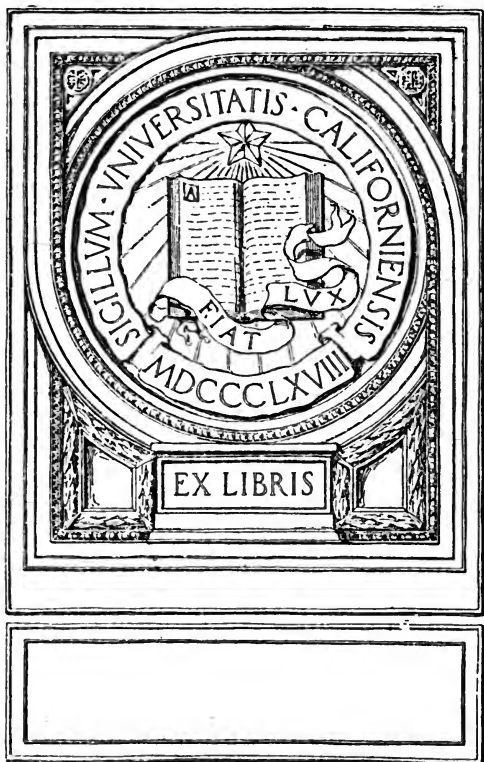
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FRANCE BEARS THE BURDEN

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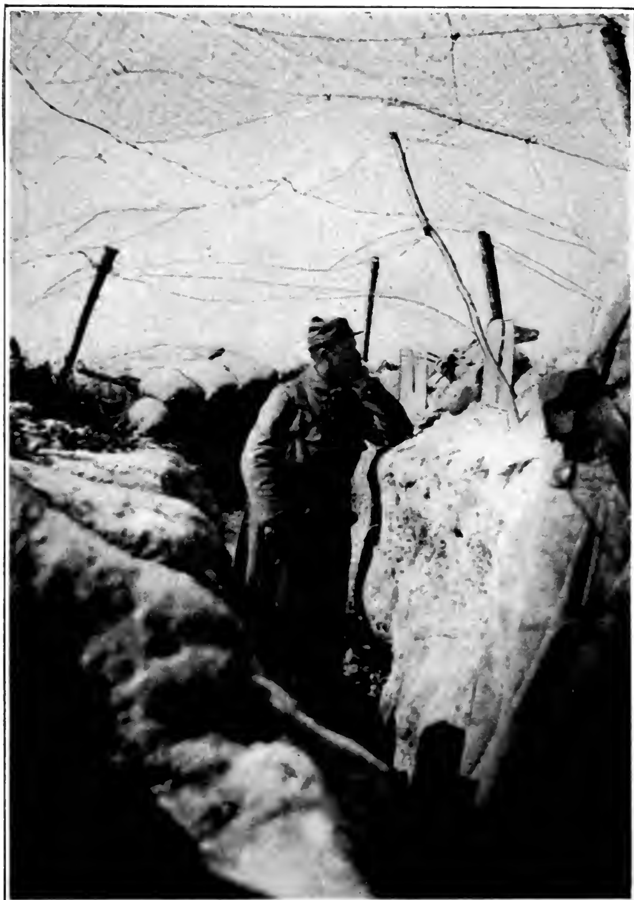

Underwood and Underwood. *Frontispiece*

THE TRENCH SENTINEL

Ever-watchful guardians upon whom the safety of France depends.

FRANCE BEARS THE BURDEN

BY

GRANVILLE FORTESCUE

Author of "At the Front With Three Armies,"
"Russia, the Balkans and the Dardanelles,"
"Fore Armed," etc., etc., etc.

New York
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1917

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TO

MY MOTHER

WHO LOVED FRANCE

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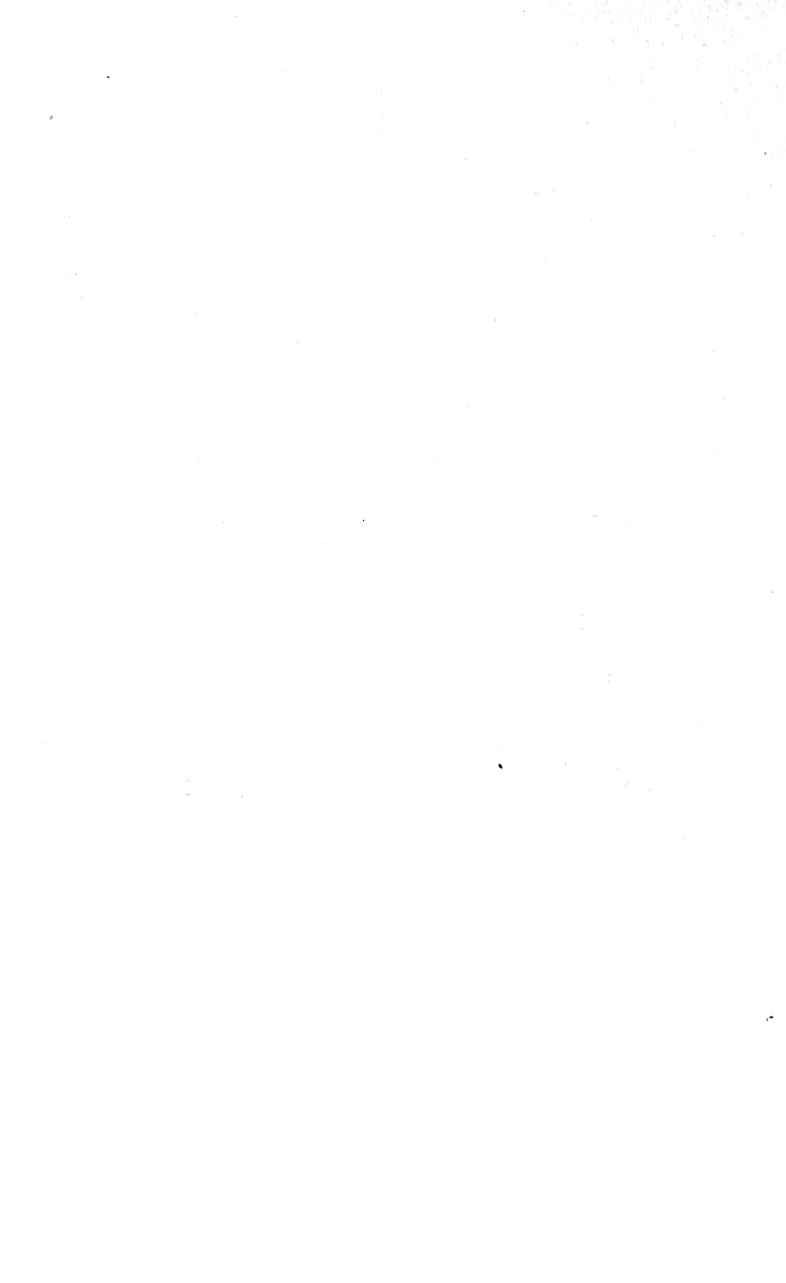

FOREWORD

LETTER FROM HIS EXCELLENCY, THE HIGH COMMISSIONER OF FRANCE, M. ANDRÉ TARDIEU

My dear Major Fortescue:

That which, in my opinion, gives special value to your book on France in war time, is that you have not been content only to gather therein the excellent articles sent by you from Paris and the Front to the *Washington Post,* but you also, from your observations and experiences, develop a picture of the whole subject. Yours is the work of the historian.

To your vivid and accurate articles, to your accounts of the fighting on the Somme, at Verdun, in the Argonne, you have added a methodical delineation, exact and instructive, of the organization and practice of war as developed in France during three years.

Systems of transport, artillery with its new method of firing, *liaison,* aviation, new tactics, new

arms, as well as the co-operation of the different branches in defence and attack, are actually described by you in their functioning as "the business of war"—the gigantic war enterprise of today—and you recognize in this new war machine and these new tactics, a new work of the spirit of the French people. Another proof, the most eloquent perhaps, of the creative genius and adaptability of our democracy and our race.

With sympathetic understanding and friendliness, on the other hand, you have known how to show the inner side of this organization for war, to express those moral and spiritual forces which explain the efficacy of this technical work.

If, to use your own words, the French army has "saved the world from the domination of Germany and despotism," it is, to again quote you, because our army "has been the soul of the nation"; because it has been without peer, the army of democracy and liberty, the army of citizen-soldiers. For this reason, if I may avail myself once more of your strong words "the French who hate war, are the finest soldiers in the world."

Do not say, however, that "the soul of France today was born at the battle of the Marne." The

battle of the Marne was for nation, only the occasion of a new awakening under trial. If the battle of the Marne has been won, if the invasion of the German hordes has been stopped, it is because that soul pre-existed, because it was present, entire, in the breast of every French soldier, and, because in defending our soil and our existence, every soldier knew that he defended at the same time, the cause of democracy and liberty throughout the world. Here again, is the reason why, through three years of struggle, behind the armies and the front, the steadfastness and spirit of sacrifice of the whole nation has never wavered.

You have happily explained how this identity of our national spirit and democracy is reflected in the special discipline of the French army, an army of a free people under a discipline of intelligence, a discipline, fair, humane, and fraternal.

This you have seen in France. All those Americans who have seen what you have seen with us, are thus convinced of the absolute agreement of minds and aims which the participation by the American democracy in the war reveals and will reveal between your nation and our nation, between your army and our army.

From the close co-operation of the French and American armies on our soil, we can further expect, out of the war, other results of great importance. Between America and France only one thing is lacking: to know each other better. In the past, distance has hindered the establishment between us, people to people, of the personal contact; I mean to say a contact between the mass of Americans and French.

The Americans who visited France before the war were but few, and these only tourists, people of leisure, financiers, representatives of great commercial houses, students or professors. Now, for the first time, with the presence of the American army in France, we see and will see among us those who heretofore have never crossed the Atlantic; farmers, workmen, clerks, representatives by the thousands of the great mass of the American democracy.

In the battle lines, in our villages or cities, as companions of our soldiers and guests of our civil population, they will live a long time in daily intimate contact with our peasants, workmen, employés, and small merchants, with all that constitutes the body and substance of the French democracy. On one side and the other, they will get to know each

other at first hand. From this will result an understanding, an esteem, a confidence that will be mutual. It will be difficult to exaggerate the good of this. Nothing is more necessary than to develop and strengthen, actually and firmly, between the American and French people, this good feeling, this mutual understanding, this close union, this material and spiritual co-operation which is dear to us, and which is of such great value, first for the common good of our two nations, and second for the progress of democracy and the future peace of the world.

Please accept, my dear Major Fortescue, the expression of my high esteem, and believe me cordially yours

André Tardieu.

Washington, September 22nd, 1917.

NOTE

Some of the material used in this book appeared originally in the columns of the *Washington Post.* The author begs to thank the Editor for the permission again to use this material.

GRANVILLE FORTESCUE.

Camp Lee, Va.
September 27th, 1917.

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FRANCE BEARS THE BURDEN

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FRANCE BEARS THE BURDEN

CHAPTER I

THE GLORY OF FRANCE

France fights for her firesides. In that sentence we touch the chord that stirs the soul of the Nation. The legions that line the trenches from the Somme to the Vosges hold back with their rifles, their machine guns, and their cannon, the enemy who would overrun French fields and put the flame to French homes. All the rhetoric of the politicians, who juggle the blame of the war, cannot hide this fact. Who started the war is a question almost lost in the lurid haze of the past. But, with her sons bleeding and dying on her very soil, France to-day is roused to a condition of heroism that matches the glory of Sparta.

It has been my fortune to see France in three periods of her trial. In the first weeks of the war I was swept back from the Belgian boundary to Paris with French armies that struggled hope-

lessly against the savage onrush of the enemy. France of that period was a dazed, panic-pursued nation. The bogy tales of 1870 haunted all, from the President and his advisers down to the clerks, the artizans, the shopkeepers, and all saw, for a brief paralyzing moment, a vision of their beloved country once more beaten down by the brutal Uhlans. Paris in those days held something of the terror of the graveyard.

But, with the turn of the war tide on the Marne, the spirit of France was born anew. The ghost of Fear faded. Out of the ordeal by blood and fire the nation came to its strength. I saw this agony of the re-birth of the soul of the people. It reached its climax with the bombardment of the Cathedral of Rheims. That outrage crystallized the sentiment of the whole nation, and stiffened it for the sufferings and sorrows of war.

Now I see France enduring these sorrows. It is the dolor magnificent. It finds its reflection in the resignation pictured in the faces of the black-garbed women. It sparks in the scornful eyes of the blue-uniformed men. It even seems to speak in the calm of the children. Yet it shows its strongest in the manner these people go about their

daily work—yes, and play—for they have not forgotten how to play in France. Outwardly you see a normal nation engaged in the business of life.

Yet the scars of battle appear on every side. Hardly a woman passes whose black bonnet and dress does not tell of a husband, a son, a brother, dead in defending France. And the strange mixture of uniforms, pale blue, khaki, with a few of the ancient red breeches and blue coats, still worn. Here is the back-wash of the misery of the trenches; for many a trouser-leg is pinned up and many a sleeve hangs limp.

I met a bit of this wreckage when my ship first touched at Bordeaux. To me, he typified the courage of France in this time of affliction. He was the guard, posted at the gangplank, to see that no passenger landed without a proper passport. He wore the new pale-blue uniform of the army of France, it was soiled and rubbed. I noticed the strap marks of the pack crossing the shoulders. Then I caught sight of this soldier's face. The first view was a shock. The forehead from above the right eye to the cheek bone was broken in. He had been hit by a bit of iron and the skull had cracked as an eggshell struck

with a spoon. A star-shaped cicatrix closed the skin around a glass eye. The healed wound was a triumph of modern surgery. But the greater triumph was the cheerful spirit of the man who had suffered this wound. His rifle slung over his shoulder, he scrutinized carefully the papers of each disembarking passenger, meeting all with a smile. Here was the courage of France personified.

If I had to choose a symbol best to picture all the evil and energy of this war, it would be the Octopus. The battlefields form the body of the devil fish, while its tentacles stretch out interminably drawing up all that goes to feed the trench-turmoil; men, munitions, food. These great tentacles are sucking out the life of Europe. One of them reaches down to Bordeaux. Already it has drawn into the devouring maw all the men that city can give. Still it sucks up great quantities of wine and food, and carries them on to renew the waste of the struggling millions in the trenches. Yet the women work with stronger arms in the vineyards, because they know the fruit of their labour helps in the defence of France. The old men and boys gather a rapid harvest, happy in the thought

that the flour ground from the wheat they thrash, is baked into the bread to feed the men fighting for their hearths.

All this labour throbs through Bordeaux. The city bustles with business. The river-side teems with unloading ships. All day winches rattle, donkey engines snort, in the work of dragging out great cases from the steamers' holds. The quays are crowded with mountains of bales and boxes. Here are the worked-up sinews of war. A thousand carts form a double line that runs like an endless chain from the quays to the freight station of the railroad. Thence all this sustenance of war is whirled out to the depots of distribution, till at last it finds its way to the very outermost listening post. The enormous hogsheads of wine that I see loaded today on the freight cars, within a week mean drink for some lonely sentinel who dare not take his eyes from his narrow loop-hole while a comrade fills his tin cup. Those sharp-pointed wooden stakes stacked so closely in that box car, will be built into a forest of wire entanglements beyond a bit of dearly bought enemy trench before a dozen nights have passed. All those hundreds of cars of straw with the black tarpaulins stretched

over them soon will be welcomed with joyful neighs by the thousands of artillery and cavalry horses picketed behind the battle lines.

When the train has carefully steamed out from the shadow of the neat houses of Bordeaux, the beauty of France unfolds in broad fields and deep forests that spread away in varying shades of green from the line of the railroad tracks. Yet as you watch the busy harvest scenes your eye catches a false colour in the landscape.

A new spur runs out from the railway, a cut of raw earth in the green, and above it sits a soldier, nursing his musket. He does not raise his eyes as the train passes, but keeps them fixed on the workers toiling along the spur. These men wear queer, little round, grey caps, banded with red, the remnants of green-grey uniforms and battered army boots. They turn their stolid Teuton faces up as the train passes, staring with puckered eyes. Here is another vision of the front. What thoughts are behind those staring eyes? What a story is each of these German prisoners living?

Throughout the journey from Bordeaux to Paris, Peace and War mix incongruously. The peasants labour in the vineyards, paying little heed to the

young soldiers of the newest class who crowd into the railroad stations. Here trench-stained uniform rubs against sober dress of the civilian. All this mingling of the activities of war and peace gives the clue to the attitude of the French people in face of the invasion. The army is the soul of the nation, and every man, woman and child of France glories in it, honours it, loves it.

These feelings find expression when a group of *permissionners,* men on leave, debark from a returning train. At the station in Tours I saw the welcome of a veteran by his famly. He came straight from the *abris,* as the trench shelters are called. Under his dishpan helmet his beard blossomed like that of a Spanish Pirate. Two brown haversacks sagged from his shoulders. His sky-blue coat had faded to dusty grey.

As he stepped from the compartment he was engulfed by his family. His mother, fat and red-faced, pushed his helmet far back on his head and planted a resounding kiss fair on his lips. Both her hands were clapped tight around his back in a strangle-hold. Together they rocked, hugging and kissing and emitting all the terms of endearment included in the French dictionary,

while father, thin with a grey beard, and three buxom sisters bumped in on the hugging couple and snatched a kiss here and there whenever the gyrations of the mother permitted.

Such a reception is typical. It gives you a queer lump in your throat to watch the joy of the mothers, fathers, sisters and younger brothers, over the return of the soldier; so many sombre thoughts flash into mind. Beside the joyous group stands an older woman—in black. She holds a little tray on which are spread knives, scissors, cork-screws and other bits of cutlery. Passing from window to window of the train she offers her wares for sale. It is a sweet, low voice that importunes you, a voice that must be wont to talk to children.

It was when the train swept past the banks of the Vienne that I saw the spirit of the French truly symbolized. Under the shade of the poplar trees, following the winding course of the narrow river as far as one could see, stretched a line of men, fishing. All were in uniform. One of the nearest fixed my attention. He was a *Chasseur Alpine.* He wore his Tam o' Shanter hat perched jauntily over one eye. A "bull dog" pipe dropped from the corner of his mouth. His uniform made a

spot of blue in the grass. There he sat, puffing contentedly, watching his line, for the moment the last thought in his head was concerned with war. Back of that line of fishermen I seemed to catch a vision in the skies of other uniformed figures, along other rivers—the Meuse and the Somme.

As we draw nearer and nearer to Paris the sidings are more and more crowded with war material. But despite this, life seems in many aspects normal.

Even Paris, superficially, is the same ancient, gay capital. The streets show a lively contrast to my first war visit. Cafés and restaurants then closed at nine, and a taxi-cab was a rare and fleeting bird. Tonight you dine in comfort and light until ten-thirty, and the taxis are ranked at every customary corner. In fact Paris has all that old charm of movement radiating from the stream of life that flows without stop, up and down the boulevards.

It was in the Rue de la Paix, a street in name and aspect the antithesis of all that war connotes, that I made close study for signs of the struggle the French uphold so valiantly. When I saw this path of luxury in the first onset of war, it was the Street of the Pestilence. From the Place del'

Opera to the Place Vendome, iron shutters had snapped down on the jewels, fine linen and purple that were wont to lie in tantalizing array behind the plate glass of the great shops. A hot August sun beat down on the blind doors and windows. Here and there a furtive figure passed, waking Sunday echos in the cañon of quiet. Even the sparrows had flown. Now all is changed. The jewellers whose names stand for wealth, workmanship and art, throughout the world, push their baubles once more under your nose. The poseurs of fashion, whose names on a frock add a thousand francs to the bill, have returned like homing pigeons. The warning horn of the taxi sings an all-day chorus in your ears. Hurrying shoppers fill the street from curb to curb.

So for the moment you think the city once more the Paris of old. Has France of the Rue de la Paix forgotten the war before it is over? But in some jeweller's window your eye catches the glint of a golden *soixante quinze* minutely fashioned. Beside it are pendants and brooches, diamonds surrounding a red cross. Here is a miniature silver projectile made to hold a tiny bottle of smelling salts. There hangs a tiny gold aeroplane with

silver wings. You have the story of the war in these trifles. The cannon, the shell, and the red cross. And if from these you cannot fill your mind with enough associations of the misery of the world slaughter, close to the curb there passes a soldier wheeling a chair, such a chair as travels the boardwalk at Atlantic City or the shaded paths of Palm Beach. But here no grinning darky pushes it; no picture of parasol and lace lounges in the seat. A sky-blue coated soldier trundles the chair; on it another soldier, a boy, sits tailor fashion, both trouser legs neatly sewn above the knee. Yet he smokes his cigarette with an air and takes lively interest in all that passes.

If it were not for the wounded, one could almost forget the war in Paris. Soldiers have always been part of the picturesque setting of the city. But when they come hobbling along balanced on crutches, or wearing an empty sleeve pinned across the breast, you feel the pity of it all.

Cheek by jowl with the shop of the master worker in gold, silver and jewels, where the skill of trained fingers and the sharpest eyes have created a marvellous watch or some delicate diamond and platinum hair ornament, you find a window filled with

brushes. Hat brushes, clothes brushes, tooth brushes, nail brushes, sink brushes, scrubbing brushes, shoe brushes, all forming a homely contrast to the luxury beside them. Here is the output of the wounded blind. Their hands have been slowly and painfully trained to this work. There are other articles the blinded soldiers make, baskets, network table covers and lamp shades. In such trifles the French ingrained spirit of art finds expression.

In other shops where the work of crippled soldiers is on sale, one finds a bewildering conglomeration of toys, knick-knacks and whatnots, from a life-sized pasteboard poster of a zouave to a full-rigged ship. Rings and bracelets made from the metal of an exploded shrapnel fuse are the most popular gimcracks sold in these shops. Such a ring or bracelet will be the soldier's first present to his *marraine.*

The *marraine,* I must explain, is the soldier's fairy godmother. Some girl or woman, who, having no calls upon herself from any relative, adopts a soldier in the trenches as her special charge. There is no paragraph of the French army regulations which says that a soldier should not have

a young and chic *marraine*. However, one chooses this fairy godmother sight unseen, so it is with fluttering heart perhaps, that the young *permissionnaire* (furloughed soldier) awaits his first interview with the one who has been writing him, to whom he has poured out his confidences, to whom he has appealed for sympathy. But be she fair of face or not, the French soldier hardly cares. In his *marraine* he sees the beauty of the spirit that tries in all ways to share the burdens of the trenches.

Do not think there is any lightness in the relation between the godmother and her godson of the trenches. Thousands of men fighting the battles of France have no family ties. Thousands of women have lost sons, brothers, husbands, in the battling, and they write the letters and send the little comfits and kickshaws to their adopted children in pious memory of those dead sons, husbands and brothers.

If her *fillieu* should be wounded, the *marraine* devotes her best efforts to lightening the cares of his convalescence. And if he should come out of the hospital crippled, or blinded or carrying the broken wreck of a once hale body, she it is

who searches night and day to ease the broken soldier's path in life. Such an institution as our American pension list is inconceivable in France. Here is a burden the women shoulder. They know the short-lived glory of war. Yes, the wounded are heroes—for months—but they are young men. The surgeons have saved life, but with mutilated body the sons of France must struggle down the vale of life through the years when their heroism lies cold.

This problem of the wounded is one that will take the best brains of our economists of the future to solve. For the present it is a question of charity, but let the war continue, with each day adding new thousands to the ranks of the maimed and blinded, and a condition must arise which will demand prompt solution. These sacrifices to war must be made as self-supporting as their physical state will permit.

I have made it a rule in writing of war to touch lightly on the story of the hospital. Wounds, to those who see them for the first time, are horrifying, hideous revelations. The pity you feel as you stare at the ghastly rent of flesh is often smothered in revulsion. The cry that is sometimes wrung

from the stoutest heart wrenches your soul in sympathy, but the festering gangrenous sore fills you with disgust. I leave this curious cross-purpose of feeling to be explained by the psychologists.

To study this side of war I visited the American Ambulance. As an American I felt the pride in my countrymen and countrywomen increase as I passed from ward to ward. As a nation we have not paid our debt to France, but as individuals thousands of good Americans help to repay in some measure our obligation to the people of the Marquis de Lafayette and Rochambeau.

It is one of the disheartening reflections on civilization that the science of healing has not kept pace with the science of destruction. Still, let the ingenuity of man devise a mighty engine of war, and the ingenuity of some other man will endeavour to supply a means for modifying the effect of this engine. It is a struggle in many ways approximating the competition between the naval gun and armour plate. Except that the surgeons who repair the ruin wrought among humankind have nature always fighting on their side.

The high explosive shell is the most puissant destructive agent achieved by man. It blasts its

way through wood, iron and earth, tearing and rending everything within the radius of its explosion. The French "75" shell breaks into four thousand fragments, the German "77" shell flys out into twenty seven hundred bits of iron. These fragments will vary in size from a long jagged splinter to bits no larger than bird seed. Let a shell blast strike down a man, and granting he is not killed, his wound would baffle the highest skill of the surgeon thirty years ago. The high explosive shell is a new development in the art of killing. To offset this instrument of death and maiming, surgery has invented the Roentgen Ray.

My visit to the American Ambulance—I use the word ambulance in its French meaning, hospital—took place when the fighting on the Somme reached its climax. Wounded soldiers arrived that morning after a night in a dressing station, straight from the battlefield. Already X-ray photographs had been made and printed showing the nature of each wound and the result of the *eclat* or burst.

These photographs are Cubist pictures. A fractured bone will stand revealed, its jagged edges

over-lapping, massed in a spot of splinters. Scattered over the print are irregular black splashes, the bits of iron buried in the wound. From the radiograph the surgeon gets a clear understanding of the problem before him. Then he pits his skill against the havoc of the shell. While it may be that wounds of the arm or the leg or the body have certain general characteristics, yet each special wound varies in its progress. The surgeon does not stop at the first photograph, but has X-ray pictures taken whenever he wants to check up the results of his operations. And the men as they recover become as interested in these pictures as debutantes in the snap-shots of their doings that fill the illustrated society papers.

The surgeon's greatest enemy is infection. He knows that no matter how badly damaged the human body he works on may be, if he can keep the wound clean, he can save life and limb.

