

## 'The soldiers moved on. The war moved on. The bombs stayed'

(French demineurs clear away left-over World War I and World War II bombs)

*Smithsonian* | February 01, 1994 | Webster, Donovan

French demineurs are clearing millions of acres of the lethal debris of two world wars; in a good year, not that many are killed

Across the centuries, France has often been a battleground. On this particular morning, a Tuesday in late September, we're cleaning up after World War I. Six of us are walking through a dense forest just outside the town of Verdun, 160 miles east of Paris. Scattered across the uneven ground, in and among the still-extant bomb craters and trench lines, unexploded bombs are everywhere. A 170-millimeter shell (long as a man's leg; bigger around than his thigh) rests like a leaf-swaddled child at the edge of a crater. It is picked up and carried back to the truck by one of the demineurs.

A few steps away, at the edge of a trench, sits a stockpile of 75-millimeter shells, the most widely used bombs of the war. From today's perspective, they resemble nothing so much as a stack of corroded hairspray cans. One by one, the rusted, moss-blanketed bombs are lifted from their 75-year rest and transferred to the truck by the demineurs.

In a nearby foxhole are a dozen German grenades: they're the "racquet type," which means their baseball-size explosive charges are lashed to foot-long (and now rotted) throwing sticks of wood. They look like potato mashers. And that, in fact, is what the American soldiers nicknamed them. One by one, they are scooped up and carried to the truck.

All around me the demineurs ("de-miners"), as France's bomb-disposal experts are called, are clearing the forest of explosives, carrying them to the beds of the four-wheel-drive Land Rovers we're driven into this forest. The men work quickly and confidently. Each wears the uniform of France's Department du Deminage: blue coveralls, made from special antistatic material, with their pant legs tucked into the tops of high rubber boots. Each demineur's hands are gloved, too, as protection against any mustard gas or phosgene or chlorine that might seep through the rusted shells to blister or even kill the men instantly.

Twenty more minutes of bomb-collecting passes. Then another hour. The demineurs work steadily. They lift the bombs from their long sleep on the forest floor and, being careful not to trip over the tree roots or rusty trench wire as they cross the forest, they gently lower each shell into the wooden transport racks in the Land Rovers. The dark, pitted skins of the bombs are corroded and flaking; the bombs themselves smell damp and old--like the darkest corner of an unused basement.

A red line demarks forbidden ground

After three hours, I survey the forest we're clearing. There are still bombs everywhere. It seems we haven't even started working. My interest shifts, and I walk away, deeper into the trees. These forests were home to some of World War I's worst fighting. And back in mid-November 1918, just after the Armistice, the hills above Verdun were so thick with unexploded bombs and grenades (plus the still-uncollected dead) that the French Government simply cordoned them off. In fact, they closed nearly 16 million acres above Verdun, placing them inside the Cordon Rouge, the "red line." Much of the area has been closed to visitors ever since by fences with big, red-lettered signs that read TERRAIN INTERDIT ("forbidden ground").

A breeze has autumn's final leaves fluttering in the canopy. At my feet, a trench winds across the ground; it's deeper than a man is tall. I follow it. Its wooden supports (which once kept it from collapsing under the shelling as they now keep it from crumbling) remain in place--though the wood has rotted and become painted with dark moss. Where two trenches intersect, there is a 1918 vintage of liquor bottles among the mushrooms and downed leaves. Farther along, in the trench's bottom, I find the sole of a man's boot and a rusted canteen. A few steps beyond that, the ball-like end of a human thigh bone protrudes; it has shattered along its length and looks like a dagger. I lift the bone, then toss it up and down in my hand. It's pale; clean and white. It feels light but solid, like a hunk of cork. I let it fall back to the leafy trench.

The demineurs estimate that today, 75 years after the end of World War I, 12 million unexploded shells from that conflict still lie in the soil near Verdun. Millions more await discovery in the battle zones along the Marne and Somme rivers, southwest and northwest, respectively, of where we now stand. And, of course, millions of still-undiscovered bombs from World War II remain embedded in the beaches of Normandy and

Brittany. Everywhere in France--in potato fields and orchards, under town squares and back porches--the fallout from two world wars has turned the national soil into an enormous booby trap.

