The Reing Of The Ray

Part II

Written by

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The Story So Far...

Robert Adams, a young American scientist, builds a Coolidge tube, which gives off a ray capable of setting off explosives at a distance. A Soviet agent in America learns of it and, in failing to get switch of the tube and explodes a government arsenal several miles away. He is kidnapped to Russia where the Soviet Commissar Stensoff tries to force the secret of the tube from him. It is written in code in Adam's diary. Na American Secret Service agent named Epstein rescues Adam and return him to America. Russia has been planning a great war against the world and knowing that Adams' escape will put the Adams' ray in the Field against them, start their war immediately and begin sweeping over Europe and bombing American cities. Americans come to Europe to the aid of the stricken allies with the ray and by systematically exploding their ammunition succeeding in halting the Soviets. The Soviets capture some of the tubes and therefore prevent the allies from using them against them. The two forces facing each other on the European front are therefore without the aid of any rifles, cannon or any explosives or even the use of airplanes or any internal combustion engines. They began training their armies to use swords, bayonets and the sabres of the Calvary.

Meanwhile, na American has invented a motorless airplane called the Wagstaff which is deemed successful. He is killed, but his assistant, Jim Blunt, brings it to the attention of the American forces. The war which rages in Europe seems to be going back to the style of middle ages. In America there is military law under the presidency of Paul DeRoebeck to prosecute the war and fight the civil war that seems imminent.

SIR EVELYN OLDMIXON has described the extraordinary scenes in the spring of 1934 when the German High Command, which had taken over that part of the front, was preparing for a drive on Riga.

The town and the country round it were full of idle men — soldiers without weapons and almost without occupation, save the common ones of finding something to eat or something to plunder. The military authorities had almost lost their hold — only German discipline was keeping things together.

The city itself was filled with a wild medley of troops, of all arms and types. The Poles had been drilling lancers, and the best of the horsemen of this type were being gathered for the drive. They were a heterogeneous force, half panoplied in the great winged uniform of Polish medievalism, half dressed in dirty overalls. Mingled with these

were squads of German pikemen and more Germans armed with spring-guns, air guns; cross-bows and every other type of tension or compression weapon that would throw a projectile. American ray men were everywhere, and Sir Evelyn's own men of the tank corps, since their weapons had become useless, had been furnished with bows, and could be seen daily practicing archery. He has recorded his emotions a t hearing a Manchester taxi - driver swear when a string scorched his fingers as he tried to draw a cloth-yard shaft to the head.

A couple of Diesel motor German tanks were on hand — quite futile in themselves, as their drivers were armed with nothing more than the stinkpot glass chemical bombs to which the Teutons clung with humorless persistence. Into all this welter of men, nationalities and weapons, where no one seemed to know quite what to do, came the occasional dull plop of a Soviet long-range solid shot. They were shooting at the town from a distance of fifteen or twenty miles on the off chance of hitting something On the morning of April 12th the advance started. The German tanks led the way; their powerful motors could be used with generators to supply electrical current for the ray tubes and went up with the first wave of the advance. They were covered by a squadron or two of lancers and by some German troops armed with spring-guns, who were to prevent the Soviets in the trenches from rushing the tanks. After them came the main force of the Allied cavalry, Polish and German lancers and then the infantry. Oldmixon was on the right flank of the advance with his archers and a regiment of Swiss armed with cross-bows.

He has told us how complete the surprise was. The Russians had not realized how much the war had become one of mass and movement and had clung to the traditional system of lightly-filled first line trenches with heavy formations in reserve. The ray and spring-gun men cleaned out the trenches on what must have been a wide front almost without a struggle — the only foes Sir Evelyn saw during this stage of the advance were dead, contorted into odd attitudes by the ray or torn and bloody from the heavy riangular bolts fired by the spring guns.

Behind the trench lines, he led his men up a long grassy slope bearing to the right where he ultimately came upon the evidences of a combat; a tank with several dead Germans and Russians lying about it and the ray-tube that had accompanied it missing. There was a complete silence about the whole scene that was inutterably depressing to those fresh from the rending thunder of war in the age of explosives. Occasionally a faraway shout floated to them, thin and ghost-like, and the voices of the marching troops

were hushed, as though they were engaged on some silent and secret expedition. The whispering of the tall grass as the men moved forward added to the eerie effect of this first great battle of the era of the ray.

They must have marched for an hour or two when they came upon some Polish lancers, flying back for the lines with despatches, who called out to them in high good humor as they passed; and though no one understood what they said, there was a presage of victory in the carriage and gayety.