One soldier who had been brought in with both legs broken and a great gash across his abdomen, had these hurts almost miraculously cured. But a bit of the shell had clipped off the tip of his finger. Here infection set in. First the hand, and then the arm was poisoned, and from an insignifi-

cant beginning the surgeon found himself battling for the very life of his patient.

The X-ray makes possible the marvel of modern surgery—bone grafting. In this curious process the victim furnishes his own graft. The vision of substituting bits of the bony structure of dogs, sheep, monkeys for similar injured sections of man have not materialized. The experiments forced on the surgeons by the wounds of this war have shown that man best absorbs his own material.

Throw your mind back to the days when you studied the structure of your body, and you will remember that in the lower leg you have an extra bone running from the knee to the ankle. In the anatomical diagram it is called a tibia, but in plain English we call it a shin bone. It is to this shin bone that the surgeon goes for supplies when he wants to build out any of the lost bony substance that has been blasted by bullet or shell. With a wonderful little saw he cuts out a splinter of it the exact size he needs. This is clamped in place in the wounded limb, and nature does the rest. Sometimes nature, just to show that she is the most wonderful of all surgeons, will perform this operation herself. Dr. "Jim" Hutchinson showed me an

X-ray photograph where nature had anticipated him in such an operation, and under his attractive smile I thought I detected just the faintest hint of jealousy when he said "Fine piece of work, wish I could say it was my own."

But Dr. "Jim" has one remarkable operation to his credit. It was a matter of bone grafting, but here the patient could not furnish his shin bone as a substitute, for both were already shattered. Almost at the moment the surgeon was patiently repairing the hurt as best he could, at the next operating table a soldier's life ran out. He had given his soul for his country, why should he not give a bit of the bone that was no more use to him to make whole a broken comrade?

In making the rounds of this house of misery, watching the silent deft-fingered nurses move from cot to cot; listening to the clean-cut surgeon tell in short, simple words of his fight for a limb, a life; gazing down on the simple trusting faces on the pillows, you are oppressed with the horrible futility of war. You conjure up the story of any one of the men on the cots. A peasant, he takes his place in the ranks and follows his training much as one of his own horses works. Then, he is swept

out to the battlefield. He knows nothing of the strategy, the purpose of the powers that move him, a pawn in the game, over the face of France. He meets the trials, the privations, the cold, the heat, the hunger, the weariness of his duties with a smile. "It is war," he says philosophically, hardly knowing his philosophy is an inheritance from forebears who fought under Napoleon

"It is war" that he should dig trenches, stand guard all night, march miles in rain or dust. "It is war" that he must charge in the face of the merciless machine-guns, the devastating shells. "It is war" he will say with a smile when his flesh and bones are torn to fragments by the *eclat.* And though he may not know the strategy or the purpose of the chiefs, he knows that he is fighting to win back the homes of thousands of his brothers, he knows that he is fighting for the right to be a Frenchman, for his thatched house, his little field, his wife, his children. More, he fights for an ideal pictured in his heart by the words "La France!"

CHAPTER II

MONSIEUR POILU OF PARIS

STARTING from the Latin "pilosus," and following a long linguistic road, we arrive at *poilu*, defined in the French dictionary as "hairy, shaggy, bristling." *Poilu* is an adjective in its original use, but by custom becomes a descriptive noun applied to any member of the French army who has served his tour in the trenches.

I fail to recall at the moment whether it was Cicero or some other war correspondent who, when describing a triumph in honour of a certain line regiment of the legion, wrote of the Roman veterans as the *pilosii* who smote the Germanii. And to indicate the impossibility of striking a new vein in war writing, all the French war correspondents are today singing a similar chorus in honour of their regiments. We witness, therefore, the long association between whiskers and war.

Those of us who were in Paris during the first

months of the war recall the various emotions through which the Parisians were supposed to pass under the trials of that time. Some of the vivid paragraphs, I may say, having written my share of them, are still in mind. But nowhere have I read of the shock, the shiver, the surprise, the cross feeling of apprehension and approbation that smote Paris when, after three months of trench life, the first French soldiers on leave strutted along the boulevards.

While these veterans sought a well-earned respite from the toils of war, Paris stared, rubbed its eyes, stared again and stammered *tiens! tiens! tiens!* Whenever a Frenchman meets a problem having no apparent explanation he exclaims *tiens!* And what Paris saw had no explanation short of the one that Gen. Joffre's army had turned pirate and was wearing its beard to suit the part. The soldiers from the Marne came into Paris entirely surrounded by whiskers—black whiskers that would have made Blackbeard the Pirate commit suicide, walking his own plank, out of sheer envy; blonde whiskers that might have adorned the cheeks of a Viking; brown whiskers that recalled thick-bearded evangelist portraits; red whiskers!

like the sunset behind the Arc de Triumph. When a Parisian greeted a friend from the trenches he felt that the soldier's eyes peeped out of an ambush of hair. The nose was concealed in the bearded face like a cannon hidden from aircraft. Only the tips of the ears emerged from the hairy jungle.

When squads of the bearded ones burst upon Montmartre, the district where Paris patois rises like bubbles in champagne, the Montmartrians with one accord exclaimed:

"Oh, *les Poilus!*"

The phrase might be freely translated into American slang as "Get onto his whiskers."

Poilu, the soldier of France, has since remained. In its original sense the word defined a quality in no way complimentary. A shaggy moth-eaten cinnamon bear was *poilu;* scientists used the word impartially in describing the fur of the orang-outang or the beard of corn; until the happy inspiration of the Montmartre gamin, it was an adjective with reverse English. Today poilu is a term of endearment, admiration, honour and respect.

After the beard, which almost conceals it, the most characteristic attribute of M. Poilu is his smile. Rather disconcerting and quite definite is

this smile. You see, when a man has stopped a section of German shell with his arm or leg and unhappily has lost the arm or leg in the encounter, you do not expect him, back at work, to view the incidents of his day with any large amount of humour. So the smile of M. Poilu is surprising. There's Charlie, the chasseur of the Café de la Paix. A chasseur is a runner who stands outside a café ready to run errands, help guests out of motors or buy a newspaper for any of the diners. Charlie has only one arm now. In case some unobservant person might think he lost his arm in a railroad accident Charlie wears four war medals across his breast.

One of the duties of the chasseur is to doff his cap and open the doors of cabs or motors for arriving or departing guests. Charlie, with his one arm, has developed the skill of a juggler in this feat. And it is all done with a smile that seems to say, "Now we are going to have a good time," or "We did have a good time, didn't we?" It is a respectful smile, ready for whatever wind, weather or fortune the day brings.

Charlie when he left the hospital "cured," asked for and got this job of chasseur, which he had be-

fore the war. Edouard, the doorman at the Hotel Maurice, who now wears a glove over what was his left hand, had the same good fortune. You would never know, unless some one called your attention to his slight limp, that Adolph, headwaiter at the Restaurant Mazarin, got through his work on a mechanical foot. Out in the trenches, M. Poilu is certain that if enough of him ever gets back to Paris he will find his old job waiting for him.

Not quite in the same class is the artist Ferbel, who, referring to the fact that he now buys his shoes by the half pair, said:

"It is an economy, is it not, Monsieur, now that the price of shoes is so high? And,"—he was shading in one of his vivid war sketches as I talked with him—"what luck that the bosche shell missed my right hand."

If for any reason his old job is not open to him, M. Poilu is soon assured of a new one. His physical condition determines which of many he may choose, from tinsmith to chartered accountant.

The Grand Palace, where in better days the automobile shows were held, is a manual labour school for the retraining of wounded. Besides the man-

ual arts, the poilu may be instructed in stenography, typewriting, practical bookkeeping and accounts.

You can be a very good tailor, even with two wooden legs; you can make soap with one hand—I have seen it done—and regular feet are no better than artificial ones to the stenographer or the accountant, as far as the work is concerned. Carpenters, cabinet makers, ironworkers, frame makers, shoemakers, soapmakers, tailors, saddlers, barbers were taking their first lesson in their new trades in different corners of the exposition building. It was a thriving trade laboratory solving a dozen human economy problems.

The master workmen who instruct the poilus in new trades pass from soldier to soldier teaching the secrets of the work. Here is one soldier learning to handle a saw and steady the plank against his peg leg. Over there another one-legged worker is cutting out a pattern of a coat. Beyond him another moves his fingers hesitatingly above the keys of a typewriter. And so on throughout the hall in the booths that marked the floor space of some former automobile exhibitor these maimed men are preparing themselves to go out again and fight the world.

They are preparing in a double sense. Not only do they learn a craft, but they turn that craft, if possible, to their own particular needs. An artificial hand costs more money than many of our poilus can afford, yet they are not content with the simple hook, so these amateur carpenters, tinsmiths and iron workers have contrived an improvement in artificial hands almost as cheap as the hook, and much more useful. It ends in a snap something like a patent spring clothespin, and with this the poilu can pick up a pin, handle a fork or hold a pencil. Sergt. Bertrand, who has used his new hand for six months, will gladly write you his autograph.

Or if the bit of shell or bullet has carried off only a part of your forearm, say the radius, the iron-workers have invented another mechanical aid to fit your particular need. Nowadays all surgery is conserving. If any part of a man's leg, foot or hand can be saved, the surgeons concentrate all their skill on the problem. They make every effort to turn out all patients as nearly whole as possible when they leave the hospitals.

Even when large sections of bones are shattered the surgeons will mend the flesh as best they can

and rely on some artificial device to take their place. In the poilu's manual labour school I saw some ingenious substitutes for radii. The radius is the bone in your fore-arm to which the muscles are fixed. If it is destroyed, the muscles have no leverage to work on and you cannot move your fingers.

A shoemaker who was using one of these mechanical bones slipped it off and dropped his hand into mine. The fingers were as limp as pulp. Then he explained to me the working of his "outside" bone. It was a combination of steel splints and springs, a sort of mailed fist. First, a long steel splint was strapped from below the elbow to the wrist, forming an exterior bone; at the wrist, joined to the long splint yet movable, were five small jointed splints that backed the thumb and fingers, these small splints were held in place by coil springs. When the shoemaker slipped his fingers into the rings of these jointed splints they, with the exterior steel radius strapped to his fore-arm, gave him the leverage upon which he worked his still intact muscles. When I left, the shoemaker had his mailed fist clamped around the toe of a boot as he pegged away at the sole. When he

goes home I'll wager he will get most of the shoemaking business of his home town.

Whenever a new man joins this labour school it is always a matter of ceremony to measure him for a new peg leg or mechanical arm. The head carpenter, ironworker and tinsmith, gather around the newcomer and discuss his particular difficulty in all its aspects. Each maimed limb presents features that call for special care.

A tape is run here and there around what is left of the member, and each measurement checked. Then the workmen separate, each setting to work out his part of the artificial leg or arm. From time to time they consult on the fit of the different parts. Finally, when the leg or arm is finished, comes the problem of fitting it to the patient. This is a moment of triumph for the workers. You see it in their eyes as they watch the delighted soldier manœuvring his stump or practising picking up tools with his clothes-pin hand. *"Ca va, ca va"* ("It's all right"), say the workers, with satisfaction. It must be satisfying to the spirit to think that you have cheated war out of some misery.

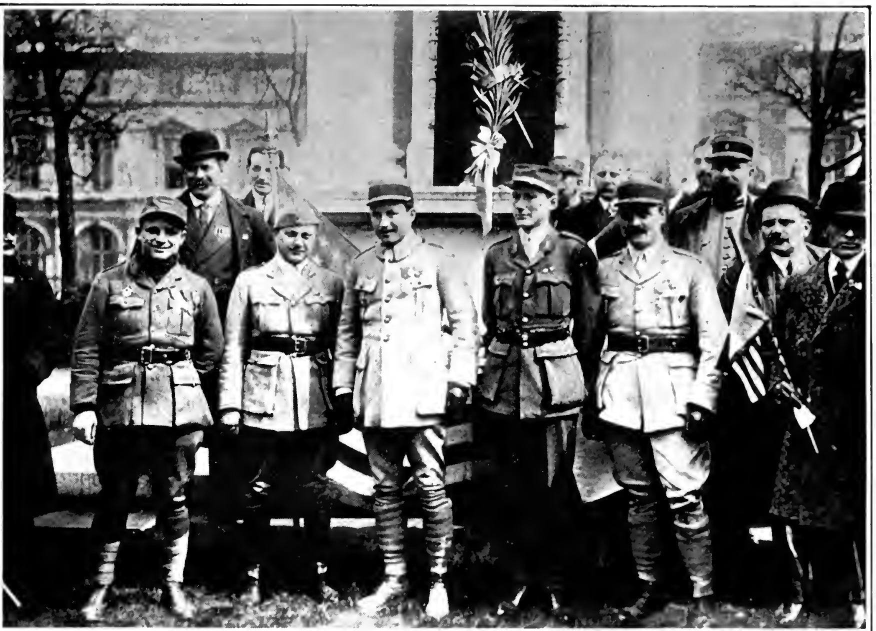
This work at the Grand Palace is but a sketch of what is going on all over France. Everywhere

the maimed poilu goes back to his old work in a new way or learns a new work, so he may make his living. That is the strongest impression you carry away with you from one of the workshops for the wounded, the will to work. Just because a man has lost his leg, his arm, or his fingers, he does not think he is entitled to be supported by the nation for the rest of his life.

Old "Papa" Gaston, whom I sometimes meet in a certain café across the Avenue D'Antin from the Grand Palace, where, unless you wear a soiled uniform and are short an arm or a leg, you are distinctly an outsider, put the French idea of pensions before me very succinctly. I had tried to give him some notion of the American pension system.

He listened till I had finished, then exclaimed:

"But where is the glory of fighting for your country if you do it for a life of ease and doing nothing ever after? If a man gives his life for his country, well, let his country look out for the wife and the children. That is fair. But the man who gives a leg, an arm, a hand—bah! what is that but an honour? He loves his country all the better since he has proved his love—it is like that with



Underwood and Underwood.

THE FLYING FIGHTERS

Five of the famous Esquadrille Lafayette. From left to right: Lieutenant Lufberry, Sergeant Hinkle, Captain LeLarge, Sergeant Biglow, Lieutenant Thaw.

people. And where is the honour if every week you get so many cents to pay for the leg, arm or hand that has long since ceased even to be fertilizer?"

Gaston, who was so old-fashioned that he wore the primitive hook, waved it to emphasize his words.

"All the money in the treasury could not have bought that hand from me in time of peace," he said, bringing the hook under my nose; "but in war I am honoured to give, give it to my country."

"But the blind?" I interposed.

Papa Gaston dropped his hook to his knee. Tears shone in his eyes.

"The poor blind, the poor blind," he murmured tenderly. "Yes, France must take care of them."

And there are others who must receive all care. Love of life is the strongest instinct in man. The most miserable, misshapen thing will cling to it, living on through long black days that hold no hope. Often the brutal shells make frightful havoc of the body without destroying the soul. Hidden away in a forest outside Paris in a hospital for the hopelessly hurt; it is the House of Sorrow Unending. I shall not tell of those who dwell there.

France in pity draws a veil over their terrible afflictions. Let us respect the sanctity of their sufferings.

But Paris does all she can to brighten the long days of Monsieur Poilu's convalescence. Sight-seeing automobiles festooned with laurel, and filled tier upon tier with sky-blue uniforms speed around the boulevards, so that the wounded may enjoy the sunshine and the beauty of Paris. Monsieur Poilu is still gay and as a rare treat he is taken to the theatre. His choice of play is always a comedy. I followed a hobbling crowd into the Olympia Theatre one day. The Olympia is a sort of Parisian Keith's, although in the strictest sense the vaudeville is not over refined. Monsieur Poilu, however, having been close to the clay, is no stickler. Major, Captain and Lieutenant Poilu filled the reserved seats of the music hall. He came, spick and span as is always the French officer. Behind him shuffled the Privates Poilu, chatting and laughing as schoolboys on a holiday. First came a tall grenadier, whose clean, white head bandage pointed the way to the derelicts who followed him. Furbished and freshened, his uniform fell a bit loose about his figure. The com-

rade of the grenadier was an undersized infantryman, his tunic spruced, brushed and carefully mended over the left arm hole. He had dropped his right hand into the palm of the tall grenadier, and followed him as a child its nurse. Next followed a zouave on crutches, his fez cocked at a defiant angle and his one boot shining as bright as an advertisement for shoe polish. Two artillerymen came next, one of whom made the distance from the door to the seats balanced on two canes.

"*Dis donc*, Paul," his comrade insisted, readjusting his sling, "you will have to clap for the two of us if we see a good turn."

"Certainly," answered Paul, making a two-yard hop.

So M. Poilu went to the music hall, limping and laughing, favouring a foot or an arm in the push for seats, but wholly centred on the show.

I trailed in after. I found myself brushing elbows with a girl wearing a streaming crepe veil. She gripped the arm of the last wounded soldier. He did not laugh. The side of his face toward me, from temple to chin, was smooth and waxlike. The lights reflected from it, as from a highly polished surface. He turned. Then I saw the line

where the painted copper mask met the true flesh.

What first surprises you is the boisterous health of these derelicts. A leg gone, an arm crippled, a head trepanned, has made no hurt on the uninjured section of their bodies. They bubble with animal spirits. Then you remember that they have led the lives of farmhands with plenty of air, exercise and food, when the enemy did not interfere, as they will themselves tell you, they have taken on a robustness that defies the worst, short of death, that the shell can do. After the first shock of amputation, if there are no complications, Monsieur Poilu comes back to the vigour and strength he has been storing up in the trenches. I have seen a lad who had lost both arms who could still smile.

But let us get back to the music hall. What I wanted to know was, could those remnants of humanity still enjoy the delights of unrestricted laughter. On this point my curiosity was soon satisfied.

The first turn, a gymnastic trio, was generously applauded. A tramp turn, redolent of all the "business" seen on every vaudeville stage from Maine to California, followed. The bewhiskered, crimson-nosed ragamuffin had hardly rolled out

from the wings when the Poilus were snickering. When he took off his moth-eaten fur coat and plucked from its lining, in pantomime, a phantom flea, tossed this vermin on the floor, when it supposedly hopped off the stage to a base drum accompaniment, our tramp touched a responsive chord that set the Poilus rocking with laughter. Not one among them but had met these vermin of the trenches on terms of easy intimacy. As the tramp developed his foolery, I studied the faces of his battered audience. Every face was stretched in a broad smile. Each new bit of nonsense brought out a surprised chuckle or a base guffaw.

The tall grenadier with the bandaged head barked out a laugh at every point made by the tramp comedian. The one-armed, undersized infantryman doubled in his seat and slapped his knee, shaking with hilarity. Paul, the artilleryman, pounded his two canes on the floor to express a double joy. When the tramp finished with a face fall a wave of laughter wafted him back to his feet. He bowed himself off in a burst of shouted gaiety.

After the tramp, a song turn—one of the pre-war soldier comedians who have been a feature of the

French variety stage for a generation. A moment of curious quiet followed his appearance. He wore the red kepi, dark blue tunic, and baggy red breeches, the old uniform, not the khaki or the horizon blue of today. He belonged to the dark days of the war. In the hushed moment of his first appearance it seemed as if this heavy comedian called up a picture out of the past, a picture that must have many associations for these cripples wearing the new uniform. But when he launched into a French barrack-room ballad, interlarded with the soldier slang that serves in the trenches today, the Poilus were with him to a man.

So it went throughout the performance. Turn after turn, trick bicycle riders, Australian skaters, an Irish slackwire walker, the inevitable comedienne, all met a joyous reception. As shout after shout of pure unfettered laughter rose to the cluster-lights in waves, I knew that Monsieur Poilu had lost none of his gaiety. Even that poor, disfigured one, he of the painted copper mask, he forgot a sorrow that must weight him deeply. His eyes twinkled, his lips spread, as the rough humour of the stage and the infectious chuckles of his comrades echoed in his soul.

The boulevards were still light when I left the Olympia, so I turned my steps to the little café opposite the Grand Palace where I hoped to meet "Papa" Gaston for his appetizer.

In the walk under the beautiful trees of the Champs Elysées, I caught another phase of the life of Monsieur Poilu. On the long summer evenings all Paris that does not drive up and down the Avenue des Champs Elysées sits under the trees to stare, to chat, to gossip. It is the custom for friends to meet in groups at the same time and place each day to exchange rumours. So the whole Champs Elysées becomes a collection of open-air clubs, strictly limited in membership and confined in location. Of course you expect to find the Messieurs Poilu here.

As I made a turn under the trees, I came suddenly on a group of chairs, not of the kind that you rent for a few cents from the local chair woman, but roller chairs, with wheels. On each chair sat a wounded soldier. All except one could manage to move about by manipulating the wheels, for though all had lost both feet or legs, they still had both arms. They sat smoking, talking, disputing, gesticulating—such a group as you might find

ensconced in the corner of a club. Surely this was a unique club, and an exclusive one. War medals glittered on their breasts. They would have scorned your pity. The world still held plenty of interest for them. That you could see by the way they watched the throng on the Champs Elysées, by the animation of their talk, by their indifference to the stares of some rude watchers.

Each seemed to say, "Well, suppose I have lost my legs, crying about them won't bring them back. And one gets along well enough on these wheel chairs. Here we are, pleasant companions, plenty to smoke, the crowd to watch. What more could I do here on my two legs?"

They draw on an inexhaustible fund of native philosophy for their contentment. I passed on with a silent wish of "good luck" for the wheeled chair club.

At the Café du Grand Palace I found "Papa" Gaston with a half-dozen cronies, sipping drinks. Seated with them was a boy, not over twenty, dressed in a new sky-blue uniform. From cap to puttees he was a sky-blue symphony. His haversack swung from his shoulder; a neatly wrapped bundle rested on a chair behind him. Evidently

he was the newest of recruits. As he sat among the veterans they chaffed him. "Had he a whisk broom in his pack? No! Oh, that was bad. It was often dusty in the trenches and without a whisk broom it would be impossible to keep such a nice uniform clean. Yes, it was dusty in the trenches." For some undisclosed reason the idea of dusty trenches set all the veterans laughing. The boy blushed under their banter, but it was plain he was proud to rub elbows with their soiled and ragged uniforms.

Now "Papa" Gaston put the boy through his catechism.

"Have you warm, soft socks?"

"Yes, papa." Everybody called Gaston "papa."

"Two warm shirts?"

"Yes, papa."

"Do your shoes fit?"

"Yes, papa."

"Have you some chocolate?"

"Yes, papa."

Gaston paused, searching for further practical interrogations. The boy glanced at the watch strapped to his wrist.

"I fear I must go," he said anxiously.

"What, is it already time?" There was a strong shade of disappointment in "Papa" Gaston's voice.

The newest recruit gathered his pack, shifted his haversack and stood.

"Wait!" Papa Gaston commanded. He motioned the waiter to fill the veteran's glasses. Gaston stood and lifted his glass. The other veterans struggled up, leaning on cane or crutch, and followed his example.

"My friends." All listened. "Good luck to the newest recruit." Papa Gaston drank.

"Good luck! Good luck! Good luck!" the others chanted, and drank. When the newest recruit stammered his thanks, Papa Gaston hugged him to his chest and kissed him once, twice, thrice. The wounded veterans crowded round until the boy broke away and hurried off in the gloom toward the Quai d'Orsay railroad station.

Tears stood in Papa Gaston's eyes as he stared after the sky-blue uniform.

"A nice boy," I ventured fatuously.

"A nice boy, a nice boy," repeated Papa Gaston. "Thank you, monsieur, he is my only son."

CHAPTER III

VERDUN; THE BATTLE EPIC

VERDUN, the greatest battle of the greatest war of all time. As a rock this citadel stood in the path of the armies of Germany that battered and broke themselves in the last desperate effort to raze its walls. But it was not the swart and grim walls of the fortress that baulked the Germans, but walls of flesh and bone, walls wherein each stone was a son of the soil of France.

These human walls saved France. The men of France poured out their blood and laid down their lives until their very graves were mounds to hold back the foe. They not only dammed the lava-like flow of fire and iron, with their bodies, but turned it back upon itself. Day after day the ring of Krupp cannon that half encircled the city widened and weakened. Day after day the sullen cohorts of the foe were driven back from shell-pit to trench,

from trench to dug-out. Day after day, the lines of hang-dog prisoners lengthened.

"Each day we eat a few more boches."

In English the words lose some of the idiomatic significance they held when spoken to me by Captain Le Blanc of General Nivelles' staff. But they aptly personified Verdun as a great sluggish monster that dined on human fodder.

Come with me into the brain of this monster. If you took a sixty foot section of the New York Subway, buried it beneath seventy feet of dingy stone wall, fitted it with plain board tables, rough kitchen chairs, telephones, typewriters, filing cases, dropped from the ceiling a dozen Mazda bulbs, shelled in yellow copy paper, and wall the room with maps, you would have the stage setting of this brain. For actors, fill up with a dozen French soldiers in faded grey uniforms working at the typewriters, the telephones and the filing cases; stand three smart French officers, booted and beribboned, with compasses in hand before the maps, and in the spotlight place a white haired, white moustached, brown faced General. That is the brain of Verdun.

The telephone booth is the motor centre from

which the nerves stretch out to the farthermost listening post of the most recently captured shell pit. Every move of the foe is instantly flashed back from the listening posts. Along the wires speed messages, commands, the reactions of the brain. Quick as the sense of sight, this brain of Verdun registers impressions of the battle. The check of counter-attack, the success of a charge, a great gun silenced, the roll of the wounded, the prisoners, the dead, are here recorded. Here victory and its cost is counted. Here is collated all the material that afterwards appears, severely edited in the communiques.

It is curious to reflect that the hundred deeds of gallantry in charge, counter-charge, attack and repulse, all the drama, all the tragedy of a battle lasting throughout twelve hours of the night, goes down to history in a "stick" of type.

The days of my visit to Verdun the French fought two battles that in other times would have won at least a chapter of history. All day and night the cannon blazed. In the earliest dawn the infantry swept over the ground, now broken into a thousand craters—for it was no longer a war of trenches in front of Verdun, but a war of shell-pits

—and after desperate hand-to-hand fighting that went on in the shell-pits and later in the dug-outs, the French mastered their foe.

In the number of men and guns employed these two "operations" of this French army could be compared with the Battle of San Juan Hill. Yet here is all the official report stated about the fighting.