Since 1946, the year the Deminage department was officially established, 630 demineurs have died in the line of duty. In that time, the department has collected and destroyed more than 18 million artillery shells, 10 million grenades, 600,000 aerial bombs and 600,000 underwater mines. Those in a position to estimate the demineurs' progress admit they're not sure how far along the de-mining of France is. They'll freely admit that, through the efforts of the demineurs, more than two million acres have been reclaimed from the explosive and toxic tools of war. Still, when pressed, they'll allow that at least that many acres, littered with unexploded bombs, are still cordoned off. They'll also say that, because not all bombs are found in the ground-clearing process, even places considered safe continue to spit up unexploded ordnance. In 1991, for instance, 36 farmers died when their machinery hit unexploded shells. Another 51 citizens were injured when they happened on a bomb unexpectedly. It is the job of the demineurs--123 men in 18 districts stretching the length and width of France--to clean the place up.

We are now at lunch, six demineurs and myself, in a fine little Alsatian restaurant in the village of Eix-Abaucourt, a wide spot in the road between Verdun and Metz. As we eat herring in white wine, then sauteed chicken breasts in cream sauce, I'm listening to the chief of the demineurs, a sturdy, crew-cut man named Henry Belot; he's giving me a taste for how many bombs are still around. In 1991 and '92, he says, as the French national railway dug a new bed for its TGV bullet train--for a line connecting Paris and London through the new Channel tunnel--the demineurs in that region, home to the battlefields of the Somme, were on constant duty, with daily collections of five tons of bombs being the norm. Miraculously, in the two years of digging the railbed, no one has been injured. The same record can't be claimed by the project's excavation machinery. So far, Belot says, four front-end loaders have been destroyed by buried bombs, as have a number of earthmovers. "They still keep digging," he says. "The railroad is a point of French pride." "Here's another story," says a stout, blond demineur named Christian Cleret. "Just recently, a farmer near Soissons was tilling his beet field along the Aisne River. There was a large German offensive there in 1918, and apparently not all of the bombs have been cleaned up. The farmer's implement hit a buried shell. He gave his life among the furrows."

A fire set over a hidden shell--Boom!

Henry Belot tells of an explosion the previous winter. A group of five lumberjacks was working in the steep hills of the Argonne Forest. It began to snow, so the men built a fire to warm up. Unknowingly, they had set their fire over a bomb just beneath the dirt's surface. Boom! All were killed.

What's the demineurs' least-favorite type of bomb? I ask. "The toxic ones," they all reply. I ask why. "Two reasons," Belot says. He lifts his right hand into the air, holding it as if he's gripping something loosely. "First, you never know how solid their skins are. They are often very rusty, so they may leak gas and kill you as you lift them. Also, they are harder to destroy."

To destroy the usual explosive shells, I am told, deep pits are dug, which the demineurs then fill partway with the bombs they've collected. Then they attach plastic explosives to the top of the pile and blow the whole thing up. "The blast is directed straight into the air," another of the demineurs says. "No one gets hurt."

Until recently, toxic bombs had been detonated in the English Channel. On a beach with a 50-foot tide range, demineurs would drive out on the flats at low tide, dig pits and carefully, stack toxic shells in them, attach explosives and unreel wire back to the high-tide mark. At high tide, when the pits were underwater, the charges would be set off, exploding the shells, burning off the gas and sending plumes of the water a half-mile into the air. Protests from environmentalists stopped the practice, however; now the Deminage is looking for alternative methods.

I ask how many demineurs were killed or injured in the past year, and Belot tells me that 5 were killed, 11 hurt. "It was a good year," he says. "We didn't lose too many."

Then Belot takes a final bite of his chicken and, after swallowing it, says, "Every day, you can die. It's something you remember each morning. You never know when. You can't anticipate it. These bombs look old on the outside, but inside"--he points to his wristwatch-- "they are as clean as a new clock. Out there is a bomb with your name. Today, if you lift that bomb, you are in the past." (Since we spoke, Belot has been

gravely injured by a poison-gas shell. He survived, but to what degree he can expect to recover is not known as this story goes to press.)

Christian Cleret puts down his silverware and lifts a piece of bread. The demineur takes a bite, then points the rest of the bread at me. "It is very sad when one of us dies," he says, "since all the other demineurs know him. There are so few of us, we are all friends, we know each other's families. When one of us dies, it is very sad."

