THE OUTLOOK FOR DUCKS.

PLENTY OF SPORT PROMISED ABOUT NEW YORK THIS FALL.

The Great Season of 1894 May Be Surpassed—Speed of the Blue-wing Teal—Good Duck Shooting in Connecticut—The Best Battery for the Sport.

The season for duck shooting opened in Connecticut on Sept. 1, and in Kings county, Queens county, and Long Island Sound territories on Oct. 1. The men who are considered best informed on wild-fowl matters predict a plentiful supply this season, equal if not superior to the good year of 1894. Yachtsmen running into the sheltered harbors and bays for the last two months have sighted innumerable families of redheads and other varieties which have been reared here, and as soon as woodcock shooting began many ducks were flushed and sighted all along the immediate coast line where there was any sheltered pool of fresh water within striking distance. Even on the lower bay there were at least five broods successfully reared near the mouth of the Great Kills and at Hollyhock pool, and a light-draught boat running close in shore at high water could almost any day in August have got between the babies and the shore.

Reports from the Essex River, Conn., are good so far, and the outlook at the mouth of the Connecticut River is better than in years. The Great South Bay has many fowls already there, and at the Fireplace, that queerly shaped, sheltered bay away down toward Montauk, to the seaward of Sag Harbor, the local men report an unusual lot of breeders. Cold weather is foretold by the weather sharps, and if their prognostications prove correct and there is an early frost or two, the birds will come scurrying in on their way south, and the men who keep watch for local reports will get good fun early in the season with moderately light guns, which is really the cream of the wild-fowling sport. Before their usual time by at least two weeks blue-wing teal and black ducks are beginning to arrive in the coves and sidewater inlets of the Connecticut River, these stretching right up to the Ely Meadows, a good eight miles from the mouth. There is a scarcity of mallard reported, but before Oct. 1, if the frost comes, these fowls will be also in the New York waters. The blue-wing is preferred by the majority of fowlers because it puts their marksmanship to the test more strongly than any of the duck family by reason of its great speed in flying, an authority estimating that, in full swing, it has reached a speed of 150 miles an hour. This means that if it rises at about fifty yards and flies across the hunter, he has to shoot about five feet ahead of it, and that if it sends straight away from him he will have to shoot nearly six inches above it or see it disappear with a dropped leg, sure sign of an under shot. So very nice judgment is required on the part of the gunner as to the distance at which the duck rises and the speed it has attained as he draws the trigger. Another thing is that the teal is less susceptible to the charms of decoys than most of its family, and when it comes to the water it settles at once without circling. If the hunter is behind a blind he cannot wait for the circling which in other ducks exposes the side, but must snap right at the birds to catch them before they strike the water. Once settled they present a comparatively small surface to the gun, and if they are head on to the hunter and he fires sitting, the feathers will shed the shot and away the bird will go, unless hit plumb on the breast or in the head. When fat the blue-wing teal weighs about two pounds and is delicious eating, especially when fed on celery, varied with wild oats from the Connecticut River district.

In the same neighborhood during the past week have been found wood ducks; but these will not be here in numbers until another two or three weeks. The black ducks, though plentiful all along Long Island Sound, will not be in condition for at least three weeks. It should be remembered that the wood duck lives very much of acorns, chestnuts, and grounnuts, and that they may be often found in October at a considerable distance from the water, feeding on these dainties. Information as to the movements of teal can be readily obtained from game market men, and if Connecticut information is desired they can also tell what source to apply to locally. For the next week it will probably pay best for any hunter with the time to spare to take a run over to the Connecticut River, and go to Long Island a week later. This for two reasons, one that the Connecticut shore is the first place the birds strike coming south, and there is not so much shooting done to the square inch as around Long Island, and, secondly, that after a week or so of good hunting there the birds will get slightly wild and will make further south, the next stopping-off place being Long Island. Any way, the great bulk of the ducks shot between now and Oct. 15 will be black ducks, and will serve principally for the hunter to get his hand in for better game.

The best battery is a ten-gauge gun weighing not less than eight pounds. If this proves too heavy for the gunner he had better carry a twelve-gauge rather than a lighter ten bore; it will do better execution. Whichever gun is chosen, it should be well choked in both barrels, and, despite the opinion of Capt. Bogardus and other eminent sportsmen, it should be loaded with No. 4 shot and wood powder. These gentlemen take their stand for No. 6 shot in the twelve bore for ducks and geese. While it is an undoubted fact that they and others can kill armed thus, the idea is more of a fad than anything else, and the average gunner will do well to follow the majority, and use the No. 4 shot, making sure that the gun is well bored and has a good regular pattern in a thirty-inch circle at fifty yards and upward. If the gun is to be bired, go to a high-grade store, pay a good price (it is only a question of a dollar or two more than for a poor gun at a cheap-renting store any way), and get permission to try it at a target before taking it. It will repay for the trouble. Sometimes it will be found that a hired gun is all that can be desired except in the matter of fit, this meaning that the stock is too crooked or not crooked enough. While the experienced shooter can readily accommodate himself to this, the amateur or casual shooter will be liable to shoot under or over, forgetting in his natural excitement the regular hang of the gun. This defect can be readily overcome by the use of a rubber heel pad, which by the addition of a piece of felt can be made to throw the crook of the stock up or down to suit. A stock too long cannot of course be changed, but a stock too short can be lengthened by the same device. If possible use a rubber pad which is faced with leather, for if the gunner is not accustomed to throw his gun well forward in bringing it up to the shoulder, the rubber is liable to catch on the coat and hang slightly, whereas the leather will slide it up. It is just the same as putting on an overcoat with silk-lined sleeves. An experienced wild-fowl gunner naturally throws the gun well forward by reason of his being used to the thick clothes which he will have to don later on, which considerably increase the chest girth.