"Thursday, 3 P. M. On the right bank of the Meuse about nightfall yesterday our troops carried out two operations with brilliant success. Southeast of the Thiaumont work we carried several trench positions, capturing more than 100 prisoners, two being officers, and two machine guns."

Could a battle story be more emasculated? Not the name of General or regiment. Not a word recording the furious fighting that raged from lip to lip of the shell pits. Not a syllable of the stirring story of the struggle around the machine guns. Nothing but the bald facts relieved solely by the injection of the adjective brilliant.

But summarized in those few lines of type we have the history of this great battle. They bring to mind that day when the soldiers of the Crown

Prince came out of the east "like leaves of the forest when summer is green." They remind us of the first days of the fight when the armies of France staggered and reeled under the tremendous onslaught of the Germans. We can picture again the sudden snow storms—that storm that fought for France—the fields white, the roads impassable, all of which meant a respite for the French, giving them time to turn in here the unending supply of men, munitions and guns that has since been watered over the hills that surround Verdun. We recall the smash and counter smash of the might of German flesh and blood matched against French flesh and blood. We remember when the world waited, tense and expectant for the news that Verdun had fallen. But that news never flashed along the cables.

Instead we heard the story of the genius of General Petain, of the superb valour and steadiness of the French under the pounding of the greatest guns that Krupp could forge. We remember how the Germans lost the impetuousness of their first dash; how they slipped back foot by foot from the ground they had captured at the cost of uncounted lives. The few lines I have quoted tell the end of the

story of Verdun. What is more significant than that phrase, "capturing more than a hundred prisoners." Let us follow the fortunes of one of those captives.

He is Carl Swartz, second company of the Brandenburg Regiment. He marches first behind the two officers in the line of haggard, leg-weary prisoners in smirched uniforms, that winds down the Etain road toward Verdun.

It was not thus that the Brandenburger Swartz pictured his entry into Verdun. His mind harks back now to that day when his regiment bit its way into the heart of Fort Douaumont, and hung on in spite of the tidal wave counter-attacks of the French.

The morning broke clear after a week of hail and snow. Below his post in the newly won position, across the wrack of battle, lay the village of Flery. Beyond that village, hardly four miles away he saw Verdun. Verdun was his goal. When the German armies would sweep over that scant distance, then Brandenburger Swartz knew his work would be done. There was the end of the war in sight.

Had he not been so assured by *Hauptmann*,

Oberst, yes even the august Crown Prince himself. He remembered now the thrill that had gone through his soul as he looked down upon the city that was the symbol of victory. How they laughed and joked, his comrades of the Second Regiment. They had lost some fifty men of the company that night, the wounded were being carried out of the fort, but they thought nothing of their mangled bodies or limbs, they gave back wan smiles to the jokes of their comrades. "We can see Verdun. One more rush and it is ours."

This picture passed through Swartz's mind as if he had turned back the pages of some well-known story. How the shells rocketed into Verdun that March day. The whole city sparkled with red fire that flared against the buildings and died in clouds of black smoke. What was it little Heindrick Myer had said as he watched the ceaseless succession of explosions that burst off the roofs of the houses of the city; "If the artillery keeps that up another day, there'll be no work for us Brandenburgers. We'll walk into the town without firing a shot."

"Walk into the town without firing a shot. Yes"—thought Swartz—"that's what I'm doing.

But how different, how different!" He and his companions were all that were left of the original two hundred and fifty men of the Second Company. The end had come after a bloody fight around the lip of a mine crater. The French had driven them into the pit of the crater. Caught in a ring of bayonets, the remnants of the Company surrendered.

Swartz marvelled at what he saw as the guards hurried him past the battle line. Trench after trench, field work after field work, battery flanking battery, all so jumbled together that they seemed splashed in by a giant's brush across a canvas stretched through four miles of earth. He and his comrades had been driven on the run through the first line positions. It was hardly daylight then, so he could see little. But the crescendo crackle of rifle and machine gun fire told the story of the strength of those positions.

As they passed the reserve trenches, a group of French soldiers rushed out to see them. *"Voila les Boches!"* they had shouted. They had studied him critically, thought Swartz. He had straightened his shoulders and thrown up his chin as he walked past them. But out of the corner of his

eye he had seen that they nudged one another and joked. They were cheerful. Long months had passed since any one had joked among the Second Brandenburgers.

It was clear light when the little band of prisoners were marched past the battery positions. Swartz measured them with his soldier's eye and marvelled. For months on end he had suffered under the smothering shell fire of those batteries, but till he got this glimpse of them he had not conceived their number nor yet the tide-stream of shells that poured across the country behind them.

For Swartz noticed the network of Decauville railways spread out in rear of the batteries, and the hundreds of cars, loaded with projectiles, their painted points upward, shunted along the narrow rails. The line of prisoners moved not so fast but the mind of Swartz gradually assimilated the marvellous preparations of the French. It seemed to him that though the French batteries fired so constantly that never could he say—"Now no gun speaks," yet the mounds of shells that were dammed up back of the gun shelters did not melt. They grew.

As the significance of this shell supply worked into the Brandenburger soldier's mind, for the first time he began to feel resentment against his officers. "Did they not know the French had these mountains of ammunition? Why, they have as many shells for their great and small guns as we Germans have cartridges for our rifles."

With this reflection came other thoughts into the mind of Private Swartz, thoughts that he would not have dared to have whispered to himself in the night, thoughts that drowned his soul in an acid sea of depression. During the last two months the beginnings of these thoughts had dawned, but he had thrust them from him as treason. Dare he doubt the assurance of his Master? But then, when he was fighting, things had not been so clear to him, he made himself believe he was winning.

As he tramped along, a prisoner, inside the circle he had been fighting so long and so fruitlessly to pierce, he saw things that turned his doubts to demoralizing convictions. Even an army of devils could never take Verdun, he thought bitterly. An army of devils—the French themselves deserved that title. Could these confident quiet men in their uniforms of light blue be the same breed as those

fiends who shot, bayonetted and surrounded him and his comrades last night? The picture of the bloody struggle on the lip of the mine crater flashed on the curtain of the German soldier's brain. It was a ghastly terrible picture of ghost men who slaughtered, with only gun and grenade flash to lighten the night.

But Swartz did not want to think of last night. He turned his eyes above the steeples of the cathedral, and caught the sight of the black bulbous shapes of the captive balloons, swaying slowly upward in the sky. Six he counted. The same six he had counted day after day for more than two months now. It seemed to him they were a monstrous mockery, those bloated "sausages."

They swung between Heaven and Earth, a target for every gun, a temptation for every airman on the German side. But no shell ever reached them, no aviator dared venture thus far from home. For as the balloons rose, Swartz caught the drone of an aeroplane engine. A Nieuport biplane swooped out of a cloud, graceful as a swallow, swift as a bullet. No silvered Albatros from Germany could race these French machines; and to the fighting airman, speed is life. The Nieuports hovered

about the captive balloons, alert and constant guardians.

When Swartz had arrived at the station where he was searched and questioned, he was completely bewildered. The searching was rapid, thorough, and finished in a few moments. But he could make nothing of the questioning. Why had they asked him if Charlemagne was a Frenchman or a German? Then, when he stood confused, they quickly questioned "When had he heard from his family? Were they well? What was the date of their last letter? Before they had harvested the potatoes?" Potatoes! Did they not know the potatoes had rotted in the ground, Swartz had answered. What foolish questions these French asked, he thought, as he took his place once more in the line that marched under guard to Verdun.

Swartz smiled as he swaggered down the Rue Etain. It was a sullen smile born of the havoc he saw. It was nearly true what little Myer had said, the German guns had battered the roofs, breached the walls of the houses, until nothing stood upright except jagged silhouettes of rock and plaster. Here stood one house with the roof blown off, leaving the debris as hideous as a smashed skull.

There stood another, a section of a house, with parlour, kitchen, bed-room exposed immodestly to the gaze of all who passed. Bed and table and chair were tossed as if some drunken giant had raged the home. The still white face of the clock marked five minutes past seven, the hour of the tragedy. For here great rambling brown stains marked where warm blood once spread across the floor.

Through roof to cellar a shell had pierced the next house, and the explosion had sprayed the building into the street. A once peaceful home was thus transmuted to an indistinguishable heap of lath, plaster and brick. Beyond stood a house with its walls split from top to bottom, another pierced through from side to side by a shell. But one building in that city where once stood the peaceful homes of twenty thousand souls, escaped the scathe of the shells. Swartz saw all this scarification—his heart filled with secret joy.

But the fury of the German fire has concentrated on the top of the street of the Beautiful Virgin. The old museum building standing there was an improvised hospital. A great Red Cross is painted athwart its roof. "Some German gunner

scored a bull's eye," thought Swartz, noting the shell hole through the very centre of the cross.

As the line of prisoners neared the citadel, a sound so long familiar that Swartz was slow in perceiving it, came over his head from the German lines. Only when the shell burst did he realize that he was under the fire of his own guns. He was glad to hurry on.

The captives turned into the keep of the citadel to wait the train that would take them back to the prison camps of France. When the ancient dungeon door closed, Swartz was conscious of the sudden quiet of the place. He no longer heard the guns. This relief almost reconciled him to being a prisoner. Swartz could not know that all the underground passages of the citadel had been turned into barracks for the French soldiers. Here they came for rest and repose after the tempest of the trenches. Side by side their beds were lined along the tunnels. Here where no echo of battle reached them, they slept. Here they ate. Here they chatted, wrote post cards, did their laundry work—the steam pipes were excellent dryers—and forgot the strain of fighting. In a branch tunnel a moving picture screen was hung.

Songs were sung and little farces which the soldiers acted, were given between reels. During the days of their rest, the French battalions became an underground people, never coming out of the tunnels except for exercise. One had a sense of peace, lying there seventy feet under ground, that almost let one forget the horror of the fighting.

But Swartz and his fellow prisoners of war were allowed little time to enjoy such peace. Soon they found themselves huddled into freight cars, and they heard the puffing of the engine that dragged the prison train. For them the war was over.

It is a new railroad which leads from the fighting zone over which they passed. Three months ago not a yard of it had been surveyed, not a cross-tie cut. Today it runs forty-eight kilometres (thirty miles) back from Verdun to the heart of the greatest advance base on the French front. No better symbol of what France has done in the strengthening of Verdun can be found.

We know a superhuman succession of motor trucks supplied General Petain's army during the tense days and nights of the first month's fighting. With the wonderful organization of transportation

which took place at the time of the early desperate battles, the fate of Verdun was decided. The genius who planned this transportation stands on a pedestal but little lower than that accorded General Petain.

But this motor transportation belongs to the first chapter of the story of Verdun. The new railroad is an achievement of the last chapter. And it gives us a scale by which we can measure the magnitude of the world's greatest battle. It is a giant scale. But this is a giant war. In former times a battle was fought in not more than three, four, at the longest seven days. Now a battle rages for as many months.

As the time scale has lengthened, so also has the scale of munitions and supplies used, and men killed and wounded. We must adjust our minds anew to the stupendous proportions of this war, in order to understand how the building of a railroad thirty miles long was possible while a battle was in progress.

The Verdun Short line, as we might christen it, grew out of conditions that would bring a railroad into being in any other part of the world—an im-

perative demand for the most efficient transportation. The motor trucks were beginning to be less and less reliable, and the need for refitting and repair became each day a more harassing problem. The first onslaught of the Germans had been checked, through the aid of these trucks. But there was every sign that the Germans would hammer and hammer at the walls of Verdun. They would try to repeat the victory of Warsaw. So when the French saw the problem before them, they solved it on masterly lines. The result today is that the siding at the advanced base reminds one of the freight station in Kansas City.

Food and war material in crates of every size and shape are crowded in the stations. Special shell trains, loaded with nothing but the heaviest ammunition, are sent on daily time schedules, out to the fields behind the batteries of Verdun. Acre after acre is covered with steel cones. Here are the fabulous Dragon's teeth springing out of the ground.

Seeing field after field of these shells you get the impression of some extraordinary crop about to be harvested. While most of the fields are planted in

yellow tulip-beds of shell cones, yet on occasion you see an acreage of trench bombs, sprouting like pre-historic mushrooms.

In other fields great canvas curtains painted green and brown are stretched over a hidden shapeless bulk. If the wind lifts a corner of the canvas, you catch sight of mysterious boxes, thousands of the same size and shape, with broad red bands painted around their middles. Red is the colour of danger. Each of these thousands of boxes in itself is concentrated danger. The most reckless motor dispatch-rider, the most supercilious and daring chauffeur who drives staff-officers' automobiles behind the lines, gives the wagon with the little red disc stuck out from its tail board, the right of way. All roads are cleared for the powder boxes.

Close to the shell and powder fields are the aeroplane hives. These are arched corridors of canvas, painted green or yellow. As the honey bees leave their hives in the morning, so do the aeroplanes drone out from these canvas corridors at daylight. And as the bees, when their work is done, at sundown the flyers come homing back to the hive.

The strongest impression you carry away with

you from Verdun is one of movement. The snorting, smoking engines, pulling endless trains of munition cars is movement. The interminable line of motor lorries that run like a chain up and down the Metz-Paris road spells movement. The loading and unloading of the thousands of Decauville cars with shells is movement. The swift flying aeroplanes are the quintessence of movement. Even the clouds swirling past the bulbous balloons give the illusion of movement.

Gradually it breaks in upon you that this movement, this unceasing activity of every department of the organization behind the fire trenches, symbolizes victory. Day and night the arteries that feed the fire-spitting dragon at the front function without losing a pulse beat. Day and night the wastage of battle is renewed. More, this dragon finds, as is the law of nature, that with exercise his powers grow. Since that short period when indecision hampered results, Verdun has gained daily in strength.

I have tried to give you some impression of the vastness of the preparation carried out during the months of fighting at Verdun. But one's mind grapples ineffectively with an estimate of the mil-

lions of shells, the tons of ammunition, the train-loads of supplies that were banked up behind the fighting line. Perhaps we would get some idea of this estimate if we tried to imagine the Verdun army as the wall of a dam, the Elephant Butte dam of New Mexico, then picture the war material of France flooding into it.

The battle of Verdun ended the first phase of the war. Now, when the mighty events that marked its beginning, its continuation and its final chapter, have faded a little into the past, so we get a clearer perspective of the Greatest Battle of all wars, it stands in the balance of history as a French victory.

Remember a victory can be effectively measured in terms of resistance. If you thwart your enemy of his most wished-for and worked-for objective, you inflict a defeat on him that may count to your credit as important in result as an offensive success. When the Germans realized the enormity of their failure at Verdun, they tried to minimize defeat by measuring the ground they had gained there against the ground gained by the Allies on the Somme. But the balance sheet of battle is not computed on such a simple basis. The Germans

lost more than men and guns and ground on the Somme. They lost morale. While the defence of Verdun gave the French a quality of morale that made each simple soldier a giant in the fight.

I have said little of the soldiers of Verdun. What is there to say? Their deeds are beyond praise. Their heroism beyond comparison. One day perhaps some new born Homer will arise to chant of this battle in glorious verse. For Verdun is an Epic. An Epic chorused to the peal of cannon, the rush of the raging charge, the blast of shell, grenade and rifle, the hoarse grunting of men meeting men with sharp edged bayonets.

CHAPTER IV

IN THE ARGONNE

War burnt a path through this forest primeval as consuming as a prairie fire. Picture a forest so dense that the branches of the young trees twine and intertwine so closely you think the soldiers could cut out sections of them for trench wattling. Only the straightest rays of the sun pierce the crowning foliage of these trees to brighten the heavy undergrowth that flourishes about the trunk roots. Yet where the trench lines run, the trees, giant pine and stripling beech, have disappeared.

Here and there a gibbet trunk still rises, a sort of skeleton tree standing as a stark symbol of the results of war. Scattered over the soil are rotting branches that bleach in the sunshine and the rain. The armies of France and Germany, where they pushed through this beautiful woodland, were as the plague of locusts that sweep through the green grain fields of Argentina. And as is the

path of destruction of the locust, so is the path of destruction of the armies, sharp and defined. The primeval forest grows dense up to the edge of the fortified positions. But where man battles, nature dies. Here is a "No Man's Land" by contrast made doubly desolate.

It was a day of clear sunshine when I went to the front through the Argonne forest. The first tang of autumn filled the air. Walking up the broad road leading through the trees towards the dug-outs, I was strongly reminded of the Adirondacks. The soldiers had cleared away much of the underbrush behind the lines, and in the clearings had built collections of log cabins. The thin blue smoke curling out from their chimneys, the odour of a cooking breakfast, aroused such a series of association in my mind that I longed for rod and gun.

Compared with the other sectors of the front, these rest camps behind the Argonne trenches seem like pleasant picnic grounds. But if you study the faces of the soldiers who are spending their four days of relief from the firing line in these shaded glades, you lose the thought that their lot is easy. Now, after these years of war, experience has cut

its mark with grim, hard lines on the faces of the soldiers. Their eyes hold a glint of defiance. Yet, if you catch these eyes off guard, they brood. They seem to be the eyes of men seeing visions. These eyes speak of absorbing, unfathomable thought filling the soul behind them.

The chief occupation of the trench soldier in rest camp is washing. He comes from his tour in the front line caked and covered with several layers of soil. He has walked in mud, he has eaten in mud, he has slept in mud. Of other dirt he has collected all varieties with unconscious ease. Trench work brings out the sweat of the brow. Ofttimes the daily wash is perforce postponed because of the activities of the enemy. So, on duty, the soldier puts aside all pretence of cleanliness.

But when he returns to the comparative comfort of the reserve lines, he revels in cleanliness. He begins with a complete bathing of his person. Incidentally, a soldier had as lief lose his water bottle as his bath towel. After his bath he indulges the long postponed joy of shaving. When he has satisfied himself of the cleanliness of his person, he turns his attention with a sense of pleasure to his week's wash.

There is a sensation, soothing and satisfactory, in washing clothes. It is an occupation that makes for a philosophic outlook on life. So our soldier dawdles over it, scrubbing and smoking, examining results with a critical eye that frowns on the faintest stain. He enjoys sinking his hands deep in the suds and swashing his clothes about, then rinsing them in cold clean water. In the Argonne he spreads them over the branches of the trees to dry. So as you pass the camps, your eye is filled with a strange assortment of men's outer and under clothes swaying in the morning breeze.

A fortified position does not consist only of the first and second line trenches. The whole scheme of defence is carried back to the rest trenches, so that point after point is turned into a strong supporting position. In the Argonne the strength of these positions is founded on barb wire entanglements. I had seen much of the wire entanglements in many fields of this war, but nowhere had I seen a network of wire ribbon and steel thongs so impenetrable as that spread under the trees that still stand in the Argonne forest. The situation was ideal for the use of entanglements. The underbrush concealed the field of wire, and the standing

trees made natural supports for the strands. During the summer creeping plants wound themselves along the strands, as if Nature strove to hide the unseemly work of man.

In the centre of the webwork of wire entanglements stood a ridge; coming on it from the rear, one discerned at intervals of about fifty yards, six door-like openings to tunnels bored into its core. I passed down one of the tunnels to a square underground chamber, the moist earth sweating through the boarded walls, where a machine gun poked its hollow muzzle out on the forest. I had come under the backbone of the ridge to the far slope, which, still bedded in barb wire, fell away below the lengthwise slit through which the gun barrel peeped. The machine gun squatted on its tripod, staring into the wood like an iron watchdog. Measured in a direct line, the foe was but six hundred yards distant.

From the machine gun positions the way to the front led through a deep winding ditch. The soil had a curious semipetrified quality that made the ordinary expedients of revetting unnecessary. I am no geologist, but the soil seemed to me to be in the first stage of the formation of granite. This

quality made it possible to construct defensive positions of great strength, and it turned the fighting in the Argonne into a war of mines. The ditch I was traversing led to the entrance of the famous Argonne tunnel.

But before I could be shown the mysteries of the tunnel, I must don the helmet of the French soldier. In the shelter of the ravine, the commander of this sector had his burrow. After I had paid my call of ceremony on him, I was led to the helmet store. The latest styles of trench headgear were stacked on the shelves. I deposited my Stetson and was offered my choice of the grey helmets in exchange. They are simply made, something like a derby hat with the brim off, light and not uncomfortable. The value of the helmet lies in the protection it gives you from shell splinters, shrapnel, or bits of a hand-grenade that may burst on the ground above a trench should your head show over the parapet.

It has a value beyond this, for putting on the helmet, you feel your morale rise at least fifty percentum. If you were to ask a group of soldiers which part of their anatomy they considered the most vulnerable, nine out of ten of them would answer, the head. Men who come under shell fire for

the first time invariably duck, and wind their arms around their heads. It is an instinctive movement.

When you pause in cold reason to consider the slight protection it gives against the hurtling shell splinter, you may not repeat the movement. But you will long have the inclination to duck your head when you hear the whine of the coming shell. So like the ostrich, when you put on one of the steel helmets, you have a feeling of security that makes a visit to the firing line almost comfortable.

While I fitted my helmet, a French battery hidden in the trees started a leisurely shelling of the enemy. At about the sixth shot, a distant machine gun chimed in, playing treble to the battery's bass. It promised to be a busy day in the trenches.

At the time of my visit to the Argonne front, the battle of Verdun still continued, and the fighting on the Somme was at its height. With these two powerful efforts in progress there was little chance of heavy fighting in another sector. The western front is divided into live and dead sectors of fighting. Under the restrictions of the war of position, it is physically impossible to provide enough guns and men to maintain battle operations throughout the total stretch of the siege line. There are sectors

where the belligerents seem almost to draw apart, like boxers sparring for wind, making only enough demonstration of force to convince the opponent that the sectors are strongly held.

In the vicinity of Compeigne, the apex of the Laon angle, the two armies sat glaring at each other since the Battle of the Marne, yet for over two years neither dared attempt a forward movement. The condition was much the same in the Soissons sector. And in the Argonne, while there had been a continued state of mine warfare, yet neither side dared launch an assault.

There were two chief reasons for such conditions. First, the natural and artificial strength of the position. Second, its unimportance from a military point of view. While the Germans drove an attack at Verdun, a naturally strong position, yet from the military point of view a success there, would have been worth all the losses involved. That the Germans failed is but added proof of the futility of attacking a position of such strength. On the Somme there were a number of reasons for carrying through an offensive. The position was not so strong as other sections of the line, and the potential compensations justified the effort.

In the dead sectors, one felt all the tense strain of war with none of the relief of action. Men were on the watch day and night. Surprise, one of the potent factors of military success, is an eventuality that must be guarded against at all costs. Therefore, even in those in-active divisions of the battle front, the rôle of the sentinel was paramount. The sentinel must be alert not only for any indication of important activity of the foe, but he must be eternally vigilant for signs of minor activities, such as raids, bombing parties, or sapping work. In daylight, this task is comparatively easy. The time for "putting something over" on your foe is night. So, in the darkness the trenches take on an atmosphere of energy in leash that approximates the thrill of the wait before battle.

For every night brings its minor engagement. Unimportant as this engagement may be in the general plan of war, yet to the individual soldier who may be wounded or killed in the encounter, the engagement is of supreme concern. The night before my arrival in the Argonne, the Germans had exploded a mine, killing eight and wounding ten of the defenders.

Captain Delmas of the Staff, explained the char-

Underwood and Underwood.

THE SERRIED RANKS OF SHELLS

Part of an inexhaustible supply. The shells here pictured were shot away in an hour's time on the Somme.

acter of Argonne fighting to me on the way to the tunnel. His explanation was interrupted by a voice calling to me in English—

"Say, are you an American?"

I turned to see a St. John's ambulance driver coming out of the brush. The red cross on his cap and the insignia on his coat lapels were the only touch of colour on his khaki uniform.

"Yes," I replied.

"Well, I lived in your country for eighteen years. Down in the Panhandle, Texas. I worked on the J. A. ranch. My name's Jenkins."

When he said Texas, we shook hands. I know the Panhandle and had ranched with the X. I. T. outfit in the old days when their range joined the J. A.'s. The long arm of coincidence must have been pulled out of its socket to bring two old hands from the cow country together in the Argonne. We swapped a few reminiscences, then I followed my guide once more towards the tunnel.

Down a sharp incline I entered under the crust of the earth. By the light of a flickering candle I noted the shoring of wall and ceiling, and when I reached the bottom of this entrance shaft, I found myself in what might be the gallery of a silver

mine. Briefly, the soldier adapted the craft of the miner to serve fighting ends. This adaptation inaugurated subway warfare. At long intervals incandescent bulbs lightened the gloom of the damp tunnels. Their rays shone on the strong boxes of small arms ammunition ranged against the walls. Cross tunnels lead from the main gallery to shafts that climb up to the fire trenches and the cartridges are stacked safe, yet convenient for emergency. Beyond the boxes of cartridges, a wooden door opens into a subterranean sleeping chamber. Two cots, a table and two chairs furnish it. For ornament a cartoon from *Life* is pinned against the wall. The cartoon represented Uncle Sam in a state of petulant annoyance, and the caption beneath it read,

"What, is there a war going on in Europe?"

A little beyond the sleeping room I passed another cavern wherein a dynamo—made in America—was installed. This furnished a power for the lighting of all the underground passageways. Further along the tunnel I became aware of a sound that for a moment I confused with the clatter of a machine gun. Following my guide, we went a short way down a branch gallery, and there stood

a soldier cutting his way through the soft slag with a compressed air drill. But for his stained and faded uniform, he might have been a miner drilling down a vein of quartz. I reflected on the labour expenditure of this mine warfare.

Here was this man cutting a tunnel that would take weeks to complete; and when finished, several hundred pounds of explosive would be touched off underneath the German trench. Probably the explosion would result in the killing and wounding of some twenty men. Surely this was an exceedingly small result for the cost in labour and material of the military land mine. Then, there was always the risk of a counter mine, destroying this work of weeks. It is not difficult to detect mine workers, for the soil is a good conductor of sound; also to aid in the detecting of mine work, an instrument contrived on the principle of a dictaphone is carefully deposited near the edge of the enemy's trench. And on occasions it is possible to overhear not only the tapping of the mine workers but even conversations.

Leaving our soldier miner, we ascended to the second line trenches. For a moment I was blinded by the bright sunshine. The battery that I had

heard before my underground walk was still firing methodically. Now and then the machine guns sputtered. Except for these sounds all was as quiet as a Sunday morning.