Then, for a long minute, no one says anything more. I look around the table; everyone has finished eating. All of the men are staring down at their plates.

Wheat, potatoes--and live ordnance

The next day, a misty Wednesday, the final day of September, I'm in another Deminage Land Rover, rolling through the flat farmland just north of the Marne River, 90 miles northeast of Paris. The brown and furrowed earth in this part of France is nearly shaved of trees, and in every direction I can see the horizon as it bends against the dark, stormy-looking sky. It's harvest time, and the fields are full of farm machinery. The farmers of this region serve up much of France's food; its potatoes and sugar beets and wheat come from here. In this century, six different battlefronts have moved through the area. The remnants are everywhere.

We're rolling down an empty two-lane road, looking for a tiny village, but it's taking us longer to get there than we'd figured because we have to keep making stops. Every mile or so, a bomb stands along the road's shoulder like a miniature, dirt-encrusted obelisk. Each bomb has been uncovered by a farmer who has climbed down from his harvester, lifted the bomb from the furrow lines and lugged it to the roadside. These bombs are known as "incidentals."

A demineur named Remy Deleuze is telling me the history of this road between the fields. It is called the Chemin des Dames--the "Path of the Women"--and got its name when King Louis XV's daughters used it for carriage rides through the countryside. It was also the site of two major battles in World War I. The first was a failed French counterattack in April 1917, when more than 11 million artillery shells were dumped on the well-fortified Germans. The second was on May 27, 1918, when in four hours of furious shelling more than 700,000 German bombs fell, allowing the Kaiser's army to blow through the dead and dazed French Sixth Army like floodwaters through a picket fence. On that day, in one bound, the Germans leapt 13 miles closer to Paris, the largest single-day movement of the war till then. "That was a bad day," Deleuze says, "a terrible day for France."

Deleuze, second in command of his squadron, is just 27 years old. As we roll down the Chemin des Dames, he sits on the passenger side. Driving is another demineur, a man named Patrice Delannoy. Delannoy is short and solid, with intense gray eyes. His hair is cropped and dark, and he has a thick, graying mustache. For the past half-hour, Deleuze has done all the talking while Delannoy--who is hard at work, scanning the road for bombs--has yet to say a word.

Up ahead, Delannoy spots another bomb in the roadside grass. After he brakes the truck to a stop, we walk closer. When Deleuze sees what kind of bomb it is, he claps his hands. "Ah!" he says. "A crapouillot." It does not resemble the aerodynamic artillery shells we've been lifting for days; four pinwheel fins extend from its sides, and a shaft from its base. It looks like a large spear. Deleuze bends to lift the shell, his gloved hands grasping the bomb's nose and tailward shaft. He tells me that crapouillots are French-made cousins to the modern mortar shell. Their shafts fit into smooth-bore cannon barrels; when the cannon were fired, the crapouillots were spit out to fly short distances. The fins, he says, helped the bomb to spin, gyroscopically stabilizing it to enhance its accuracy.

Deleuze says that, though the fields around the Chemin des Dames have long ago been "officially cleared" by the demineurs, each year the earth continues to give off bits of deeper-buried ordnance, just as stones continually work their way to the surface of a New England farm field.

We return to the truck and start off again. Deleuze says that it will take centuries for some bombs to work their way to the sunshine. He waves a hand, then shrugs. "Any dreams France has of feeling completely safe from the First War," he says, "they are exactly that: dreams."

An artillery shell next to the beets

Delannoy brings the Land Rover to a stop once again, and Deleuze and I step out. This time we find a World War I British 155-millimeter shell sitting next to a house-size pile of sugar beets. The beets await a collection

truck that will take them to a sugar refinery; the bomb awaits us. As Deleuze lifts the bomb from the ground, he flits it back and forth. From inside the corrosion-pitted shell comes a sloshy swish, swish.

"Hear that?" Deleuze asks. "That's the mustard gas." As he walks the shell to the rear of the truck, Deleuze tells me that while the poison in each toxic shell is called "gas," it is generally fired as a liquid, which is vaporized at the moment of explosion. He places the shell into the truck's rack, then slips a wooden shim beneath it to secure it solidly. "We find 900 tons of bombs a year," he says. "At least 30 tons of those are toxic." With his gloved hand, he scrubs at the shell's dirty, rusty skin. The gritty patina falls away, and stripes of white paint become faintly visible on the shell's body. He points at the rings: "These mean toxic."

