

NEW RANGE FINDER IN USE BY THE GERMANS

Among the lesser military inventions of the Germans which have proved their value in the present war is what is known as the range finding scissors binoculars. The inventor optician has provided eyes that can see far beyond the reach of the ordinary field glasses and in addition to giving telescopic vision this new instrument combines range finding as well.

Optical range finding hinges upon the length of the visual baseline, the interval between the eyes or the objectives of the apparatus. The shorter the baseline the easier it is to make errors, because the angles formed by the converging lines reaching toward the horizon are less pronounced than when the base is a long one and the same point of concentration exists.

The older form of opera glasses and field glasses were so arranged that you looked directly from the eye piece through to the objective, but to-day the best instruments are not so fashioned. Instead, you look into the dark internals of the glasses, and reflecting prisms bring the images to you from the wider spread objectives which cover a much bigger field.

Even with this improvement, however, you are not obtaining telescopic vision because the magnification is not ample enough for that, nor are you able to judge distances much better. Now the military man wants something more than the power of seeing his foes better; he wants to be able to know just how far away they are, so that he can train his artillery accordingly and make a greater percentage of his projectiles score destructively.

An instrument that will accomplish this the German optician has provided in the form of a double telescope which gives great magnification, a wide baseline for optical surveying and thus the capacity to see way into the distance and to measure with remarkable accuracy the remoteness of chosen objects. In short, the inventor has made it feasible greatly to broaden in effect the visual base between the pupils of the eyes.

The method employed is not fundamentally and in its separate features essentially a novelty, but in its combined form it is a new arrangement of lenses and prisms, that is providing day by day of the utmost value to the Kaiser's fighting men, saving their needless exposure and hazardous rushes upon untenable and called positions of the foe and enabling the field artillery to do its work with greater precision.

The working principles involved are clearly illustrated in the little diagram that accompanies this article. The great eyes of the apparatus are called the objectives and are placed at a distance from each other that would be absolutely impossible with the unaided eyes, because these objective lenses enlarge the images reflected in them and cleverly transmit them by means of prisms, acting like mirrors, which project the figures up down to the eye pieces just wide enough apart to suit the human gazer.

It can be readily understood that an instrument of this sort not only enables an observer to get a far wider field of vision, but at the same time suggests the possibility of seeing to the depth. This effect is described as astonishing when viewing unobstructed areas of land spreading far off from the observer, in which remoteness flattens out the broken contours and blends all but notable projections into a meaningless surface. From a German viewpoint, who was privileged to look through the biggest of these German binocular telescopic range finders comes the following account:

"This telescope has become one of the most important instruments of

Scissors Binoculars Exceed Ordinary Glasses in Power and Also Determine Exact Distance



An artillery control officer directing the firing on Rheims with the scissors binocular.

war, and I shall never forget my first view into its searching depths and how I drank in visually the broad panorama spread out before me. It was almost as if I had been transported magically miles onward.

Two brown lines, previously indistinguishable, could be plainly traced across the center of the picture. These were the advance German and French trenches. Especially good was the view of the enemy's field works, about which the men, with their red caps and trousers, could be seen moving around.

Through the ordinary field glasses they seemed no larger than ants, and yet by means of the binocular telescope the intervening interval of 3,500 meters was seemingly so shortened that these men appeared close enough to make me expect any moment to hear their voices.

There are two forms of this optical apparatus, one which a man can carry easily and the other so big that it has to be mounted upon a carriage much after the fashion of a field gun. Both are operated by a scissors-like movement; in fact, the Germans call these binoculars "scissors binoculars" because by a suitable mechanical auxiliary they can be opened and closed after the fashion of a pair of shears.

