in another branch of military service. Self propelling gun carriages are an assured feature of future warfare, and the order to "limber up the guns!" so familiar to students of civil war history, will be changed to "Steam up!" or "Put on the current!" While further

tower, when a practical demonstration was given of its capabilities.

Since that experimental flight M. Santos-Dumont has projected a larger airship, with a ten horsepower motor, and a rudimentary durable material than the first, which was the cause of an accident while in the air. As shown in the illustration, the driver or engineer of the airship is seated on a bicycle saddle, with engine and steering apparatus immediately at hand, while 20 feet above his frail support towers the vast bulk of the cylindrical balloon, 30 feet long and 10 feet in diameter. There will have to be enlarged carrying capacity for the practical airship of

transit, of course, but this one bears the same relation to that as a racing automobile bears to an auto-omnibus.

It is interesting to note that the very first ascent ever undertaken by human beings in a balloon occurred from nearly the same point as that chosen by the latest aeronaut, two Frenchmen starting from the Bois de Boulogne in a fire balloon in 1783 and, after sailing over Paris, landing in safety a short distance from the place of departure. In fact, France has always led in aeronautical experiments. Frenchmen sent up the first balloon, and at the present writing they are still in the van, though there is a generous rivalry for leadership between aeronauts of different nationalities.

In the first successful attempt to cross the English channel by balloon, which took place in 1785, one of the two passengers was a Frenchman—M.

person to be killed, but the list of fatal accidents from ballooning is comparatively small, 20 years ago being estimated at not over 25 during a hundred years of aeronautics.

The use of balloons during the American civil war and in the Franco-German war, especially by the beleaguered Parisians in 1870-1, is well known. In the postal service alone, during the siege of Paris, more than 2,500,000 letters were carried, with a total weight of nearly 10,000 tons.

It was only a few years ago that an authority wrote: "Of the innumerable schemes which have been propounded for the guidance and propulsion of balloons, not one has proved available, and the machine is still manageable only for vertical motions." The problem of successful aerial navigation is being worked out in accordance with the immutable laws of development that have governed all great inventions and discoveries from the time of Archimedes to the present. For example, while the first balloon ascension occurred in 1783, when the potentials of electricity and steam were unknown, and while the latter two have been developed almost to their utmost in the present century, yet voyaging in the atmosphere is still, in more than a literal sense, "in the air." But yet, again, while aerostatics as a science has lain dormant or been neglected during the past hundred years or so, its rivals in the art of locomotion—steam and electricity—having in the meantime been brought to a great state of efficiency, will be the most potent factors in its development.

The aerial ship of the near future, there is good reason to assume, will be an adaptation of the automobile or self propelling vehicle which of late has so captivated the fancy of men of wealth, as well as of scientists—that is, it will be mainly dependent for its motive power upon some form of energy—electric, steam or gaseous—which the rage for automobilism has recently brought to a stage approaching perfection.

The difficulty which all aeronauts have endeavored to surmount lies in the winds or air currents, which, instead of being depended upon to propel the airship, are henceforth to be considered as merely auxiliary or as affording a vehicle for flotation, like the waves and currents of the ocean. Navigation, in fact, will be transferred from the aqueous to the atmospheric ocean, and we shall not only have ships of the air, but sailors, who will be as much at home above the clouds in the domain of Aëlois as hitherto they have been in that of Old Father Neptune.

JAMES K. STROTHERS.

AERIAL AUTOMOBILES NOW IN VOGUE

THE era of ballooning, which was inaugurated 117 years ago, comes to a triumphant conclusion, it would seem, just as the era of airship sailing commences. The recent news from Europe confirms this impression, on the one hand chronicling the longest balloon journey yet accomplished in the successful voyage of the Centaure from Paris to Korostyeff, a distance of 1,300 miles; on the other, for the Deutsch prize, offered for the dirigible airship that shall start from the Aéro club grounds in the Bois de Boulogne and, after sailing around the Eiffel tower, return to the point of departure in less than half an hour. Close upon the heels of this comes the report of Count von Zeppelin's success, Oct. 17, when his great airship ascended nearly 2,000 feet, tacked, steered against the wind and made a safe descent, after being under full control more than an hour.

The longest balloon trip up to the year 1835 was that accomplished by Mr. Green, an Englishman who covered 500 miles; but in 1853 the American balloonist, Mr. John Wise, with two companions, sailed from St. Louis to Henderson, N. Y.—1,150 miles—in about 20 hours—at a speed of nearly a mile a minute. So for more than 40 years America held the honors for long distance ballooning, being now in second place only and in the first class for speed, for the same year that Mr. Wise made his long flight Mr. Lowe covered a distance of 200 miles in about four hours—at a speed of 15 miles per hour, the Centaure making an average of only 24 or 27 miles an hour.