We get back into the truck and keep rolling. Delannoy turns off the Chemin des Dames and follows the side road toward a clump of dark, prim, stone houses. Each house appears to have two rooms downstairs and two up; most still have their windows shuttered against the mist and rain. We pass a grove of trees, and beyond that a graveyard of French crosses from World War I. Then we follow the pavement through an opening between two buildings, and we're inside the village walls. We find the place we're looking for: No. 1 Place St. Georges. Inside a gravel courtyard, Delannoy stops the truck. "This is the home of Madame Painvin," Deleuze says. "She has a bomb in her garden."

Deleuze gets out and climbs a set of steps to the front door. He knocks, and Madame Painvin opens it. She appears to be about 30 years old.

"I'm from the Department du Deminage"; Deleuze announces himself.

"Ah," says Madame Painvin, "the bomb is across the road. I'll show you. Let me get my shoes."

A minute later, she is leading us out of the courtyard and across the narrow street to her walled garden. The contents of the garden have pretty much been picked through. In the far corner, a thick shrub is growing against the garden wall, and Madame Painvin stops walking and points at the bush.

"There," she says. "Get it out of here."

Remy Deleuze slips on his gloves, drops to one knee and, reaching between the base of the shrub and the wall, finds an unfired artillery shell with its propellant cartridge still attached. He lifts the shell from behind the bush and sets it gently on the ground at our feet. It looks like a two-foot-long bullet. "Well, what's this?" he says. "An unfired 75-millimeter shell. American. From the Second World War."

"Get it away!" Madame Painvin says, almost shouting. "Get it out of my garden. My children found it yesterday. I looked out the window, and they were playing in the garden with it."

"Certainly, certainly," Deleuze responds, "but I think there are more surprises here." He reaches through the shrub's branches into a deep cavity in the wall and extracts another American 75. He lays the shell gently on the dirt and carefully examines it for danger signs. Then, still kneeling, he hands both bombs to his partner. As Deleuze stands, slapping the grit from the knees of his coveralls, he says, "Voila! No more bombs in the garden today."

As we start walking toward the truck, Deleuze tells Madame Painvin the probable scenario: back in World War II--most likely during the Allied push from the Normandy beaches toward Germany in late 1944--an American soldier set these bombs into the wall's crevice during a skirmish, then forgot to retrieve them. It is, he continues, the kind of thing he sees all the time. "The demineurs," he says, "we make 11,000 stops at citizens' houses each year. To collect shells and grenades."

As we leave, Deleuze smiles and shrugs. "It's nothing strange," he says. "Only the usual story. The soldiers moved on. The war moved on. The bombs stayed."

Delannoy steers the truck down a series of different farm roads, and near Soissons he turns inside a fenced gate. There's a sign wired to the fence. It says: KEEP OUT. THIS AREA IS BOOBY-TRAPPED. Deleuze jerks a thumb at the sign. "This keeps the curious away."

Inside the gate, a grassy berm blocks a view of whatever is at the end of a long driveway. As our truck rounds the hill, I see the arched stone doorway of an old fortress. Carved into the keystone is the date 1880. "This is Fort de Montberault," Deleuze says. "Our depot."

Delannoy steers the truck through the arched entrance and inside the walls. Just past the main door is a fortified yard the size of a basketball court; it is stacked with row upon row of shells, mostly the 155-millimeter size. It looks as if someone has taken hundreds, maybe thousands, of rusting, industrial-size fire extinguishers and stockpiled them one atop another. "Ah," Deleuze says, "look at this. The legacy of war."

We drive beneath a few more arches, passing through still more bomb yards. Then Delannoy stops the truck near a series of arched doors beneath an earthen revetment. He gets out and pulls a wheeled cart from inside one of the arches. As he and Deleuze unload the truck, rolling and stacking each size of shell in its respective area, I ask Deleuze how he got started in the Deminage.

"The job was there and I took it," he says. "Most people in this work know someone who does it, who invited them in. It's a fraternity, which helps to protect the selectiveness and secrecy of what we do. Myself, I had an uncle who was a demineur. I was getting out of school, and one day he said, 'I have a job for you, if you want it.'"