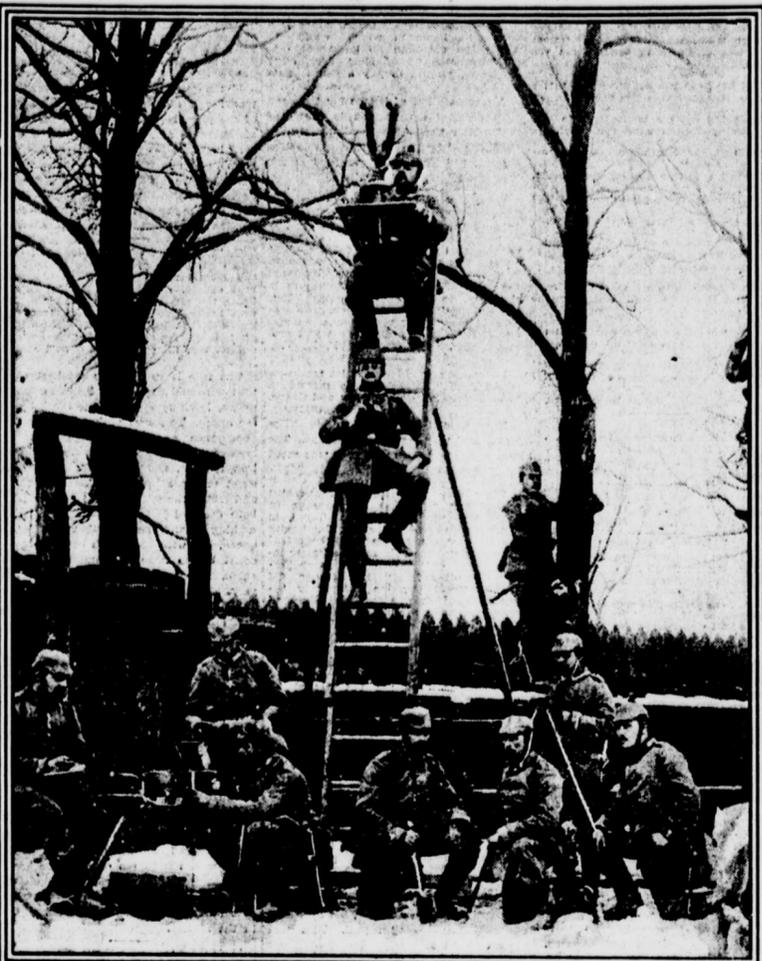
their objectives is lengthened and by view into its searching depths and how I drank in visually the broad panorama spread out before me. It was almost as if I had been transported magically miles onward.

The risks run in observing the enemy are fully realized by all of the belligerents, for "potting" and "sniping" have cost dearly in lives and injuries among the lookouts. This is especially so when the intruders of the rival forces face one another at short range. Therefore the British have lately supplied their men with a combined armored helmet and cuirass which weighs nearly fifty pounds and is able to stop rifle bullets except when fired from very close range.

But even so the observer can do nothing more than just look above the crest of his trench and then has to use his unaided eyes. The Germans have recently improved upon this arrangement, for with the smaller "scissors binoculars" the Kaiser's fighting man can look without exposing himself. Only the two small objectives of the instrument need be pushed above the

line of earth, while the user is safe and snug from the sweeping fire of the enemy.

and because of its better viewpoint can take in much wider fields of observation. This is all the more necessary when used in conjunction with artillery masked behind hills and firing from much greater distances than the machine guns and the small arms immediately defending in the trenches.



The small "scissors binoculars" being operated from an extemporized observatory.

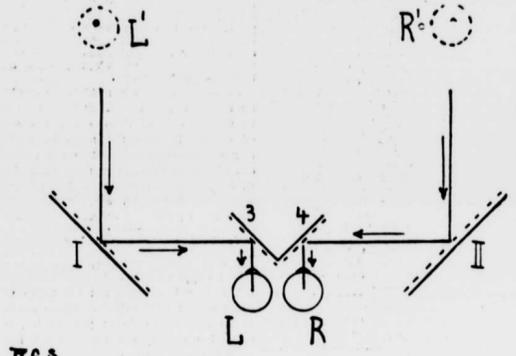


Diagram illustrating the working principle of the German scissors binoculars.

L and R—The eyepieces of the apparatus. L' and R'—The big objectives. Note wider interval between the objectives and the eyepieces. 1 and 2—The large reflecting prisms. 3 and 4—Small reflecting prisms.

The Mistake--By Morgan Robertson

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die, but we are not responsible for you." "Why must I die?" "That is not it. We must die quickly—immediately. We have no time to liberate you. And this boat must not be seen; there are other ships above."