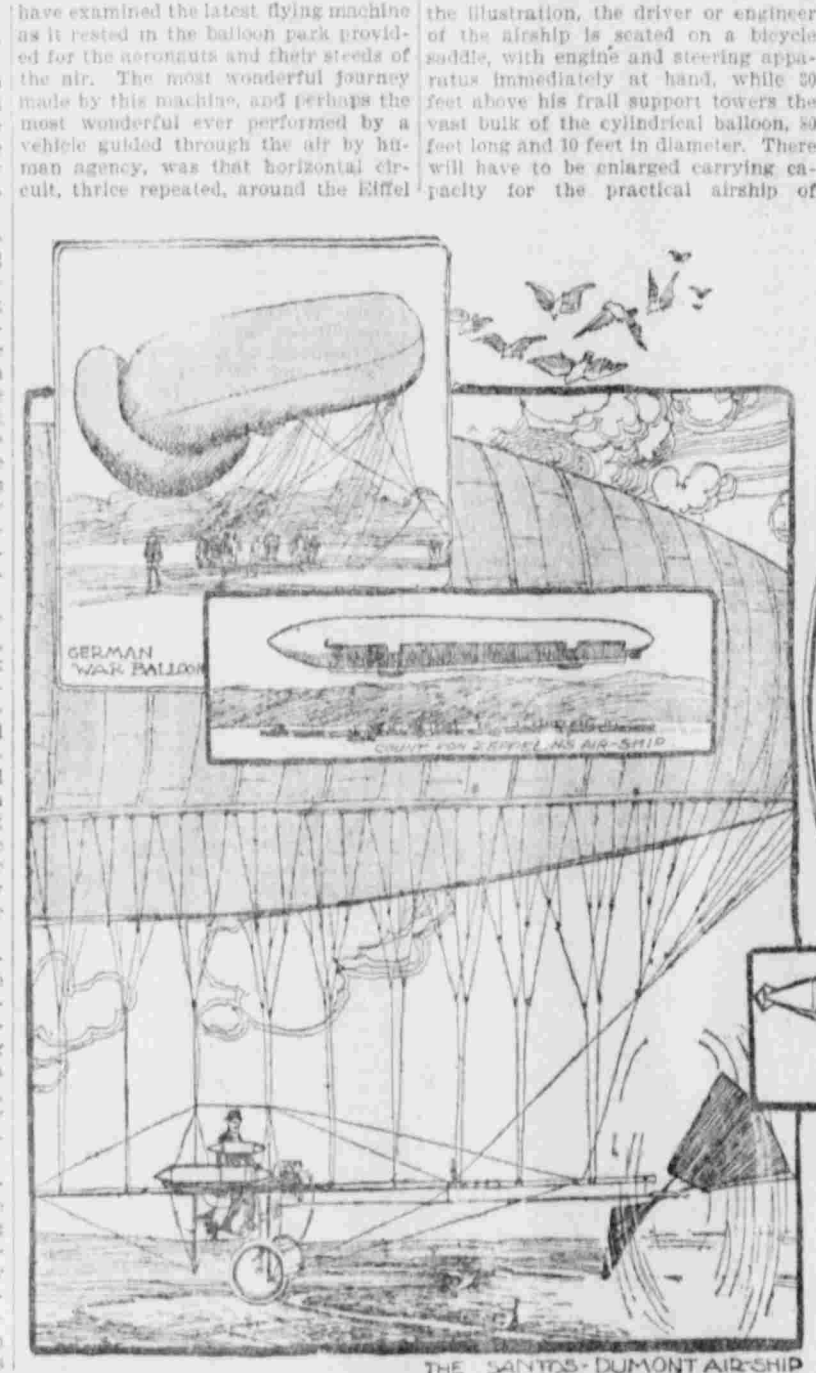
It was established by the Montgolfiers in 1783 that a balloon could be sent to a great height by inflation merely with hot air, but until quite recently it has not been possible for man to steer or direct his airship at will, either with or against the winds. The desideratum, has been a dirigible or steerable airship, and until last year this "long felt want" had not been supplied. But when M. Santos-Dumont, Brazilian born, who had received his education in Paris, made his first successful venture in November, sailing at will around the Eiffel tower and far above the city of Paris, it was recognized that man was no longer to be dependent upon the caprices of the wind—to be carried hither and thither as they moved—

but could direct his vehicle as he chose. This statement is made, of course, with some reservations, for all the obstacles to perfect aerial navigation have by no means been overcome, and the sun and the winds may yet have as great sport with the venturesome aeronauts as in the days of fable they are said to have had with their predecessors, Daedalus and Icarus.