Beyond the crest of the next ridge was a farmhouse, where a pig had been spitted, with a lance in the farmyard. They halted here for a rest in the oppressive silence while the men gathered about the barn to comment on the spectacle of a dead man who hung half way out of the window. Like the Russians in the trenches he had been killed by a spring gun, and had bled horribly down the side of the building beneath the window. Off to the left they could see more troops in the tall grass, and up ahead the figures of horsemen moved back and forth across the skyline. The whole plain was treeless, like nothing so much as a South African veldt, as Oldmixon describes it, with the cold tang of spring in the air.

After the brief halt, they set out again, marching silently among the grasses toward an unknown objective. A freshly-plowed field held them up for a moment and Oldmixon rode ahead of the men to look down the gentle slope. Then came sudden action.

In the hollow before them, a bit to their right, a dark mass of men was posted — infantry in close order. He saw an officer waving a sword, heard a thin shout, saw the column of men moved toward them. Instantly there was confusion. A runner was despatched for help — cavalry and a ray tube if it was to be had, and more infantry at all costs! Along the crest of the ridge the men were posted; the Swiss cross-bow men in front, archers behind to fire over their heads.

Oldmixon has left us a lively picture of his apprehension at that moment. His little force was quite lacking in short-range weapons — swords or bayonets. The pistol and hand-grenade had for so long been rules of the short-range combat that the matter had been simply forgotten, neither high nor low command had come to a realization of the completeness of the transition. Now he found himself on an open hillside in one of the many small and oddly-assorted battles of that stage of the war faced by a superior force and with no means of handling them should they come to grips. His only hope was to keep them at a distance.

The Russians came on at a trot, shoulder to shoulder, shouting. As they got within a couple of hundred yards, the Swiss let drive with their heavy weapons, picking their targets carefully and the whole of the Russian front rank went down in a heap. The advance was stayed; reeled for a moment, and then began to come on again, in less good order but with admirable spirit.

They gained a full hundred yards this time. The Swiss were delayed by the necessity of winding their clumsy weapons and the archers withheld their fire for accuracy's sake. Then a tornado of the long white shafts, that had wrecked the chivalry. of France five hundred years before, swept across the sunny Livonian hillside into the faces of the shouting Russians. And as the ranks behind struggled through the barrier of dead and wounded in front,- the Swiss cross-bowmen loosed their heavy weapons again.

The charge was halted. Oldmixon saw men in the rear pausing irresolute; others definitely flinging down their weapons and turning away from the storm of fire. The heavy column of Russians, so beautifully ordered, was drawing back into the hollow out of range, all tailed out and ragged at the edges, like a wind-torn cloud. Confused cries came from them, and the English leader was suddenly surprised to find that his own men were cheering. He felt wonderfully light-hearted himself. War was not after all the dirty business of oil, noise and fatigue he had known in Ireland.

He glanced around; his runners were still visible on the open landscape; so little time had it all taken. Further off there was something that might be distant horsemen or tall grasses swayed by the wind. The men showed a tendency to regard the victory as won and to straggle. He exerted himself to keep them in position, realizing it as a necessity, for the Soviets, though flung back, were not broken, and seemed to be working toward order and a new attack down in the hollow a half mile or so away. Oldmixon felt that his case was desperate still, and wished vainly for a machine gun or even one squadron of those caracoling lancers he had seen in Vilna, to charge down and scatter the rallying Russians.

As it was, there was nothing to do but wait. The tension of the silence was broken and jokes and calls ran down the ranks as the Red leaders slowly got their men; in hand and began another advance. As they came nearer one party swung off to the left— they were not going to trust to the momentum of a single heavy body this time. Hurriedly Oldmixon consulted with the Swiss commander and made him understand in an imperfect jumble of German and English that a third of the little force was to be flung out at right angles to the rest to check this flanking column.

The Soviets paused just out of bowshot and formed. Oldmixon could see their bayonets glinting coldly in the bright sunlight — like so many on the allied side they were half-armed men now that the bullet had been taken from battle. But his men had nothing to meet their bayonets with should they come within reach. As lie mused a moment, tense with the strain of waiting, there was a chorus of shouts from the Russians and on they came, headed down, like bulls.

Again the deadly storm of cross-bow bolts and the rain of arrows following, and again the heads of the rushing columns crumpled up, but this time they split in two and came right and left around the pile of their own dead with invincible courage. They came nearer, fifty yards, twenty-five, losing men by the dozen but still driving on and Oldmixon felt rather than saw a tremor run down the line of archers. But those who reached that line were a mere squad; the rest were down or reeling back a second time. Oldmixon saw one Russian with eyes like a madman's stab furiously at a man right before him who dodged crying out. The Russian went off his balance, and fell on his face. Somebody kicked his head, somebody else seized the bayonetted gun and struck him again and again.