"Shoot me out of the tube I say!" "We have no time. Stand back!" "Not much. If you die before I do you'll die under my hands—a slow death and painful. I'll make it so!" Then, in the presence of his crew, Halpin struck Lieut. Sagu Matsumoro of the Japanese navy in the face, knocking him upon his back, and before the little man arose he had taken him by the throat.

"Will you put me out?" he demanded as he shook him vigorously. "You heathen; will you put me out?" The others sprang forward bravely enough, only to quail and fall back before the menacing eyes and threatening pose of the enraged American. He whipped their commander around before them—actually using him as a weapon of offense. They yielded; the Samurai sense of honor was reduced to a commonplace sense of fear, and men willing to disembowel themselves for principle hesitated to face this mad giant. Halpin again turned to the commander.

"Will you put me out of this?" he demanded as he shook him about. "Will you come to the surface and put me out or will you shoot me out of the tube? Speak quickly!" Matsumoro, bleeding at the nose, with both eyes blackened and closed, was doggedly silent. Once more Halpin dealt him punishment. He held him at arm's length and struck him with all his power again and again. Three of the others again came forward only to fall back—then Matsumoro spoke.

"I will eject you from the tube," he said thickly between his bruised and stiffened lips. "You cannot understand. You are a brute, an exponent of the physical. Honor, patriotism, traditions—all are lost upon you."

"Right," growled Halpin. "I'm young and I want to live. Will you give me your word of honor—the honor of the Samurai—that if I crawl into that tube you'll open the bow port and apply compressed air?" "I give you my word, and I vouch for the rest. I would take you to the surface to get rid of you, only that we should be sunk by gunfire. We must not drown in this exigency; but you cannot understand."

"Yes, I do. If your hearts are as soon as you like when I'm gone, but let me go first! I'm not interested." "You will give me your word, as an American officer, not to divulge what you have learned in this boat?" "No, for it will be impossible for me to keep it if I live. I shall be asked to account for my time."

Matsumoro, studied his determined face for a moment, then said: "Very well. It does not matter much. The world will know that we did as we lived—successfully." "If I'm any judge of the world, Lieutenant, it won't care; but I'll give you my word not to slander you."

The Japanese commander looked puzzled. He felt as though he was to be the starboard torpedo tube, followed by his men, whom he summoned by a gesture. They closed the bow port, blew out the water from the tube with compressed air, opened the breech door and stood back, waiting for Halpin to enter. He hesitated a moment, looking around at their still, impassive faces.

"I hardly know what to say," he began. "You men, only that I'm sorry it has to be—sorry that you've made your minds up to—"

"Do not waste time," interrupted Matsumoro. "We are as it were three atmospheres down. Hold to your guns in your ears to protect the torpedo."

Halpin could take intelligent cognizance of the upper world to which he had returned. Treading water and resting, he saw ships of all types—naval and merchant, from the high sided battleship to the lowly Chinese junk, some under way in his direction, others stopped near at hand. Nearer to him than the nearest were barges full of men, picking up here and there a battered and bleeding swimmer. He shouted when he could, and one—a white hat that looked familiar—approached him.

"My God, sir," cried the bow oarsman to the officer in the stern sheets, "it's Lieut. Halpin!" "Halpin!" yelled the officer, standing erect, and Halpin recognized a brother officer of the Syracuse wardroom. "Where have you been? We thought you were drowned. How on earth did you get aboard the Hatsue?" (Copyright, 1905, by Harper & Bros.)

MOVES ACROSS HALL.

Candidate's Bedroom Is Thus in Another County.

WASHINGTON, Pa., July 3.—After moving his bedroom across the hall so he will sleep in Cabell county instead of Wayne county James A. Hughes of near Huntington, W. Va., has announced his candidacy for the Republican nomination for Congressman from the new Fourth district.

Mr. Hughes recently completed fourteen years of service in Congress, having represented the Fifth district ever since it was created. Forseeing a possible change in the district he built his home with the county line running through his hallway.

Heretofore his parlor has been in Cabell, while he slept in Wayne county, in the Fifth Congress district. But the Legislature recently redistricted the State, putting Cabell county into the Fourth district, in which Mr. Hughes preferred to run. Consequently he moved his parlor into Wayne and his sleeping room into Cabell to make him eligible to run in the Fourth district.

Farm for Drug Victims.