In all the sequestered inlets and bays which so scar the coast line in this section, the bulk of the early fall duck shooting is done from a shallow-draught boat in which there is a cockpit for the gunner and his dog, if one is taken, and a place for the boatman and caller, unless the hunter goes it alone. The ground should be reached just before dawn, and the decoys set out near a clump of rushes; or, better still, let the hunter provide himself with a coat of the grass fibre illustrated in THE SUN last November, put one on his boat man, and then choose any location he wishes. He must, however, face the wind, or it may blow the grass over his head at a critical moment and make him say naughty things. As soon as the long fingers of the dawn pierce the gray green sky the ducks leave the coves and inlets, and take their way to the open water, chatting noisily as they go. As they pass is the golden time for the hunter. A call is all very well in its way, but it requires the handling of an artist. To just buy a call and blow, blow, blow through it, a tyro did last Saturday on the Connecticut River, renders a man liable to bodily harm. In this particular case one of the old fowlers went to expostulate with him, and the result was a tyro thrown out of his boat and a starting for home in a bedraggled condition. No one is more companionable, or more ready to teach a tyro, than the average fowler, but he will not stand much nonsense as a rule. As soon as the morning flight is over the inland pools may be worked over on foot, or a light weather cathout may be sailed up and down the open, the eyes being aided by a good pair of binoculars, and then about two hours before dark the blind should be sought again for the ducks returning to the inlets and shelter. Moonlight shooting is sometimes done by beginners, but it is not popular, as it unsettles the birds and destroys the morning flight. It will be found best as a rule to add a little to the expense account and get a good local man as guide. Three times the amount of his fee would not be grudged after a poor day without a guide if the money could then change the record to a better one. Some idea of the possibilities of the Connecticut River early in the season may be formed from the record bag of the writer's experience. It was made by Charles Morgan, and consisted of forty-five mixed ducks in three hours.

"First sh ot your teal," is the opening direction of him to cook one, but as it is in the case of the hare. Although there are many ways of cooking this prince of wild fowls, there are only two which commend themselves to the true sportsman's palate. One is to take the fowls home, pick, clean, and dry them; pepper and salt them freely, using both cayenne and black pepper. Place inside the body four or five strips of celery four inches long, and keep the birds in a hot oven for a short fifteen minutes; have hot dishes and plates ready; quickly take the birds out, withdraw the celery, and serve with plain fried or strawed potatoes. Use no Madeira, jelly, or anything, but just the teal. If properly cooked the blood should follow the knife in a rich crimson, not a scarlet stream. A valuable hint in these days of gas stoves is that many of the ovens attached cook much more quickly than the coal stove ovens. This is an important matter to remember in cooking teal, canvasbacks, and in fact every type of fowl or game bird. The other way is for the hunter away from home. The breast meat should be cleanly and artistically removed in the two natural slabs, peppered, salted, and dropped with a little butter into a very hot frying pan, which is best if new, and used for no other meat or cooking. Last year at a fowler's house the writer had some teal cooked in a frying pan which had been used for frying cabbage a week before and the teal were ruined by the cabbage flavor, which came out strongly when the pan became hot. To broil teal artistically will win favor with women, who generally prefer this way of cooking to the simpler roast. Pick and singe the teal, wash, split them down the back without separating the parts, season with a pinch of salt, half a pinch of pepper, and a tablespoonful of fine sweet olive oil (not cottonseed oil); roll them in this well and broil over a moderate fire for seven minutes on each side. Have a hot dish with a toast for each teal, and spread over the ducks a sauce of one ounce of butter, heated, with a teaspoonful of very finely chopped parsley, adding a little nutmeg (very little, mind) and the juice of half a sound lemon; stir until set and keep in a cool place until needed.

For those who do not know the strawed potatoes or pommes de terre en paille, this recipe is given: Clean and wash six medium sized potatoes and cut into slices a third of an inch wide, and then cut the slices into strips about one-third of an inch square; wash and drain, place in very hot fat for six minutes, lift out, lay on a cloth to drain for one minute, lightly sprinkle with salt, and serve on a folded napkin to keep the heat in. By many epicures this way of preparing potatoes is deemed the only one for game.