One thing has been settled by the experiments of M. Santos-Dumont, and that is the fate of the so called aeroplanes, which was a creation with great wings, huge and bulky. Such aeroplanes as Professor Langley of the Smithsonian institution at Washington and Maxim, the great inventor, have been working toward the development of the aeroplane or aerodrome—as the former's machine is called—but, while each has been able to record that his invention could raise itself in the air and even make a short flight, no measure of success was attained at all comparable to that achieved by the Brazilian.

In the latest, and what will probably be the best, form of airship adopted, the balloon idea is still retained—that is, a gas filled vessel as a means of suspension in the air—but with the addition of a motor for propulsion attached to it. The shape of the gas bag is modified, however, and is either cylindrical or cigar shaped, this being the form adopted by Santos-Dumont, by Count von Zeppelin, whose giant airship made such good records in July and October of this year at Lake Constance, and by the German government for its war balloons.

The cigar shaped or cylindrical balloon, then, is the accepted type of the future, it having been proved manageable and comparatively safe. M. Santos-Dumont has succeeded in producing three and one-half horsepower and a speed of 20 miles an hour, it is claimed, with his gasoline motor, weighing only 50 pounds, which is the best combination that has as yet been effected. Little can be added to what has already been written to further elucidate the structural features and working scheme of this airship, which the accompanying illustrations so amply demonstrate. The inventor and his airship have been familiar objects to Parisians and visitors to the exposition during the past summer, and thousands



THE SANTOS-DUMONT AIRSHIP.



Blanchard—and the other an American—Dr. John Jeffries of Boston. Blanchard afterward made as many as 25 ascents, and died a natural death; but his wife, who pursued the same career, met a horrible death by her balloon when she was dashed to pieces in one of its streets. The first woman, also, who ever made an ascent was the first

FACTS NOT GENERALLY KNOWN.

We use 2,000,000 pounds of camphor annually. There are five routes from London to Paris. Chicago public school children contributed \$1,230 to the relief of the Galveston sufferers. During 1899 Spain bought 67 vessels in England. A plan is on foot to show in various

German cities the German exhibit at the Paris exposition. It is not an uncommon sight to see a Chinese soldier with a fan and an umbrella strapped across his back. A Pictorial institute has just been opened at Kaskaskia, a hill station in the Punjab district about 20 miles from Simla, India. Captain Frank West, Sixth cavalry,

superintendent of Sequoia park, California, reports that sawmills are menacing the great sequoia trees of the park. Chicago has a women's bookkeepers' union. There are in the United States 20 Berliners, 21 Hamburgs, 13 towns bearing the name Paris and 13 Londons. Cape Town has American made street cars. Mrs. Langtry has acquired the Impe-

rial theater, Westminster, for several years. She will renovate it and open in the spring with "Marie Antoinette," which is now being written for her. The old fashioned idea of blood letting as a universal remedy still prevails in the Polish settlement of Chicago. The miners of the Yukon district, Alaska, employ 5,250 men, who receive an average wage of \$1 an hour. The French papers say that while in

Paris the shah of Persia consented to use a fork in eating only upon state occasions, and that at all other times he preferred to use the imperial fingers. The mineral output of Canada for 1899 was placed at \$37,000,000, of which \$21,619,000 was gold. On a recent journey from Salzburg to Munich the footplate of a train took his stand on the footplate of an engine and drove the train himself. He made the engine driver a present of 10 francs

and the fireman one of 30 francs. In a letter from the administration of the Havarian railways to the Bulgarian court it was pointed out that the acceptance of these gifts is against the rules of the service, and that, further, the engine driver had no right to permit a stranger on the engine. Miniature Bibles are worn as watch charms in Russia. They are each one inch long, three-fourths of an inch wide and three-eighths of an inch thick and

were hair raising. Some French automobilist is now expected to climb the Alps in the attempt to surpass Mr. Walker's record.

