

Field Sports at Home and Abroad

THE POSSIBLE RANGE OF SHOT-GUNS

There are limits to the possible range of a shot-gun which are not as a rule as well understood as they should be. Arguments are constantly used urging an improvement in one direction or another, the arguer as a rule assuming that if his dreams could be realized the efficiency of the shot-gun would thereby be increased. So far from his assumptions being true, the compensating disadvantages as a rule overwhelm the theoretical gain. Some people, for instance, believe that an increase in velocity would produce a proportionate increase in efficiency, whereas the net result, after taking due account of all related circumstances would be unfavorable. The human mind instinctively yearns for progress, and the cold-blooded doubter who argues that progress is impossible takes the unpopular line and certainly opens himself to the retort that some of the best inventions in history received like treatment. So far from these reflections on his enthusiasm being justified, the expert is, as a rule, in the forefront of progress, at all times endeavoring to elucidate and define future developments, either for his personal gain, or to maintain his reputation as a successful prophet. He differs from the amateur and from the un-instructed public in possessing a greater experience of past failures and successes; further his knowledge of theory enables him to conduct complex mental investigations where the ordinary mind would prefer what it pleases to style practical experiments. Theory and practice are, of course, best worked in double harness, since sound theory forms the best basis of practical experiments.

From the point of view, therefore, of acquaintance with theoretical and practical gunnery, it will be interesting to review some of the possible improvements in the shot-gun having for object either increase of range or greater certainty of action within the present limits of range. Taking first of all the question of increasing velocity with a view to extending range, it must be remembered that analogies derived from military arms are inappropriate for shot-guns, because an increase of rifle velocity is coincident with a decrease of weight of the projectile, whereas with shot-guns the charge of shot must be maintained as a substantially unalterable quantity.

The single missile, whether it be a military or sporting bullet, either hits or misses, and the power required is contained in the single projectile. In a charge of shot the conditions are quite different. About one per cent of the total charge will produce the desired result, but a given space must be covered with pellets that, whatever the position the bird may occupy within that space, the necessary three or five pellets, whether the number may be, must be there to do their work. Increase of velocity cannot, therefore, be accompanied by such a reduction of the charge as will keep the recoil within limits governed by the weight of the gun and the physical robustness of the shooter. The weight of a gun is roughly fixed by the standard size of the human race, and recoil being in the nature of a necessary evil, every means of decreasing the same is eagerly adopted. Velocity increases would therefore be resented so long as they involved noticeably greater recoil. If powdermakers so improved their products that recoil was diminished to an extent enabling velocity to be increased, it is possible and even probable that the sportsman would elect to take the benefit in the form of greater ease and comfort rather than adopt the alternative of a more powerful cartridge.

The great virtue, for instance, of 33-grain powders, as compared with the earlier 42-grain type is apparently due more to their low recoil properties than to the possibilities they represent of giving a higher velocity, whilst maintaining a given standard of recoil. Such velocity improvement as can be obtained without diminishing the effects of air resistance encountered by the shot during flight. Various proposals have from time to time been made for diminishing the skin resistance set up by irregularities on the surface of the shot. The so-called chilled shot is supposed to suffer less deformation during the process of expulsion from the gun, but though this kind of shot has been extensively tested and used on a practical scale, no particular benefit has been definitely proved. The possibility of making progress in this direction can be investigated by means of Bashforth's tables dealing with the flight of projectiles, but familiarity therewith shows that the possible margin for improvement is extremely small.

Another aspect of the mathematical treatment of the question is afforded by calculations of the increased ranging power which extra muzzle velocity produces. Roughly speaking, a two hundred feet per second rise of velocity, which is enormous from the recoil point of view, adds but ten yards to the ranging power of the pellets comprising the charge. The net increase is, however, very much less, because birds are hit with fewer and fewer pellets as the range increases, and the balance must be restored by using a heavier charge. If this objection was met by using a heavily choked gun the conditions would then be analogous to lengthening the distance of rifle shooting practice, without proportionately enlarging the bull. At Bisley this apparently anomalous process does take place for reasons of convenience, but as the shooter is sure of hitting the target, the worst trouble that ensues, is a general lowering of scores; but when the target happens, as in game shooting, to be a moving object, which consists of nothing but bull, with no white to indicate the position of the misses,

the conditions are much more difficult for the shooter.

