



HISTORICAL OUTLINE OF SELF-PROPELLED MECHANISMS. PURPOSE AND SCOPE OF THIS DEPARTMENT.

AFTER following with special interest every useful development of the motor vehicle in this and other countries during the past five years, **OUTING** perceives that the time is now at hand when the successful adaptation of the automobile to purposes of pleasure-life may be confidently declared. No reasonable doubt of this ultimate result has existed for two or three years past; in fact the index finger of an embryonic but vital-growing industry has been pointing unmistakably in this direction for nearly a decade.

Previous to 1898 and 1899 however, inventors and manufacturers of self-propelled carriages, as a rule, either refused outright to recognize the popular interest and enthusiasm centered about these new forms of independent transportation, or else they severely limited their disclosures to statements of theory or fact, or to promises of future performance, not easily interpreted by the lay mind, and at times even puzzling to those equally skilled in another branch of the same art. In the light of the chaos of failure and success—the former greatly predominating—which has characterized all stages of automobile development, it is to be seriously questioned if the policy of reticence so uniformly adopted and rigorously followed by the leaders in the mechanical industry has not been of the utmost benefit to all concerned—most of all to the anxiously waiting public.

It is entirely safe to say that in the slow and tedious process of bringing out the present small number of successful working types, fully twenty times as many models have been constructed at great cost, tried with patience, and discarded with confidence in the nearness-to-hand of something better. The problems presented have been first of all for the laboratory, then for the factory to solve. The great public's part would have been at best limited to untechnical suggestion and monetary support; the former was abundantly supplied—the latter was, happily, in a great measure unwanted. Thus the part of rare wisdom, hopefully acted by far-sighted tradesmen, enabled an expeditious succession of experiments to proceed without interruption or interference. As a result there has been saved for use or reference every promising fact or feature, and popular faith has not been weakened through investments in disappointing models.

The past eighteen months have wrought a far-reaching change in all things associated with the automobile. Within that time the curtain has been lifted very largely from the lab-

oratories and factories of the new industry, and public inspection and criticism, as well as purchase of product, invited. Crudeness and inaccuracy of design are mostly wanting, though the aspect of awkwardness or cumbersomeness at times obtains. As it were in a night, faults which the bicycle was years in overcoming have been left behind; and refinements of ornamentation, comfort and convenience, common to finest horse-drawn equipages, in the corresponding models and styles discerned. Skill and genius long and well applied have dowered them with actual practicability; and though final results in economy and efficiency of motive forces are as yet but fairly approximated, opportunity and occasion for wide spheres of use are afforded. For these the recreative instinct has long been waiting; by means of them the pleasure-searching, tour-making, speed-loving sense finds another avenue for its rational expression. **OUTING** is therefore glad to give space in its Records Department—the only contemporaneous history of amateur sport—to worthy developments and happenings in the great coming world of the automobile, and will cheerfully lend thereto the force of its publicity.

SUMMARIES OF SUCCESSFUL TYPES.

Articles on the general subject of the motor vehicle now and hereafter appearing in this magazine contemplate the employment of the theories and facts of the mechanical industry in so far only as is deemed necessary for knowledge and mastery of the various types, and for the understanding and enjoyment of all the pleasure possibilities they hold. Three very broad divisions to-day exist in automobile transportation, as follows: (1) passenger vehicles for pleasure or business service; (2) self-propelling bicycles and tricycles; (3) heavy vehicles for exclusively commercial purposes, commonly called autotrucks. The last class is named only that the summaries of types may be here complete, calling for no further consideration in this department. Classification, from this point on, is according to nature of motive powers: successful models of passenger vehicles being at present propelled by: (1) electricity (storage battery systems); (2) hydrocarbons (explosion engines); (3) steam (boiler and cylinders).

Besides these there are promises of some favorable, perhaps ultimately superior, results from compressed and liquid air motors, though adaptation of these newer forces to the purpose achieved by the first-named three is not yet apparent. Carbonic acid gas, gunpowder and other powers are simply in the catalogue of far-away and doubtful possibilities. Each time-proven type has at the present time special advantages and disadvantages. To the credit of electricity we find: (a) absolute cleanliness; (b) absence of noise, smoke and odor; (c) simplicity and ease of management; (d) no attention required to power supply until exhaustion of batteries. Offsetting limitations are these: (w) restriction of movement to areas of sure electric supply; (x) length of time required for proper re-charging of batteries; (y) rapid exhaustion of stored power under severe operating conditions; (z) excessive total weight of mechanism of this type. Advantages of hydro-

carbon systems: (a) independence of fixed-power supply; (b) practicability of quick replenishment of fuel and power; (c) comparative lightness of weight. Accompanying drawbacks; (y) presence of more or less noise and of some odor; (z) liability of heating motive parts and necessity for cooling devices. The pro and con of the steam machine are fairly well summed up when it is said that this type is naturally the most mechanically exact and perfected of all, but that its employment calls for the essential presence of boiler, valves, exhausts and so following, as well as requiring comparatively more attention for engineering and guidance.