In cooking black ducks the hunter should at once take out the entrails, and, with a string, hang the body overboard. When about to cook it scald and pick, and, if possible, let it lie at least twelve hours filled with sliced onions, which remove before cooking. This will generally take away a fishy or sedgy flavor.

STRATEGY OF A DOG.

Fun the Squirrels Had with Count and the Trick by Which He Beat Them.

HOLDEN, Me., Oct. 9.—A half dozen red squirrels which loaf around the woods on Black's Mountain began to have some fun with Ned Daly's pointer dog Count last week. Owing to Count's fondness for running away Daly hitched him to one end of a long rope and tied the other end to the trunk of a crab-apple tree which was loaded with fruit. The tree stood alone, and for a few days Count did nothing but whine and pull at his rope.

As the late sap poured into the apples, turning them red and making them mellow and sweet, a squirrel strolled down from the hillside and, spying the fruit, attempted to climb the tree. Of course Count objected, and going out to the end of his rope chased around the tree after the squirrel until the whole line was wound about the trunk. Then the squirrel went up easily, using the dog's back for a stepladder. When the squirrel went home with his cheeks bulging out with crab apples he told his wife about the new tree and how he had fooled the dog that was set to guard it. She told all the red squirrels in the neighborhood, and the next day Count was overwhelmed with callers. Owing to the numbers of visitors and to lack of harmony in their conduct, it was some time before they had wound Count up, and one squirrel, venturing too near, had been chewed up by the frantic dog. As soon as the line was closely coiled about the tree, squirrels went and came as they liked, and the vexed dog, unable to contain his anger, howled all the afternoon.

On hearing the cries of his dog Daly went down and put a large hoop about the tree, and fastening the line to the hoop he gave the dog a fair field against his enemies. From now on it was a war of canine intelligence against rodent's cunning, with the chances about even. Of course, the dog was larger and could run faster than any of his opponents, but as he could not get beyond the end of his rope and as there were six squirrels to one dog, the contest was a lively one from the start.

The first day the dog killed one squirrel and pulled off the tail of a second. In return one squirrel succeeded in getting up the tree, where it had to stay until the dog was taken to the house about sundown. Count was so excited and played out from his efforts that he hunted squirrels all night in his dreams and frequently woke up the household with his vindictive yelps and howls. Daly became so interested in the engagement that he took a day off to watch the game. He thinks the dog ran more than 100 miles that forenoon for the purpose of heading off venturesome squirrels. One squirrel was hit by Count's reaching paw and was stunned so that the dog killed it before it could getaway. No squirrel ascended the tree before noon.

After dinner the squirrels held a council of war and resolved upon concentrated action against their common enemy. Two of the lightest and spryest ones in the company were employed to keep watch and ward on the grass just outside of Count's reach, while the others stole up the tree trunk. In this way they succeeded in carrying away nearly a quart of fruit during the afternoon. The squirrels on Black's Mountain had crab apples for supper, and Count passed another restless night dreaming of squirrels which he could not get.

On the following morning when the dog was hitched out he glanced down to his rope's limit and saw the two decoy squirrels frolicking about as if asking him to come on and play with them. He looked them over critically, wagged his tail mirthfully, and sat down with his back against the tree trunk. It was evident that he had done chasing enough. If there were any squirrels that wanted to be caught, they must come to his place of business. He sat there for an hour sampling the air with his nose for traces of partridge smell, and inspecting the clouds with his great brown eyes. Presently he began to nod, and after bowing lazily to the fall dandelions that spattered the greensward, and yawning loudly, he coiled up and seemed to go fast to sleep. The strategic squirrels, which had been coughing and snickering just outside the dead line, on finding that Count had gone to sleep, began to creep up from different sides of the tree, approaching the trunk in straight lines, like spokes concentrating on the hub of a wheel. They leaped forward a foot or so, stopped, threw their heads above their backs, looked at the sleeping dog, and coughed real loud, the way a thirsty toper does in a Maine drug store. Then they advanced their lines and repeated the performance. In this way they drew near and were within six feet of the tree trunk when the slumbering dog leaped upon the two nearest him and killed them both. Count nosed the bodies over for a moment, gave the backbone of each a parting crunch with his teeth, and lay down again.

The unharmed squirrels retreated as they had come without waiting for orders. Count is still hitched to the apple tree, but he has not seen a squirrel for a week.

HER FIRST BIG GAME.

How Anna Dickerson Hunted and Camped Alone for a Chance to Shoot a Deer.

Life got tame for a girl named Anna Dickerson in the Adirondacks last week. She had killed partridges and woodcocks, woodchucks, squirrels, and other minor animals. She had tried still hunting deer in the vicinity of Noblesborough, where she was staying, but at that she was unsuccessful, for the deer were scarce and much hunted. Under these conditions she persuaded her mother to let her go up to the little shanty on the lake at the head of Mill Creek and camp out there. There were a couple of blankets at the camp, pails, and a skillet, and she carried food in a little fish basket.