At the present time a range of twenty-five or thirty yards is nicely within the shooter's power of doing clean work with a gun giving, roughly speaking, a three-foot spread of shot. He knows by instinct the amount of forward allowance for each kind of shot, and his errors of estimation and manipulation are covered by the allowance as varying from nothing to five, according to the conditions of the shots presented, it will be seen that a fairly simple relation exists between a three-foot spread and a maximum forward allowance of six feet. A full-choke gun gives practically this amount of spread at forty yards, and the pellets still have sufficient power to stop anything that is fairly struck. Yet full-choke guns are not successful even where high birds are frequently encountered, and their failure may be explained by the relation which exists between a three-foot spread and a forward allowance increased some fifty per cent above the six-foot limit assumed for thirty yards shooting.

The argument might be further developed by assuming that long shots are generally taken at high birds, and as high birds are generally fast flyers, nine feet is probably an insufficient maximum allowance for shots taken at forty yards range. Whatever may be the precise figure, the fact remains that shooters show a sad falling off from their usual form when asked to take really long shots, whilst keepers and other onlookers are aware that in such circumstances the proportion of wounded birds is unduly great. From a marksmanship point of view it seems reasonable to assume that if a three-foot spread of pattern at thirty yards implies the conditions of high efficiency for ordinary game shooting conditions, at least the same angular space should be filled with pellets at the farther ranges. This would mean that three feet at thirty yards becomes six feet at sixty yards, and as area advances as the square of diameter, the amount of shot necessary to fill a six-foot circle would be four times that required for a circle of half the diameter; therefore, what one ounce will perform at thirty yards, four ounces, and no less, will do at sixty. But, even so, another most important correction requires to be introduced. The size of pellet which is effective at thirty yards would be useless at sixty; in fact, the weight per pellet would need to be at least double (as a matter of fact, this would hardly be enough) to assure anything like an equal hitting power. This would mean that if No. 3 shot sufficed for thirty yards shooting, No. 2 would be necessary at sixty yards. The same comparison holds good as between sizes seven and four respectively. An equal density of equally effective pellets covering a six-foot diameter circle may be adopted as representing the minimum requirements of the shooter for accomplishing at sixty yards the results he has regularly achieved at thirty yards. It thus becomes necessary to adopt an eight-ounce shot charge to fulfill the stated requirements. This eight-ounce bore gun takes two ounces of shot, and a four bore takes just over three ounces, and a four and a quarter inches bore to give the same shooting efficiency at sixty yards that a shoulder-gun gives at half the distance. The apparently enormous multiplication is due to the necessity to increase the charge by a higher power than even the square of the range. If muzzle velocity could be increased a sufficient amount to neutralize the added distance, the shot charge would only need to be increased as the square of the distance.

The illumination from a lamp diminishes as the square of the distance, but light rays travel infinite distances with unabated velocity. They also move in straight lines. A charge of shot possesses the same disadvantages as a lamp from the point of view of capacity to operate at long distances, but it has its own added defects of a diminishing velocity and a generally erratic behaviour as regards the flight of its component pellets. According to these arguments, even a four-bore bore gun, with a small relative increase of ranging power compared with the high price that must be paid by way of extra weight too carry and manipulate, and the extra cost and cumbersome of the ammunition.