This calm had a dramatic quality. Behind the breastwork of sandbags, we crouched, as the hunter watching his prey. Captain Delmas and I spoke in low tones as if we feared the enemy might over-hear us. Over the parapet, I looked into the rear of the fire line trenches, hardly a hundred yards distant, and beyond them a scant ten yards ran the enemy's line.

A rough, irregular furrow of stubble, running along the crest of a hill called *La fille morte* (the dead girl), bounded the enemy position.

But the picture I got of the French line gave graphic evidence of lurking danger. The loophole through which I peered framed a view of a group moulded rigid as stone. There was no movement in the fire trenches. At a look-out post, a sentinel posed still as a statue. His coat fell from his back in those ample folds that are the delight of sculptors. Further carrying out the illusion of statuary, were the figures of two other soldiers, one on either side of the sentinel, stretched out on the soil sleep-

ing. Remember, the time when the sentinels must be most alert is night, so these sleepers were taking their rest as only soldiers can.

Up and down the line of the fire trenches I glanced. Wherever I looked on the back of a soldier he was tensed against the side of the earth wall that stood between him and death. Sometimes I caught only the glint of a grey helmet showing above the ground. Yet it was so still it might have been fitted on a tree stump. This concentration of watchfulness characterized the whole line.

It seemed irrational that these men should be staring so intently at nothing. Strain my eyes as I did, through a pair of the best binoculars Mr. Zeiss ever made, I could see no indication of a foe. But he was there. These sentinels knew every tree trunk, every hummock in the stubble, every picket of the enemy's barb wire, better than they knew the details of their own farm yards. If the morning light shows a tree trunk cut, a boulder displaced, or the barbed wire changed, the activity of the enemy stands revealed. Immediately it became the purpose of the defenders to divine and check his object.

The sentinels did not even turn their heads to

watch a silvered Albatross aeroplane that swam out of the sky above the German lines. That was the duty of the anti-aircraft gunners. Four puffs of feathery smoke burst against the blue of the sky about the aeroplane, surrounding it like the pips on a playing card. Then the flying machine passed from view into the bosom of a friendly cloud.

Leaving the look-out, I walked behind a strongly built parapet to one of the forward machine-gun positions. It was but little larger than a comfortable grave. A horizontal slit gave through the wall of the grave towards the Germans. This opening was concealed with a curtain of burlap, through which the light of the outer world filtered, revealing the blue-barreled gun.

The machine gun in the Great War is the master weapon. I always look on these sprinklers of death with awe. From the beginning of the world fighting, I have been witness of their frightfulness. Turn that spout of lead free into a charging line, and men will drop as clay pipes in a shooting gallery.

On our way back from these trenches, the Marquis d'Andingné, who had been my companion from Paris, told how, on his last visit to this front,

an ill-natured German had thrown a hand-grenade at him. Evidently the Germans were in better humour the morning of my visit.

After retracing our steps through the gloom of the tunnel, and then passing along the zigzagging communication trench, we came again to the helmet shop, where I turned in my iron hat, and received in return my Stetson. Then, with an hour's stiff walking, I arrived at the chief artillery observation post in this sector.

The walk through the forest was interesting, for what I saw and more than interesting for what I did not see. It is obvious that the officer at the front has not too much confidence in the correspondent. He is jealous of the secrets of his position. He is quite indifferent whether the world knows of his wonderful achievements, or whether they continue a hidden mystery. If anything, he prefers that his work remain a mystery. Yet he is all courtesy. So when you are his guest at the front, he shows you all that he feels justified in revealing, often at inconvenience to himself. But such is the perverseness of human nature, it is the things that remain hidden that we want most to see.

I soon became aware that there was a mystery in

those woods. Perhaps this mystery concerned one of the giant French guns that are hidden in the dense thickets of the Argonne. Immediately I was fired with curiosity.

When I met the commanding officer of this new division of the front, I noted that he wore the dark uniform of the artillery. He was a handsome elderly gentleman. His burrow was hollowed out of the side of a hill. From what I could see through the open door, it was furnished with characteristic simplicity. Yet it boasted one improvement. It had a window. The window was ingeniously made of empty claret bottles, the necks broken off, and the remainder of the bottles fitted six or eight in a row in a wooden frame. Such a window admitted a soft church-light into the commander's chamber.

His men also were very comfortably dug in. And they too, had the claret bottle windows let into their cabins. There is no favouritism in the French army. The men were at breakfast when I saw them. A long table was built out under the trees around which they sat, while a luscious aroma steamed up from a half dozen deep mysterious pots. They were in the easy undress allowed the

French soldier off duty, but I noted they wore artillery soldiers' breeches.

Finally I was escorted to an observation station. I might have been in the conning tower of a battle ship. A long slit, that made a half circle of the conning tower, gave a view of the whole country in front of the French positions. A powerful telescope, and an equally powerful periscope, through which I looked, brought the German trenches so close I felt I might reach out with my cane and strike them. At one end of the line stood a lone hill with its side gashed out. My guide told me the Germans had exploded seventy-five tons of dynamite under this hill. Yet, between the observation station and the distant ridge that marked the German positions, the tree tops made a green carpet.

The first purpose of an observation station is to observe artillery fire. From the character of this station and the powerful glasses there installed, it was to observe artillery fire at a great distance. My deductions more and more convinced me that this was the post of one of the mighty cannon, guns that are a hundred millimetres greater in calibre than the 420's of Germany. Perhaps this was the

home of the famous "Rosalie," the largest cannon in the world.

When I left the observation tower I caught sight of a range chart hung against the wall. Here was the final link in the chain of evidence. Beyond doubt within the radius of a few hundred yards was the hiding place of a mighty gun. Etiquette forbade my asking to see it, but I devoutly hoped I should be shown the gun. I was disappointed in my hope. *La lourde* (the heavy one), was not to be revealed to my profane eyes. I passed close to it. Yes, I saw the powder magazine that fed the gun, but the gun itself remained unseen in the densest thicket of the Argonne forest.

Yet I had seen enough to understand the strength of the French position. The wall of the impenetrable forest was made doubly secure by every device known to the military engineer. If the whole weight of German military strength had been thrown against the French lines in the Argonne, it would have shattered like the sea on a rock-bound coast.

CHAPTER V

IN THE STREAM OF THE SOMME FIGHTING

As a stream swollen with the rains cuts under its banks till the earth falls into its waters and is carried away, so did the French battle current on the Somme cut under the German bank of defence.

Tramping over the battlefield between Peronne, and Chaulnes, the simile of the stream in spring-time came to mind as I watched the rivulets of rain water draining into the myriad shell pits. These pits cover the ground as if it had been scourged with small-pox. They are filled with pasty mud of the consistency of newly mixed mortar. From them the rain water seeks the level of the roads, now turned into ribbands of yellow paste spotted with pools of yellow water. Along the roads working parties of French sappers are busy with pick and spade, cutting drains to lead the water to the shell holes.

They work gingerly, these mud covered sappers,

because the battlefield is sown with shells and hand grenades waiting only the slightest touch to bring a long delayed explosion. Danger is hidden in every shell pit. Other hidden things are now revealed by the rains—gruesome, repulsive bundles of rotting grey uniforms, which send out sickening odours like marsh gas. The sappers spade the mud decently over these bundled forms.

Distant German batteries fire their sullen rounds at the groups of sappers. The shells pitch into the mud to burst with a roaring eruption of wet earth and black smoke. French batteries, guardians of the workers, give answer, their shells quitting the guns with poignant detonations.

The battlefield is a section of the world in decay. Rot, disintegration and disruption go on, rapidly turning the fields, fences, the trees, the crumbling rubble of the ruined homes into a weltering mass of raw wood, twisted iron, broken stone, imbedded in dank earth. Above this desolate scene, a saffron sun struggles through the mist that covers Picardie.

In this dreary waste, leading lives little less horrible than the vermin that plague them, the soldiers of France exist. I do not say live, for to pass days and nights amid scenes terrible with the blood and

blight of war, is not living. The death strife, the wounds, all the frightful incidents of fighting, are no more soul trying than eating and sleeping in a grave-like ditch, deep in slime with the grey rats fighting for your food, and no fire to dry the coarse clothes, dank with rain and sweat that chill your body.

By day these soldiers build up the trench where German shells have torn it, or clear out the mud that has land-slipped into their shallow ditch. By night they lie deep in the dugouts listening to the gun-thunder and feeling the tremble of the earth as it quivers like a living thing under the pounding of the shells. Thus they wait for the new order of battle.

For the fighting goes on in spasms. New guns, new shells, new men must be hurried forward after each battle before a new effort of attack begins. Winter war is a mind-numbing, soul-scarifying, body-breaking trial.

Chaperoned by an officer of the French General Staff, the correspondent could leave the Gare du Nord in Paris at noon, and arrive at the front in time for the five o'clock bombardment.

What a contrast the martial crowd at the railroad

station make with the travel crowd of peace days! The harried American and the misunderstood English voyagers have vanished. A swarming assortment of soldiery fill the places of the peace time traveller. Every army of the Entente contribute a sample to this martial mass. On the Amiens special stolid, self-contained English officers preempt the choice seats in the waiting trains. Dour Scotch soldiers, their faces brick-red under their "glengarries," and bare knees peeping beneath their swishing kilts, climb in with some khaki-clad chums of the Army Transport Service. A whole train is reserved for a regiment of Belgians bound for Dunkerque. Soldiers from India, Algiers, Morocco, show their swarthy faces in the throng. But by far the greater part of this assemblage wear the horizon blue of France.

The French soldiers give a blue tinge to the mosaic of uniforms. Watching them depart and arrive you realize in the concrete the "before and after" of the trenches. The men of the new class are spick and spotless in azure great-coat and vibrant blue helmet. Their eyes sparkle out of smooth, unwrinkled faces. You almost smell the newness of their boots and accoutrements. The

furloughed men make a shabby contrast to their brothers. Sore and stiff, they step from the trains. Mud in thick layers cakes their faded uniforms. Helmets are dull and dented. Sombre eyes stare out from under the visors, above cheeks that are rough and sunken. But recruit or veteran, they all carry an atmosphere of what the French call *fierte,* bold dignity that marks them as men ready for the final sacrifice.

The soldiers are engulfed in the crowd that greets or Godspeed's them. The poignant humanity of that crowd! Held back by wooden-faced Sergeants de Ville, they stand outside the barrier breasting the platform, a sea of white faces and straining eyes.

Those eyes sparkle with tears, tears that break into a joyful shout when father, husband, son is recognized plodding down the platform, soil-stained and grimed, but safe from the trenches. The loved one is smothered in embraces. Hugged, kissed and patted by mother, sister and child, all laughing and crying by turn, he is led off grinning to such a dinner as only a French woman of the country can cook. They are good to their men, these French women.

Beyond the crowd waiting for the men on leave, the pendulum of emotion swings to the other extreme. Here the last sad good-byes are said by the loved ones. Brave they are, and voluble, filling the departing soldier's haversack with patties, meat pies, cigarettes, and stuffing his great-coat pockets with bottles of wine. The tears are held back, but they burn the fiercer in the swelling hearts that restrain them. There is a boy, his blue eyes a shade deeper than his helmet, being kissed in turn by brother, sister, father, mother. And when they kiss in France, it is no self-conscious salutation to be ended as quickly as possible, but a sacred ceremony of affection, full of lingering emotion. How that mother kissed her boy!

Standing near is another group. A woman, a girl rather, wearing deep black and carrying a child. She is looking with proud yet wistful eyes up into the face of the soldier beside her. He prods his tiny offspring with his forefinger, smiling broadly at its gleeful cries. The whistle blows, the bell rings. Husband and wife crush each other in a long last embrace, the child between them. As the blue-coated soldier hurries away, the girl waves her handkerchief, now damp with tears, and holds

the baby aloft while the long train shunts out of the station.

Amiens, before the war, was celebrated for its splendid Gothic cathedral, and as the home of Jules Verne. The cathedral is still undamaged by German shells. As for Jules Verne, if he were alive today, he would sit around reading the submarine reports, saying, "I told you so."

But Amiens hereafter will enjoy a greater claim to fame than it ever did in pre-war time days. It was the main base of the British and French armies in Picardie.

It is difficult to convey the exact meaning of that sentence. Imagine Jersey City crowded with a polyglot military population, its trafficking trucks turned into military motor transports, for a first impression of Amiens. Grey automobiles of all sizes and shapes, from the elephant-like lorry to the mouse-like runabout, scuttle through the streets, engines panting, and horns braying. The horns must be kept pleading incessantly for room from the crowd that fills the street from sidewalk to sidewalk. The motors and the yellow overhead trolley cars plough through the crowd like destroyers through a tossing sea.

The crowd links Amiens to the farthest corners of the earth. No small part of its bustling activity is expended in the purchase, the writing and the mailing of post-cards. It is a safe statement that post-card pictures of the Amiens cathedral hold the travel record. They have found their way to Aukland, Sydney, Calcutta, scribbled with a greeting from the front.

Australians in flopping felt hats, New Zealanders hatted in the American army style, and turbaned Pathans are the outstanding elements of the crowd. For at first you only distinguish heads above the multitude. Here the colonials and the Indians seem to tower above their European brothers. Gradually groups of Coldstream Guards, of Fusileers, of Royal Engineers stand out in the picture, giving it a drab tone. Brushing elbows with these are the azure blue coats of the French. While the dominant colour of the streets is a kaleidoscope of drab and blue, yet there remain in Amiens nearly the whole of the resident citizens, whose dark habiliments tone down the colours of war.

The bustle of Amiens rivals that of a bonanza town. And the local shop-keepers have raised all prices to the bonanza town scale. The guide book

will tell you that a room in the Hotel d'Univers costs four francs, but when you get your bill you are charged twelve. If a battle-weary soldier of epicurean taste comes back from the front with a longing for lobster, he can satisfy that longing for twenty five francs, nearly five dollars in American money. It is not only the American who grows rich through the war.

The remarkable feature of the city is that all the business of war is carried on with but little interruption of the routine of civil life. School children, their books packed on their backs, follow the burdened soldiers along the Street of the Three Pebbles. Business men in sombre black hurry to and fro under the press of urgent affairs. Business was never better in Amiens. Clothing stores, drug stores, shoe stores, hat stores, haberdashers, silversmiths, jewellers' shops, and a hundred other varieties of buying and bartering present a picture of a Christmas shopping season.

The war stream passes through the centre of the city. It sweeps through the main arteries of traffic, a rushing symbol of fighting strength. It is a febrile stream. Its waters are never still. The bread, the meat, the drink, the cannon, the powder,

the shot, the shells rush through the town like a winter torrent down a mountain. Here is the flood of war.

When you reflect on what this flood of war stuff means, you get some dim understanding of the cost of the world struggle, and its inevitable end. The lands held by the Central powers can be likened to an island, the war strength of the Allies to the sea. And the tide is rising.

If you turn out of the war arteries into some quieter street, you meet one of the grim ironies of war. The magnificent building of the law courts, the Palais de Justice, no longer serves as a stage for forensic combat. From its tall, forbidding windows, figures in white dressing gowns are staring. A bandaged head, an arm in a splint, mark these figures as the mildly wounded, wreckage thrown out of the rushing war current.

Beyond this improvised hospital stands the Cathedral. With the rumble of distant guns in my ears, I thought of that other beautiful cathedral, and how it had suffered in the war. I had seen Rheims cathedral under the fire of German guns. I had seen the carvings of the Saviour, the saints, the holy ones smashed into scattered slag. I had

seen that other glorious Gothic church blackened and scarified by the scourge of gun fire. Would the vandals repeat their infamy?

To protect against another such outrage the *façade* of the cathedral is covered with a fortress wall of sand bags. All the magnificent carvings, the work of centuries, that decorate the exterior of the church are hidden. Even in the interior, under the high, vaulted, nave, the choir, with its exquisitely carved pews, lies safe from aircraft bombs under a thousand bags of sand.

Before a side altar women kneel. Some are old, with deep wrinkles spreading out from their trembling lips; others are young, yet sorrow speaks from their supplicating eyes. All are gowned in black. They bow before an image of the Christ crucified. The agony shadowed on the carved face of the Christ finds reflection in the faces of the kneeling women. Above them the vaulted roof echoes the booming of far-off cannon-fire. In the streets the war vortex surges and rumbles unceasingly. Can the Saviour hear the whispered prayers of these women?

Amiens lies at the apex of the triangle made by two of the longest and straightest roads in France.

Today these roads carry more traffic than the busiest boulevards of Paris. The northern leg of the triangle leads to the British front; the southern leg runs straight east without twist or turn to the heart of the French army.

All day and all night an unending chain of war traffic shuttles back and forth over these two roads. Trains of grey motor lorries, vaguely resembling the prairie schooner of the pioneer West, clumber one after the other over the rough macadam. The links of the lorry train will be joined by an automobile battery, banging and bumping along the route. Skirting these a speeding staff motor will pass like the wind. All are hurrying under the exigent call of war.

A low winter mist covered the stubble fields of Picardie as I journeyed out to the front. Our motor passed beyond the outskirts of the city the microphone signal station, with its curious instruments like enormous gramaphone horns, pointed towards the eastern sky. These were tuned to catch the hum of the aeroplanes, or the menacing whirr of the Zeppelin. Flanking the microphones, two anti-aircraft guns were hidden under a cover of rusty corrugated iron. Passing these, we turned to the

main road, and met the greatest handicap of modern war—mud.

The rain waters had covered the face of the earth, turning it into a thick yellow paste, soft, oozing and slimy. Here the problem confronting the French army was the maintenance of roads. The mud is an enemy more tenacious than the Germans. It is the ally of the enemy. It holds up the trains loaded with shells; it halts the cannon; it delays the plodding regiments of reinforcements. A muddy road may spell defeat to the best planned push. So the French as they have set about methodically conquering the Germans, now set about conquering nature.

It has come to pass that the steam roller is a war weapon second only to the eleven inch gun. I did not count them, but I hazard the guess that one of these steam rollers is busy every mile of the road behind the French front. Beside both gutters of the road, a mountain range of cracked stone is piled. As much care is given to seeing that this supply is never diminished, as is taken in keeping the caissons of shells filled. No matter how rapidly the prisoners, for it is the duty of the German prisoners to be road menders, shovel the rut or puddle

full of stone and the roller crushes it into place, the stone piles grow no smaller. A constant stream of carts pass from the quarry, along the whole length of the road, dumping their contents at the call of a road mender. It is an army in itself, the corps of road menders, and their work is second only in importance to that of the fighters in the trenches.

The prisoners, young and stout enough, take to their enforced work sulkily. Perhaps it is the insult of the Moroccan sentry that chafes their spirit. Indeed it must be good for the soul of the proud Prussian Guardsman to find himself herded to his work by a turbaned negro.

The prisoners wear their regular uniforms, which are stamped with a big P. G. *(Prisonnier de Guerre)* and all I saw had overcoats. There is nothing in the appearance of these prisoners to bear out the oft repeated statement that the quality of the German soldier had deteriorated. They were all of good fighting age. They were ruddy cheeked, and bore the appearance of good feeding—though this perhaps is the effect of plentiful French rations.

Coming to a stretch of road where the menders had railed off half of the fairway, our motor was

held up just as if it were caught in a jam at Fifth Avenue and Forty-Second Street. A soldier with a whistle and red flag acted as "traffic cop." The up-and-down stream of war stuff followed his signals implicitly. One halted while the other passed, and the whole moved without confusion.

I soon began to see and admire the system that is behind the French army. The whole machinery moved with the speed and swiftness and surety of a high-power dynamo. But what I saw at this time was as nothing to what I was soon to see.

I stopped with my courteous escort, Captain Block-Leroque, at the great shell depot of the Somme front. There are other shell depots, but few equal this in size and the number of shells stored. In this little village over half a million shells of all sizes are hidden.

I doubt if the pre-war field artillery of the United States had as many shells, yet this is but the supply depot of an army corps. If the supply were not constantly renewed, every one of those half million shells would be gone at the end of a week. Roughly, the supply is divided into half for the "75" guns, and the other half for heavier batteries. It is not unusual to feed twenty-nine

thousand of the "75" mm. missiles to the Germans in a day from this depot. When you have not seen an ammunition depot behind one of these European armies, it is almost impossible to imagine its vastness. If every man, woman and child in Baltimore were given a shell as a souvenir from this one depot, there would remain enough of the yellow projectiles to provide souvenirs for the populace of Alexandria.

In the beginning of this war I confess that I bowed before the fetich of German military organization. In the American army we were taught that the world had never seen such perfection of system as that developed under the direction of the Great General Staff. One spoke of the supply, subsistence, transport, armament of the German army, its mobilization plans, as if the development had been the work of geniuses. The mighty fighting machine was the achievement of the vaunted superman. No other nation could hope to approach it.

But under the stern demand of war, France has brought into being a system of transport and armament that surpasses that of Germany. This was borne in on me as I stood overlooking the five sid-

ings leading into the munitions depot. Flat cars shunted in along two of these, each packed with shells as neatly as beer-bottles in their cases. A horde of Madagascar natives, singing as they worked, rattled the shells into the waiting munition trucks so fast that the yellow missiles seemed iron filings flying to a magnet. The first siding handled the heavy shells, the largest, equal in size and something of the shape of a spotlight gas tank. From these giant cases of high explosive, the shells gradually descended in size to the eighty-five mm. projectile which is somewhat greater in bulk than a Magnum measure. The next spur was jammed with "75" mm. shells, and it seemed that even the most wasteful battery commander would not be able to shoot away ammunition faster than it could be supplied him by the combat trains circling past the siding.

Beyond were other tracks crowded with clothing and subsistence stores, engineering material, hospital supplies, all passing rapidly and in order to their ultimate destination at the front. Cases of hats, coats, shoes, a new trench boot patterned after an Esquimo muck-a-luck, innumerable boxes of rations, a mountain built of barb-wire spools and

planking, and another of crated first-aid bandages. Of such is the store-house of war.

And the marvel of it all was the smoothness with which it was handled. No yard-master of a dozen years' experience can show a better freight system than the one devised by the French colonel in command of this supply station. Here was a sample of French organization, and it compared with the best that Germany has perfected. If any added proof was needed to show how the Allies have wrested the superiority in this war from the enemy, it was found behind the lines that sweep the Somme. I found as much method in the labour of war there as I saw in that gigantic labour of peace, the Panama Canal.

As our motor sped away from the basin where the shells lie, I looked back half-wondering what might happen should an enemy aviator drop a bomb into this reservoir of compressed destruction. I could not imagine the hell picture that then would be painted against the western sky.

But up in that western sky swung a score of captive balloons, black sentinels watching over the war base. They were anchored in a great circle around the rim of the basin wherein lay the ammunition

depot. Above and among these spheroids some twenty aeroplanes swarmed like a cloud of gnats.

No enemy aviator could hope to cut through this cordon of flying sentinels. At least, not while the sun shines. In the night there is danger, for then it is difficult for the airmen to distinguish friend from foe. Yet were it all destroyed, it would only mean that the supply departments and the shell factories would have to make up the loss of a week's material. Gauge from this the coefficient of destructiveness of a week's warfare.

With these thoughts running through my mind I sped faster and faster towards the battle front. The rumble of the guns became more and more distinct as the speedometer ticked off the miles our motor covered. The war traffic thickened. We met a mud-stained regiment just from the trenches. The motor slowed and stopped. We were on the edge of the battle ground.

CHAPTER VI

THE BUSINESS OF WAR

BATTLE is a business problem. The questions of supply and transportation fall naturally into like grooves behind a battle line, or behind the plant of the Steel Corporation. The battle problems of production and distribution baffle the generals as similar difficulties perplex the heads of great commercial organizations. In the United States we have come to know something of this condition through our commercial relations with the fighting nations. But not only is the feeding, the clothing, the moving, the munitioning of an army, business in the strictest sense, but the plan and action of a battle itself is business of the most intensive character.

This conviction was borne in upon me in the office of General Maistre, while that officer explained the work of the French army in the attacks along the line of the Somme. With the courtesy

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characteristic of all French officers, the General was making plain to me how his corps, week after week, cut out sections of the area that the Germans occupy in France.

These sections were marked on a map in yellow, red and blue, the different colours representing the work of three succeeding weeks. General Maistre was discussing the assault on Ablaincourt.

"We have, in our attacks, a definite and a contingent objective. These are fixed upon in our general plan, and depend upon the character of the country, the resisting powers of the enemy, and the particular purpose of the attack. The definite objective is limited by what effect our success may have on the enemy, and is an area beyond which we decide it would be dangerous to push, even against a demoralized foe."

It was not necessary for the General to explain why troops could not charge on indefinitely, driving the enemy before them. Several English battalions had tried this with the result that the German line closed in like water behind them, cutting off all communication with their friends, and thus, what had begun as a brilliant charge ended as an ignominious surrender.

"But," General Maistre continued, "we have found that we have often under-estimated our area of contingent advance. Sometimes our front line commanders halt in accordance with orders and watch the German battalions leave a large section unoccupied on our front. Lately we have been increasing the extent of the ground we hope to take in each assault"—the General paused while a smile played around his mouth—"and our hopes have not been disappointed."

"Outside of tactical considerations, General," I asked, "how do you determine how far it is safe to push your attack?"

The officer picked up a photographic print from his table and handed it to me, saying:

"By taking a picture of the country."

I studied the print. At first glance it seemed an illustration for a book on insect life. It looked like a bird's-eye view of a city of ants.

"That is a picture of the country between the French and German trenches. It was taken by one of our aviators two hours ago. There," he said, pointing to what I had mistaken for a column of ants, "are the Germans in their trenches. Here

the French. The photograph is taken on the oblique, so as to throw the main features into high relief. If you look closely you can see what the Germans are doing, evacuating some of their wounded. Here," pointing to what looked like an imperfection in the plate or print, a small white splash on the brown ground, "is where one of our heavy calibre shells has just exploded over a German battery."

The eye of the camera had caught the shell just as flame and smoke were clearing. Beneath it I could discern vague outlines of the ant-like figures.

"The aviator who took the photograph flew about fifteen hundred feet above the enemy's guns, and was himself in much danger."