As he finishes unloading a half-dozen 105-millimeter shells, I ask Deleuze if he has a family. After letting the question settle for a minute, he nods. "I have a wife and a 3-year-old son," he says. "We have a new baby coming. This time, I hope for a girl." He smiles.

How does his wife feel about the Deminage?

"We don't talk about my work," he says, turning his cart toward the truck again. "My wife, she knows about my job, but we keep it quiet. My family and friends, they only know I work for the *Ministere de l'Interieur*. It's that way for all demineurs, which is how the government likes it. Citizens would be alarmed if they knew how many bombs were still spread across our country."

As Delannoy and Deleuze return to the truck, positioning the rolling cart beneath the tailgate, they pause for a moment. "The demineurs like their life of secrecy, too," Deleuze says. "Otherwise, people would bother us all the time--and we have enough worries without that. Boom!" He makes an explosion gesture, and his hands fly in the air. "I guess we are brothers to the bombs," he says, unloading another shell. "Like the bombs, the demineurs are happiest when left alone."

Late on a Friday night I drive back to Verdun, passing the 13th-century cathedral in Reims, its squared-off twin towers silhouetted against a dark, misty sky. Like the towers, my plans are symbolic yet vague. I figure I'll spend Saturday and Sunday in Verdun, coming to know why men bomb and shoot one another. I'll picnic in the hills and walk among the half-timber buildings of the historic towns.

Despite the homey hotel and the fine poached pike I have for dinner (with plenty of wine), I don't sleep very well. By 6:45 the next morning I've left the hotel to drive into the World War I battlefields in the hills above town. The road I'm following runs north along the banks of the Meuse; the river's smooth water slides past in the growing daylight. Poplars line both sides of the road at intervals: it's something out of a French travel poster. In the village of Bras the road turns away from the river, and I see a large white arrow that points up a side road. The words on it read: "Louvemont, village detruit."

Louvemont is one of the area's nine obliterated villages, one of the places scraped from the earth by a single day of war. At 7:15 on the snow-bright morning of February 21, 1916, after an eight-month buildup, German shells began to fall in the hills around Verdun, and Louvemont was in the way. By noon of that day, no habitable structure was left in the village, and the heat from exploding bombs melted the snow that only hours earlier had coated the fields and rooftops.

The bombing went on all day. It was the most fearful offensive of World War I. Trees were shattered. Bombs cratered the landscape, then cratered the craters. The barrage continued through the afternoon, and, in the long string of trenches above Verdun, the French forces--hunched over and praying--waited for the shelling to end. Thousands of Frenchmen were already dead from shell fragmentation or direct hits. The rest were merely deafened and dazed. In the bottom of the trenches, snowmelt began to refreeze.

Cold mud, bombs and bayonets

As the sun began to set, the first wave of German infantry advanced, employing their newest weapon: the flamethrower. Downed trees and brush exploded into fire. Smoke fouled the air. The Frenchmen who could still move crawled to the tops of their trenches. They steadied their rifles on the mud and began firing. Many Germans fell. Others kept coming. Mortar shells flew. Soldiers were exploded. Still they kept coming and soon reached the trenches. Skulls were pulped with rifle butts. Men were pinned to the cold mud with bayonets. Soldiers from both sides were shot at close range. Others were blown apart by grenades.

The Germans had made a tactical mistake, however. They had bombed too long and had not allowed time for the infantry to clear the battlefield. They had also miscalculated the French Army's ability to defend itself. At about 6 o'clock, as the midwinter night began to settle on these fields, the offensive stalled. The German

infantrymen could do nothing but bed down in the open fields. In the dark, the French opened a counteroffensive. They moved silently along their trenches to get close to the Germans, then crawled up and over and slithered closer. More soldiers were blown up. By 10, the battlefield was quiet again.

In the hills above Verdun, that kind of fighting went on for months. Before the siege was over, nearly a million souls had been chewed up in the maw of war. In what may be the most grisly statistic ever, fewer than 160,000 identifiable bodies were recovered. The rest were impossible to recognize or had simply been swallowed up by the explosions and mud.

The sun is just coming up now, rising over the forests and long, rounded ridgelines above Verdun. The road climbs a hillside, then flattens. And then I am in Louvemont.