The most logical attitude is to admit the limitations that exist, and by abstaining from taking long shots, safeguard the conditions of sport for another day. Considering that an ounce of shot will perform such a range of services, and that two ounces show some improvement on one ounce, it seems reasonable to assume that some kind of unseen limit exists for restricting the range of the shot-gun. Rifles are apparently not subject to the same rule, but, even so, the increased range at which shots are taken in deerstalking is not every where regarded as an unmixed benefit. With years have apparently not added a hundred yards to the range at which game may be shot. Possibly this is a benefit which the full value is not immediately apparent, but so far as a review of the practical conditions can show, each year will bring some improvement of detail enhancing the comfort and enjoyment of the shooter, but wild birds will remain out of range as heretofore.—Field.

On the nearest lake to his house my host possessed a boat with the peculiar turned-up prow, which has descended unaltered from Viking times. In this boat I spent the best part of the first week, with a boy to row, taking out sufficient luncheon for the two of us, and rarely failing to return home with a well-filled basket. So much of the contents which we could not eat ourselves were gladly accepted by other farmsteads who were glad to see the boat. Kaut, as he called himself, had sought trout from his boyhood; anything he did not know about them was of little account. But

RAFT FISHING IN NORWAY

A deep black sea crested with ivory foam; broken, grey cliffs with green pipes coming down to the very edge of the sea, and here and there behind this iron barrier a peep of sunny

inlands through some cleft in the rock wall; of flower-sprinkled meadows, and scattered homesteads—such is the first impression of Norway a traveler gets who approaches it from the salt water. He will not like it less when he knows it better. The old Viking strain is not quite out of his blood, and here is the mother country of his forebears, the mother who sent her sons into every port and harbor from Constantinople to Skerriover, reaping from the sea those harvests which her own stony fields denied to them—how could their descendants be indifferent to gammel Norge, the mother, the homeland?

The only wonder is that with such a charming country so near at hand, more tourist sportsmen do not go to Norway every season. When I first went, many years ago, in search of char and salmon amongst the glacier feet, the journey to Hull was comparatively tedious; the voyage across the North Sea was by indifferent boats, and means of getting up and out of date. We have changed all that. Today you may have dinner in town and sleep the next night in a Norwegian farmhouse. Railways have been made which immensely shorten the journey to the boat-fishing grounds, and the posting arrangements throughout the kingdom greatly improved. Concurrently, it must be confessed, the facilities for sport have receded before the approach of civilization. Free salmon fishing, once to be had for the asking, is now practically non-existent. The middle-men and agents have taken every productive stream out of the hands of the farmers and re-let it for all it is worth, as often as not for considerably more. The bag nets at the mouth of fjords and arduous coast fishing also lessen the intrinsic number of the salmon, and Norway is as yet innocent of the art of replacing the fish she has lost. Even sea-trout fishing in the southern districts has now to be hired for twenty years ago such a thing was never dreamt of.

Happily there are other things besides salmon or sea-trout, and the angler who does not mind roughing it or subsisting for a time on plain but wholesome fare may have glorious sport amongst the uncovenanted lakes and streams of the interior. Crossing from Hull some time ago, on the second morning the islands on the western coast, and shortly afterwards a well-remembered trout to a little flat of land that looked as if it had slipped bodily down from the top of the tall blue cliffs behind. The sky was a pale blue, and there was a rough cast road winding and perpendicular rock and heather, sea on one side my heavy baggage bag, and when I myself tucked up in a carol with a trusty little Norwegian pony between the shafts, we set out gleefully upon it. For half a mile the track picked its devious way along the beach, then suddenly turned up a narrow glen with a noisy brook at bottom and fir clambering to the sky-line on either side. Norwegian scenery is all very much alike, so I will pass lightly over the rest of the road, only noticing that the first posting station was 5 miles further on, where, notice having been sent overnight, a fresh horse was waiting for me, and the second skyds, or station, another 7 miles. After that it was only a short distance to the Aradian-timbered farmhouse where I was to lodge.