The more I studied the photograph the more plain the different landmarks became. The rectangular outlines of the houses of a village, Ablaincourt, a long straggling building with a tall broken chimney, the Sugar Mill, where a desperate skirmish raged later; long, meandering fret-work lines, where the trenches ran; pits that spotted the print like pock-marks, some with Lilliputian figures hiding in them—the shell holes. The lens had omitted

no detail of the ground. Under a magnifying glass the whole country came out as clearly as a plaster relief map.

"After the staff have studied the photographs," the General was saying, "and the plan of attack is arranged, these pictures of the landscape are given to the officers commanding the assaulting battalions so that they can familiarize themselves with the ground over which they advance; and know where to expect the chief resistance of the enemy and judge what measures will best overcome this resistance. They take the photographs into battle with them, so that even in the heat of action, they can tell from them exactly where they are, and what positions friends or foe should occpy in their immediate vicinity." In conclusion the General stated his opinion "that these aerial photographs mark the most valuable development of technical warfare."

The aerial photographer is not only the aid of the infantry, but also of the artillery. When posing the enemy for the purpose of the guns, the air photographer "shoots the piece" as the moving picture operators say, not from the oblique, but from the vertical position. He flies directly over the battery or section of the front that the artillery com-

mander wants to pulverize, points his camera straight below him, and presses the bulb.

The result tells a better story to the artilleryman than the slanting picture. Of course it is the object of the enemy to conceal his battery positions, headquarters, and all other points of crucial military importance. He takes elaborate precautions to accomplish this object. But the lens will often lay bare the site of the most carefully hidden battery.

For instance, should the photograph show four white, semi-regular patches, spreading out in front of a suspiciously dark patch, that would be a sure guide to the station of four enemy guns. The four white patches would indicate the effect on the ground in front of four gun muzzles of repeated firings—the black patch would represent the protective covering of the battery.

For the artilleryman, the prints from the groundwork of maps are drawn carefully to scale, from which he reckons the exact range to any of the enemy fortifications.

This application of photography to the needs of war is only in the first stages of development. It promises to become one of the most fascinating

branches of that already fascinating occupation, war-flying.

Nevertheless, the photographic work is but a small incident of the business of battle. It is out of the ordinary and thus interesting. But the results obtained by the photographer would have no value if the routine of war business did not go on in the dull, monotonous way of all routine work. It takes some imagination to think of battles becoming routine, but so they have become, in the trench-grilled fighting zone. Day after day, week after week, month after month, the long trains of bread, beef, shells and powder, limber and load, travel and unload, return and reprovision with time-telling regularity. The old woman living in the little cabin on the Chaulnes road, ten miles east of Amiens, when she sees the first of the crawling *camions*—as the French call the big war motor trucks—reach her gate, knows that it is six o'clock.

The supply of men moves almost as regularly. Battalions march in and out of the trenches, through tour after tour of duty, with only the incident of actual battle to break the monotony. And now at last the recurring orders to advance have been so often repeated they have become a stale story.

Even the appearance of the new Cyclopian cannon, the 20-inch howitzers, hardly disturbed the even dulness of the war business. At least it was so in the war zone. Back of the lines, where the people have more time to talk and speculate on the incidents of war, the debut of these monster pieces was a gala occasion that surpassed the singing of a new Opera.

In the clubs and cafés of Paris stories went the rounds of how long it took to cast the gun, of the tons of iron required for one barrel, of the marvels of its mounting. Then there were speculations on its power, its graceful construction, and more astounding than all, its comparative lightness. The breach, the bolt, the elevating mechanism, the loading slides all fitted and worked so smoothly that an "infant could operate it."

Much of this gossip was the exaggeration of the untechnical, and was discounted by the serious-minded French officers. Yet when the first of these great howitzers was tested before President Poincaré, it surpassed the claims of its designers.

A group of artillery experts accompanied the President to a certain military camp, where a target had been erected. The target was built as a for-

tress of re-inforced concrete, strengthened with steel rails and plated with battleship armour. The whole was surrounded with a sand-bag barricade. Beneath the fort deep chambers were dug, and these were protected with concrete and steel. Thus a modern fort of the strongest type was built in preparation for the latest trial of strength between the offensive and the defensive, the most powerful shell against the strongest armour.

The new gun, mounted on its broad-bellied flat car, with its long barrel pointing to the North Star, recalled in outline the ancient icthyosaurus. It was run along a spur leading from the main track and onto an ingenious portable structural iron platform, and groomed for the tryout. The inhabitants within a radius of ten miles were warned to leave doors and windows open during the hours of firing; otherwise they would have heavy glass bills to pay.

The loading crew went through their drill for the last time. The gun pointers checked up his figures on the range and elevation to the ten-mile distant fort, and verified them to the fraction of a degree. When President Poincaré arrived with his staff the captain of the gun gave the command to fire.

The shell left the muzzle with a roar like an ice-crack in the Arctic. A distant, dull explosion followed. The officers, with their glasses focused on the fort, saw it burst like a bubble of sand.

President Poincaré and the professional members of the party motored under the arc of the shell trail to the place where the fort had been; for when they reached the site they found little more than a gigantic sand pit. Cement, steel, sand bags were jumbled together in a jagged hole. The subterranean chambers were covered with a sand and cement mulch, made from the walls of the fort. Armoured plates were hurled fifty yards from their original positions. The best protected fortification that modern military engineering could devise had disintegrated under the power of the mightiest shell that modern military genius could produce.

Nothing human can survive the blast of these weapons. Even the troops out of range of the flying missiles are so unstrung by the terrific explosions they cannot be held to their work. These are the weapons that won the battle of Vaux. Theirs are the mighty voices that opened the battles on the Somme.

The tactics the French staff have devised for the

employment of heavy and light artillery in attack, are extremely simple and highly effective. The area of the German line which is to be smothered under the heavy gun fire is blocked out, giving each battery commander a short section on his immediate front to smash. The strongest salients are assigned to the mercies of the 20-inch guns. Other sections of the front are divided among the 15-inch, 13-inch, 11-inch, 9-inch and 6-inch cannon. The first blast of the great howitzers is the signal for the general bombardment. Then every battery opens fire. Shells drop from the sky in a deluge.

It would take a skilful mathematician to calculate the total weight of iron sprayed over a five-mile front. A 13-inch battery of four guns fires sixty tons of metal in one day. (It begins to look as if there would be profit in gathering old iron from the battlefields after the war.) As a rule the heavy bombardments are continued for two days which is time enough, under the incessant rain of shells, to reduce the strongest fortress wall to the status of Swiss cheese.

The enemy usually pursues two courses. First, he brings all his heavy guns to bear on the opposing batteries, and makes the best effort possible to keep

Underwood and Underwood.

THE REVENGE OF THE WIDOWS

Fully eighty per cent of the women employed in French munition factories wear black for husbands, fathers or brothers killed by the Germans.

down the bombardment. Owing to the present superiority of the French artillery, most of his struggles in this direction are abortive. Then he will withdraw all but the machine gunners and observation pickets from the front line trenches.

It was thought at first that the men who had dug themselves in some thirty feet beneath the soil would be safe, even from the explosions of the 20-inch shells. But if you measure the shell-pit of one of these projectiles you find that it often has a greater depth than the thirty feet formerly considered the limit of penetrability. Often such a giant shell will land fair on the superstructure of a dugout, sealing the men in a living tomb.

But it is not only the killing power of these enormous shells that make them of high military importance, but also the extraordinary demoralizing effect they have on the unfortunate men who come under their fire.

I am of the opinion noise is one of the most trying factors of fighting. This has been my own experience, and I have had it confirmed by many men who have lived day after day under artillery fire.

Even though soldiers are in a safe position, a

fortification that lies in a dead angle, for instance, where the formation of the ground makes it impossible for the shells to strike their shelter, yet they find their nerves "turning to water," as one man expressed it to me, after a few hours blasting from the heavy guns.

Thousands of shells go wide of their mark. I have heard it estimated that it takes one hundred shells, regardless of calibre to kill one man. Some of the observers put the figure much higher, and declare that not more than one shell in five hundred makes a kill. For the present there is no method of getting at the facts; so we must be satisfied with the generalization—thousands miss their mark. Yet while this is true, the paralyzing effect of the before-battle bombardment is so great on the whole organization of the enemy that he can make little or no effort to go to the aid of the battalions in the menaced sectors. When the staff judge that the enemy has been sufficiently pulverized they send an order to slacken the heavy gun fire.

Before the last of the heavy gun detonations have ceased to echo, the light artillery sends a new shell stream through the air. These are not aimed at the points smashed by the big guns, but at the roads

and level country four or five hundred yards beyond such points.

Technically, a barrage fire is developed. Which in simple language means that the rain of bursting iron is so constant on all the approaches to the first line positions that no ammunition or reinforcements can be sent forward. This is the moment selected for the infantry to attack. The foot soldiers climb out of their trenches, clamber through the barbed wire and stagger on through the sea of mud and shell-pits till they meet what remains of the enemy.

Then comes the climatic period of the attack, and the ubiquitous flying fighter is once more called into the fray. He takes no photographs now, but gives comfort to his friends and information to his general.

No simile can picture the confusion of troops in contact. Hell has no horrors comparable with the flame and frenzy of the modern battle. In such a scene, friend and foe become inextricably entangled. The wave of fighting tosses, falls, and flounders, strewing soldiers, like storm-whipped wreckage, over the battle ground.

Field telephones are smashed as soon as erected. Messengers are killed as fast as they mount their

motorcycles. The commander has no word from his troops. The troops can send no message to the commander. Here and there a handful of reinforcements would turn defeat to victory.

Then it is that the battalion officers leading their men against stubbornly served machine guns are cheered by the sight of friendly aeroplanes. They know that an observer sits at a wireless key in those machines, sending word to the General of their plight. Then it is that the gallant remnants of a brigade that has captured a town from the enemy and lie in it, the target of their own and the enemy's shells, know that word will be flashed to the artillery commanders to elevate the muzzles of their guns. When the troops that have pushed so far forward that they are in danger of capture look to see one of their own aeroplanes circling above them, they greet it with a cheer. They know that reinforcements will soon be marching to their aid.

This manœuvre of keeping up communication with headquarters during the battle by aeroplane, was invented by the French. It is one of the most dangerous duties yet assigned to the airman. The difficulty of distinguishing friend from foe in the turmoil of battle makes it necessary for the recon-

noitering aviator to fly close to the earth. He cannot see distinctly enough to send an intelligent report unless he sails less than a thousand feet above the struggling lines. He is, of course, a target for every available gun, and what is more discouraging, finds himself peppered with a steady stream of enemy machine gun shots. This is a most exasperating experience. It is on record that one aviator so far forgot himself under such a trial that he swooped down within a hundred and fifty feet of a machine gun that had been pestering him, and gave it a belt full from his own *mitrailleuse*.

But these reconnoitering aviators are not supposed to fight. They are watching for the rocket signals of the infantry and must interpret those signals to the chief as rapidly as possible.

Time is one of the vital elements in battle. Owing to this new system of communicating from firing line to headquarters, the General commanding often knows more of what is going on in the battlefield than the brigade and division commanders who are close up to the scene of fighting. The saving of time usually lost in transmitting reports from commander to commander has often meant a mile more front or a thousand more prisoners captured.

The signal aviator not only sends news of the conditions of his own troops, but he also sends reports on the movements of the enemy. Should he sight a column of the foe moving to attack any section of his line, the position and probable strength of that column is immediately clicked off to his chief. When new enemy batteries come into action, he sends word of their number and situation.

In fact, he is a super-scout. He must have all the technical and perceptive training of the cavalry man, be a wireless operator of the highest speed, and, in addition, be an expert airman. Only the elite of the most elite service are selected for the rôle of reconnoitering flyers.

What is the business of war after a battle has been won and certain sections of the enemy's lines taken? In the words of the military expert, it is consolidation. But a great many different tasks are included in that term. In the first place, the wounded must be evacuated. Both from a humane and a practical point of view this work must be carried out promptly. From the humane side, if a man is sent within eight hours to one of the great hospitals his chances of recovery are much greater

than if his transportation is delayed. Men can be taken from a Somme battlefield to Dr. Carrel's hospital, in Compeigne, in that time, and Dr. Carrel will guarantee to cure all except the most hopeless cases.

Delay will mean the difference between life and death sometimes, and often the difference of saving a limb. From the practical point of view, under the enormous wastage of human units in this war, the side which can save the most from their war wreckage will gain on their enemies. The saving of a limb may mean the saving of a fighter for France. Hence the importance of getting the wounded out of the trenches. The sight of the wounded has a demoralizing effect on the other troops. Here is a minor reason for quickly clearing them out of the way.

Be it understood that all this war-work goes on while the foe is attempting to stop it with a smashing fire from rifle, machine gun and cannon. That side of the picture I am leaving to the imagination of my reader. What I am analyzing is simply the grind of war.

The assaulting battalions have captured all the points of the predetermined objective. The foe

has been "cleaned" out of his hiding places. The trenches must be held.

Now comes the dire drudgery of war. The man digging a sewer ditch in the city streets works leisurely compared with the soldier throwing up an earth protection in a newly won trench. Picks and shovels are plied with feverish energy. Sand bags are filled and fitted with automatic speed. Men who had thought they were completely exhausted by the shock and struggle of battle call up a new reserve of strength. They spade up the earth as levee builders erecting a dam against the flooding Mississippi.

To this new position the system of supply must thrust out a new feeler. Food, drink, munitions and medicaments must be sent immediately to the part of France the French troops have reconquered. So we complete the circle of the war routine.

This business of war, unlike the business of peace, has for its end—destruction. How thoroughly that object is achieved you see within the radius of the battle.

I have tramped over one of the recently won battlefields between Ablaincourt and Chaulnes.

The Germans continue a sullen bombardment of the sector they have lost. The French reply with smashing explosions from their field guns.

As I follow the road to the first lines—the communication trenches are impassable with mud and the land-slips,—a salvo of German shells explode behind, sending up four black smoke clouds. Before me shrapnel bursts are dancing in the sky.

Captain Bock-Laroque, my companion, paused before a mound of rubbish, saying:

"That is the Château. The brigade commander has his headquarters there."

That mass of mud and rubble a château! It was beyond belief. Literally we stand before a mound of jumbled timbers, broken stone, powdered plaster, all crushed and crumbled under a coating of sodden mud so intermixed with the ruins of the building that there remains not a vestige of its former classic outlines. A bit of the grill work of the great gate that had shut in the grounds of the château is the only indication of past glory.

Passing down some steps cut into the earth behind the mound, I find myself in a sort of cellar, where I am introduced to a smiling gentleman in French field uniform. Behind him on the wall of

the cellar is an oil painting of a girl in powdered hair, seated at a spinnet.

"That is all that is left to the owner of this place," explained the General, noticing me staring at the picture. "Of all his books, old furniture, paintings, china, silver, nothing remains. As you see, the château is demolished."

Looking up I saw that the arch of the cellars was cracking under the weight of the building that had collapsed above it. Through those cracks the flickering candle light revealed a mass of burnt and blackened timbers. This was the concrete example of the sheer destructiveness of war. And the painting of the girl at the spinnet, hung against the rough brick walls, with a soldier's bunk beneath it, gave the needed contrast to bring vividly before me all the uselessness of this destruction.

Out on the battlefield the waste of war is framed in a still more desolate setting. Half the scene is shut in by a naked forest of rotting ghost-like trees. They rise as withered bracken from the sodden soil. As far as the eye can see this soil is ulcerated with shell holes filled with reeking viscid slime. Mixed in that slime is all the debris of war—broken rifles,

casques, shells, clothing, bayonets, hand grenades, cartridge pouches, winged bombs—buried and rotting in the mud.

Other hideous things are buried there. I see one grey-green repulsive form sprawling at the bottom of a shell hole. Passing through the trenches heavy boots stick out from the trench wall, half blocking the path. Skeleton hands snatch at me. In the end, here is the real business of war.

CHAPTER VII

THE FLYING FIGHTERS

THE outstanding feature of the sweep of the allied armies over the defence lines so long held by the Germans was the spectacular work of the French and English aviators. So rapid was the German retreat that the allied cavalry, held in leash for just this opportunity, lost touch with the enemy rear guards, so Sir Douglas Haig and General Nivelle received their information on the situation through the medium of the flying fighters.

And it must have been with exultant emotion that the French fliers swam through the air above the antlike throngs of German soldiers swarming to the rear. As corps after corps filed out of the trenches, preceded by long lines of grey motor transports and followed by lumbering batteries, the grim guns pointing to the ground, the speediest "Spad" was all too slow to carry the good news to France.

The romance of war today is in the keeping of the aviators. I have seen them, knight comrades of the eagle, soaring in deadly joust high above the drab earth where the trench lines run. The trench fighter is a mole. When shot and shell fly he hides underground, on rare occasion venturing forth to risk life and limb in battle.

Not so the flying fighter. He sweeps across the sky, braving the vicious barking of the anti-aircraft guns, poising above the camp of his enemies. There he sails among the cotton clouds of bursting shrapnel, until driven off or downed by a foeman of his own genus.

His courage must disdain not only the peril of poising thousands of feet above the earth on a spread of flimsy canvas, but also defy the many dangers common to warfare.

Youth is the first qualification necessary for the aerial aspirant. Few fighting pilots are over thirty years old. My schoolmate, Edward Hinkle, who was my guide out at the French training camp for novice fliers at Buc, is the exception that proves the rule. Hinkle is forty, but his nerve is hundred proof as all who witnessed his fall with a collapsing Farman biplane can testify. He stepped out of the

wreckage, uninjured, but with the air of being greatly annoyed.

Still, the most successful fliers are men in their early twenties; Lieutenant Bill Thaw, the star of the American aviators with the French army, is twenty-four, while Adjutant Lufberry, who recently won the highest military award in France, the Legion of Honour, is two years older.

These two American aviators who pay something of the debt America owes France for the services of Lafayette, have another quality besides youth in common, and that is modesty. Though I saw Thaw often in France I never could get what newspaper men call a "story" out of him. He would talk freely on the relative merits of English, French and German aviation methods, on questions of speed and manœuvring, on the exploits of others—he admired Boelke's tactics—but about himself he was silent.

Adjutant Lufberry did give me the story of his first fight in the air. Its thrill lies in its brevity.

"I saw a single German machine and I went for him. When I neared him he began firing at me."

"What were your sensations at the moment?"

"Did not have time for sensations. I began

firing at him. Then we both circled, firing all the time. Suddenly, his machine seemed to turn all white. He was upside down. Then he caught fire. He fell, reminding me of a smoking cigarette butt dropping through the air. Then I came home."

Lufberry served in one of the United States volunteer regiments in the Philippines, but as his name indicates he is of French origin. Before he took up flying he worked as mechanician with several of the dare-devil auto racers. In that game he acquired his disregard of danger and finally graduated from mechanician to a famous French aviator in the French aviation service.

While nowadays aviators are the eyes of the general, yet one of the American escadrille in France, Hall, a tall, good-natured Texan, is extremely near-sighted in one eye. He also confessed giddiness in ascending any height from the ground, such as looking out the tenth-story window of a skyscraper. But he never felt the slightest giddiness no matter how high he flew free from the ground. He made no attempt to explain this apparent contradiction in sensations. Such explanation he put up to the psychologists.

They are all the same wild type, Cowdin, Prince, Biglow, McConnell, Rockwell and the rest of the American fliers, and when they are not heroically risking their lives, they amuse themselves to the limit of physical endurance. And their training makes their endurance high standard. Also, youth has its privileges.

Those of us who have passed the period of late adolescence need not be reminded that our nervous centres react more sensitively than when we were in the twenties. It is the hard fact of history that young men are more daring than their elders and this fact rings the whole subject of aerial warfare.

After youth the two predominating characteristics of flying fighters are recklessness and resourcefulness. I search in vain for comparisons that will picture to you the recklessness of the aviator who spins the propellor of his aeroplane at daybreak and sails up into the void of heaven against the slowly rising sun, knowing that his fate may turn on the whim of a wind current, on the jamming of his machine gun mechanism, on a broken rudder wire. For sheer nerve, I used to consider the youth, who, at the country fairs, para-

chuted from a balloon, to be the ultimate limit. My wonder and admiration for such exhibitions of nerve were mightily swayed by the knowledge that the performer who came down from the heavens swinging from a trapeze supported by an overgrown umbrella received as wage exactly five dollars.

But such temerity, with its reward, sinks beneath notice when gauged against the rashness of the fighting aviator. His risk runs a thousand degrees higher than that of the parachute artist, and his pay as a private in the French army is five cents per day. Even if he makes but two flights a week, the aviator can claim the minimum wage for the maximum danger.

Strongly allied to his recklessness, if he is to survive, is the flying fighter's quality of resourcefulness. Perhaps it were better to define resourcefulness in this instance as instinct.

No action in an air duel is calm or reasoned. To arrive at a conception of how men's minds act in such a struggle, imagine if you can the mental processes of two fighting hawks. When the birdmen battle, they swoop, circle, strike, struggle, with the swiftness demanded of all flying things. More

is asked of them than that rare virtue of quick thinking. The flying fighter must act on instant, impulsive thinking and his act must always be the right one. In an air duel the prize is life, the penalty death. The Darwinian dictum, the fittest shall survive, finds no more conclusive illustration than the air battle.

Having these three qualities, youth, recklessness and resourcefulness, any one may aspire to become a war air-pilot. But even if he have these qualities he cannot hope to command a battleplane until he has completed a gruelling novitiate.

You may have read that one of the tests for flying aspirants is a sudden, unexpected explosion near the victim, such as a revolver shot behind his back, after which his pulse is tested. If the unexpected explosion develops an abnormal blood pressure, the aspirant is passed on to the recruits for the hand grenade squad, where he is slated for such safe work as preceding infantry charges. Here, in his case, the French government only risks losing a man and a gun, not a perfectly good and valuable aeroplane.

When the candidate has passed the physical tests, he is ordered to the beginners' training ground at

Buc, a short distance from Paris. He dons the grey uniform of France, a jaunty aviator's cap and a brassard with a silver wing.

He is ready for his first instruction.

The aviators' training ground at Buc resembles in general outline a race track, but instead of thoroughbreds filling the stalls that surround it, we find aeroplanes. This substitution does not strike you as incongruous, as there is some association between flying machines and race horses. The field is the old testing ground used by M. Bleriot in tuning up aeroplanes of his manufacture. He still uses it for this purpose, though it is under government control, and on one of my visits I witnessed the tryout of a new giant flying machine Bleriot had constructed.

It was built on the general lines of all aircraft, except that it was approximately thrice the size of any machine heretofore constructed. The nacelle could accommodate a crew of seven men and had the appearance of a yacht cabin. The wing spread had been proportionately expanded and four motor engines, each one hundred horsepower, were supposed to lift the giant bird. I write "supposed," for, though I saw the machine

thrice tested with motors whirling and crackling at racing speed, the great aeroplane budged not an inch from the ground.

Meanwhile, other aeroplanes quickly leave the ground. Above the flying field all types of aeroplanes are manœuvring. They hover in the lower sky, sailing and circling in a fashion that reminds one of gulls following a ship. In walking about the field the lowly ground man is under constant apprehension lest there be a collision in the air and the wreckage descend upon him.

The men who guide them are the sixth form aerial scholars. The beginner starts in no such spectacular manner. In order better to conserve the lives of the prospective fliers and the government property—aeroplanes being more valuable than men—the first lessons in flying are given in machines so constructed that their engines cannot lift them more than six feet above the ground. They have all the appearance of a standard aeroplane, an old-fashioned one, but the engine power is limited. The beginner seated in one of these goes buzzing about the field for all the world like a primordial grasshopper.

In this stage he is called a "penguin." Learning

the levers and control of his machine is his task. He is kept at this preliminary work until he shows proficiency in handling his hopper and can successfully pass tests contrived to determine his ability to keep his machine straight, to turn, to balance and manipulate the control with dexterity.

Most of the fliers will tell you that this "penguin" state of their education is the most trying. The machines are clumsy, the engines unreliable and accidents are considered a necessary part of the day's work. Yet this first training is the most important in the whole schooling of the aspirant aviator. It is at this time he acquires the instinctive reactions that make for his future success as an aerial pilot. In mastering the awkward gyrations of the "hopper" the novice aviator gets his first inklings of how the "loop the loop" is accomplished.

There are several advancements in the "penguin" stage of flying. The first machine can do nothing but foolishly slip about the field. From this the candidate graduates to a higher power engine, which lifts the machine in jumps of fifty or sixty feet. Finally the fledgling is given an aeroplane

capable of circling the whole field at a height of twenty feet. Generally he ends this thrilling experience with an inglorious nose-dive.

That nose-dive impressed upon him the one real difficulty of flying, which, paradoxically, is landing. And it is training in this line that occupies most of the time and attention of the young flier. Judgment, under conditions where his ordinary impressions are of little use to him, must be developed in the aviator. He must learn when to cut off his engine, to estimate the distance from the ground, his speed, when to tip, and all the delicacies of movement which must be combined to make a successful landing.

When the recruit has shown he can handle his machine without sending it to the hospital each trip, he is seated in an aeroplane with a full power engine. As a rule, this is a tried and stable Farnam biplane, guaranteed to be more or less foolproof.

Stepping into this aeroplane for his first flight in the upper regions, the flier experiences an unrecordable variety of sensations. He settles himself in the nacelle, the engine is started and with a clatter of racing propellers the machine hurtles

a hundred yards across the field, then mounts in the air.

Instantly life becomes replete with quickening interests. With the first snort of the engine the pulse of the aviator rises as the bubble in a suddenly heated steam gauge. The first stage of the trip, while the wheels below the body bump over the rough surface of the field, recalls automobiling over bad roads, but as soon as the earth falls away below him, the tyro aviator suddenly realizes that never before did he give our good old globe sufficient credit for its steadfast and solid qualities.

Always in the back of his head is the knowledge that he is carrying his life in his own hands. His ear is attuned to the slightest miss in the time of the engines. His nerves feel every quiver of the ailerons. With the levers pulled hard against his breast, he mounts toward the sun.

On his first flight he perhaps touches a thousand feet altitude. In this air strata he circles right and left, cuts a figure eight and executes any other manœuvre his instructor may have assigned him. He feels he is the brain of some mighty force that obeys the levers as readily as his muscles obey his nerves.

One aviator described his sensations in his first flights as "like a driver seated in a sulky, hitched behind a hundred and fifty galloping horses, pulling with all their might." Also your "sulky" is travelling a thousand feet up in the ether.