Some of the Swiss were down and others had been wounded in this second assault, but it had been definitely beaten back, and whirled away down into the hollow, disorganized and lost.

Oldmixon tells us of how he kept his men waiting on that little ridge for an hour longer, waiting for the coming of a third attack; arming such as had emptied their quivers with guns and bayonets from the dead Russians. But the third attack never came, for before it could be formed and begun, an odd box-like shape mounted the ridge beyond the archers, and they saw the flickering lightning of the Adams Ray playing in the direction of the Soviets. Too well their enemies knew what that meant; they were quite without goggles or protective coats, and whirled off across the plain in disorderly flight, leaving their dead and wounded behind them.

CHAPTER V - Per Aspera... Ad Astra? (Time— 1934)

OLDMIXON'S experience of warfare in the first days of the ray was a microcosm of the greater struggle. All across Europe men were trying to kill each other with weapons not ill-adapted to the purpose, but the use of which they no more understood than their leaders understood how to combine the new arms. It was not until later that the war-flame burned up again, fiercely as of old. The English archers in Oldmixon's detachment were

an exceptionally well-trained body. It is an unusual mind that can cast overboard ingrained tradition and. received training; and military discipline, of all types of training to which the human mind is subjected, is the best calculated to give the intelligence a narrow conservative bias.

A new school of officers grew up, it is true; but these had the ruins of their predecessors' reputations on which to build. And by the time they came to the fore, the arms and tactics of the new era had become more stabilized. At first everything was like the battle of Vilna — confused struggling; men with missile weapons pushed forward unsupported against heavy infantry that swept them from the field; pike and bayonet men left without missile weapons to be ridden down by cavalry—cavalry frittered away in useless efforts against nothing...

From this welter of accidents and errors, several main types of weapons presently emerged. The Polish lancers at Vilna showed that troops armed with this weapon were good for one whirlwind charge; but they could not stand ground, and as at Vilna, when they had delivered their stroke, the lancers were easily scattered. Hence the horseman of the new era came to be furnished with a sword and ultimately with an air-pistol as well as a lance.

On the other hand, the Diesel-motored German tanks soon proved their value as mobile fortresses from which to operate the ray when properly protected, though many of them were overwhelmed and captured by infantry by being sent out alone as at Vilna, before this was properly understood.

Infantry became divided into heavy and light; the latter with bows or air and spring guns. The light infantry first showed their value in the summer campaign of 1934 when a few formations of English bowmen, backed by pikemen from Denmark and German spring gun men, utterly overthrew the Scandinavian Communists in a great battle in the forests of Sarpsborg. By the end of the year they had won all Scandinavia for the Northern Alliance and a winter campaign carried the Allied arms through the lake country of Finland as well.

The ultimate reason for the renaissance of the bow as a weapon of war lay in the equally curious revival of armor.

For with the disappearance of the high-velocity bullet, and the necessity of some protective coating against the Adams Ray, armor made its reappearance in the form of light-weight steel plates, covering the entire body and plated on the inside with a thin film of lead to keep the ray out.

The spring guns, firing heavy triangular bullets, and the powerful type of air gun introduced by the Germans could only be fired with extreme slowness. All the combatants essayed to use them, but after a few trials were content to use the air and spring guns merely as auxiliaries of the bow.

A company of bowmen would be stiffened by one platoon of air or spring gunners, just as a company of riflemen would be stiffened with machine gunners c in the War of 1914. Half a dozen small battles showed that the air gun alone was not capable of dealing with archers on equal terms, the most striking being a Russian raid on Tirnova, in which the attackers, armed with air guns, were simply riddled by a force of English-trained Italian archers before their slow-working weapons could be loaded and fired more than once or twice.

The bow had always possessed considerable accuracy, and on account of the arrow's whirling motion, a remarkable power of penetration. In the hands of scientific investigation these advantages were strengthened. Bows were made of spring steel instead of wood, cords of oriental textiles impervious to moisture, arrows of aluminum alloys. Before the war had advanced another year no army was well equipped that did not have a strong force of bowmen, armed with air purposes, heavy infantry for solidity and Diesel-motored tanks as carrying cars for the ray.

But this is anticipating. The gains of the Allies in the muddled battles in the north and Scandinavia in the summer of 1934 were balanced by Russian successes in Hungary, where their fine cavalry swept through the allied line at a dozen points and went right on to the Carpathians.