A would-be fisherman may perhaps ask how such a place was to be discovered by the stranger. The only answer is, that knowledge must come through a friend who is willing to pass on his information, or it must be sought for in Stavanger, Bergen, Aalesund, or some other larger coast town where a local agent, perhaps help a wanderer to a good thing. But, the sport he exacts article each man wants, only to be found by personal investigation, and to this end a summer holiday spent in a promising district, and abundant inquiries, are the readiest means. My own discovery was well shore of a far-reaching fjord which, to the west, ran back seaward until its waters became the salt, and eastward doubled and turned into a series of freshwater inland lakes. Innumerable streams came into this fjord on either side, some tossing themselves over cliffs and falling several hundred feet sheer into the depths below; others stealing out through birch-lined valleys or flats covered with shining and reindeer moss. Almost all had their rise in lonely tarns far up in the hills, all were men, and, in conclusion, as all the farmers throughout the district were only too pleased to help "the guest" in every way, it need hardly be said there was no lack of occupation for rod and line.

On the nearest lake to his house my host possessed a boat with the peculiar turned-up prow, which has descended unaltered from Viking times. In this boat I spent the best part of the first week, with a boy to row, taking out sufficient luncheon for the two of us, and rarely failing to return home with a well-filled basket. So much of the contents which we could not eat ourselves were gladly accepted by other farmsteads who were glad to see the boat. Kaut, as he called himself, had sought trout from his boyhood; anything he did not know about them was of little account. But

he had never seen them caught with tackle so fine as mine, and when I rigged up my green-hart trolling rod and threaded the silk lines through the rings the first time we were out, he almost forgot to row so great was his astonishment. His own apparatus pertained to the ash pole and cod line, and at first he refused to believe that a good fish could be landed on such slender gear.

As it happened, I was able to convince him of the error of his opinions that morning before we had been fishing a couple of hours. After rowing round the splendid rugged shores for a mile or two and picking up three or four inconsiderable fish, we came to a narrow inlet between the rocks, into the further end of which a stream poured down from the mountains. Here was just the place for a heavy minnow I let the ball sink and then drew it slowly up again. The second try was rewarded by a rush, and for the next ten minutes my line was like a fiddle string, and the rod an arc with its point vigorously indicating all the abysses and shoals of the cauldron under the cliff where the hill stream plunged into the fjord. Kaut's astonishment was distinctly humorous, and when an 8-pounder was eventually towed alongside the boat and got safely on board, he ran his fingers up and down the gut and silk with the frankest admiration.

After several days of this, my legs getting stiff with so much disuse, I tried the side streams by way of change, following their delightful courses for miles into the vastnesses of rock and reindeer moss, and enjoying to the full the novel sensation of asking no man's leave, and never vexing myself from day to day about limits or boundaries. The fish here were naturally smaller than in the main lake, and differed materially in appearance. But it was very pleasant work tracking the unknown, often unnamed, streams up bend by bend, under fir-crowned crags and birch coppices, and over wastes of sedge and grass.

"By haunts right seldom seen
Fresh and fair and cool and green,"

till further progress was absolutely barred by some rugged cliff, whose topmost heights were still sprinkled with last winter's snow.

For the last week of the visit, Kaut, I, and an elder brother of the Norwegian went after char and the black mountain trout to a lake upon which there was no habitation, and to which no road existed. It was perhaps the pleasantest incident of all. We took two ponies laden with supplies and a tent, and arriving at the lonely shoot of water cradled in barretted hills, made a camp, and built with our raft we fished for a long larch trunk. On this break the impending solitude' but the barking of foxes by night, and the osprey, sailing on barred wings far overhead, as company during the day. We got some fine trout by trolling right down to the lowermost depth of the farm, and many char where the side streams joined the loch from the snowfields above. We ate our simple provender as if we had never tasted better in our lives; we fished to the world to think of, and I, at all events, was heartily sorry when the time came to strike our tent, haul our old friend the raft ashore, and leave the debris of our camp to the hill crows and the little lemmings.