But confidence comes as the aviator sees the machine mount, turn, descend, all in answer to his will. One of the American escadrille gives the following rule for all flying: "Never start any movement unless you are prepared to carry it through completely. Indecision in the air tempts death."

After the flier has shown ability to handle his machine around and about the flying ground and when he has successfully accomplished the tests in mounting, planing and landing he is sent off on a triangular cross-country flight, which includes a stop in some distant town. His only guide in this flight is an ordnance map of the region. This flight finished without mishap, the aviator receives his certificate or brevet as an air pilot. As an indication of this honour, he wears two silver wings on his collar points.

But the flying fighter's schooling is far from completed when he has learned to navigate the air.

The course at Buc once finished, the aviator goes to Pau, where he is instructed in military flying. Here he learns all the tricks of air fighting. Also he is put through an advanced course of fancy flying, looping the loop, spiral planing and quick ascensions. The technical side of his work is learned at Pau, handling the machine gun, signalling, aerial photography, bomb dropping, until the aviator is sufficiently expert in his art to take his place at the front. As an average, the total course requires six months.

As is always the case, the aviator finds his best instruction in actual experience. When he once arrives at the front he soon becomes familiar with the many uses of the aeroplane in modern war. Here the character of the new birdman is analyzed by his superior officers and he is assigned to one of the four different branches of aerial service.

The dare-devils of the air are assigned to the attacking aeroplane squadrons. Their work is to kill or be killed. The risks they take are well known, but they, in France and Germany, get all the glory of their work. Gruenermeyer in France and Boelcke in Germany are the arch types of fighting airmen. The English fliers fight anony-

mously. Yet they are not out-distanced in this dangerous work. There is a well authenticated rumour of an English school-boy with forty-five of the enemy as his record. And this after he had been expelled from every school he attended.

Steadier and more level-headed men are picked as infantry aviators. Their work is to watch the infantry attacks and report its development, step by step. They fly low over the lines, often at less than five hundred feet altitude, for it is only when near that they can be sure of the details they report upon. Of course, this brings them into easy range of the enemy anti-aircraft guns. The work of these infantry air scouts is invaluable to the generals in the field, for often the information they obtain can be gathered in no other fashion.

Artillery air scouts work in a similar manner, but the character of the information they send back deals strictly with the field of the artillery. They are "spotters" who sail over the enemy battery positions and cut figure eights in the air above them so as to indicate the range to their own gunners. To do this in a haze of bursting shrapnel requires great nerve.

The newest branch of aerial service is photo-

graphic scouting. The results obtained are nothing short of magic. I have seen one of these air photographers leave camp behind the lines on the Somme, fly out over the lines of battle and return with an accurate photograph of the enemy positions, and the time consumed was five minutes short of two hours.

Special cameras are used in this work. And when the prints are ready, maps with the enemy positions indicated are immediately printed and sent out to the various commanders while the battle continues. So far this is the maximum of information efficiency developed in war.

These are the chief duties of the flying fighters. The danger that surrounds them adds a lustre to the service and perhaps one of the most inspiriting things in war is the activity of the aviators, whether in camp or in the air.

The chief concern of the airman is his aeroplane. In war this concern is raised to the nth power, for not only would a defect of structure mean certain death, but inferiority in engine power or armament will probably prove equally fatal.

This condition has led to deadly rivalry in the designing and constructing of aeroplanes for war

needs. Naturally, machines are being developed in France, England and Germany far faster and more stable than any constructed in the United States.

In France the two types that have given almost complete satisfaction are the Nieuport and the "Spad." The Farman is the most reliable for slow and steady work and is much used in reconnoissance duty, but it cannot develop the speed necessary for attack work. France as the nation that always led in military aviation has many other types of aeroplanes in service, but the ones mentioned are becoming standards.

The two German machines that stand out in war are the Albatross and the Fokker. The latter, because it was fitted with a 160-horsepower engine, for a time dominated the air. The Germans were particularly successful against the English, but under the spur of competition, England has designed a new Sopworth aeroplane which promises, from the results of its first battles, to sweep the air free of the enemy machines.

The engine is the soul of the flying machine.

In the power of the gas engine lies the secret of the success of flying. Europe still leads the

United States in engine construction, and unless war gives this country the stimulus of competition, we shall fall further and further behind in this vital department of aeronautics. The demand now is for a 200- and a 250-horsepower engine and the French machinists are meeting this demand. The engine designed for American war-planes will also develop 250 horsepower.

Speed is essential, not only because of the advantage it gives in manœuvring against a slower enemy, but also as a factor of safety against the anti-aircraft guns. An aeroplane travelling at a high rate of speed and varying its course as it flies through the air is a very difficult target. I have seen a French aeroplane circle above the German trenches for a half hour, with the feathery bursts of shrapnel spotting the sky all about it, yet none of the shells touched the machine.

Systems of range finding and aiming are being constantly improved, however, and the plan of mounting anti-aircraft guns on automobile trucks and operating these trucks over triangulated country where range bases are quickly found makes the work of the flying fighter more and more dangerous.

Air fighting is the newest branch of war. No one can foresee to what extent this service will be expanded in the future. It is not impossible that in time air fleets numbering thousands of aeroplanes will meet to decide the fate of nations. That is the dream of the coming age.

What is essentially important at this time is that the United States should achieve a position in this department of the art of war equal to that of any of the other great powers. General Pershing, out of his discouraging experience on the Mexican border, is reported to have said that he would rather have one aeroplane for reconnoissance duty than a squadron of cavalry.

Can there be any higher recommendation for the flying fighters?

CHAPTER VIII

THOUGHTS ON SHRAPNEL AND TANKS

When the philosophy of war is at last made clear to finite minds, and the killing passion is purged from the earth, some social economist will calculate and reveal the material value of the energy lost through battle industry. But no research philosophical will make known to the world the moral stamina which battle industry begets.

Should you inspect one of the munitions factories of France you would be convinced that the energy there engendered has a moral value. Something haunting in the eyes of the girls bending over the brass fuses, something defiant in the poise of a puddler grappling with a molten shell case, bespeaks in the breasts of the munition workers, souls burning at white heat.

Yet, you reflect with dismay, as you pause on the threshold of the munitions plant—breathing the smoke-laden air, blinking at suddenly opened

furnace doors, deafened by the harsh, grinding song of high-speed machinery—all this energy spells death. And once again you ask why? . . .

The Renault automobile works at Billancourt, near Paris, has been reorganized into a munitions-making plant and when you approach the acres of red-brick buildings that house the industry, you realize the reason for the coal shortage in France. Coal carts follow one after the other for a mile along the road leading to the furnaces. And the sight of this unending line of coal carts is one of the most impressive and concrete examples of the wastage of war.

The effect of this wastage is more poignantly brought home to you if you cannot buy in the open market an ounce of coal for your own cooking and heating needs. At every step I took through this munitions factory I felt the heat of a blazing furnace, yet back in my apartment in the Rue de la Pompe, with the thermometer registering freezing weather, my children huddled around a feeble gas-log fire, while the cook complained loudly that gold could not purchase its equivalent weight in coal. Here it stood heaped in mountains.

As a complementary reflection on war wastage,

in going through the Renault Works you remember that the manufacture of automobiles is constructive labour, the making of something for service, something built to endure, something that symbolized an advance in living; while the manufacture of shells, the work that has displaced automobile making, is destructive labour, creating something that disappeared into powder and fragments and symbolized an advance in dying.

With such thoughts I followed the process of shell making from the pig iron stage to the final painting and polishing of the finished projectile.

In a yard flanking the coal bins, the steel bars which form the raw material of the shells, are stacked. One by one these bars, a little greater in breadth, thickness and length than a section of ordinary railroad rail, disappear into a rough shack from which issues at regular intervals a mysterious bumping sound. The shack houses the cold-steel cutter and the sound proclaims it at work. It is a brutal machine made of a ton of cubed metal set atop of a marvellously tempered steel blade. The bar is carefully run beneath the suspended blade and its ton weight backing, a lever is touched, the metal drops, and from the end

of the rail is guillotined an ingot of cold, raw-steel. These shell ingots are about the size and thickness of the silver ingots sometimes seen outside the Sub-Treasury Building in New York.

When you enter the plant to follow the careers of the shell sections, it is as if you suddenly opened a door into hell. A noise blast smites your ears as you enter, filling them with a harsh, discordant din, till your tympanic membrane seems a tight-drawn drum-cover upon which a hundred imps beat the devil's tattoo.

I tried to analyze the clangour. To me it seemed made up of the component noises of a boiler factory and a planing mill, supplemented by the chorus of fifty compressed air drills snapping like machine guns. The upper space of the domed factory building twanged with a resonance that beat back in waves from the roof. Below this was a middle strata of sound—a sort of giant pulse-beat that jarred the walls as if some mighty unseen power at regular intervals lifted the plant a little and dropped it with muffled thud. The lower strata of the factory was filled with a multisonous racket, the clank of steel on steel, the rumble of rolling iron, the sharp hissing of steam, the roar of

the forced draught furnace, through which the unending whine of whirring lathes penetrated like a storm sound.

The human voice was lost. My guide shouted a warning in my ear as two red hot steel cones tumbled out from a furnace at my feet. The words came as a whisper. He tried to describe the process of shell making but his sentences were drowned in the din.

And gnome-like men slaved amid this noise. Smut-stained and grimed, they fed the furnaces, grappled with white-hot cylinders of steel, plunged the stamps into the burning iron, toiling amid the fire glare and spark shower, tireless fiends.

One of these toilers, because of the feverish energy of his efforts, I mentally christened the demon. Lithe and small in stature, his muscles coiled and uncoiled as he worked like those of a light-weight boxer. Soot and sweat covered his pale face shadowed under long black hair. But his eyes imprisoned sparks from the blazing coals he faced, while he plunged long pincers into the opening of the furnace, nipped their fangs into a cube of blue-white steel, dragged it forth, and with one careless motion, threw it twenty yards to

the waiting press. He was the satanic spirit of war.

The cube of smoking steel rolled with vicious hissing over the stone floor, was caught up by another smutched worker who slipped it into the cup of the stamp. It snarled a protest at its impending fate; flaming sparks shot off at the men forcing it in place. Almost without warning, the three hundred and seventy ton stamp was loosed above the sizzling metal. Down came the plunger at express train speed crushing out the blazing heart of the shell.

When the great weight of the stamp shot up again, the lambent steel cube was hollowed like a flower-pot. It was pincered out of the stamp, then sent on its way to the cooling bath from whence it progressed to the lathes.

I turned off from the trail of the shell to watch the women making the death missiles destined to fill it. The casting of shrapnel seems a fascinating game; just the sort of pastime I should recommend for an up-to-date kindergarten.

The game begins with a pouring of molten lead into wooden moulds much like the moulds used in large hotels for stamping butter pats. The girls

showed keen enjoyment in this process and scrutinized each bunch of balls as it loosened from the mould in satisfied appreciation of their own artistry. At this stage of manufacture, shrapnel looks like a cluster of silver grapes. The cluster is slipped through an automatic cutting machine that trims stem and branch from the grapes and shoots them out into receiving pails. The trimmings are sent back to be remoulded, while the round, leaden shots are now passed on to other women who sift and size them.

It so happened that I had spent the morning of my visit to the munitions factory with a wounded friend in the American Ambulance hospital, so the thought of the contrast of women's war work came sharply to mind. Could one ever find an example more naked of war's inconsistency? I watched the women running their lead-stained fingers over the shot destined to bring such cruel hurt to men, seeing in the eye of my mind the work of other women's fingers; the nurses tending the wound for which these lead-stained hands would in measure be guilty.

"We have four thousand women working here," said my guide as he led me into the lathe room.

"In their lines of work, they are more skilful than men."

My only mental association for the lathe room was the loom room of a cotton spinning plant I once visited. Here were the same speeding belts, the same buzzing machinery, the same automatic clink and clank of metal and the same long ranks of women with eyes focussed on the whirring bars. But the grinding of the shells gave off a sinister note far different from the song of the shuttle. Already the shells shrilled the warning they would give when shot from the cannon's mouth.

After the polishing process, the shell journeyed on to the testing table where women dropped minute electric lamps within the case while the glistening steel was searched for flaws; others measured the shell within and without, and especial care was given to the weave of the thread where the fuse fitted.

Fuses were made in the upper story of the munitions plant and here the women worked with the skill of trained clock makers. Cap, ignition needle, stirrup springs, all the delicate parts of the time fuse passed rapidly through the hands of these women, each charged with one part of the

total work. At the table at the end of the line laboured the girl with the detonators.

She was dressed in deep mourning. Wrinkles came and went at the corners of her eyes as she worked. Yet she was not old, not more than twenty. A cheap, woman's watch hung on a peg before her eyes. She seemed to count the seconds as her fingers sped through the motions of fitting the exploding contrivance that would give the spark of life to the shell. She gave off an atmosphere of feverish haste in her work, and watching her thin lips move as she counted the finished fuses, I wondered if it were brother or father she mourned and what tempered her thoughts as she toiled?

The eyes of this girl haunted me as my guide led me down to the ground floor of the factory again and into a carefully guarded wing of the plant.

"Now," he said, "you are to be initiated into the mysteries of the making of a tank!"

A distant and furtive view of a tank in action I was to have later, but that picture was not more interesting than the sight of a tank growing from raw steel and rivets to armoured completeness.

The tank was born in weirdly befitting surroundings. The clangour that filled the Renault factory

was the correct accompaniment while the blast furnace flare and charcoal smoke gave the appropriate atmosphere. Vulcan himself would have approved the setting for the ceremony.

Two solid, squared rails of black steel formed the keel and keelson of the land battleship. Axles, to support the petalled wheels, branched from the keel forward and aft. Beneath the wheels stretched a jointed tractor chain. The ribs of the tank were formed of thick angles of pressed steel and the vertebræ were made up of sections of the same sort of metal, reinforced and riveted at the joints.

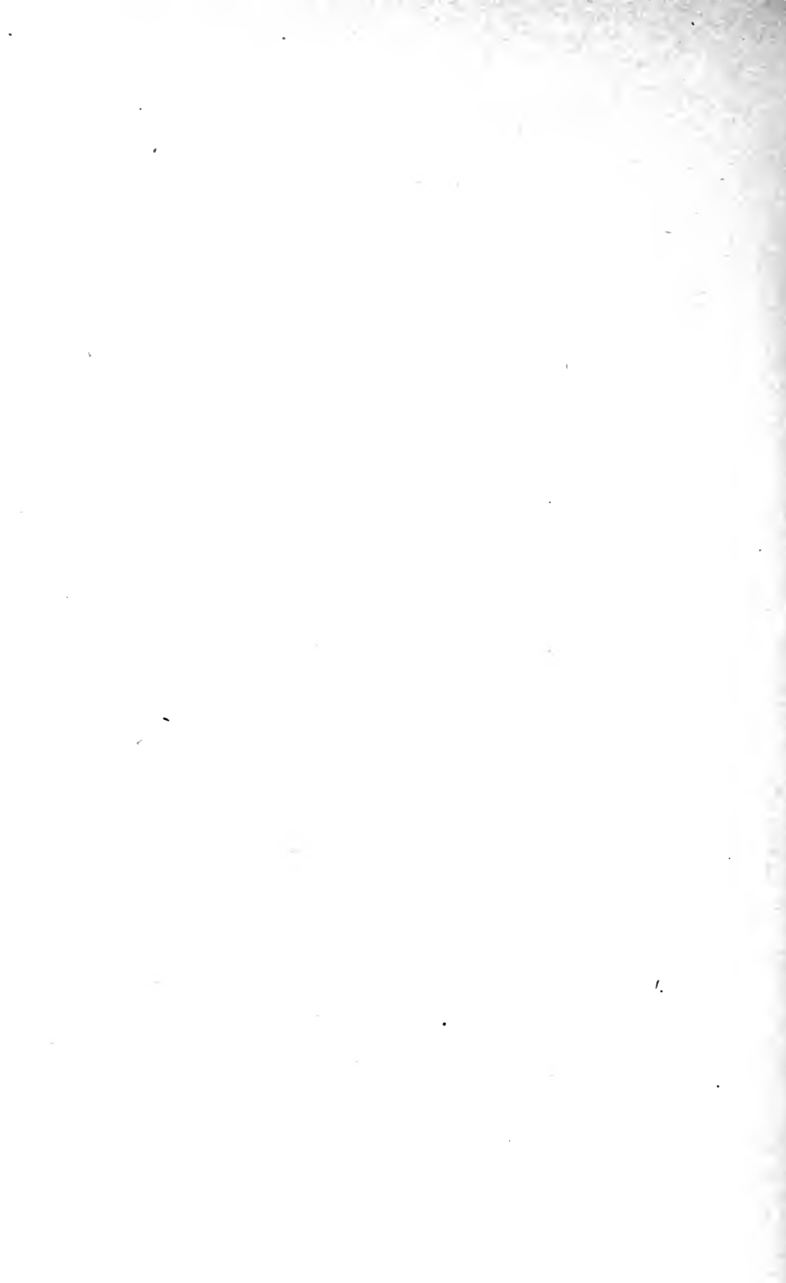
Slabs of armour plate stood ready to be moulded into the hull,—a curtain of these plates will hide the wheels which were exposed in the first tanks,—leaving no vulnerable joint in the armour of the land ship.

Here rose the miniature conning towers; the rudder wheels, leaned against the tail shaft; the engine, a tangled mass of pipes and pistons was already placed. You marvelled that such a small bit of mechanism could serve to move the mass, yet it was the heart of the machine, another triumph for gas engine.

Underwood and Underwood.

GERMAN CAPTIVES TAKEN AT VERDUN

This parade of prisoners was not in accordance with the program of the Crown Prince.



It is the combination of the riveted beams, flower-shaped wheels, snake-like chain and curious tail appendage that prevents the ordinary mind from assimilating the fact of the tank.

But once let your fancy play around tank possibilities and your bran will spin out adventures that are the envy of the imaginative author. Why not a fleet of tanks? Why not land battleships cruising across country. This possibility is but a higher problem of weights, stains, stresses and engine power. Here is a new vision of warfare.

What makes such a vision seem but a glimpse of the future is the fact that the tank is designed on the same lines as a war vessel. There is the conning tower, the ports, the superstructure, where the captain of the tank takes command; the speaking tubes, gongs and the usual means of communication between a warship's bridge and engine room. And the engine chamber of the tank is a marine engine room in miniature.

Yet, when all is said, these land battleships are but the development of the armoured motor. During different periods of the war I saw the work of armoured motor cars, and though confined to the limits of good roads, they proved valuable war

engines. They possessed two of the essential requisites of offence; mobility and killing power, but their mobility was greatly limited once trench lines were drawn across Europe.

The machine gun is directly responsible for the evolution of the tank in its present form. Some contrivance had to be discovered that would offset the effect of the death-streaming guns and as the value of the caterpillar wheel had been proved in moving heavy artillery, it was natural that this improvement should be applied to armoured motors.

But the problem of the cross-country fighting motor was complicated by the fact of balance. A battle field is about as rough a bit of cross-country going as man and nature can produce. To the usual difficulties of the terrain, soldiers have added various ingenious barriers, grouped in the military books under the general title "obstacles," which includes anything from a simple barb wire fence to a ditch lined with sharp pointed stakes. Mine craters and shell pits are incidental obstructions. And the problem of balance meant providing a machine that would crawl up and down such holes in the earth.

The balance difficulty was solved by giving the tank its over-hanging bow and long double-wheeled tail shaft. With this design the tank can push its nose over and through all the ordinary and most of the extraordinary obstacles in its path. The weight of the machine, the driving power of the engine, combined with the caterpillar wheels, make short work of wire entanglements, stone walls and even the debris of destroyed villages.

The meanest obstruction in the path of the tank is the tree stump. Climbing one of these, the tank is literally and figuratively "up a stump." It is in the unhappy predicament of a turtle balanced on a pole. With wheel base lifted off the ground, "caterpillars" and clanking chains whirl through space in futile fashion. Lifted evenly, the wheels get no purchase or as is usually the case, if one set of wheels scrape the soil, the tank churns in a circle, a limping merry-go-round. While these gyrations are distinctly disturbing to the crew within the tank, they furnish the soldiers assembled without with much amusement.

Tank designers had to sacrifice speed to power, in order to overcome obstructions and this is the chief weakness of the contrivance. It is too slow.

It cannot keep pace with a line of charging soldiers and if sent out alone, it draws the concentrated fire of the enemy's machine guns and trench artillery, running the risk of quickly being put out of action. The armour of the tank can turn small arms bullets but a well-aimed shell will smash it. Therefore the enemy must not be allowed to fire as he pleases at the tank, so the work of the supporting infantry is to spoil the enemy's aim with heavy counter fire. Thus the tank and the foot-soldier operate together so the pace of the machine must equal that of infantry advancing.

The tank marks an epoch in tactics. It is the symbol of the change from man war to mechanic war. It is no freak design but a development of permanent military value. We soon may look for a Dreadnaught tank, a land ship wherein the fighting crews will make their home. They will be perhaps better described as self-contained, movable forts, carrying ammunition, gasoline, food and water sufficient for week-long independent operations. This super-tank will break the deadlock of trench fighting.

The development of the tank is the logical outcome of the hardest problem of war, the protection

of the soldier. To carry on war with the vigour shown on the British front beyond the Somme, or on the French front at Verdun, if continued indefinitely would mean the eventual extermination of the male population. What with the tremendous improvement in modern arms and the terrible destructiveness of the great guns used in every day battles, casualties in war have gone beyond all safe percentages. Too many men are lost for the result obtained. Warfare today is an interminable pitched battle. Men are thrown without stint into the whirlpool of death with little tangible result. To save mankind, this abnormal condition must be remedied, and the first remedy is to provide the soldier with some protection while he fights. Such is the purpose of the tank.

I left the hive of war industry a prey to complicated feelings. It was bitter to reflect that all the thought, the work, the feeling concentrated in the murky atmosphere of the munitions plant centred around death. And death in its most frightful guise. Think of the brain work alone represented in a single combination high explosive shell. Take its modern successive stages of evolution from the time Lieutenant Shrapnel, R.A., designed his

original man-killing shell in 1784 down to the highly complicated bit of mechanism turned out by the millions today, and calculate the mental energy put into this production. Think of the research in physics, chemistry, ballistics, and the countless thousands of folios of mathematical computations all used up in the creating of a death missile. Then dispute if you can the dogma that man is but a higher order of ant.

CHAPTER IX

WHO PAYS FOR THE WAR?

UPON whose shoulders does the burden of the cost of war fall? This question today is of high importance to the people of the United States and perhaps from a study of the results of commercial re-adjustments, industrial revolutions and financial fevers in France, Americans may arrive at some understanding of what the future will bring in the way of changes to the household budget.

Plunging at once into the curious social and commercial changes effected in France let me quote the owner of one of the largest retail dry-goods stores in Paris, a store once blazoned as "cheap" throughout the business circles of the city. The "Marchetaine" numbers its customers among the working classes of Paris; families outfitted in the shop for three generations. The women who do the family buying conduct it on scientific bargain-

ing principles, and are known personally to the heads of the departments of this great store. However, the idea of catering only to the cheap trade has made Monsieur Port one of the richest merchants of Paris. His boast has been that he has never displayed a dress beyond the purse of a working woman, nor an overcoat a working man could not buy.

One morning Paris awoke to find the windows of the "Marchetaine" dressed with fifty dollar cloaks, one hundred dollar furs, and festooned with laces and lingerie. Luxury was also expressed in men's fur-lined overcoats, in children's embroidered dresses, and all the other samples carried price tags on the same high scale. At the French business man's lunch which lasts from twelve to two, a friend demanded an explanation for this change of policy.

"I have not changed," replied Monsieur Port, "nor have I changed my customers—it is the customers who have changed. Many of them are artizans and mechanics, men who own little carpentering shops, who are wagon-makers, wheelwrights, iron-workers, tinsmiths, blacksmiths, tool-makers, coopers, brass-fitters. Their wives are the hard-

fisted, hoarding kind that met poverty with arms akimbo. But that was before the war. Today my customers are war-wealthy. Some have lathes that never stop whirling shell cases, others are busy fifteen hours each day constructing fuses, still others are making more wheels, wagons, and uncatalogued quantities of ironmongery, from horseshoes to machine gun shields. This they have been doing with French industry, while their wives have been saving the profits, until now they find themselves rich beyond the similes of a fairy tale. Like good citizens they have subscribed to the war loan, and find themselves *rentiers,* living on income, something they never dreamed of. Still the money comes flowing in. It comes so fast that even these thrifty souls find themselves yielding to the temptation of luxury. The women, who keep the bank book, verify fabulous balance sheets until the possibility of the velvet dress,—a life's ambition,—becomes a reality. Some aim higher, at furs, laces and silken under-things, beyond which the imagination cannot soar."

"But," interjected the friend, "all that you say may be true, yet why don't your customers go to the shops long known as *Magazins du Luxe,* the

stores of quality and high prices? Why don't they leave you for the Rue de la Paix?"

"My friend," smiled Monsieur Port, "they do not go to such stores because of the French fear of being cheated. My people, excuse me, my customers, trust me. They know I give the best of its kind for the price. They are clever enough to understand that in articles of luxury, there is large latitude in price between the real thing and the not-so-real thing, yet these customers of mine know they cannot distinguish between the real and the not-so-real. They come to the heads of my departments confessing their sins of temptation, their fears of being cheated and demand the protection due old customers." Monsieur Port paused, lit a cigar that costs the equivalent of a dollar at the present rate of exchange, blew out a contemplative cloud of smoke.

"The rest," he concluded, "is business."

Here is a class that does not pay for the war. It includes in general terms artizans and skilled mechanics, men whose labour is in high demand in the manufacture and repair of war material.

Let me give another example. Just off one of the great thoroughfares is a small boot-and-shoe-

maker's shop. Monsieur Bottine in pre-war days managed to make both ends meet in the back of that shop, but he was seldom more than one pair of shoes ahead of the wolf. His capital consisted of a few pairs of show window boots, some leather and the lasts of twenty-seven customers. Among said customers was an English Guard's Officer, formerly Military Attaché in Paris.

