

such a country and win success in such conditions. That they did so is one more proof that the British troops have in them the heroic spirit which is above the normal laws of life. This battle seems to me as wonderful as anything the British have done since the Highlanders and the naval division captured Beaumont Hamel in the mud and fog. It was more wonderful even than that, because on a greater scale and in more foul weather.

"Only in the worst days of the Somme have I seen such figures. They were plastered from head to foot in wet mud, their hands and faces being covered with clay like the hands and faces of dead men.

"They had tied bits of sacking round their legs, and this was stuck on them with clots of mud. Their belts and tunics were covered with thick wet slime. They were soaked to the skin and their hair was stiff with clay.

"It was at dusk that this handful of men set out on the way up to the battle line, and it was only a few miles they had to go, but it took them eleven hours to go that distance, and they did not get to the journey's end until half an hour before they had to attack. . . . They had no food all that time. 'I would have given my left arm for a drop of hot drink,' said one of them. 'I was fair perished with the cold.'

"They went over to the attack, these troops who were cold and hungry and exhausted after a dreadful night, and they gained their objective and routed the enemy and sent back many prisoners.

"The brunt of the fighting fell in the centre upon the troops of the North Country, the hard, tough men of Lancashire and Yorkshire, and it was the Lancashires' day especially, because of these third-line territorial battalions of Manchesters and East Lancashires and the Lancashire Fusiliers, with other Lancashire comrades. There were some among them who went over the bags, as they call it, for the first time, and who fought in one of the hardest battles that has ever been faced by British troops.

"The night march of some of these men who went up to attack at dawn seems to me, who have written many records of brave acts during three years of war, one of the most heroic episodes in all this time. It was a march which in dry, fine weather, would have been done easily enough in less than three hours by men as good as these, but it took eleven hours for these Lancashire men to get up their support line; and then, worn out by fatigue that was physical pain, wet to the skin, cold as death, hungry and all clotted about with mud, they lay in the water of the shell holes for a little while until their officers said: 'Turn out, boys!' And they went forward through heavy fire and over the same kind of ground and fought the enemy with his machine guns and beat him—until they lay outside their last objective and kept off counterattacks by the few machine guns that still remained unlogged and the rifles that somehow they had kept dry. Nothing better than that has been done, and Lancashire should thrill to the tale of it, because her sons were its heroes."

—Hitching Up Scrap

ALADDIN'S LAMP is a little thing, as far as magic goes, compared with the Oxy-Acetylene torch, which, according to the Scientific American, is making millions of dollars worth of new value out of the scrap-heaps of industrial plants. There are huge accumulations of damaged or worn machinery, tools, "short ends," etc., in the scrap heaps, and face to face with labor shortage, metal shortage, and the time factor, plant owners are calling upon the welder to reclaim these worn and damaged machines and broken tools and put them back to work earning profits.

For instance: A railroad company had a big accumulation of scrapped driving wheels for locomotives, most of which had cracked spokes. A saving of thousands of dollars resulted from the use of the welding process on these, without mentioning the increased train movement made possible by restoration of discarded engines to service.

A paper company was badly in need of metal cores for winding rolls of paper. Tube mills were far behind in their orders, and there was slim chance of getting any action in that direction. But out

of a three years' accumulation of broken and defective cores the welder reclaimed several carloads of good tubes by the simple process of cutting them into short perfect lengths and welding these together.

Still another railroad was on the point of tying up several hundred locomotives because of the impossibility of renewing defective boiler tubes. Digging into a five years' accumulation of junked tubes, however, brought forth more than enough salvageable pieces to put all the dead engines into commission. Under the hands of the oxy-acetylene welder it seems that metal almost takes on the character of the putty with which the sculptor does his preliminary work, and which can be shaved off and built up, joined and molded and worked in any desired fashion and as many times as may be convenient.

—Spies on Great Lakes

DISCLOSEURES of the desperate and silent warfare on the Great Lakes between evil-doers of Germany and the might of the United States Navy, reveal an activity of which the details have hitherto been carefully concealed, says the New York Sunday Times.

Six hundred German spies and plotters have been seized in the Great Lakes district and thrown into Federal prisons. Eight American sailors have been killed. And throughout this long struggle the vaunted cleverness of the German Secret Service has been outdone at its own game.

Ninety ships of the navy have been coming and going in the desperate fight to thwart fiendish German plots, watching every foot of dock, waste shore, and bay, vanishing in the shadows of quays, patrolling the vital arteries of this all-important traffic night and day. On shore, all around them, hover a fringe of Secret Service men, watching pilots, studying engineers. They have found German reservists at the wheel. They have seized bands of smugglers here and there on the boundary lines easing draft evaders across the frontier into Canada. The business of aiding war-chosen civilians to escape service for a time promised to be highly lucrative, and the desperadoes joined with enemy sympathizers in running them across the "line" for so much a head. The Secret Service men tracked the largest of these agencies to its lair, "tipped" its next attempt to the patrol boats in the Detroit River, and when the next batch of traitors and slackers attempted to work its way across in the dead of night a motorboat with a frowning machine gun in the bow suddenly loomed across its bow and took the scoundrels back to jail.