The efficiency of the new Soviet cavalry led their leaders to adopt a raiding type of warfare toward the close of the year, and it met with considerable success in the southern theatre of the war, despite the broken and hilly country in which the Russians operated. To this period seems to belong the burning of Athens and the destruction of the Parthenon and the last remnants of the old Greek civilization. In the North, after the one battle of Vilna had shown the Allies how little they knew of the new warfare, both sides seemed content to sit still, drilling and equipping their troops and testing them in minor combats.

The Allied scientists meanwhile, were not idle. The first of the steel bows belong to this period, and shortly after came the centrifugal gun. By the fall of 1934 the Americans began using the Wagstaff with immense effect, for these little aeroplanes more than neutralized any attempt at surprise by the Soviets. Lacking the anti-aircraft artillery

of the age of explosives, the Russians could not drive them away, and they performed their duties unchecked almost to the very end of the war. The Russians never succeeded in building successful imitations from the few that fell into their hands, the formula for the Bell & Wyatt storage battery always eluding them.

The centrifugal gun was another American invention. It consisted of a drum propelled by electricity or steam, which revolved at great speed, discharging bullets by centrifugal force. An ingenious system of synchronizing gears insured that the bullets were fired in the proper direction. These guns, though they required heavy machinery to operate them, and had no great range, were in effect like the machine guns of old, and were useful weapons when mounted on the Diesel motored tanks which could furnish the necessary power. These tanks were ultimately used in pairs, a ray tank and a gun tank travelling together and acting as protection for each other.

Thus the war entered on its third year; an old and yet a strangely new type of conflict, with armies unable to strike at a distance meeting almost by chance, raiding each other's territory, eating up the land and reproducing in' modern times the conditions of the middle ages. All over Europe and America men were fighting, people were starving and the land lay fallow, while the scientists who had forgotten the name of peace were giving all their energies toward forging new weapons for war. To the observer it might well seem that humanity was on the verge of a new descent into barbarism.

CHAPTER VI - The War Behind the War (Time — 1932 - 1936)

THE tendency of human beings to gather within the sheltering circle of the city wall, begun in the middle ages, received a tremendous impetus from the discovery of America and the development of commerce and industry that followed. The civilization of the age was based on seaborne trade; people flocked to the points where it was carried on because at these points lay the springs of wealth — just as in the early middle ages men went to war; and, in primitive times, to agriculture.

The tendency toward congregation was accelerated by the increase of science and invention, for the articles produced in factories (and this extended even to foods) gained in importance at the expense of those drawn directly from the ground. It still further accelerated itself by reason of the host of parasitic industries that grew up at the concentration points to feed, clothe and care for the people gathered there.

By the first quarter of the twentieth century the brains as well as the bulk of civilization had been gathered in a few great cities. All the administrative offices, all the directing intelligences upon which society depended for its smooth operation, were there.

The shock of the War of the Northern Alliance fell heaviest on these points, for it was Stensoff's plan, like Tarquin's, to strike off the tallest heads. Civilization reeled, the whole structure was brought near to wreck, and when the reconstruction period came, even the self-sufficient farmer found that he had been deprived of a hundred things made in cities as well as of a hundred markets for his products.

The rebuilding took place in a time of desperate struggle. Small wonder then, that the men of the day, though they thought they were following, the old lines, were in actuality striking out a wholly new system. Divergences which took, place under the spur of necessity became so deeply rooted in precedent that when the war ended there was no dislodging them. Our present social and economic organization is, in fact, that which was impressed upon us by the War of the Northern Alliance, and everything we think or do bears the marks of that struggle.

To descend from the general to the particular, take the case of England. London was practically wiped out by the Soviet bombers but Parliament was not sitting and most of its members escaped to convene at Canterbury later. They had to build up a new government, for the Cabinet and all the royal family but the infant Princess Elizabeth perished with the hundreds of thousands of humbler persons in the great catastrophe.

A Regency was named, of course. Its continued existence is due to the premature death of the unhappy princess. Amid the turmoil of a great war there was no time to examine any of the various claimants to the crown. To have settled on any one of them would have provoked disaffection and perhaps civil disturbances at a moment when the government already had much to deal with. It was determined to keep the loyalty of all parties by the legal fiction that the little Queen was still living. And when the war had ended British conservatism would hear neither of abolishing the crown nor of terminating the sham. Consequently, the fiction of a Queen Elizabeth II, alive and reigning, is persisted in to this day, with the Regency directing her affairs. If she really were alive she would be something like a hundred and thirty years of age.