That night, when it was learned that she was camping out alone, the other guests got alarmed, and before daylight on the following morning three woodsmen were sent out to find her. Old Hank Anthony, Oliver Jackson, and John La Brer were the woodsmen. Old Hank was the only one of the three who had seen a lost and thoroughly scared woman, and the picture he gave the other two of her dangling hair and staring eyes prepared them for a startling spectacle when they found Miss Dickerson after her night in the woods. One thing they thanked their stars for was the fact that the girl had kept to the trail. Her shoes left a trail plainly followed in the path. The gait at which the woodsmen followed it would have made a walking deer proud—deer are the fastest walkers in the Adirondacks.

Eventually they came to the lake. Off to the right in a little open spot on the shore was the camp, thirty rods away. The woodsmen felt relief when they looked off across the open over the lake. There was smoke trailing up above the camp in a thick blue line, from a fire beneath. Before the fire, holding the long wooden handle of the skillet in her hand squatted the girl brushing the smoke out of her eyes. Then as the others noticed these things Old Hank gave a little jump and said:

"I ru alem crickets! She's killed a deer."

Sure enough. Hanging from a pole erected by former hunters at the camp was a deer which, on closer inspection, proved to be a two-year-old buck.

There was a smell about the camp which was good. It made the woodsmen sniff the air and smack their lips as they approached. The girl had not only killed the deer, but also had dressed it and cut off chunks of meat from along the backbone and was frying them. The woodsmen hoped that the deer hadn't been killed that morning, for it is not considered healthful in the woods to eat freshly killed deer meat. The deer had been killed the night before, they soon learned, and as the four ate breakfast the woodsmen heard the story of how it was done.

What the girl had been there before with parties she had learned the best places to sit to watch for deer. Though it was late in the season, a deer had come in to feed on lily pads, and the girl had fired a bullet into it with deadly effect, though the deer had reached the bank before dying. She had rolled up the sleeves of her sweater till her arms were bare, and then with her keen-bladed hunting knife she had dressed the deer as nicely as a woodsman might have done it.

Women have killed deer in the Adirondacks ahead of dogs, floating and still hunting, but never before did a girl camp alone or get one by her own efforts in that region.

THE MOTOCYCLE TO-DAY.

PROGRESS UP TO DATE TOWARD THE HORSELESS CARRIAGE.

The First Vehicles Driven by Gas Engines, and the Improvements Effected—Results of the Contests Between the Various Types—Prospects of Their General Use.

The automobile vehicles which to-day offer the greatest prospect of success are those driven by the gas engine. Almost as soon as the gas engine was successfully reduced to its present simplicity inventors began to apply it to road-wagon driving. Benz of Manheim, Germany, was one of the first to produce a successful "motor wagon," as he named it, about 1891. The Benz wagon has one cylinder, with a large, heavy fly wheel running at a high speed, the motion of the prime mover being reduced once by belts and again by chain gearing to the driving wheels of the wagon. The Benz was the first power-driven road vehicle which combined the essential elements of successful practice, and it is yet an open question whether one cylinder shall be used, depending on the fly wheel for motion during three-fourths of the time; or two cylinders, or three or four or five cylinders. Five cylinders give a constant impulse to the shaft, and make the motor always alive, and so render it possible either to dispense with the fly wheel or use a very light one in place of the very heavy fly wheel required in case only one cylinder is used.

Although the gas engine is by its simplicity better adapted than any other prime mover for the driving of road wagons, it has serious defects. In its simple form it cannot be made to reverse the direction of crank-shaft rotation; consequently it is needful to provide intermediate mechanism for reversing the direction of motion if the wagon is to have the very convenient power of backing. Again, the high speed needful to make a fly wheel of any reasonable size effective for driving three-fourths of the time, necessitates the introduction of objectionable and vexatious reducing mechanism, which is noisy if tooth gears are employed, and requires skilled attention if belts are used. In spite of these things, the gas engine is the only prime mover we now have which gives any promise of successful motor wagons. Benz was closely followed by Daimler, a gas engine constructor of great merit, who brought out a two-cylinder motor wagon about the time of the Benz. In 1891 or 1892 Pennington, in America, began work on gas engine-driven vehicles, using two and four cylinders made with extremely thin walls, and hence so readily cooled by the admission of cold air at the outer end, during the idle piston strokes, as to do without water jackets. This is also the case with some forms of the Daimler gas engines in small sizes. Pennington was and is a man of great confidence in his own powers, wholly regardless of engineering precedent, and he produced gas engines of far less weight per indicated horse power than any before shown. Some of his most favorable tests gave one indicated horse power for three pounds of engine weight. His original and extremely peculiar work was brought into prominent notice early in 1895, when he showed at Racine, Wis., a gasolene-driven bicycle in two forms one driven by a fan or air screw, and weighing only fifty-eight pounds, and a gasolene four-wheeled road wagon, which he styled a victoria, with two cylinders and of a total weight of about 400 pounds, or the same as a common American buggy. Daimler and Benz used ordinary forms of carriage construction, Pennington adopted the bicycle methods, using steel tube frames and wire spoke suspension wheels, fitted with pneumatic tires of enormous cross section four inches in diameter. On a fair road Pennington made a mile inside of 2½ minutes with his victoria, and with his power-driven bicycle he is said to have made a mile in 58 seconds in the city of Milwaukee, on an asphalt pavement, and undoubtedly did make a mile in a minute or very little more. Immediately after this Milwaukee run, made in July, 1895, the writer met Pennington and became acquainted with his work, and rode on a tandem much faster than was agreeable. The victoria drove itself through mud and water and over seemingly impassable obstructions in the most surprising manner, because of its great tire diameter. Pennington's designs and ideas were of the most advanced order, but he did not have a shop at his command in which his work was well built without close attention on his part; that he would not give, and the result was that through bad workmanship his machines were subject to breakdowns.