Automobile sport has naturally taken the form of racing. The speeding of the horseless carriage is not unattended with danger, for a gasoline engine or an electric motor pushed to its highest capacity is neither a safe nor a pleasant thing to ride with. Automobile racing will never probably become a popular sport in the sense that the mass of the people will participate therein, for it requires much time, skill, money and attention. The young millionaires have taken it up, and are spreading. William K. Vanderbilt, Jr., one of the wealthiest sons of his house, is one of the leading promoters of the sport and attends to the labor of cleaning, oiling and driving his machine himself. The French are enthusiastic over the races, and to be a leader of a horseless carriage is the ambition of every French sportsman.

The machines principally used are those supplied with gasoline motors, which have been found to produce the highest rate of speed. The piston is driven by the successive explosions of minute quantities of gasoline, and these heat the cylinder to a very high degree. Unless the cylinder be cooled it soon becomes too hot for use, and is cooled by the automobile must carry a tank of water. The water is kept circulating around the cylinder and places to keep the temperature uniformly low.

Another interesting feature of the racing machine is the carrying of an extra man for ballast. Of course, the automobile intended for racing is made as light as is consistent with safety, but this lightness adds an additional element of danger. On the turns, when going at high speed, the machine has a tendency to upset, and this is offset by the balancing of the additional man. The speed attained is often very high, but will doubtless be considerably surpassed in the near future.

There are several varieties of automobile motors, electricity, steam, gasoline and oil all being used to generate power. Each of them has its advantages and its drawbacks. The problem is to secure a motor that will be: once simple, easily understood, light in weight and inexpensive to operate. Every variety combines some of these desiderata, while some of the newest models closely approximate the ideal. Research and experimentation are working wonders with the horseless carriage, as they did with the bicycle, and although the end has not been reached, one who sees the elegant automobile pleasure turnouts now manufactured by American makers can easily be persuaded that it is in sight. For some years the automobile has been the butt of jokes wherein it is represented as breaking down miles from a repair shop and being hauled home by the faithful horse.

At the national automobile show to be held in New York in November every variety of horseless carriage will be shown. Full representation by all makers is expected, and the plan is to make the shows fully reflect the present conditions of automobilism in the country. CHARLES N. LURIE.

To Hunt Mountain Lions

The fourth annual lion hunt of the Western Slope Hunting association has been called to take place in November, beginning on the 1st and lasting three days. The hunt will take place at Debeque, about 200 miles south of Denver, in the heart of the Rocky mountains. This vicinity has been selected because it contains more lions and bears than any other section of the state, or, perhaps, than any other in the Rocky mountains.

At this season of the year all animals begin to climb down from the mountain heights because of the cutting winds and snow which begins to fall late in October. The lions and bears prey upon the deer, elk, antelope and other game that may cross their path, and when the plateau region has been reached they begin to kill the sheep and cattle of the ranchers. The hunters will here meet them on neutral ground. At the station of Debeque the hunters will take horses and wagons for the mountain gorges, where these predatory animals range. They will explore the country for a radius of 25 miles, shooting at everything that comes within range of their guns, including lions, bears, wolves, cougars, wildcats, foxes, deer and elk. It will be perhaps the largest hunt ever held in the west. There are about 300 members of the association, and few of them ever miss such good sport. In addition there will be a camp of old mountain hunters who have been invited to take a hand. As a neighborhood have also been invited, and are eager to assist in the extermination of their natural enemies, but because they also like the meat and can make a profit by selling the skins. There will be about 500 people in the hunt. They will be divided into divisions of 50 each, with a captain in command and a guide, also the usual "pack" of dogs, including every kind that can run and bark. Each division, assigned to a certain territory, will have a wagon train in which to haul back the dead beasts. At night the divisions will subdivide and each "team" at the various ranches. Bear and lion stories will be in order, of course. On the third day the various divisions will return to Debeque, where there will be a barbecue, horse and burro racing, shooting matches, etc.

The members of the association will be armed with the latest improved rifles, which will dispatch a lion at long range, but the ranchers will have the old style shotguns. The rancher only about 100 yards. The rancher likes to get within close range of these predators, so as to be sure of his game. Furthermore, he has no other gun, is accustomed to the use of the old muzzle loader, and when he charges it with buckshot or "slugs" and turns loose something generally happens. A number of eastern sportsmen, friends of members of the association, have been invited and may attend. J. M. SCANLAND.

contain the first five books of the Old Testament. The text is in Hebrew and can be read with the aid of a magnifying glass. Whale fishing is not extinct in the United States, but it is gradually and slowly becoming so. From 1850 to 1875 the annual product of the American whale fisheries fell from 100,000 barrels of sperm oil to 42,000, of whale oil from 200,000 to 35,000, and of whalebone from 5,000,000 pounds to 400,000.