A similar compromise with facts produced the other great anomaly of the British governmental system. The bombardment of Liverpool by the Irish, the workers' revolt in Glasgow, and the destruction of London removed these cities from the roll. The Regency fearful of the effect of the Glasgow troubles on the faithful industrial cities, adventured

on a novel step. The vacant parliament seats which had been occupied by representatives of the three great cities were distributed among the working population on the basis of their industries — the coal miners for instance, electing the members for Liverpool; the ship-builders those for Glasgow.

To see England thus adopting part of the Soviet system at a moment when it was fighting the Soviet tooth and nail must have caused Stensoff some sardonic amusement, but the device served its purpose of binding the industrial population firmly to the government and at the same time splitting it into political parties, thus ending the power of labor as a formidable and united minority in a strategic position in the life of the country.

Meanwhile, the Regency was prosecuting the war with unremitting vigor. It bolstered up the Allies and was instrumental in the organization of the Parliament of the Alliance which now legislates for the world. It was not till 1933 that affairs at home were straightened out by the end of the revolt in the Grampians, and not till 1936 at least that the Irish were finally gotten under. That they were conquered at all was due to the Adams Ray tubes on one hand and the oath-and-deportation policy of the Lord Regent Pennyfield on the other.

Na oath of allegiance was exacted from every person in Ireland. Those who refused to take it or who were found to have broken it after taking, were deported to the United States under the terms of the Northern Alliance, their places being taken by Australian and Canadian veterans. There was much heartburning over the arrangement, but the Regency was powerful and inexorable and the United States welcomed the deportees. England and Ireland were the first countries to be fully pacified.

Far otherwise was the course of events in France. Without a government, without commerce or industry, without police and with bands of marauders roaming the land in every direction, that unhappy nation was in a confusion not even exceeded during the days of the Revolution. When France again emerges into so much of tranquility that we can’ distinguish the course of events, we find what is left of Paris in the hands of the Communists, as well as the country south of Paris to the Loire. All south of this river belongs to the Legitimists, as they came to be called, for with the outbreak of the fighting the small body of French Royalists had thrown themselves into the scale against the Communists and by the ability of their group had become the head of the anti-communist movement.

They recognized Henry V as King of France, and all orders on-the Legitimist side were issued in his name. Gradually they began to win, for though the losses were frightful on both sides, those of the Legitimists were constantly replaced by Kabyles from Morocco and blacks from Senegal, while the Communists had only their own membership to draw upon.

The Legitimists paid heavily for their victory, for the blacks and Berbers had come to stay. To dismiss them after the victory was to risk the very foundations of the Legitimist state. On the other hand there was no such prejudice against the negroes as in the United States. This explains why Charles, XII, King of France, rules today over a nation of mixed mulatto, Berber and Latin physical features, speaking a rough dialect of the language of Victor Hugo.

PART IV

CHAPTER I – Retrospect (Time — December, 1936)

THERE were three men gathered before the fire in the grate. One, whose pointed beard was grey, sat in an elaborate wheel chair and moved with difficulty; but in that broken body resided a spirit so high that after ages peoples have blessed the name of Paul de Roebeck, President of the United States. The second was a young man, slender and brown — the man of action, the right arm of the crippled President. The third, heavily built, and with a dark, powerful face, was unknown compared to the others; yet if they represented thought and action, he stood for the information on which thought and action depend, for he was that Walker Adsill who, as chief of the Intelligence Department of the government, had accomplished such marvels.

For the moment silence had fallen on the little group. It was the President who spoke first. “Turn on the radio, will you, Herbert?” he asked, “Schofield’s call this morning said a battle was imminent.” The younger man went to the back of the room and fiddled with the keys of some instrument. It shot out a premonitory beam of light, gave a few Inarticulate guirks, and then burst into rapid speech, the screen by its side showing a picture of a man in grey-green uniform with the badge of the United States on his collar. He held a helmet in one hand; he seemed tired and his clothes were spotted with mud, but the expression on his face was one of pleasure.

“...by the spring gunners of the third German division,” he said, “In the meanwhile, the Russian storming column had made no headway against our centrifugal .guns, and losing heavily from gun and arrow fire in front while it was charged in flank

by the German cavalry, it broke up. This is probably the greatest victory of the war. The Soviet army has been thrown back toward the South with enormous losses, and Wagstaffs sent out to observe them this afternoon report that they are retreating toward Tula in considerable confusion. General Oldmixon of the British Army entered Moscow half an hour ago. The victory would have been impossible without the Wagstaffs which forewarned General Rausch of the Russian attack and enabled him to counter it. We will give you further reports as they come in."