During 1894-5 the Benz and Daimler motor wagons, or "automobiles," as the French named them, attracted much attention in Europe, especially in Paris, which was reflected here in the form of great interest in the various engineering problems connected with the power-driven road carriage, and there were rumors of a large number of new American constructions in this line. Electricity had many advocates as a driving medium for road wagon use, and Morris & Salom of Philadelphia were said to have constructed a very fine and thoroughly practical "electrobat," and successful motor wagons were announced in dozens of different places. There were two long-distance contests between automobiles in France, the first from Paris to Rouen, in June, in 1894, and the second, in June, 1895, from Paris to Bordeaux and return, a distance of 750 miles. This distance was covered by the winner, a gasolene motor wagon, in 48 hours and 53 minutes, total time from start to finish. After this the Chicago *Times-Herald* promoted an American horseless carriage contest. This race was announced for Nov. 2, 1895, from Chicago to Waukeegan and return, a total run of about 100 miles. At this time the word "motocycle" was coined, and it seems likely to remain in use, as it is better than the French "automobile," or the British "auto car," or the German "motor wagen." Two technical monthlies devoted to the motocycle appeared, the *Horseless Age* in New York and the *Motocycle* in Chicago. In the American contest one Benz machine, owned by H. Mueller of Decatur, Ill., appeared on the first day of the exhibition at Washington Driving Park, Chicago. Morris & Salom were soon on hand with their electrobat. Duryea followed later with an 1894 machine, his 1895 affair not being ready; Sturgis showed an electric-driven machine, and Pennington came in a day or two later with his little victoria and a big-tired motobicycle. There was at this time very little accurate information as to the motocycle and its performances accessible to the public, and the managers of the Chicaco event had planned to devote five days of the week ending Nov. 2 to thorough dynamic tests of competing machines. This order of events was not followed because the motocycles did not appear. Day by day they were promised and day by day they failed to come, so that finally the race was postponed to Thanksgiving Day, Nov. 28, 1895. To help pay exhibitors' expenses the *Times-Herald* made an outside purse of $500 for a run on Nov. 2 to Waukeegan and back, which was won by Mueller with his Benz motor wagon, as Duryea met a farmer, who turned to the left, forcing Duryea to take the ditch to avoid a collision, and so put him out of the race. The Mueller wagon made ninety-two miles in 9½ hours. Mr. Mueller had purchased his machine in Germany a year before, and had made many changes in it to suit his own ideas. He had added half an inch to the diameter of the single engine cylinder, nearly doubling its power, and had made various other alterations in the machinery. The consumption of gasolene for this ninety-two-mile run was 5½ gallons, costing less than $1, and the actual running time was 8 hours 44 minutes. Morris & Salom, and Sturgis could not make arrangements to secure a supply of electricity, and Pennington broke a chain early in the day, and this broken chain caught and wound up in the machinery in such a way as to disable one of the motors, so that half the driving power was useless; consequently neither Pennington nor the electrobats nor the Sturges electric motocycle took part in this first contest.

Nov. 2 had been a beautiful day of blue skies over smooth roads. Nov. 28 sunrise disclosed a wintry landscape covered with six inches of dry snow which had fallen the previous night over roads rugged with frozen mud, making locomotion by self-propelled vehicles seem absolutely impossible. Eleven starters were promised the night before, but various accidents, largely due to the impassable roads, reduced the number to six: Duryea, De La Vergne, with a Benz wagon, Morris & Salem's electrobat, the Mueller-Benz wagon, R. H. Macy of New York with a Roger-Benz, and the Sturges electric motocycle. Of these six starters, four gas engine-driven and two electrics, only the former intended to make the race; the electric-driven wagons could not store power enough for the distance, and could not stop to recharge their storage batteries by the way, and hence were out of the running. Of the four gasolene motocycles, one, the Duryea, was an American creation throughout; one, the Mueller, was an improved Benz, while the Macy and De La Vergne machines were both imported Benz motocycles, only very slightly modified from their original form. Duryea used pneumatic tires; all the others had solid rubber tires of much less diameter than the Duryea. The Duryea tires were blown up so hard that, except for their greater diameter, they were not much different from the solid tires. Five of the machines were off at about half-past 8, but the Mueller-Benz had been fitted with new leather driving belts the night before, and these caused such delays that it was 9 minutes past 10 before it made the start. The course was from Jackson Park to Evanston and return over the snow-covered frozen mud. Duryea was first at Evanston, and first to reach Jackson Park on the return, at 7:18 P. M., the start having been made at 8:15 A. M. The only other motocycle to reach the finish that day was the Mueller-Benz, which arrived about 10 P. M. The morning had been clear and cold, but the day grew warmer and cloudy, and fine rain began to fall about 4 o'clock, making the roads still more unfavorable to motocycle progress than at the start, if such a thing could be possible. That self-propelled wagons, depending on the aid, desire of one pair of wheels for their advance, should have travelled over the sixty-mile course at all that day seems incredible.