TOLEDO, Ohio, July 3. Drug victims have become so numerous here within the last few weeks that officials headed by United States Revenue collector Frank B. Niles of the Toledo district are endeavoring to establish a farm near the city where the victims can be segregated for treatment.

The present county and city jails are crowded with drug addicts following a crusade by State, Government and local officials. Many of the victims are young men and women.

AN ADVENTURE OF UNCLE SAM'S DETECTIVES IN THE CUMBERLANDS

True Story of the Daring Exploit of Two Young Agents of the Department of Justice

ON the face of it one might have questioned the wisdom of selecting for a task so difficult a man who knew absolutely nothing about it. When the work in hand was the apprehension of a band of violators of the law who had for years defied and intimidated the whole countryside, this course seemed even more unusual. But the wonder would have still further multiplied itself if the casual observer could have seen Billy Gard but once as he sat nervously on the edge of the cane seat of the day coach as the accommodation train pulled into the hill country.

For this special agent of the Department of Justice, mind you, was to take up a piece of work upon which local constables and sheriffs, United States marshals and revenue agents had failed. There was murder at one end of the road he was to travel and the gallows at the other. And Gard was a nondescript youngster who looked less than 30, neither light nor dark, large nor small—inconspicuous, easily lost in a crowd.

And now this ally of a lad was going back into the Cumberland after a community of moonshiners and brown down the gauntlet to the Federal Government itself. He came alone with a little wicker grip.

"I am looking for a place to board," the special agent told Todd, the livery stable man at Wheeler, the mountain town at which he had stopped off. "I have been clerking in a store in Atlanta and got pretty well run down. The doctor said I ought to stay in the mountains for a month or two."

"The liveryman was accustomed to driving summer boarders out to the few places where they might stay in the Cumberland. He sketched these possibilities and told of the location of each. Gard already had the map of the country well in mind and selected the farm near Sam Lunsford's, he being the mountaineer whom the agent wanted to cultivate.

"I reviewed the situation as between the mountaineers and the Gov-

ernment as he drove his customer out to the Tenney farm, where he was to be put up.

"You see," he said, "they have always made moonshine whiskey around here and they just won't stop for nobody."

"Then along comes Tom Reynolds and Sam Lunsford and me and some more of us. We start that ain't right to fight the Government and that which key is no good anyhow, so whenever we find out where there is a still, we tell the revenue agents about it. Well, we get warrants that we better not do it no more, but then fellers can't sicker us we go right ahead."

"Then, one night, Tom Reynolds starts home from Wheeler late in the evening, but he don't never get there. Next mornin' we find his wagon standin' off to the side of the road and Tom is down in front of the seat dead with a load of buckshot in his head."

"Sam Lunsford has still got the idea, though, that the boys ought not to make moonshine, so he goes right ahead reportin' every still he finds. So things goes on for two months. Then, one night, Sam was up late with one of his babies that had the colic. He was settin' before the fire a-roakin' the baby when, bang! somebody shoots him through the window."

"Well that shot didn't quite get Sam. Did you ever try to shoot the head off a chicken as it walked across the yard? His head move for'd and back and it is mighty hard to hit it. That's the way with Sam rookin' the baby, I reckon. Anyway the buckshot just got Sam in the back part of his head and didn't kill him. Next day his old woman picked the buckshot out with a pocket knife because the doctor was afraid to go. Now Sam is as well as he ever was and he ain't changed his mind about the stills. Him and me reported two of them last week."

A little further along the road wound into a hollow down which flowed a brook. Out of the brush in this hollow stepped the form of a mountaineer with a rifle across his arm. Todd drew up his team.

"What have you got there?" asked the man in the road.

"Summer boarder," said Todd. "Where's he goin'?" was the query. "To Tenney's," answered Todd. "The mountaineer walked around to the back of the wagon where Gard's little wicker grip was carried. Without a word he opened the grip and carefully examined everything in it. Seemingly satisfied he waved permission for them to proceed."

"Young feller he said to Gard in partin'." "You are in durn bad company. You can't never tell whether you will get back when you start out with that skunk."

To which Todd grinned as he drove on. They ain't never made the bullet that'll kill me," he said.

It was three days later that Billy Gard, squirrel rifle on his shoulder, walked into the clearing about the house of Sam Lunsford, the man who had survived the charge of buckshot in the back of his head.