That is the plot of the piece. It is not necessary to tell how other British officers, finding how good and cheap were the boots of Monsieur Bottine, left their tracks in the little shop just off the great thoroughfare. When the gossip spread through the smart French regiments "the Guards get their boots at Bottines's" an invasion of the boot shop followed. Since in the nature of things boots wear rapidly in the trenches, the profits of Monsieur Bottine have mounted to the skies.

Alas, he finds himself in an uncomfortable quandary at the moment. The French government exerts a watchful solicitude over the affairs of its citizens in time of warfare, and apportions extraordinary taxes among those who are making undue profits out of an abnormal market. Monsieur Bottine found in his morning's mail one day an offi-

cial paper wherein he was requested to report the amount of "the exceptional and supplementary profits" from his business since the first of August, 1914, to date. Furthermore, he will then forward a check for fifty per cent. of this amount to the Treasury Department as his *contribution extraordinaire* in war taxes. What worries Monsieur Bottine is that the profits are to be calculated above six per centum allowed on original capital. As his original capital was nil, he finds that he has to split fifty-fifty with the Treasury. All is not gold that is war profit. Still, the wolf that used to hang around the back door of the little shoemaker's shop is dead, his hide tanned and made up into "pig skin" puttees.

We will leave the world of trade for a moment to discover if the *rentier*—the man of independent fortune, living on income and not actively engaged in business—pays for the war. Remember, I am discussing this subject from the cold-blooded monetary point of view. Do not think that I fail to give my French friends credit for the heart-breaking sacrifices they are making every day on the battle-fields. There are no tables that can sum up the misery, the sorrow and desolation this war has

brought to French fathers, mothers, wives and daughters. The people of France have my deepest sympathy.

The Marquis de Belletone's property is situated in Paris and Brittany, and the bulk of his fortune is secure in gilt-edged French and American stocks and bonds. When he was in Paris on leave—he is a Lieutenant of heavy artillery—we lunched together, and at the propitious moment I put my question on how the war affected him personally.

"I never felt better in my life." He looked it. His eyes were clear and his cheeks russet red. In his light blue uniform with scarlet trimmings he was as slick as a decalcomania.

"I see that—but how about your finances?"

His fingers played around the stem of the four-franc glass of Port he was sipping. He waited a moment before answering.

"Well, to tell the truth, my income hasn't been damaged by the war. As a fact, I have more actual cash today than at any time before the fighting."

Here was a curious admission, for the name of the Marquise, his wife, leads all the charity lists, and she has a battalion of "godsons"—men to

whom she sends monthly "goodies boxes"—in the trenches. The explanation was not long in forthcoming.

"When war broke, I turned my five automobiles over to the General Staff; my chauffeurs and washers were automatically absorbed into the army. At once my heaviest up-keep account dropped from my balance sheet. I did not think about this at the time, for as you know, we in France were too occupied to pay attention to such matters three years ago. But the first of January has been around three times since, so I have had three chances for taking stock. Each year I am surprised how the expense column has shrunk. Yet it is natural.

"First, nearly all our men-servants were mobilized. That meant a cut. (Of course, Madame, my wife, carries them on her roster of *filliuls* but this liability is properly listed under charities.) Automatically the expenses of my château in Brittany fell. My wife only opens it for a short time in the summer when she and the children go for a holiday. No more house parties, no more dinners, dances, motor tours, and all the other amusements that make up French country life. In Paris it is

the same. My wife is in half mourning, many of her friends, alas, are in deep mourning, so the social expenses dropped to nothing. Outside of my wife's room and the fourteen servants' rooms, the house on the Avenue du Bois is closed. She keeps the servants' quarters open as a sort of soldiers' boarding-house, where her 'godsons' lodge when they are in Paris on leave. Believe me those boys can eat—and drink."

A good natured smile spread to the corners of this French aristocrat's eyes.

"But it's coming to them, *les enfants,*" he added.

"Let me see, the next heavy saving in up-keep appears in Madame's furrier's and dress-maker's account. The former is cut one hundred per cent., and the latter fully eighty per cent., which makes Monsieur Worth cry in his scented beard. All of this saving my wife puts into her war work. My own tailor's bill is the price of my uniforms. Yet my English tailor is not so downcast as one would expect. When I last saw him, he told me his London shop received ninety-two orders from the United States in one mail. Also he has made all the officers' breeches for my regiment as well as the Sixth Dragoons."

The Marquis was not wasting much sympathy on his tailor.

"But to go on with my own budget, if you deduct the super-expenses of our winter trips to Italy, Switzerland or the Riviera, that about closes the retrenchment record."

"How about your income, has that been affected seriously?"

My friend hesitated.

"I am ashamed to admit that it grows. All our American stocks are booming. My own particular French industrial stocks pay regular dividends. I have bought blocks of our War Loan from the first, but I get good interest on my investment. So, as I have cut my fixed expenses over fifty per cent., when I get my yearly statements from my bankers each January I find my credit balance growing. Which is surprising, as my wife spends a good sum, a rather generous sum, on her charities."

The case of the Marquis de Belletone is typical of the adjustments put into practice since the opening of the war by the wealthier French class. The result can be thus summarized: Expenses in all the large homes have been much reduced, economy is the fashion, incomes have suffered only slight, if

any, reduction. This condition has produced a saving on the credit side of the yearly balance sheets, one half of which goes to charity, and the other half to subscriptions for War Loan stock. The last item is both patriotic and practical, it helps the government while it increases the individual capital account.

Certain exceptions fall outside of this summary of the average. Yet as far as chaotic conditions permit investigation, the exceptions counterbalance. Those whose fortunes were grounded in the industries of the invaded provinces have lost all. On the other hand, the wealthy families who hold stock of the Creusot-Schnieder Arms Company, Bleriot Aeroplane stock, Renault Automobile stock, shares which Wall Street labels "War Babies," have acquired the touch of Midas.

The fact that stands out as sharply defined as a red golf ball on the snow, is, despite the war, the rich grow richer.

Luckily the greater number of the wealthier citizens of France recognize the responsibility of their stewardship and share what has come to them through war with their less fortunate fellows. The generosity of the rich has been lavish. They give

money freely, not at all in the spirit of charity, but as a matter of duty. France as a country has been attacked. All her citizens rally to her aid and such aid does not mean simply shouldering a musket and marching to the trenches. It means putting forth every effort to help less fortunate brothers of the same great family. This is the word that accurately describes the French people. They are one big, good natured, considerate family. Ties of kinship are strong in France and in a crisis the ties of blood tighten the ties of nationality. In the face of the calamity that threatens the nation, a closer relationship has sprung up in all ranks of society. As the French above all are a practical race, they translate their sympathetic impulses into good deeds. When the Countess du Valle gives an expensive artificial leg to a poor soldier who otherwise would hobble through life on an unsightly and unscientific peg-leg, she only does her duty to the family of France.

Human nature, in all countries has its unlovely sides, and it does not detract from what I have written when I add that among the rich there are a few insignificant exceptions to the general rule.

The experience which I now recount simply shows the supreme selfishness of certain individuals.

Monsieur Tableaux has for forty years been a dealer in antiques. His shop at no great distance from the Place Vendome is filled with rare *objets de vertu* artistically arranged in glass cabinets. On the walls hang paintings; authentic old masters, and some fine modern canvases, Bouguereau, Corot and Whistler.

"Of course, the war has killed your business," was perhaps a blunt way of putting the question to a vendor of things æsthetic.

Monsieur Tableaux placed the tips of his long artistic fingers together and after a slight hesitation answered:

"The war has made little difference to me. Art always has its market. I have sold more this year than I have since the year of the Exposition."

"To war-rich Americans?" I suggested, knowing that Monsieur Tableaux had a large and rich clientele in the United States.

The hesitation of the dealer in antiques became positive diffidence. Finally he responded:

"No, to my own compatriots."

Here was food for thought. . . .

The problem of finding out who pays for the war was beginning to reduce itself to a process of elimination. Pursuing this process, let us turn to the bankers. The tactful concealment of facts is the rigid canon of banking. Yet under the law banks must draw up and publish periodic statements of their financial condition. But in time of war, it is a principle of political strategy to misinform your foe upon the status of your finances. So we need not take the banker's word for the business of the bank. We may, if we wish, be skeptical of published figures showing increased deposits. It is just possible these statements might be "fudged." But there are certain outward and visible signs which even to the layman of rudimentary powers of observation mean increased business.

Before the outbreak of the war, a certain banking company, which owns one of the largest quadrilateral office buildings in the money zone of New York, decided to wind up and close its Paris branch. War then postponed all proceedings. Suddenly after the days of chaos that ended with the battle of the Marne, the business of this bank revived. As water loosened from the snow line

by a spring thaw, the stream of depositors began to flow through its doors. The closing date is indefinitely postponed. More, the original office force has been doubled within the last year.

The smiling American manager will tell you "business is booming." Why? People are saving money. He speaks truly. Not that all the money saved goes into the banks, there are still a few primitive patriarchs in France who bed their coin down in the family mattress, but it is fair to infer that eighty per cent. of the cash put by because of war conditions, eventually finds it way into the hands of the bankers.

Turning to a Simon-pure Allied Bank, the outward and visible results can be simply stated and causes as simply deduced. This bank was born in England and baptized with one of the most famous Trade names in the world. Despite these happy auspices, the infant did not thrive in France. It was housed in small and shabby offices, and were it not for its famous name, would long ago have sunk in the financial sea. But with the coming of war, conditions changed. The small and shabby offices have been abandoned. The famous name is now gilded across the ground floor of the finest and

most centrally situated building in Paris, and the bank can pay a yearly rent of 360,000 francs, and make money for its stockholders.

If the volume of business done by stranger and allied banking houses has increased in this remarkable degree, how can an estimate be made of the increased activities of the purely French banks? Keep in mind the fact that the government has impressed upon the people the vital importance of fighting the foe both in the field of battle and in the field of finance. "Pour out your gold for the defeat of the enemy." This phrase printed on a striking poster—a great golden "Louis," the French piece that corresponds to our American Eagle, crushing a German soldier to earth—greets your eye from the window of every bank in Paris. To this appeal the people have answered by flooding the Treasury with rivers of gold. The symbolism of the poster crystallized the patriotic impulses of the non-fighting French man and woman. They saw their gold coins overflowing the enemy. While their sons poured out blood to crush the invader, in the same cause the fathers poured out gold. Today, when no extraordinary effort is made to collect this gold, at the Bank of France over

two million dollars in coin was exchanged for paper during one week. In a short time every *louis d'or* in France will be mobilized to fight the foe.

To get a general mental view of how this war helps the banks in France, let us analyze briefly national financial and trade operations in the bulk. The French government has become an unlimited borrower and buyer. It borrows at home or abroad, from the individual or the institution, anywhere it can get the cash. Also, it buys wherever it can procure the war-time commodities. But in this matter of buying, when the government goes into the foreign market it pays with gold. When it buys at home, it pays with paper. Under these conditions the financial primer explains the advantage of buying in the home markets. Certain raw products must be purchased abroad. Let the gold be saved for such disbursements. But whenever an order can be placed at home, place it, and pay in paper. The tyro in finance sees the reason.

Governmental buying has reached the sizable figure of seventy-two billion francs, about twelve billion dollars, and a large proportion of this sum is distributed among the citizens of the country.

Under this incentive hundreds of business organizations have accommodated themselves to war demands. Certain industries, essentially French, have expanded enormously under the impulse of supplying fighting material. Of these the more obvious are gun casting, shell making, and the construction of aeroplanes. The business done in these particular industries remain military secrets, but that the length of their pay rolls now compares with the height of their factory chimneys is no secret.

Labourers, skilled and unskilled, men and women, are earning more and saving more than was possible in pre-war days. The price of living varies in different parts of the country, but for an average we can say that it has gone up sixty per cent. To offset this, the wage earned in all the industrial institutions that have been accommodated to war-work, has increased, one hundred, and in some cases, two hundred per cent. At the lowest figure, here is a net gain of forty per cent. The thrift of the French is the subject of proverb. To understand the origin of the habit of saving, which verges upon parsimony, you must remember that the well-educated and well-paid French working-man of today

is only four generations removed from the pauper whom starvation drove to the Revolution and its consequences. Money is never "easy" in France. And in acquiring it no substitute for work of the hardest kind has yet been discovered. That old saying that some are so tight-fisted that they grip a dollar till the eagle screams, would apply generally in France if you substituted dime for dollar. The war has accentuated this national characteristic. Figure the result of this ingrained thrift upon workers who earn more per hour, and are employed more hours than any previous industrial statistic tables can show. Your conclusion will be that the working-man is not paying for the war.

From the worker it is natural to continue the search among the butchers, bakers and grocers. A bare glance at any market place gives a picture of brisk business. French women with corpulent baskets and fish-net carry-alls besiege the stalls. From their clamour it is clear they bargain bitterly and denounce the climbing prices of food. But still they buy until the basket lids barely close and the fish nets seine a mess of cabbages, cauliflowers, chops and the incidental dinner catch. If the market-baskets overflow, one may be sure that

the till of each butcher, baker and grocer qualifies under the same adjective.

Here in Paris I live around the corner from the Rue Bellefort, the chief marketing street for the quarter. Butcher Grasse, ruddy and robust despite his fifty years, does rush-hour business from six A. M. to six P. M., the five meat selling days of the week. There are two other *bucheries* farther down the long street, but Paul Theobald and Jean Dufour are in the trenches, so their shops are closed. Madame Dufour tried to carry on her husband's business, but she could not make it go. She missed Jean's good right arm.

Luckily women can carry on a grocery business, in a way. But some of the tricks of the trade are unknown to them so the "big business" victuallers find the lines of their customers lengthening every day. Felix Rotin, the Park and Tilford of Paris, with half a thousand grocery stores and wholesale purchases, has the inside track in the race with all his competitors. Your prunes, patés and potatoes cost four cents a kilo less at Rotin's, and you save on your coffee and tea.

At one time the word sugar was a synonym for gold in the south, and in war-time Paris one recog-

nizes the association. Sugar has become almost as rare as the precious metal. If in some mysterious manner, Monsieur Rotin is able to salvage from the diminishing supply more sugar than is apportioned to his rival purveyors, it follows that more customers will crowd the counters of the Rotin shops. Which is the exact situation. When this privileged grocer announces a sugar sale, his sugar line is twice as long as the queue that fights to buy seats at the circus.

But in order to keep unscrupulous and selfish persons from cornering the sugar market, something no honest grocer would think of doing, and in order to see that all get their fair share, Monsieur Rotin sells his sugar in small quantities, two pounds to each purchaser, and said purchaser is only allotted his two pounds of sugar after he has bought half-a-dollar's worth of other groceries. Isn't Monsieur Rotin just the shrewdest philanthropist the war has brought to the surface? Think it over.

To the indictment charging "big business" with paying for the war, the verdict is not guilty.

Passing to the great category of men working on a salary, certain facts spring into high relief. As

with all French men, the most influential fact determining the salary earner's fate and the fate of his family, is age. Men above or below the military age—twenty to forty eight—are anchored in the snug harbour of safety. Each day they go as usual to their cages in the bank, their desks in the office, their counters in the store. The only change noticeable is more work. At the end of each week the pay envelope is forced upon them just as regularly as it was before the first of August, 1914. An interruption occurred when the invader came thundering to the borders of the Marne, but when General Joffre's army hurled the enemy back upon his wagons, bank and business resumed operations. As soon as the general public became convinced the army was going to hold, and something more, trading and financial France bent every effort to back up fighting France. The salaried man excused from military duty for whatever reason is a cog in this dynamic effort, and except for the usual war economies, life moves with its wonted routine. . . .

It is not in the cities behind the lines that we must seek the answer to the query "who pays for the war?" Nor should we seek it from the heads

of the thousand industrial plants supplying the armies of France with guns, wagons, food, clothing. Nor yet from the millions who toil fifteen hours each day in those thousand industrial plants. If you would know who pays, pays, pays,—leave the feverish activities of the rear for the desperate dangers of the front. Leave the comfort of the cities for the torment of the trenches. There will you find your answer.

Omit from our record the fatal risks of loss of life, limb or eyesight, and examine the other calamities that overwhelm the French citizen-soldier upon his sudden transition to the battle-field. Instead of his salary which may vary from fifty to five hundred dollars a month, he receives five cents a day. He lives at the cost of the government. Yes, call it living if you wish, when a man "boards" in a mud and corruption-filled trench, when he fights each night with vermin for space to rest his reeking, weary body. Call it living when a man shares his crusts of bread, his soup, his stringy rancid stew and his cheap wine with those grim comrades—Disease, Disfigurement and Death.

Take the bank-teller, the bookkeeper, the sales-man who is wrenched from his accustomed environ-

ment and thrust into the army, what is his plight? Stirred by the highest sense of duty, he takes his place in the ranks, willingly, proudly, never counting what a heavy share of the cost of war he pays. Kissing his wife and baby, he marches to that grim, mysterious region, the Front.

Life for this man and this woman has changed in all its aspects. The wife, thinking of the fate that threatens her loved one, classifies want and her personal suffering as the minor calamities of the war. Somehow, she will provide. There is always her dot for which she thanks Heaven devoutly. The income from that dot has in many cases been a stop-gap against starvation. Luckily the sense of kinship so strong among the French people shows itself immediately. Mother and child find a new home with her own or her husband's folk. More plates are set at table, more *pot-au-feu* bubbles on the stove. For the wife the problem of living is solved.

But what of the husband? Supposing he is fortunate enough to come through the conflict unscathed, can he hope to find his old job after three, four, five, Heaven knows how many years of absence? Today his place is filled. With the kind-

liest feelings in the world his old employer cannot put him back in his old position at his old salary. Even should this be possible, try to compute the financial loss these war years mean in a young Frenchman's life.

Here is the frightful injustice of war. Why should these men who bear all the burden of the fighting also pay the bills? Is it not enough that they give their arms, their legs, their eyes, perhaps their lives for France, but that they shall also give their wealth. In France at every turn you meet this bitter injustice. . . .

Down the busy rue Bellefort two wounded soldiers are walking. Their uniforms are old and spotted with dirt ingrained on the shoulders, where the pack-straps cross. Their faces show no ruddy, weatherbeaten glow. Instead, the skin is hospital bleached and waxen. One soldier, his right sleeve pinned to the side of his tunic, gives his left hand to the other, who wears a black half-mask across his eyes.

"Where are we now, Jean?"

It is the blind soldier who speaks.

"We pass Saint Saviour's Church."

A little way and the two soldiers are blocked by

a crowd, hurrying in and out of a butcher shop. For a moment Butcher Grasse pauses in the press of his chopping and weighing as the crowd gives way before the soldiers. *"C'est la guerre,"* he mutters when he catches Jean Dufour's bitter eyes. But his ruddy face takes on a deeper crimson and his cleaver bites viciously into the sirloin he carves, as the wounded soldiers pass.

Farther down the street the two derelicts pause before a storm-washed sign that reads:

JEAN DUFOUR
Bucherie.

Blank, tight-drawn shutters close the shop, the ground-glass door is locked. Dirt and grime, the accumulation of two years of neglect reign over what once had been an altar of cleanliness.

"How does it look, Jean?"

Tears were in his voice as the one-armed soldier replied:

"Sadly, Paul, sadly."

The blind soldier pressed his comrade's hand in sympathy.

"Come, we shall go to your shop," was Jean's answer to the friendly hand-clasp.

On go the one-armed soldier and his blind comrade to the far corner of the rue Bellefort. Here they stop before another slatternly shop.

Bucherie THEOBALD

appears in faded letters above the door. But again the tight drawn shutters, the broken-down air of neglect, tells the story of ruined business.

Moving his cane before him, the blind soldier approaches the door. He tries the knob. It is locked. He knew it would be so. Then he turns towards his comrade who stands on the curb studying the shop with dull eyes.

"How does it look, Jean?"

"Sadly, Paul, sadly."

The blind soldier turns. He feels with trembling fingers along the shuttered front, then wearily dropping his head against the boards, he sobs,

"God help us!" . . .

From the trenches five million voices echo that prayer. From a million graves, a spirit sigh repeats,

"God help us!"

CHAPTER X

THE BURDEN FRANCE HAS BORNE

FRANCE has taken war's foulest blows full on her breast. During the first two years of conflict German armies spread across her most productive provinces like a grey corroding acid, eating through farm, orchard, factory, home, destroying the most valuable property and most useful lives of the French nation.

But this scarification did not crush the spirit of France. Rather the enemy outrages—ruined cathedrals, ransacked homes, ravaged women—roused the French people to a terrible realization of the German threat against the world.

For the French man and woman, love of France, under the scourge of war, became a religion—a religion where fathers, mothers, sons, daughters, claimed the highest privilege accorded the Crusader and the ultimate sacrifice that gained the martyr's crown.

The battle which checked the greatest expression of organized savagery the world has seen in three thousand years is often called the Miracle of the Marne. Surely it was a miracle. During three days lustful Uhlan outguards pointed their blood-stained lance tips at the Eiffel Tower, saying confidently, "Within the week and our flag will float from the highest pinnacle in France." But the God who weaves the world's destiny in mystery heard the prayers of France. The miracle was performed. Paris, the most beautiful achievement of man on earth, was saved from sack and rapine.

It is no easy task to try to interpret French patriotism to our home-staying Americans. Only sympathetic hands can inscribe the long, sad stories of sacrifice which mark the stations of the war in France. When one has lived in the sacred atmosphere of a people daily immolated on the altar of patriotism, one feels a certain unworthiness in sounding the depths of this feeling, of analyzing its springs, of calculating its results.

When the earth's last judgment is given on this great war, France will be deemed to have saved the world from despotism. Diplomats, during many years, have prophesied the contest between

democracy and despotism for the domination of the world. In the struggle that endures France is the true champion of democracy, and no better expression of this democratic spirit exists than the French army.

When the French army is mentioned today, the French people is implied, for the whole nation is bound by the most sacred ties to the trials and triumphs of the fighting section of the populace.

Contrasting the French with the German army, we discover, though both are grounded on conscription, they are radically different in their inspiration of service. The French and the German armies are completely separate in soul. History gives us the analogue of variance between the French and German military systems in the story of Greece and Rome. The Roman armies were organized for conquest, with the aim of spreading Roman "kultur" to the southernmost boundaries of Carthage and the northernmost villages of Gaul. The Roman eagle, like his Prussian descendant, sank his beak into the breast of the world. Roman power, like Prussian power, sprang from the will of the Emperor.

In Greece, in the age of Pericles, the demos was

the fountain of power, and the army was the guardian of the freedom of the people. The ideals which inspired the Athenians, honour gained in serving the country, is today the ideal inspiring the soldiers of France.

In analyzing the spirit of the French soldier, bear in mind this vital fact—fighting is an emotional act; and it is admitted that an emotion springing from an ideal is necessarily finer than one founded on a person. The German goes to battle with the Kaiser's sparkling figure in the back of his mind, while the Frenchman fights for all that is connoted in the one word—France.

Frankly, the German honours, reveres, sanctifies war; the Frenchman hates, despises, abhors war. I have seen the soldiers of both nations in battle. I have studied them and talked with them after battle. I have watched for some unconscious expression that would give the clue to the real feelings of the French and German soldier, and when some phrase of the lips or flare of the eye marked the true state of the inward soul, I have noted it.

In countless ways the German shows it is the Kaiser he fights for; that dominant, disdainful figure symbolizes the Teutonic system, inspiring

the German race to the ultimate sacrifice in the effort to spread that system over the face of the earth.

Never has the French soldier given any indication other than that he fights for his country, his cities, his farms, his homes. Never does he give way to the lust of battle for battle's sake. He sees in this war an evil, a scourge laying waste his beloved country, and he conceives it to be his duty to his forefathers, himself, and his children to rid the earth of this plague. The cultivated Frenchman will take pains to explain to you how illogical, unintelligent, uncivilized is war; yet you will see this same cultivated Frenchman wearing the uniform of his motherland racing like fury to the muzzles of the machine-guns.

Will not the man who recognizes the brutal side of war, still does not hesitate to pay its penalty, merit more the title of hero than he who fights to gratify ambition?

The paradox of the French way of thinking about war and acting in war is carried out in the organization of the army. The wide, unbridgable chasm of caste which exists between the officer and the private in the German company is but the step

of necessity in French battalions. French soldiers recognize the need for discipline, of the value of team-work, and the urgency of obeying in battle, as the very foundation of their worth as citizen soldiers. They know also that they of their own volition have created the authority behind the officer, and for this reason there can be nothing degrading in the surrender of personal privilege in the crisis of war.

Discipline is not maintained through fear, but by public opinion. Each private soldier recognizes that his individual efficiency and effectiveness, and consequently the efficiency and effectiveness of the whole French army, is based on his prompt and intelligent obedience of orders delivered by military superiors.

He knows that his officers are trained specialists in war, and he puts himself freely in their hands, so that the nation's will in war may be accomplished. He understands the successive limitations of military authority—the private to the sergeant, the sergeant to the lieutenant, the lieutenant to the captain, the captain to the major, and so on through grade after grade, up to General Petain, who in turn is responsible to France.

With this conception of his duty, the most difficult part of military instruction is readily instilled into the French recruit.

Thoroughly to appreciate the relations of officer to soldier in the French army, they must be seen together in the trenches. The captain watches over his men like a father. He shows a sympathetic understanding of their difficulties, while demanding in the common cause a rigorous adherence to their duties. The officer sets the highest standard of performance for himself and exacts the best each of his men can do.