There's not much. A marble monument. A chapel. A few beech trees. To this day, after all these years, the ground beyond the beeches is broken and uneven. The bombs did more than tear up the soil. They destroyed the village, too. There is nothing left of Louvemont. No little stone houses. No barns. No town square with a fountain. Nothing.

I hurry back to the car and drive from Louvemont. The road continues to twist and turn uphill. Above the treetops to the right--sticking up like a 15-story concrete missile--is the tower of the Ossuary of Douaumont, strikingly white in the morning sun. The tower dips behind the treetops as I crest the hill, and now ahead of the car is the National Cemetery, where 15,000 crosses of white marble jut from the perfectly tended grass. The crosses spread across the hillside--each of them was once a life. A rosebush is planted at the base of each cross, and the roses are just beginning to open for the day, tens of thousands of crimson buds in the morning light. Yet they number nothing compared with what is inside the ossuary, the quarter-mile-long blockhouse and spire that waits at the upper end of the huge cemetery. Inside that building, the remains of 130,000 human beings are entombed.

The ossuary is made of white stone. Its shape is long, rounded and low, like a loaf of French bread. From its center rises the 15-story spire, which has been fashioned to look like an artillery shell. The interior is a narrow hallway with a rounded ceiling that runs the building's length; it feels like the inside of a gun barrel. The floor is perfectly laid marble. The only light inside comes from sun shining through stained-glass windows. Dozens of granite tombs are arranged in alcoves that have been built into the ossuary walls. There are no names on the tombs; lettering denotes the sector of the Verdun battlefield from which the remains were taken. Beneath the marble floor are the remains. The floor plan has been divided into sectors that correspond with those on the tombs; the bodies--or parts of bodies--that came from those zones and could not be identified are buried here.

I walk outside to take a deep breath of the cool, sunny, autumn morning. I start across the gravel toward my car, then see a row of windows in the white stone along the building's base. I kneel and peer inside. There are bones everywhere, as far as the daylight can penetrate. Vertebrae. Skulls. Tiny little bones that seem fragile and white, like lumps of talcum powder. There are ribs and ribs and ribs; the bony remains of thousands of torsos are piled so deep that the jumble of rib ends looks like a fish's scales. In the window's center sits a jawless skull. It's been pierced behind the left ear and in the forehead. The holes are asymmetrical, no doubt the legacy of the British officer Henry Shrapnel, who was the first to put bullets into an exploding projectile. In back of the ossuary there is a small shop with books and slides for sale. There is a multimedia show devoted to the siege of Verdun, too. When I enter the shop, I find that the show does not begin until 10 o'clock. I ask the shopkeeper about it, and he says that no one ever visits the ossuary before 10. "Why would you want to spoil a new day with a place like this?" he replies. I'm drawn to the rows of stereoscopic viewers lining one of the walls. In three-dimensional, black-and-white images, the Battle of Verdun comes to life. The French soldiers in the pictures are slightly built and pale. They seem poised on the edge of moving, of gesticulating, of shouting to me. Most are smiling, most have thick mustaches and bright, dark eyes. In some of the photographs, the men are bivouacking in the remains of obliterated villages. In others, they are digging new trenches or buttressing with wooden supports the trenches they've already dug. Their uniforms are muddy, but they look happy and cocky--even a little hopeful.

Finally, there's one picture that makes me pull my head from the viewer with a snap. A severed forearm lies on the mud. Ahead of it, there's only the bald, hilly horizon. The arm is beautifully preserved. It's just lying there, clean from the rain, the fingers of the hand slightly opened, palm to the sky.

The shopkeeper, who's seated near the cash register, asks, "What did you see?"

I tell him about the arm and then walk over to where he's sitting. He is skinny and perhaps 35 years old. In front of him are nature handbooks for sale. The books have pictures of birds and trees on their covers; they're intended for use in the sectors of surrounding forests that have been cleared by the demineurs and opened again for picture-taking and nature walks.

To make conversation and pass the time, I say to the man, "I wonder what kind of arm that was? A French arm? A German arm?"

The man frowns for a long second. He shrugs. "What does it matter?" he says.

This article results from research the author has done for his upcoming book *Aftermath: Cleaning Up A Century of World War*, to be published by Pantheon.

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