Gard already had the measure of his man. No sooner had he presented himself than he put his business up to the mountaineer, "You'd better as the agents say when they lay all the cards on the table. Would Lunsford help the Government in getting the facts that would bring the murderers of Tom Reynolds and the men who shot him low to justice? Lunsford would do all he could."

"Whom do you suspect?" the agent asked. "There are so many of them agin me," said Lunsford. "That it is hard to tell which ones done it."

"Will you show me just how you were sitting when you were shot?" The mountaineer placed the rocking chair in front of the fire directly between a hole in the window and a spot in the opposite wall where the buckshot had lodged themselves, preparing a surface two feet square. Thus was it easy to trace the flight of the shot through the room. The special agent examined both window pane and wall.

"Could you tell where the man stood when he fired?" he asked. "Yes," said Lunsford. "I looked for tracks next day. Let me show you."

He led the way into the yard and there pointed out a stout peg which had been driven into the ground not a dozen feet from the window. "The tracks came up to there and stopped," he said.

"Did you measure the tracks?" asked the special agent. "The mountaineer had done so, and had cut a stick just the length of the

track. This stick had been carefully preserved. "Did you find any of the gun wadding?" asked the agent. "Even this precaution was taken by Lunsford. These men of the mountains mostly load their own shells and the wads in this case had been made by cutting pieces out of a pasteboard box. So there were a number of clues at hand."

Special Agent Billy Gard stood on the spot from which the shot had been fired. From this point to that at which the buckshot had entered the wall of the cabin was not more than thirty feet.

"An ordinary shotgun at thirty feet," he reflected, remembering his squirrel hunting days, "shoots almost like a rifle. The shot at that distance would fall in a bunch not bigger than your fist. Yet the shot in the cabin wall was scattered. The man with the gun must have been further away."

Gard stated this view of the matter to the mountaineer, but that individual showed how it would have been impossible for the shot to have been fired from a greater distance because there was a depression that would have placed the man with the gun too low down to see in at the window.

"The shot must have been fired from a sawed off shotgun," said the special agent. "Only a short barreled gun would have scattered so much at this short range."

He meditated a moment and then asked: "Who is there around here who has a sawed off shotgun?" "Ty Jones has got one," said Sam. "Is he friendly to you?" asked Gard. "No," was the reply. "The revenue agents chopped up his still after I reported it."

Here was a probable case of Ty Jones being the man guilty of the attempt on the life of Lunsford. There was a possibility, as Gard saw it, of getting this suspicion confirmed. Despite the animosity that existed between the heads of the families, the Jones youngsters and the Lunsford youngsters were playmates, so does the sociability of youth break down the bars set up by maturity. Lunsford had a boy 10 who was wise with the cunning of the woods and trustworthy in lending a hand in the feuds to which he was born. This boy, in playing about the Jones household, was instructed to pick up every piece of pasteboard box he could find and bring those pieces home. Likewise was he

to measure the shoes of the Jones household, when an opportunity offered, and tie the knots in a string to indicate their length.

It was a week before this task had been completed by the boy, but the results indicated that the feet of a certain pair of shoes in the Jones home was like unto that of the man of the sawed off shotgun. Scraps of cut up shoe boxes had been found, white on one side and brown on the other, and from these had evidently been made wads for reloading shells.

Thus far was Special Agent Gard able to carry his case toward a solution. There were twenty men in the neighborhood who might have been implicated with Jones if he were guilty in this attempt and in the killing of Tom Reynolds.

"Come on," said Lem, a bit dizzy with the unusual words, but anxious to please. He led the way to the house, where Mrs. Jones met the hungry man at the door.

So engaging was the manner of this young man of the rags from the great world beyond the mountains that Mrs. Jones immediately liked him. He was a perfect catnip of words and talked incessantly. She was not able to understand half he said but was pleased with all of it. He ran on glibly but always at great short of being smart in the sense that would call forth dislike. All the time he was eating corn bread and bacon with the relish of one who has long omitted the formality of dining.

Such was the introduction of Special Agent A. Spaulding Dowling into the Cumberland. Billy Gard had asked the department for his help in the moonshiners' case and Dowling had fallen into the plan with all the enthusiasm of adventurous youth.