It will be observed the Pennington does not appear in the event of Nov. 28. He had been for some time in negotiation with English capitalists for the sale of his gas engine inventions, and this deal took such form that in the month of November Pennington sailed with all his motor-driven vehicles for England, the transfer to English hands was completed, and at the late motocycle show in London a Pennington motocrycle was on view, and Pennington himself was said to be engaged with a staff of assistants on his favorite hobby of flying machines. No Pennington machine has ever competed in any public motocycle contest here.

This Chicago race greatly stimulated inventors and concentrated public attention on the motocycle. The performance of the machines over such horrible roads made it clear that the motocycle was an accomplished fact, and the vast possibilities of gain involved in a change in the means of road traffic which should really displace the horse as a means of traction, were in many quarters accounted as immediately impending probabilities. Such a change, if general and actually made, would tax the resources of the metal-working trades to the utmost for years to come, and would certainly bring vast fortunes to the more successful motocycle builders. An army of intending motocycle manufacturers announced themselves, and there were rumors of English, Canadian and American motocycle exhibits early in 1896. Nevertheless, little was heard of the motocycle in America from the time of the Chicago contest to the competition promoted by John Brisben Walker, who offered $3,000 in prizes for a run on May 30, 1896, from the City Hall, New York, to Irvington-on-the-Hudson and return. The only machines at the start were four entries by Duryea, all practically the same, his own two-cylinder gas engine-driven wagons; one Roger-Benz imported carriage, single-cylinder gasoline motor, entered by T. W. Brander of Bridgeport, Conn., and Dr. Carlos W. Booth's motocycle, a carriage built from Dr. Booth's designs by the Fredonia Carriage Company of Youngstown, and fitted with a single cylinder gasolene engine by W. Lee Crouch of the Pierce-Crouch Engine Company of New Brighton, Pa. This Booth carriage was the only novelty present. It is an extremely well designed machine, of attractive appearance. It is used by Dr. Booth regularly in his daily rounds among the Youngstown hills, mounting grades as steep as one in twelve with ease. It has solid rubber tires, and was driven in the New York race by Mr. Crouch, designer of its engine, and was expected to give a good account of itself in the Irvington run. There was, however, some trouble with the electric spark ignition from the first, and it drew out of the race between Yonkers and Hillsdale. Before the stop was made this carriage showed itself to be the only one able to ascend the Peabody hill without assistance, as the Roger-Benz and the Duryeas had to be pushed up this ascent by hand. The Roger-Benz ran to the Casino at Ardsley, a mile and a half south of Irvington, and stopped there. Duryea was permitted to enter four wagons, all alike. Of these one ran down and severely injured an unlucky cycle rider, which accident caused the motocycle driver to be locked up in 125th street police station, and another sprung a leak in the water tank and drew out. Of the other two, Duryea's No. 1 reached Ardsley Casino at 3:20 P. M., the start having been made from the City Hall at about 11:55 A. M. The run was a parade at 2½ miles an hour from the City Hall to Kingsbridge; from Kingsbridge to Irvington and return it was a speed contest. The four wagons were sent away from Kingsbridge about 2:15 P. M. The second to arrive at the Casino was the Duryea No. 2, at 3:33, and then came Mr. Brander, with his Roger-Benz, at 3:45. At Ardsley Casino the wagons travelled with difficulty over a level road freshly laid with loose, broken stone. All arrived with water tanks were hot, and passengers decidedly trace stained, in fact, looked much more like a lot of round-house engine wipers than carriage owners on a pleasure trip. The two Duryea wagons were pushed up the hill south of the Casino by hand, and started on the return trip about 4:45 P. M., the Duryeas to have reached City Hall at 7:12 and 9 P. M. respectively. Duryea received the whole of the $3,000 purse.