In an up-country farm, such as the one I made my headquarters, the food is all that can reasonably be desired. Beef is not to be had, but Norway beef is not good at the best. Mutton, eggs, cheese, and butter, are excellent and cheap. The bread is wholesome, and the peasant women are experts at all sorts of simple country cooking. A very mild beer can be had everywhere, and claret wherever there is any pretence of a town, but tobacco and tea the fisherman had better take with him in tightly-lidded tins if he is at all fastidious in these things. If content with simple farmhouse fare, supplemented by the product of rod and gun, one may live excellently for 3s or 4s a day in an up-country farm. There will be no luxuries, but what a healthy life it is! The lovely breath of the morning coming in at the pine-log casement tintured with the odors of forest and moorland, the long day of boundless freedom, and the enjoyment of sport of its kind as is to be found nowhere else; the enthusiasm of the angler, and the heaven-sent sleep it ushers in, none the less delightful if the mattress be but pulled heather blossoms and not eiderdown. The traveler who is not content with these things, who does not desire to go to Norway again and again after having once sampled her delights, must indeed be difficult to please.—E. L. A. in Baily's.

Wapiti are not allowed to be shot anywhere in the Province.

Game Regulations

Cock Pheasants
Cock pheasants may be shot in the Cowichan Electoral District between 1st October and 31st December, both days inclusive.

In the Islands Electoral District, except the Municipality of North Saanich, between 1st October and 31st October, both days inclusive.

No pheasant-shooting is allowed in any other part of the Province.

Grouse
Grouse of all kinds may be shot on Vancouver Island, the Islands adjacent thereto, and the Islands Electoral District, between 15th September and 31st December, both days



Sportsman's Calendar

OCTOBER
October 1—Opening of pheasant-shooting in Cowichan and Islands Electoral District (except North Saanich); opening of quail-shooting. Season now open for all small game.
For the Angler—Salmon-trotting, trout-fishing.

inclusive, with the exception of willow grouse in the Cowichan Electoral District.

Blue and willow grouse in the Richmond, Dewdney, Delta, Chilliwack, and in that portion of the Comox and Islands Electoral District on the Mainland, and in that portion of Kent Municipality situate in Yale Electoral District, between the 15th October and 31st December, both days inclusive.

Of all kinds in the Fernie and Cranbrook Electoral Districts may be shot only during the month of October.

Blue and willow grouse, and ptarmigan, may be shot throughout the remainder of the Mainland between 1st September and 31st December, both days inclusive.

Quail
Quail may be shot in the Cowichan, Esquimalt, Saanich, and Islands Electoral Districts, between 1st October and 31st December, both days inclusive.

Prairie Chicken
Prairie Chicken may be shot throughout the Province during the month of October (except in the Electoral Districts of Okanagan, Kamloops, and Yale).

Ducks, Geese and Snipe
Duck of all kinds and snipe may be shot on Vancouver Island, the Islands adjacent thereto, and the Islands Electoral District, between 1st September, 1910, and 28th February, 1911, both days inclusive.

Duck of all kinds and snipe may be shot on Vancouver Island, the Islands adjacent thereto, and in the Islands Electoral District, between 15th September, 1910, and 28th February, 1911, both days inclusive, and geese at any time.

Columbian or Coast Deer
Columbian or Coast Deer may be shot on Vancouver Island, the Islands adjacent thereto, and the Islands Electoral District, between 1st September, 1910, and 15th December, 1910, both days inclusive. Throughout the remainder of the Province, except the Queen Charlotte Islands, they may be shot between September 1 and December 15, both days inclusive.

Wapiti
Wapiti are not allowed to be shot anywhere in the Province.

Sale of Game
Columbia or Coast Deer may be sold on the Mainland only between September 1 and November 15, both days inclusive.

Ducks, Geese and Snipe may be sold throughout the Province during the months of October and November only.

Note.—Nothing contained in above regulations affects Kaien Island, the Yalakom game reserve in the Lillooet District, or the Elk River game reserve in the East Kootenay District.