Dowling's stream of talk won the friendship of Ty Jones and his sons as it had won the wife. The fascinating was tucked away in the hills and fed by the mountaineers. He came to know the intimates of the Jones family and his stream of talk entertained them for days and weeks. He hovered about with others of his kind for he found the hills full of men in hiding.

He became a visitor at many a cabin and eventually struck the rock that responded to his confidence. A young mountaineer named Ed Hill maintained an active still high up in the mountains—a virgin still that had never known the desecration of a raid. Hill was high spirited and commanding, unlike most of his neighbors. He was the soul of a poet, a lover of the wild, a patriot of the mountains. The flame of adventure, the love of danger, the belief in the individual rights of the mountaineer, made him a moving spirit among the men who lotted the Government.

Ed Hill told the fugitive the whole story of the killing of Tom Reynolds and the shooting of Sam Lunsford. It seemed that of all the men of the mountains who made moonshine whiskey there were but four who were willing to go the limit of spilling the blood of their fellows in resisting the law. Hill was one of these and saw his acts as those of the man who fights for his country. Ty Jones, contrary to the suspicions of Sam Lunsford, always advised against violence. But Jones had a boy of 18, a heavy faced, dull witted lad, who was pos-

Long Chase After Moonshiners and Murderers--Ruse by Which They Were Finally Trapped

essed of the desire to kill, to be known among his fellows as a bad man. This younger Jones, it was who had aimed his father's sawed off shotgun at Sam Lunsford as that hulking figure of a man swayed back and forth as he rocked the baby that suffered from colic. The patriot Hill, Will Jones, the lion murderer, a father and son by the name of Hill, had been the murderers of Tom Reynolds. There were no others who would go so far as to kill to avenge their fancied grievances.

The summer was dragging to its close as the conversational special agent got his information together. The young man was stealing into the hills by the name of Hill, he of whose health had been broken behind the ribbon counter, came back to Tenney's for another few weeks in the open. He wandered into the woods and met the fugitive from the South Carolina jail. The jail bird and the ribbon counter clerk talked long together and when they parted the plans were laid for the ridding off of the men who would murder for their stills.

It was a week later and the quiet of after midnight rested upon the little mountain town of Wheeler. The murderer was waiting to take place that night in Wheeler and A. Spaulding Dowling knew all about it.

As the town slept four stealthy figures crept down the trail that cuts across the point of the Hunchback. Soft footed, rifles in hand, they passed down a side street beneath the dense shadow of giant sycamores. It was but three blocks from the woods to Main street. Touching this artery of the town, two of the men crouched in the shadow while two others crossed the street and went a block further, turning to the left. Each group then shifted itself a hundred feet to the left and paused again.

So stationed the four men found themselves in front and back of Todd's livery stable.

The mountaineers, two in front and two in the rear of the building, swung themselves to the top of the fence and leaped to the ground inside. Rifles at hip they started to close in on the building. Each party entered at opposite ends of the corridor down the

middle through which a wagon might progress and no sound was heard except as being that of Todd. "Come on, change the floor on the board, change the floor on the board," the figures gathered in a cluster and turned up the steep stairway that led to the sleeping room of Todd. With every rifle ready for action they pushed open the door. The moon coming in at a window in the room, seemed to be in a sleeping form in the bed. Discreetly the four rifles came to bear upon it. There was a pause and then from the leader came the order: "Fire!"

Every finger pressed the trigger of his rifle. Every hammer came down on its cap. But no report followed. Not a gun had been discharged.

"Come on out in the open, you sneakin' cowards," came a clamorous voice from the barnyard that was recognized as being that of Todd. "Come out in the lot and I'll larrup you all!" The men in the room looked puzzled, one at the other, and then at the form on the bed. They approached the latter and found it to be but a dummy to represent Todd. They had been trapped. They would fight their way out.

The mountaineers charged down the stairway. As they came into the moonlight at the opening of the barn they faced the tall form of a man they knew well, the United States Marshal of the district. With no gun in his hands the Marshal raised his hands on high. "Listen, men," he commanded. "A parley. You are trapped. There are armed men at every corner of the building and every man who runs out of it will be shot dead. Your powder has been wet and none of you can fire a shot. You can't fight armed men. There is but one thing for you to do and that is to surrender."