The third American motocycle exhibit was that at the seventy-sixth annual Rhode Island State Fair, held at Providence through the week ending Sept. 12. The starters on Monday, Sept. 7, the first day of the show, were carriages entered by the Riker Electric Motor Company of Brooklyn and Morris & Salom, electrics, and a gasolene wagon, entered under the names of Duryea and William M. Ashley & Son. The only novelty was the Riker electric machine. Although weighing 1,830 pounds ready for the road, it follows bicycle construction throughout. The electric motor can exert about ten horse power, extreme effect. The principal test at Providence was intended to be for speed, as giving the most interesting form of competition for onlookers. The official time of the run of Sept. 7 over five laps on the one mile course of the fairgrounds was: Riker (electric), 15:01; Morris & Salom (electric), 15:13; Duryea (gasolene), 20:59; Ashley (Duryea gasolene), 18:47. The time for the run of Tuesday, Sept. 8, was: Riker, 13:06; Morris & Salom, 13:33; Duryea, 13:14; Ashley, 16:31. Sept. 9 and 10 were stormy days, so the third, and as it proved, final run, was made on Friday, Sept. 11. Morris & Salom had meantime placed five extra batteries on top of the body of their electrobat, and with this increase of storage battery capacity the run was made as follows: Riker, 11:28; Morris & Salom, 11:27; Duryea, 11:59; Ashley (Duryea), 15:47.

As the motocycle stands now, it is really in practical use in Europe. About 600 motocycles are used in Paris alone the greater part commercially by stores and business houses, and the automobile is regarded a sober reality. Most of the Parisian motocycles are of the Roger-Benz type, although the Daimler is well represented. The smooth asphalt pavements of Paris are particularly well adapted to the use of the motocycle, and the Paris city ordinances give the automobiles the same rights as horse-drawn vehicles.

In America there are several Benz and Daimler wagons, none of which is commercially used. Of our own American types of motocycles I know of but one, the Booth machine, which is in regular work. Dr. Booth uses this machine in making his daily round of visits as a practicing physician. Mrs. Booth was severely injured in a runaway accident to a horse-drawn carriage some two years ago, and Dr. Booth then made up his mind to adopt the motocycle, and produced the vehicle referred to in the preceding.

Many concerns throughout the country are investing largely in motocycle experiments, and much may be expected from their efforts.

The principal obstacle to motocycle use is really our wretched American roads, streets and roads. We have here nothing at all comparable to the common macadamized roads of England and France. But there is at least the prospect of immediate change in this particular. The bicycle demands good roads as imperatively as does the motocycle, and the bicycle users are multiplying so rapidly, and the general desirability and economy of decent roads is becoming so apparent to the American public, that we may reasonably expect legislation to compel the construction of macadamized roads fairly good roads in the United States very soon. Buffalo is paved almost exclusively with asphalt. If New York had similar streets we might look for a noiseless traffic carried on pneumatic tires propelled by gasolene or electric motors for far less expense than equal loads can be drawn by horses, and each of these loads taking up not more than half the room which is occupied by a horse-drawn truck.

The electric driven motocycle is even cleaner and stealthier than the gas engine machine. But before the electric motocycle can be made useful for any purpose other than that of a mere toy, there must be an enormous outlay in establishing charging stations, where interchangeable storage batteries can be charged and held ready to exchange with any comer at a moment's notice. Storage batteries cannot be charged quickly and well. It is the work of hours to fit them for their greatest effect. The battery weight of the electric motocycle must be kept as low as possible. It is dead weight, non-paying, and must be reduced by every possible expedient in order to compete with the cheap, light, always alive gas engine. Small gas engines can produce power at less cost than small steam engines; electricity must be produced by a steam engine or gas engine or water power before it can be fed into the storage batteries of the motocycle. Viewed in this light, it seems doubtful economy to employ the storage battery in motocycle construction.

A gas engine driven motocycle to carry two or four persons in great comfort can be made to weigh not more than 500 or 600 pounds, and to sell at a large profit for $500 or $600. It is a very elaborate machine construction which calls for a shop cost of 50 cents a pound. Corliss steam engines are made as low as 35 cents a pound. Motocycles can be sold for $1 a pound, and will be sold as low as that if they are ever largely used. The gas engine driven motocycle is always alive and can run away from the electric machine over a twenty or thirty mile course, because the storage battery can exert its maximum effect for only a very short time, less than half an hour. The gasolene motocycle has always the same motive power.

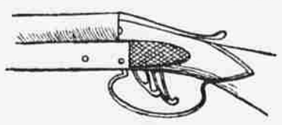
NEW IDEAS IN SHOTGUNS.

A SINGLE-TRIGGER GUN AND ITS ADVANTAGES.

Improvement in the Arrangement of the Two-trigger Gun—A Shotgun that Gives Four Shots Instead of Two—The Latest Small Bore—New Shooting Devices.

To those who can look back a matter of thirty or forty years the steady advance and improvement of the modern fowling piece is an interesting study. At that time the breech-loader was just making its appearance, and even in Europe was run down by the old fogies, who declared that there must be such an escape of gas at the movable breech joint that the penetration and killing distance must suffer when compared with the execution of the old system. Many of the old-timers held on to the muzzle-loaders until their individual day was closed, and then their sons and heirs had the old hard-shooting guns converted into breech-loaders. Many of these old guns had the barrels so thin at the muzzle that it was a common saying that one could cut wads with them, and yet they carried pretty good charges. The muzzle-loader has passed away almost entirely, and the breech-loa ler has been developed into a repeater, and when THE SUN described last year a tiny four-pound 28-bore gun killing as well as an ordinary 12-bore, it was believed that there was not much more to improve. Yet still the list of innovations grows.