It was the President who spoke first. "Thank God !" he said, "the end is in sight at last."

"I don't know," said Adsill dourly, "those new air guns the Soviets have are better than anything I've seen yet."

"Good enough to beat the bow?" asked the youngest of the trio.

"No—o—o—o I'd hardly say that," replied Adsill, "but they're a much improved gun."

"Oh, well — " said the younger man, "we'll catch up to them. These things go round in circles — first the bow, then the old arquebus, then the improved guns. Now we're back to the bow again, with new guns coming in. There is a little improvement in each cycle."

"Yes," said the President, "and perhaps this is the cycle in which we will end war and guns." "You're an idealist," grunted Adsill, "War will never stop till the earth does."

"I know people have been saying that for centuries. But it has been growing less sure as each succeeding generation has brought the nations closer together. No one, not even Woodrow Wilson, would have dreamed of such an international parliament as the Alliance now has, or an international executive head, able to enforce his order, like Lord Melton."

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"IT wouldn't have been possible, either," said young Mason, looking up, "Without our modern means of communication. In Wilson's day it took more than a week to cross the Atlantic and there was no means of personal communication without crossing. Now we can sit in this room and talk with the other members of the parliament of the Alliance, give our votes and..."

Adsill's sniff was audible. "Not an unmixed blessing, I should say. Everybody in the country listens in and it's impossible to conduct any delicate negotiations."

“Why should we?” asked the President,” I admit I have kept some matters secret, but these were in almost every case, technical military questions. In matters of policy I am willing that the country should know everything that goes on. You’re a cynic, Adsill. Could we have developed our present system of airship lines without everybody listening in? You remember, it was an obscure Oklahoma engineer who had overheard the technical discussions who gave us our present system of landing and mooring. And it was an obscure Polish chemist who invented the safety balloonette.”

“Yes,” Mason continued, “I think a case could be made out for the television radio as the greatest civilizer. Thanks to it, we’re internationalizing language and look what we are accomplishing in science... Which reminds me, by the way that EOXU of Oxford university is holding a forum tonight on the calculation of definite integrals that ought to be worth while. You might be interested, sir.”

“Oh, I admit,” said Adsill, “that the system has some advantages. But it stifles individual effort. Before this television radio system came about, a scientist or mechanic or anyone who wanted to work out a problem would get off in a corner somewhere. He would go to work hard because he knew that the credit and the cash for accomplishment would come to him. Now three or four hundred people in various parts of the world run in on one of these forums, each one chips in his contribution and the result is not the product of an individual effort but of a committee. There are jealousies and arguments and the man who discovers something has to depend upon his government for a reward. It’s deadening. It will kill ambition and reduce everything to a level of sameness.”

“But we are progressing faster this way,” Mason pointed out. “It would have taken years under the old system to perfect and introduce such improvements as the Wagstaff. Now the matter is taken up by an international board of invention, each member an expert in his line, and all conferring together, and in a few months everyone is able to fly the new machines. And think of the improvement in education since the radio came. When I was a lad we had to spend six or seven hours a day in school. Now children get it all in their sleep by radio. Why, it’s done away with all that was dangerous in child labor without the necessity for legislation.”

“Yes,” said Adsill quickly, “and it’s producing a generation of illiterates. How many children learn how to read and write?”

“It is there any real need that they should?” the President broke into the conversation. “It used to be an advantage to read and write, just as it used to be to handle a gun. But the Adams Ray has eliminated the gun, and the pictograph has done away with

the book. After all the spoken word is more effective than the written. And now that we can listen to and see our stories on the pictograph, why should we bother with clumsy and dirty books, which always imposed a barrier of type between the mind of the author and that of the reader?"

"Nonsense!" declared the Intelligence chief firmly. "The pictograph is valuable only to readers of light fiction. It does away with all deep thought, with philosophy, with all the amusements of intelligent people. You can get more of Kant or Spinoza from a small book than from half a dozen pictographs."

The President laughed. "I'm afraid you've chosen a bad example," he said. "Herbert, would you mind reaching under that table and handing me the pictograph there?"

He extended the small box, hardly larger than an octavo volume, to the Intelligence head. "Look at this, Adsill. The new edition of the dialogues of Plato just issued by the Doubledays. You can put it in your pictograph machine and actually hear and see Socrates confounding the sophists under the Golden Porch. It's tem times better than reading the lifeless printed words. No, Adsill, you and I belong to a generation that is passing. The new world will do away altogether with our clumsy printed sheets, which use so many unnecessary words in conveying thoughts. It moves to a quicker and more complex tempo."