Here is the true account of a financial transaction which took place in an office in New York a few days ago. By some means or other it happened that the office boy owed one of the clerks three cents, the clerk owed the cashier two cents, and the cashier owed the office boy two cents. The office boy having a cent in his pocket, concluded to diminish his debt, and therefore handed the copper over to the clerk, who, in turn, paid half of his debt by giving the cent to the cashier. The latter handed the cent to the office boy, remarking, "Now I only owe you one cent." The office boy again passed the cent to the clerk, who passed it back to the cashier, who passed it back to the office boy; and the latter individual squared all accounts by paying it to the clerk, thereby discharging the entire debt.

The gipsies in some parts of Europe have a curious way of looking after the honesty of their money-collector. The person entrusted with the mission of taking the hat around among the crowd has a living fly put into his left hand, while he holds the hat with his right. When he returns with the funds he must bring the fly back alive, as a sign that he has not taken any money from the common property; but if the fly be wanting, or even dead, he does not get even his share of the money.

A Critic

The only way to make an interesting is to state the truth—truth which is very seldom of the world is of so much few of us can afford to publish finance of the prejudices which almost second nature, in our in our Boards of Trade, in our Chambers, Canadians have been stand that any criticism of banking in this country is that there is no nation, be it that can boast of a better than that of Canada. There things in this world, however gather free from defects, and carrying on banking in Canada them. Whether the disadvantages the advantages is a moot point.

As I stated in my last article and Business of Canadian Bank Canada is done upon the plan of the branch bank system, though it has many good particulars one of the worst being extant. It was installed on having the ready money of the hands of a few large banks with tered over the Dominion, must equal the demand for loans. But ever used in practice? Have they money from Montreal or Toronto, Vancouver, or any other West where it is badly needed? No, money is sent from the West and Montreal, and most of the there is passed on to New York. In fact, as it has been said, the banks of Canada reservoir from which streams dispersed to all parts of the use of the manufacturer, but are draining the country of its money the fewer and richer.

The working of this system all moneys deposited in a branch for the use of the till shall the head office, and, as in the ada there are only twenty-nine of the hundred and thirty branches, each has to despatch the money not immediate payments out of the till office, the method of the tremendous drain on the ready outlying communities. The British Columbia number one, fifty one, none of them having ters in the province, the Bank of which recently commenced business only true British Columbia institution.

This shipping of the ready money to the several head offices (them in Toronto and Montreal) der the control of a few Eastern banks to do the unreasonable amount of money loans, is a speculation. During the great panic of 1908, the Canadian Bank for January shows that \$38,000,000, spatched to the aid of Wall Street working great hardship upon the Canada, who were in need of funds during that period that the Canadian had to go to the aid of the Middle West, lending them money banks in the ordinary course of the should have done. In one of the in British Columbia it was impossible to obtain loans from banks, although in the branch of alone certain people, after depositing savings department to the limit law, had for investment by the bank sum aggregating upwards of two million dollars. When corporation of integrity and of the highest financial applied for loans, they were statement that the manager's powers had been suspended by the until further notice. It appears to the same with all the banks. Learned that British Columbia needed locally) was being used in

This banking system which for of the money of the branches to the is open to further criticism in the the development of a country industrial and commercial projects in a favorable position to obtain the necessary for their institution and d are those situate in or near the h of the banks. The consequence is ada, with a population of six or se inhabitants, there are two great cit round which is a commercial an population of over one million p control the trade and carry on the manufactures of the country. This branch system is further emphasized, which has also a branch ba where, out of a population of a little millions of people, more than a milli are congregated in or about the gre Melbourne and Sidney, which have ated to themselves a still greater the trade and manufactures of the In countries not wedded to the br system, as England and the United can find scores of cities of the first innumerable cities numbering the by tens of thousands, situated in the country, each fostering its a manufacturing firms. This condition is brought about because each couple of banks, with citizens as o