Dynamite was found in cargoes. Sometimes it finds its way there in peace times—unexploded bits mingled with the ore, but it was encountered too frequently to be accounted for in this natural means.

A German reserve officer, disguised cleverly as a simple, trustworthy helmsman, was plucked from the wheel just before a big liner swung into a narrow channel, where a disastrous wreck would have created news most happy for Berlin.

Gradually the wiser of the steamboat men, the civilians in touch with the traffic, realized that something intense and silent was going on out on the lakes. Engineers and pilots, even ordinary deckhands of seeming sincerity, disappeared and subsequent events concerning them caused the officials to throw up their hands.

The Secret Service operatives who have done these deeds are navy men. They, like the thousands of sailors who appear from and disappear into the secrecy of the lakes, report to one man, Commander McMunn, the Assistant Commandant of the district.

The personality of Commander McMunn is undoubtedly responsible for much of the extraordinary success which the navy forces have had in thwarting the spies and their activities. When war was declared he was plain William N. McMunn, husband and father, and engineer, with offices in Chicago. He had served in the navy during the Spanish-American war. For years he had served in the Illinois Naval Reserve, leaving it in 1910 with the rank of Lieutenant Commander. No skipper was better known on the Great Lakes, and no skipper knew the Great Lakes better than did he. This much the Government knew in March, 1917.

It had a tremendous task ahead of it, and it with-

out further hesitation asked McMunn to take the job. Surrendering his highly lucrative professional work, he sat down the day after war was declared, to form the Great Lakes fleet. He had in his command, he found, three revenue cutters.

To man the ninety boats which he had gathered for the patrol duty the Captain had in short order a splendid body of men. The Naval Reserve supplied scores of highly intellectual officers and seamen. One of the ranking engineers is a Chicago society and business man with a personal fortune of \$4,000,000. The bos'n on one of the larger vessels was an Alderman in St. Louis when the call came. The stroke oar in the boat that bears the commander ashore when he slips to land to glean the reports of his secret service men was a half back on one of the Conference elevens last year. The lad who, from the quarter deck, wigwags instructions to that motor boat slipping along shore, was last winter a cotillon leader in Detroit society. The youngster carrying on board the mail that has waited long for the ship's return from one of her will-o'-the-wisp trips into the desert mystery of the lakes was shining shoes last January in the heart of Chicago's Loop.

—On Messines Ridge

HERE are some extracts from the tale of the taking of Hill 60 and the terrific battle of Messines Ridge, as set down by Hal O'Flaherty in Munsey's Magazine. To read the whole story of that tremendous exhibition of destructive power which began just before the dawn of the seventh day of June last is to realize something of the shape and terrible significance of the mighty machine that British military genius has built in three years for the single purpose of ridding the world for all time of the Thing which Germany let loose after forty years of preparation.

It is useless to go further back than the hour at which the attack began, or to tabulate the details of the prodigious, herculean tasks that made victory possible, says O'Flaherty. It is only necessary to say that after two years and a half of grueling underground labor, the British were prepared to create a series of vast upheavals along the nine-mile ridge on which stand the villages of Messines and Wytschaete, and from which the German guns had so long dominated the British positions in the Ypres salient.

Eighteen mines, some of them as deep and as carefully constructed as any coal mine in the United States, were burrowed into the bowels of the earth under the German lines. Their extreme caverns were loaded with ammonal, and at a given word an electric spark touched off the whole series of blasts. Man won another victory over nature.

Following up the great mine-explosions, which really constituted a new form of warfare to the waiting Germans, a still newer and more awful weapon of destruction came down upon them. It was boiling oil.

The German soldiers who had escaped death in the explosions and among the bursting gas-shells looked on in wide-eyed terror at the effects. Turning from such sights, they watched a solid wall of giant shells creep toward them in the form of a barrage. The churning earth was dry, and each shell sent up its cloud of dust and fumes; but through the metal wall, those waiting Germans could catch glimpses of England's army moving forward behind the curtain of death.

Next, as if enough had not been done to overawe any living thing, the British "tanks" came snorting and rumbling forward, stopping from time to time to belch forth a broadside of projectiles. There were among them new machines of greater speed and more terrible ability to kill. They walked over the remains of trenches and into the thick of the fighting, undeterred by volleys of small shot.

Beginning far underground, the battle ran its course gradually upward through the sunken dug-outs, the trenches, finally to the open ground behind; and then came the rain of destruction from the air.

Bewildered German gun-crews, attempting to follow out previous instructions, stuck to their posts after the mine-explosions and continued to fire at random upon an unseen enemy. But their work was short-lived. The roar of scores of motors ripped the air . . . as the flying men came into action.