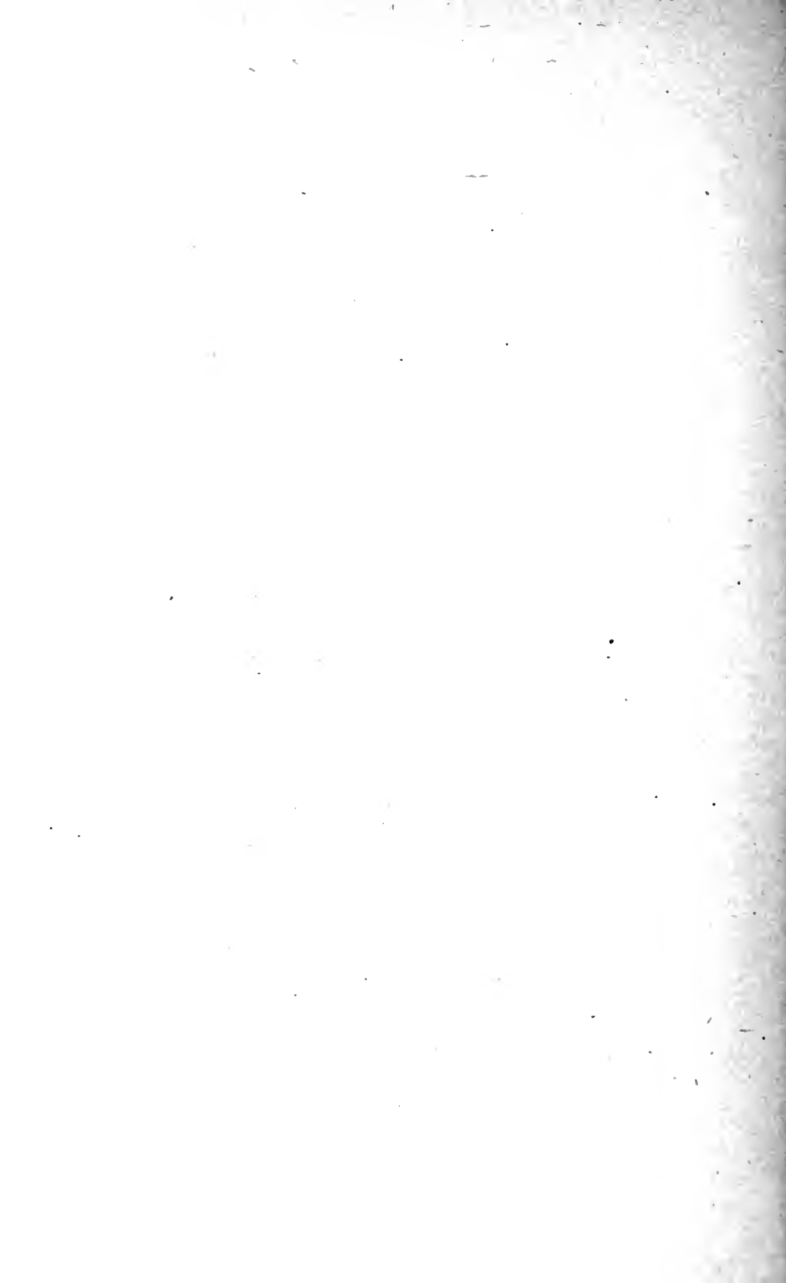
But the soldier knows he can go to his officer with his private troubles and receive helpful advice. He knows he will never meet with intentional injustice. And what gives him supreme confidence is the knowledge that he will be led with intelligence and skill.

The French officer is constantly alert to take advantage of the enemy and safeguard his own men. The greatest crime in the officer's calendar is wantonly to waste the life of a subordinate. Circumstances may call for the last sacrifice at times, but short of this condition the French commander husbands the lives of his men as a miser his pieces of

Underwood and Underwood.

BEHIND THE BATTLE LINES

Fighting men brought back for a respite from battle fall at once to homely arts and pleasures.



gold. In an attack he will plan how they must creep from shell-hole to shell-hole, keeping as safe as possible from the enemy's artillery fire. He will study the ground in front of his trench for every available bit of cover, and so manœuvre his men that they will gain its every advantage. He will elaborate trench and sap until his men are as safe as the battle front permits, feeling his duty to his country demands not only that he defeat the enemy, but that he defeat him with the minimum expenditure of the lives under his command.

Men learn quickly to appreciate this quality in their officers, and this appreciation brings about a sense of loyalty which closely knits an army into an unbeatable whole.

The test of the trenches also brings out the indomitable spirit of France as could no other circumstance. I saw this spirit in its concrete cheerfulness during a visit to the battle line beyond the Somme.

It had rained for two weeks and it still rained. The battle ground, a great patch of black, desolate earth, looked as if for an age it had been submerged beneath the slimy waters of some flood. Gaunt and murky tree stumps marked the residue

of woodlands. A thousand shell pits pocked the ground. Into these drained the top soil of the earth in flux.

The Germans kept up a sullen shelling of the French trenches, zigzagging across these fields of desolation. Depression hung like a lowering cloud over the scene. Yet as I passed along the communication trenches I heard a voice in blithe song issuing from the depths of a dug-out. A sodden rain was falling, adding the last dismal touch to conditions, yet the singer chanted gaily:

Elle a perdu son parapluie, tant pis pour elle.

In a moment a mud-spattered soldier appeared from the dark of the cave.

"Good morning," he said, cheerily throwing the carcasses of two huge rats over the parapet. "There goes the night's hunting."

The cheerfulness of this soldier personified the spirit of France.

In the proportion to her population, France has given more of her citizens to battle than any other nation. It would be valuable information to the enemy to give the exact figures of losses, so the French general staff publishes no record of the cost of victory. But from a study of such data as

is available an estimate can be made. Counting the dead, the permanently disabled, and the prisoners, France's contribution to the holocaust of war is more than two millions.

The price France pays in flesh and blood is a greater sacrifice than has been yet demanded from any of the allied nations. In computing the value of this sacrifice, all the conditions of French population must be taken into account. Chief among these must be placed the abnormally low annual increase in the number of French citizens. Taking only the figures for native-born Americans during the last forty years, and the increase in population in the United States has been over thirty millions, while during the same period in France the increase has been less than three millions.

If the loss continues at the same rate, in another year France will lose the total surplus in citizens she has gained since the war of 1870. And it must be remembered that the death lists today are not compiled from the aged and sickly, but from the youth and health of the land.

Through the sacrifices in men lost during the early battles of the war France was able to check the German rush and gain time for England to pre-

pare. The French army met the German army at its full strength and defeated it. The victory of the Marne was due to the tactics employed, and the blows struck by the French army. When the facts are finally revealed, history will grant France this honour. But it is an honour paid for in the best blood of the country.

Up to the present it has been the French army, the French citizen soldier, who has saved the world from German conquest.

As an example of what France gives, let me quote the story of General Castleneau. He is a valiant, generous gentleman—a soldier with the soul of a Spartan.

He and his sons were among the first to draw their sabres in defence of their land. During the first year of the war, when he was pressed down with the cares of one of the most important commands in the French army, news was brought to General Castleneau, first, that one of his sons had been killed; then in a few months a second died for his country.

The third son fought in the army commanded by his father. He was his father's favourite. Little more than a boy, in the first battles he had shown a

courage that won him honour and rapid promotion. Then in one of those attacks, where regiment upon regiment charged through the fields of death, this third son was mortally wounded.

Upon the death of this boy, broken by his sorrows and the strain of war, General Castleneau thought to give up his high command and live out his last days on his home farm. Then his wife came to him. He told her his thought.

"No," said this French wife and mother, "you have given the best of yourself to your country. You have nothing left to give save these last years. We must keep up the fight." General Castleneau today is still at his post of duty.

Not only has France given the bodies of her sons in the sacrifice of battle, but she has also given the fruits of their brains. The trained professional officers of the French army have been the intelligence which directed the military operations of the Entente armies. These officers were instructors in the art of war to the allied forces and while acting in this capacity they evolved new tactics which so effectively thwarted German ambitions.

The new tactics were the outcome of trench warfare, which had brought into use weapons long

since discarded in modern armies. When the war opened French battalions a thousand strong, had the organization common to most armies, namely, four companies and a mitrailleuse section of two guns. The men were armed wholly with rifle and bayonet; but French ingenuity was quick to see the changes of organization and armament made necessary by the new warfare.

Today half the battalion have discarded the rifle and carry grenades or one-man machine-guns. Three of the original companies are still infantry, while the fourth has been changed to a machine-gun company with eight mitrailleuses.

The infantry companies are subdivided into sections and armed with special weapons: first, the hand-grenade throwers; second, the rifle grenade soldiers, who, instead of throwing the grenade, fire it from their guns; third, the soldiers firing automatic rifles, and these are followed by the ordinary infantry, using rifle or bayonet.

The machine-guns as employed by the Germans were the great bugbear of the trenches. These weapons would mow down a whole company of advancing soldiers in the charge. French officers set themselves to solving this problem and devised the

small cannon to be used in the assault. The gun 1½-inch calibre rapid fire, was dragged forward with the charging line. When brought into action it soon mastered the fire of any hidden machine-gun.

That ingenious weapon, the rifle grenade, merits special citation. It consists of an iron receptacle, clamped to the end of the regular rifle, in which a special type of grenade is placed, and the rifle fired. The explosion sends the grenade about 200 yards through the air, while the rifle bullet, piercing the centre of the bomb sets free the fulminate, which causes the grenade to explode on landing.

I have no intention of going into a technical discussion of the French infantry in attack, and only give the outline of tactical changes in order to indicate how the French people are fighting with their intellects. They have no belief in brute force in war; if they had, they long ago would have surrendered to the Germans. Their faith is pinned to their own finesse—a finesse which exasperates and thwarts the enemy.

As instructors, French officers have been of inestimable value to the English. In the beginning of the war the British army was deficient in artil-

lery—a deficiency which was rapidly remedied in material, for England turned out guns for the army from the naval-gun foundries. But gunners, who are soldier specialists, were not available for the batteries.

In this dilemma England turned to France, the country that had developed the finest corps of artillerists the world has ever seen. French officers were detailed to the English batteries, and English officers also were taken into French artillery units and learned their art in the actual practice of war under the tutelage of the most competent teachers.

I have referred to French artillerists as the finest in the world. The statement is made without qualification; and were I seeking the factor of greatest single importance in the military strength of France, I should decide upon the artillery.

It was given me to see the French guns go into action in one of the early attacks of the war—the engagement at Dinant. Aside from its spectacular interest, the performance was one of the most perfect exhibitions of artillery technique I have ever witnessed. The guns were driven, wheeled, and unlimbered with the precision of parade-ground manœuvres. The men dropped into their ap-

pointed places like the parts of a geared machine. Then guns were loaded, aimed, fired, reloaded, without an ounce of lost motion. When the projectiles exploded, and I could see the effect through my binoculars, I wanted to cheer for the gunners of France. They had scored four direct hits.

The guns of this battery were the *soisante quinze* calibre, since become the most famous cannon of the war.

The construction of this cannon was a jealously guarded military secret up until the time of the opening of hostilities. Other nations knew that France possessed a field gun of exceptional properties, and while they had hints of its effectiveness, as demonstrated in peace, it needed the brutal test of war to prove the superiority of this weapon above all similar makes of artillery.

It is readily understood that, with a cannon which shoots farther and faster than the enemy, the French army possessed an asset of great military advantage.

I have heard French artillerymen state that the superiority of their *soisante quinze* batteries made up for the German preponderance of numbers in the beginning of the war, and that the destructive-

ness of these guns was so great that they almost equalized the tactical value of the forces of France and Germany after several hours of actual fighting.

The gun is a marvel of fitted mechanism; breech-block, recoil cylinders, sighting apparatus, all the puzzling pieces of hardened steel which open and close the cartridge chamber, function with the smoothness of a dynamo.

In the process of loading and firing, it gives the impression of some sentient organism rather than a machine of turned steel. This impression is heightened by the short, dry sound of the explosion when the shell is fired—a sound that awes and electrifies when first heard, and which has come to be far more characteristic of battle than the conventional "boom" supposed to convey the noise of cannon.

As soon as the superiority of the French cannon was recognized, the great arms factories of France were enlarged and worked to the limit of capacity, not only to furnish new guns for the French army, but also to supply the enormous demands of the Russian army. Later Serbia and Roumania were also supplied with field batteries from French foundries, and in these countries officers and men

accompanied the guns to insure efficient handling.

From the above it is seen how generously France came to the support of her allies in the most important branch of military science; and when we reflect on the enormous amount of material destroyed during the two and one-half years of war, we begin to perceive what a drain this has been on the resources of France.

Reliance upon the decisive effect of artillery in battle has been a tradition with the French army since the victories of the first Napoleon. He it was who originally employed artillery in a massed formation. At Wagram, at Lutzen, at Hanau, this manœuvre of concentrated artillery fire gave the victory to the armies of France. Napoleon III tried to continue the theories of his brilliant ancestor, but failed; yet the influence of the great master of tactics continued; so it is but natural that the use of artillery in war should reach its highest perfection through French development.

The French have relied for success in the fighting today on the ancient manœuvre of the Napoleonic era—a mass of guns firing at a given point in the enemy line. At the same time they endeavoured to make the practice of concentrated fire

more effective through increased speed and accuracy of fire.

Before the opening of the great war there were two schools of artillery tactics—the French, which believed in the above theory of rapid field-gun shelling, and the German, which pinned its faith to the effectiveness of huge guns having a greater range than the ordinary field gun and of course throwing a far more destructive exploding charge. The extreme of the German theory was the widely advertised 42-centimetre cannon, supposed to be able to reduce the strongest fortress to ruin with three well-directed shots.

The actual practice of war and the peculiarities of trench fighting developed the fact that neither of these schools were wholly right. The light French guns were ineffective against troops hidden in well-constructed trenches, while the difficulties of transportation involved in moving the giant German guns from point to point outbalanced their ultimate effectiveness.

French artillery experts began at once to experiment toward developing the most serviceable gun under actual conditions of war, and the result of this experiment can be gauged by the different

calibre of cannon now used in the French army. Here is the list given in metres and the approximate calibre in inches:

First the 75 m.m., the standard field gun, 3-inch calibre; the 95 m.m., 3½-inch; 105 m.m., 12-inch; 370 m.m., 15-inch; 400 m.m., 16-inch, and last the largest cannon in the world, 520 m.m., or 20 inches.

I give the list in full to impress upon my reader the extraordinary complication of industry involved in the casting, turning, and assembling of these various types of cannon. Special machinery must be employed in each instance where there is a variation in calibre. Complete foundries are given over to the manufacture of the separate parts of the gun and gun carriage. The industrial organization for one size of gun alone is greater today than the total pre-war ordnance organization.

From the failures of the Germans the French found that the problem of heavy artillery in the field was transportation; so French artillery experts began at once to try to solve this difficulty. They have succeeded in their task. Their triumph is the construction of a railroad truck upon which is mounted a 20-inch cannon, the heaviest piece of artillery in the world.

The marvellous manner in which the French have overcome the mechanical difficulties that hitherto confined heavy artillery to fortress or siege operations is a striking example of what French brains are doing in this war. Firing a 12-inch gun from a foundation built along a spur of railway was considered a mechanical impossibility before General Joffre's expert artillerists demonstrated the success of the idea.

It was not only in the construction of these guns that France showed her skill, but in their operation. French gunners first developed indirect fire —the art of hitting an unseen target—and in this war they have brought indirect fire to technical perfection and even applied its principles in new ways.

Undoubtedly, in accounts of present-day battles in Europe, the reader has met the phrase curtain or barrage fire. He may have guessed something of the nature of this artillery expedient.

The phrase means, in untechnical language, the art of aiming a mass of cannon in a manner that the projectiles from all of them fall in a given area in such a shower as to form a curtain or barrage of exploding iron.

This curtain may be dropped behind an enemy position so that reinforcements cannot come to his aid when attacked, or it may be used to check an advance.

Accurately to synchronize the action of fifty or one hundred batteries, two hundred or four hundred guns, so that while firing from widely separated positions at a target that is not in view the projectiles arrive simultaneously along a defined and predetermined line, is a matter of the highest technical skill and calculation. To the French belongs the honour of first employing this effective artillery principle.

I have seen these great pieces of ordnance, equal in size to the major guns of a battleship, moving from point to point along specially built lines of lateral railroads, running in rear of the trench position on the Somme. At the will of the commander they are brought into action wherever the press of battle warrants.

This development and operation of artillery is the most impressive manifestation of the colossal expansion of modern war. Consider the tons of metal moulded into each of these great cannon, and then reflect that wherever the trucks upon which

they are mounted move, bridges, culverts, even the roadbed itself, of the railroad line must be strengthened to support the load.

Further, in order that the giant cannon shall have the mobility for effective use, new sections of railroad must be built whenever the army advances.

If you analyze the process of manufacture and the details of transportation involved in the creating and bringing of each one of the new heavy field guns to the front, you arrive at an understanding of the important part played in the war by the French industrial organizations.

I was witness to another phase of the effectiveness of this organization, as shown in the munition industry in France. Taking the number of units produced daily as a standard, the greatest single business of the war is the making of shells. This comes about through the enormous disproportion in the time consumed in the production and the distribution of shells compared with the time needed to expend them.

Consider the making and the breaking of the shell. One is a tedious, toilsome, exacting, and complicated process, beginning with the digging

of iron ore from the earth, its transportation to steel mills, its transfusion and casting into ingots.

These ingots are the raw material of the shell casing only. The production of the explosive that serves as the bursting charge is an industry in itself, while the construction of the mechanism of the fuses requires almost as much skill as watch-making.

In the first year of the war, the critical period of the conflict, France led all the Entente nations in the production of shells. As was the case with guns, France had to supply her ally, Russia, with the munitions so necessary to the effectiveness of the armies fighting in Poland the Carpathians. To meet this drain the industries of the country were reorganized. The products of peace gave way before the demands of war.

The concrete example of this is the transformation of the plants of the Renault automobile works to the making of munitions. In one factory, formerly wholly concerned with the forging and fitting of motor machinery, fifteen thousand men and four thousand women are now employed twenty-four hours of each day grinding and filling high-explosive shells. The work divided into shifts, never

halts, and from this one plant eleven thousand projectiles are daily sent forward to the front.

But during periods of heavy fighting, when the cannon is playing its important part in the tragedy of battle, the calculated average of expenditure of ammunition by one army corps is twenty-nine thousand shells per day. So the total effort of nineteen thousand workers employed during twenty-four hours furnishes somewhat more than one-third the ammunition used by a small part of the army.

The number of army corps holding the front in France is a military secret, and as the United States is now ranged on the side of France in the war, it would be injudicious to try and probe that secret. We violate no confidence when we state that it is more than thirty. This figure will give us a basis for calculating the number of shells produced by the munitions factories of France.

There are long periods when the expenditure of ammunition in no way approximates the figures given above, and it is during these periods when the guns are comparatively silent that production catches up with consumption.

It may be true that England is gradually approaching France, both in the manufacture of heavy

guns and the production of munitions; but this condition appears after two and a half years of war. During those two and a half years it was the French cannon, French shells, French soldiers, and French brains that checked the military ambitions of Germany.

With all this effort applied to improve her killing power, France did not neglect the complement of war destruction—healing. The best surgical and medical minds of the country pondered long on the problem of saving all that was possible from the human wreckage of war.

The fruit of this thought is exemplified in the work of Doctor Carrel, whose achievements under the Rockefeller Foundation are well known in the United States, and Doctor Dakin.

These two men put all their efforts into curing the evil of infection. They had found in their work among the wounded that seventy-five per cent. of deaths, after the first twenty-four hours, were due to infection; that eighty per cent. of amputations were due to infection, and that ninety-five per cent. of secondary hemorrhage came through infection.

While the work incidental to healing the wounded was going on, Doctors Carrel and Dakin estab-

lished a research laboratory in conjunction with their military hospital at Compeigne.

It is not necessary to give the details of the experiments of these two scientists. Today, by the application of the Carrel-Dakin method of sterilizing wounds, one amputation is performed where formerly twenty were necessary, and where there were ten deaths one now occurs, and the time of convalescence is reduced from three to six months to four or, at the most six weeks.

It has been found that the method of Doctor Carrel applied to the formula of Doctor Dakin has not only shortened convalescence, but in consequence reduced the strain on doctors and nurses and the cost of hospital maintenance; also it has minimized pain. But more than all this, it has resulted in a great saving of limbs and lives to France.

Turning from the purely military side of war to the economic side, we find another picture of French sacrifice. In this picture the French woman holds the foreground.

In the time of war every physically fit male in France can be called upon to shoulder rifle and fight the battles of his country. When this call sounds, it might be thought that the agricultural and indus-

trial structure of the nation would be reduced to chaos.

But for the sturdy heroism of the women of France such might have been the case. When the men were called to the colours, the women came forward to fill the gaps in the farming and manufacturing armies.

French women, aided by their children, ploughed the fields, sowed the seed, harvested the crops that during two years have fed the soldiers of France. French women tended the vines, gathered the grapes, and pressed the wine which France exports throughout the world. French women became conductors, motor operators, ticket-sellers on the subways of Paris; they took the positions vacated by men in the post-office department; they were employed in the street-cleaning and other municipal departments.

In all industries, public or private, women replaced the men called to the front, and, what is much more to the point, they made good in their new work.

As farmers, as vintners, as labourers, as munition workers, French women toil without ceasing to save France and take some of the burden of war from the

shoulders of the men. In their own field, as housewives who understand the importance of thrift, they have saved the economic situation.

The enormous financial burden which war has so unjustly thrown on France has been lightened by the thousand economies put into practice by French women in their homes. All the little dainties of table, the little coquetries of dress, the little temptations of amusement, have been sternly put aside for the duration of the war.

Sugar means money spent abroad; therefore the French woman gives up pastries, sweets, and reduces the amount of sugar used in the household. Coal is needed to keep the munition factories up to the maximum of production, so the French woman reduces the amount of gas and electricity used in her home, as these are the products of coal.

Thus French women, through practising direct and indirect economies, actually reduce the cost of the war to France; and, more than this, when any money is saved to them from these economies they invest the saving in government war loan, making every copper do double work in the defence of the country.

I have only outlined what France has done in the

war. I have mentioned the work of the army which met and turned the heaviest blows the military power of Germany could muster. I have mentioned how the artillery, the product of French brains, bulwarked the efforts of the soldiers. I have referred to the work of the women of France and their splendid stand under the strain of war, and I have mentioned the spirit of France.

In conclusion, I must again allude to that spirit. French men and women know that the resources of their nation in property and lives are being consumed in the furnace of war. They know what the death of their soldiers means to the nation in the future. They realize the terrible consequences of German occupation. Yet in the face of all these bitter trials the people have never faltered.

Throughout the misery, the suffering, the brutal injustice of this war, France has fought valiantly for one ideal—the ideal upon which that nation and our own is founded—the right of the citizen to liberty.

Each day as the French armies press the enemy back from the territory so long occupied, the sacrifices of France are proved with greater poignancy.

The band of blackened land now given over to

desolation is the visual testimony of what the war has meant to France. But it is not only the losses of today, but what those losses mean in the future that must be reckoned as part of the burden France bears. This is a sacrifice no man can gauge.

When democracy rises triumphant from the struggle with despotism, and when the last page of war history is written, the world will gladly acknowledge its debt to France.

THE END

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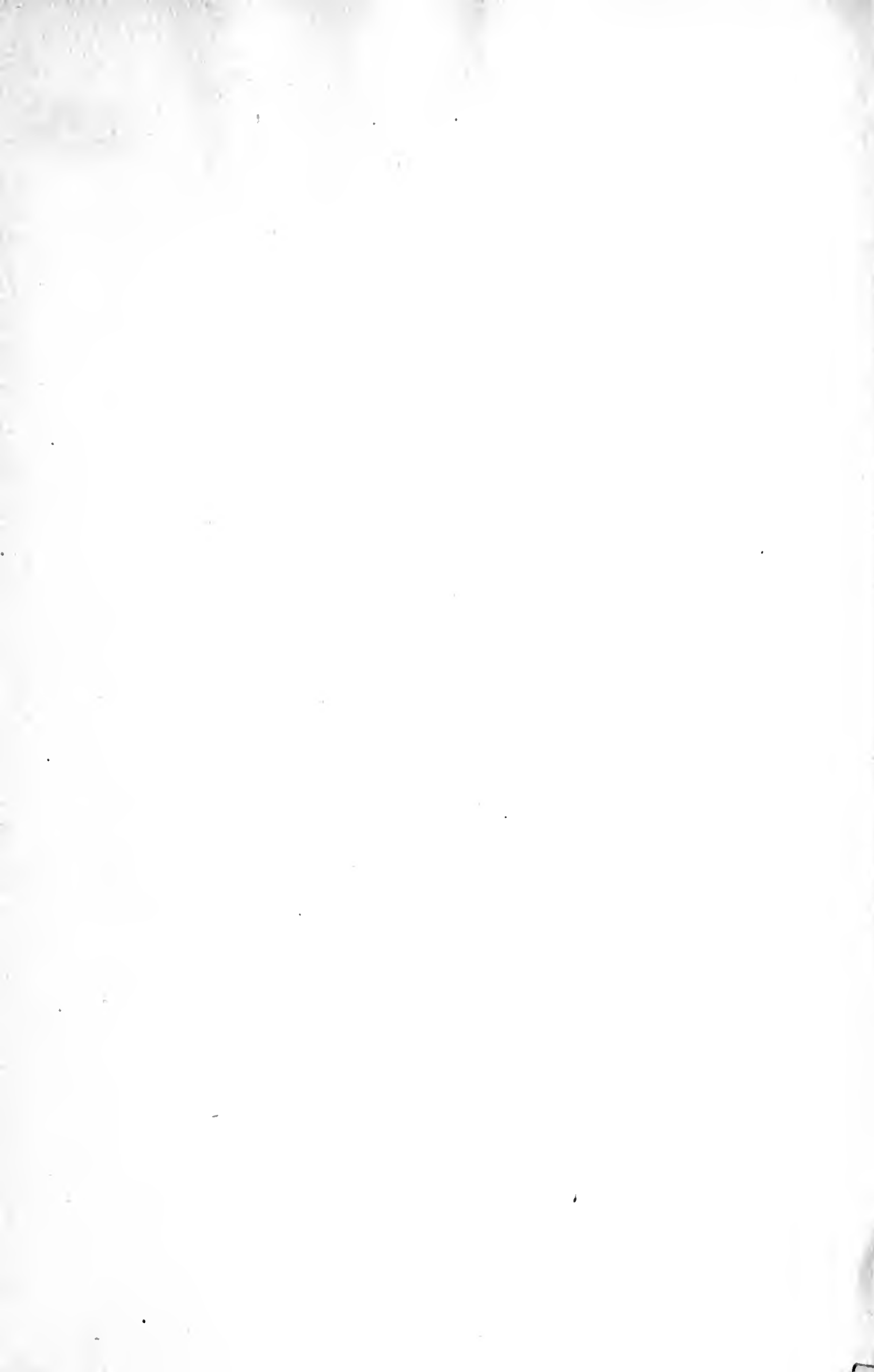

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