CHAPTER II – an Entry Into the World (Time — February, 1936)

TO a man newly released from jail, freedom is rather bewildering than intoxicating. Harve Mellon, newly released from the West Virginia penitentiary at Morgantown, hardly noticed the intense brilliance of the clear and frosty winter day as the big door clanged to behind him. His shoes crunched in the snow as he walked down the slope of the hill which led to the center of the city where he could take the electric line to Pittsburgh. His thoughts were in a whirl; he was unaware of any concrete idea but that of getting away from there. Many times he had mentally rehearsed what he would do. Now that the moment had come, it found him filled with a febrile excitement.

In the back of his head, he was dimly conscious of something wrong with the two interurban electric cars that stood on the track on Morgantown's main street, but it was not until he walked up to the door of the store that served as a "Waiting Room and Station" that he realized definitely that some change had come on things. The "Waiting Room and Station" was locked, a poster advertising EXCURSION July 12, was crazily askew

behind one of the dirty windows, and beneath it a small collection of long-dead flies was gathered in a heap of dust. Harve Mellen turned, a sense of unnamed disaster making his heart beat fast. The tracks of the line were red with rust where the snow left them exposed; the cars were lifeless.

He picked his way across the street to the cheap restaurant that adorns the main street of most country towns, perched himself on a stool and ordered coffee and sinkers.

"What's happened to the electric line?" he trusted himself to ask as he stirred sugar into the muddy liquid before him.

The man behind the counter glanced at him curiously. "Out of business long ago when the war started," he said, "Been up for a long stretch?" Harve Mellen nodded, and the other turned back to his coffee urn. "You'll find things different," he offered finally. "There's the war and those nightriders. Where you headin' for?"

"Pittsburgh," mouthed Harve, chewing.

"Huh!" shortly. "Wouldn't go there if they gave me the place. Liable to get the top of your head blown off. They're going to send a train through today though. Go see Captain Rouse, fourth house on your left."

"Why do I have to see anybody about taking a train? Is there a law on — convicts, or something?" "Hell, no, but the hills is full of nightriders. You know, the war, the Bolsheviks. Didn't you hear. They raid the towns once in a while. We don't get 'em much though. We got a couple of centrifugals in town... Ain't you got any labor tickets? We don't like to take money."

"Labor tickets?"

"Jez, you are dumb. Yeh, labor tickets. You'll find out. Ask Captain Rouse about it."

Harve found Captain Rouse, a pompous gentleman with sandy hair, dressed in a grey-green uniform that was unfamiliar to him, at the house indicated. Pie had evidently just left his breakfast, and queried with some annoyance, "Well, what is it?"

"I want to get Pittsburgh and was told to ask you about it."

"From the penitentiary?"

Harve nodded. "Don't move your head at me. Speak! Say, 'Yes, sir.'" Do you know how to handle a bow or a spring gun?"

"No sir."

"Mmm. How about a ray tube?"

"I don't know anything about them. I've been in — in the pen for six years."

“You have, eh? And heard nothing, I suppose? Let me tell you, young man, you are going to find things vastly different. . We are in a new age. Where’s your fare?”.

Harve produced money from his pocket in silence. “Oh, paper money. No labor tickets? What do you do? Chemist? Good. Oh, Foster,” he called back through the door from which he had emerged. “Take this chap’s pedigree. He wants to go to Pittsburgh.”

The cryptic references to money were explained by Foster, a smiling youth with apple-red cheeks. “Paper money isn’t worth much any more,” he informed Harve, “and there isn’t any silver money. Everybody uses labor tickets. You couldn’t get half way to Pittsburgh on what you’ve got here, but they need chemists and I suppose Captain Rouse is sending you along. Where were you born ?”

The business of the pedigree finished, Foster accompanied him along a back street to where the train stood on a switch. It was different from any he had ever seen. The engineer’s cab and the coal tender were made into a single car by a connecting roof of some kind of glass, right behind which stood a black steel-armored box-car with a two-foot slit around the sides. At the end of the train was another of these armored cars, while between, instead of the familiar passenger coaches, were a string of those half-baggage, half-day coach cars that used to be a familiar feature of American railroads.

The windows of the day-coaches seemed to be composed of very thick glass, not unlike that which roofed in the engine, and near the center of each window was a small aperture. The platforms were connected, top and sides, by the same transparent covering, which seemed to lie in overlapping plates. Several men in grey-green uniforms like that the captain and Foster wore, were standing about the train, smoking or talking in the frosty air. Most of them carried long shafts of steel with cords slung from them and bore quivers from which the feathered tips of arrows projected.