The facts which enter into a tabulation of the advantages and disadvantages of motor vehicle types are so many and so diverse in character as to render it impossible to strike an average between them, or even to formulate satisfactory premises for point-and-point comparisons. In fact, the practical difficulty of arranging acceptable standards for the judging of performance has somewhat handicapped the competitive sport, and the problem has yet to be in a great measure solved. The tendency in the industry is to develop and perfect each promising type with little or no reference to any other; and to aim for economy and efficiency of motive force and simplicity of construction and of operation, while eliminating or reducing to a minimum features now admittedly unfavorable to widest use. The next two or three years will show considerable progress in these directions insomuch that electricity, the hydro-carbons and steam may reasonably be considered permanent sources of propelling power for automobiles.

No note was made in the preceding paragraph of comparative first costs, or of the various expenses of operation. These omissions were intentional, for the reason that such details have no essential place in the primary question of practicability, concerning principally the taste and purchasing capacity of the public. Furthermore, the numerous data necessarily considered under the headings of "costs" and "expenses of operation" require a separate article for their comprehensive treatment.

LANDMARKS OF PERFORMANCE.

During 1899 the automobile was favored with more special opportunities to prove its adaptability, power, speed and endurance, and, in fact, its all-around worth, than were afforded in all the years before. In Europe, especially in France and Belgium, tournaments and road competitions have been held at frequent intervals since 1895, but in this country a complete list of public tests would be but a short one. On November 28, 1895, the *Times-Herald* contest was brought off at Chicago, followed in May, 1896, by the *Cosmopolitan Magazine* race up the Hudson River from New York to Irvington, both of which were won by the Duryea type of gasoline-propelled carriage. 1897 and 1898 gave nothing of special record value in this connection. By the beginning of 1899, however, the vast multiplication of types gave rise to new rivalries, and the motor bicycle and tricycle for track racing and pacing purposes appeared. The season's sport opened as usual in France. As early as January 26th the Perigord challenge road race was run from Paris to Rouen

and back, a total distance of 132½ miles. Girardot, one of the four starters, was the first to reach the turning point, which he did in 2h. 18m., finishing in the lead in 4h. 26m. for the entire distance, an average of nearly thirty miles per hour, not allowing for twenty minutes' necessary stops. The winner's machine was a Panhard-Levassor petroleum vehicle, weighing 1,600 pounds, driven by an eight horse-power four-cylinder motor. The same machine finished well up in the list in the Paris-Amsterdam road race.

The sport in the United States did not begin until late summer. On September 4th a five-cornered contest for 25 miles between teams of motor cycle riders was held at Manhattan Beach cycle track, the competing teams being Fournier and D'Ourelon, Waller and Steenson, Stinson and Stafford, Ragan and Caldwell, and Judge and Miller. This last pair were mounted upon a Jaillu machine (French), fitted with a De Dion motor, the rest upon Orient machines (U. S. A.). Miller and Judge finished first in 39:58, Stinson and Stafford second in 41:17 2-5, and Caldwell and Ragan third in 42:30 3-5. The following are the times made in this contest, being American records for motor cycles from two miles to the finish:

Miles.	Time.	Miles.	Time.
1.....	1:36 2-5	13.....	20:21 1-5
2.....	3:07 3-5	14.....	22:00 3-5
3.....	4:40 1-5	15.....	23:37
4.....	5:14 4-5	16.....	25:13 4-5
5.....	7:45 4-5	17.....	26:52 2-5
6.....	9:19 3-5	18.....	28:28 3-5
7.....	10:53	19.....	30:06 2-5
8.....	12:27	20.....	31:43 1-5
9.....	13:59 4-5	21.....	33:20 1-5
10.....	15:33 4-5	22.....	34:56 4-5
11.....	17:06	23.....	35:36
12.....	18:43	24.....	38:17 3-5
		25.....	39:58

The "Tour de France" a 1,428-mile contest promoted by *Le Matin* of Paris, run in October, was won by René de Knyff, who covered the entire distance in 44h. 44m. 9s., his best time being from Cobourg to Paris, 192 kilometers in 188 minutes. His mount was a Panhard-Levassor 16 horse-power vehicle. Girardot was second in 49h. 30m., and Chasseloup-Laubat third in 49h. 36m. Charron, the previous long-distance champion of France, was obliged to abandon the race on account of unexpected trouble with his vehicle.

Other triumphs of the automobile, such as the speed contest of the Winton hydro-carbon motor from Cleveland, O., to New York, the ascent of Mount Washington by the Stanley steam wagon, and so following, will receive attention in the next article of this series.

AUTOMOBILE NEWS NOTES.

Eighty-five motor-driven carriages entered Fairmount Park, Philadelphia, in October last.

An exhibition of automobiles and bicycles will be held at Madison Square Garden, Borough of Manhattan, during the week beginning Monday, January 22d, 1900.

Several American railway lines are experimenting with motor-driven inspection cars.

Uniformity of rules for the government of automobiles are being formulated by the cantons of Switzerland.

Self-propelling fire apparatus is the promise of the near future in the leading cities of the United States, one now being in use in Boston.