The great question appears to be the merits of the single-trigger gun, which, after years o experiment, now appears to be nearing practical perfection. The ordinary gun with the two barrels side by side, and the two triggers, one in front of the other, may fit a man accurately with the grip required for the first trigger, but when the hand is slid backward for the second trigger the fit is changed. This is said to be the reason why so many men shoot better with one barrel than with the other. The single-trigger gun is designed to obviate this defect. The other great advantages are greater rapidity in firing the two barrels, and almost total immunity from "jarring off," this being the unexpected discharge of the second barrel by the discharge of the first, or the discharge of both barrels by the accidental dropping of the butt of the gun on the ground. A number of tests have been made with the result that in shooting at clay pigeons a clear gain of from seven to eight yards was demonstrated with the use of the single trigger, and that with charges which readily "jarred off" an ordinary double-trigger gun the new single trigger remained firm and safe. It is now more than a hundred years since a single-trigger gun was first experimented with. The devising of mechanism which would absolutely prevent the firing of both barrels at once has always been the stumbling block. A man named Templeman of Birmingham, England, patented an



THE NEW TRIGGERS.

idea 107 years ago to prevent this, but it was not satisfactory, and of the many tried since only the one of this year has been satisfactory.

No sooner was this gun on the market than the old two trigger gun appeared with an improvement which threatened to take the wind to some extent out of its sails. The two triggers were arranged with the left one immediately under and just behind the right, but with a guard which effectually prevents the pulling of both triggers at the same time. This arrangement enables the two barrels to be discharged without moving the hand, and consequently without any change in the alignment of the gun, and there is the additional advantage of giving the choice of right or left barrel, the lack of which is the only drawback to the single-trigger idea. It is also contended that it is impossible to "jar off" this gun, either with light or heavy loads.

Still another idea which has much to recommend it is a new kind of repeater which gives four shots to an ordinary fowling piece without the variation in balance which is a defect in the old-style magazine fowling pieces. In the new gun two cartridges are placed in the breech as usual, and two more are inserted in chambers at each side of the gun. When the two cartridges in the breech are discharged in the usual way, by the right and left triggers, the barrels are unlocked by a third trigger. Instead of being "broken down," they are slid forward on their own axis, which movement cocks the piece, throws out the empty shells, or shell, and brings the new shells into position. Then the barrels are slid back. The entire operation takes only the time to slide an ordinary repeater action back and forth. By this mechanism Lieut. G. N. Whistler of the Fifth United States Artillery fired four shots at a target in five seconds, and it is claimed by the makers that the four shots can be fired with accuracy in two seconds. Either the right or the left barrel can be fired, and when only one shell is emptied the repeating action will throw out only the empty shell, the full shell being retained in the gun until fired. For those who want a four-shot gun this appears to be a good weapon, but it is more suited to the battue shooting of Europe than for the use

FOR FOUR SHOTS.

of the average hunter and sportsman of this country. Four shots are regarded as too much like pot hunting to suit sportsmen here.

There is said to be a growing demand for a small-bore gun with good penetration up to fifty yards. The gun is to be a 20-gauge, not to weigh more than about five pounds, and a repeater is preferred. It is believed that the desired weapon has been produced at last. The gun is practically a 20-bore from the muzzle to within about six inches of the breech, and from this point to the breech the interior of the barrel takes a conical curve which practically enlarges it to a 12-gauge at the chamber. Here the metal parts are of unusual thickness to give the requisite resistance to the strain of the large charge. The cartridge is filled with wood powder, covered with a thick felt wad and a thin card, and a thick felt wad is placed over the shot, which is preferably No. 4, although No. 6 is used also. With a charge of 44 grains of wood powder and 1⅛ ounces of No. 6 shot at forty yards the right barrel placed an average of 136 pellets in a thirty-inch circle, and the left placed an average of 164. The pattern was evenly distributed, and the penetration more than good. This pattern can be, of course, raised or lowered by careful loading and proper manipulation of the wads. The weight of the gun is six pounds, and the writer has shot with one with good results. It must, however, be kept in mind that the smaller the bore, the more expert must be the hunter, and it is this one point which has hitherto and probably will now militate against any steady demand for these small-bore guns.

With all these new ideas it is interesting to turn to the gun in the possession of B. O. Brush o. Kalamazoo, Mich., built in 1823 by James Purdy of Prince street, London, England, to the order of Capt. Prindle of the English army, and presented by the latter to W. Selms, whose son brought it to this country. Its barrels are of what would now be called laminated steel, thirty inches long. It is a 12-gauge, and in fine condition, although, of course, a hammer gun on early percussion principles. A curious feature is that each hammer has a small slot cut in it, so small as to be not much more than a nick. This slot is located at the base of the h