“Sergeant Gowan,” said Foster, stepping up to one of the men who carried no bow, but whose superior rank was indicated by chevrons and a silver whistle slung around his neck, “This is Harvard Mellen. He’s a chemist, and I have just registered him as a private. Going up to Pittsburgh. Got a badge for him?”

“Mellen, eh?” said the sergeant in a flute-like voice, offering Harve a hand which he noted was curiously soft. “All right. Can you use a bow?”

“No,” said Harve, “I—”

“Oh, yes. Come along. I’ll give you a badge.” Harve was led to the baggage end of one of the cars, where the sergeant Opened a door, and burrowed inside to emerge with

a three-inch badge covered with grey-green enamel, from which dangled a green ribbon. He turned to Foster, "What's his number?"

"CBYJ 134," replied the latter. "You can have him marked at Pittsburgh." Turning to Harve, he said, "Sergeant Gowan will see you through. I don't think you'll run into anything serious, although some night-riders have been reported at Little Washington. She'll tell you everything you want to know."

"She'll !" Harve realized with a sense of acute shock that Sergeant Gowan was a woman, and with eyes opened by the discovery glanced at the rest of the group. Surely that was a woman, too, and that one over there. One couldn't be sure...

Sergeant Gowan led the way to a car about midway of the train. The door through which he reached the platform was of the same glass as the frame in which it was set, like that of the windows, heavy and bluish in tone. As he glanced at it inquiringly, the sergeant smiled. "Glass," she said in answer to his look: "It's proof against arrows — nothing but a spring-gun will go thought it."

Mellen's Baptism

SOMEWHERE a bugle shouted. There was a bustle and the train started with a jerk — they haven't improved that any while I was out of the world thought Harve — and moved slowly out of the station. Everybody in the car, which just held more than a dozen people, seemed busy. The few seats were ranged down the center, the space by the windows was clear and at them some were stringing the long metal bows, piling arrows in convenient racks or adjusting close-fitting helmets of screened metal with nose and cheek pieces that supported heavy goggles. At the platform end two or three men — or were they women? — were handling what looked like a double barreled shotgun with cross pieces of steel at the muzzle.

Harve turned to Sergeant Gowan. "One thing strikes me," he said. "Where are all the guns? Are they prohibited or have people forgotten how to make them?"

She smiled again; he began to think it charming. "That's the first question they always ask," she said. "No they haven't forgotten how to make guns, but explosives aren't any use any more. It's the Adams Ray — it sets off explosives within several miles. We have two generators for it on the train. You saw the first and last cars?"

"Good Heavens!" said Harve. Sergeant Gowan had put him at his ease, and the inrush of new things on his observation had made him forget that he was newly out of prison... "Why — that puts us back in the middle ages! And this war?" "The Soviets. You

hadn't heard? They bombed Washington and killed the President and most of Congress and managed to make so much trouble in the big cities that most of them are half depopulated. The Unions, you know. The Allies have an army in Russia now and we're winning, but in all these mountain districts there are plenty of nightriders yet — union miners and criminals mostly. It will take years for things to quiet down."

Harve Mellen gazed out of the window. The train was rounding a curve on the shoulder of a mountain. Across the valley a cleared patch could be seen, the fields disorderly with snow, the broken panes of the house staring drunkenly out through black branches. "But I'm... a criminal," he said at last.

"Only a legal crime, though, wasn't it?" she said with a quick glance in his direction. "Bootlegging or oil stock? We don't worry about those things any more. There's too much to be done. You must have passed the commission's examination or they wouldn't be sending you up to Pittsburgh."

"No I remember. I thought it was something like the parole board... But those numbers?"

"Oh, everyone is theoretically in the army now. Yes — " following his thought, "Women too. It's logical isn't it, if a country is at war, all the people are? It doesn't really make much difference. We all do about the same as we did before except that we're liable to calls, and everyone has to learn discipline and how to handle a weapon. But we would do that anyway with the night-riders around. You'll probably get a commission — chemistry is intellectual labor and the intellectual workers are officers mostly. Wait till — "

She was interrupted by a sudden clamor of bugles as the train came to a jarring stop. "Down!" cried Sergeant Gowan, pressing him into the shelter of one of the seats and with the same motion snatching a green helmet from another. As he squatted, Harve saw one of the men place an arrow in his bow and he heard the metallic twang as it was released; there was a terrific crash, a shower of the blue glass around him and something heavy struck the seat with a solid thump. He heard Sergeant Gowan's whistle shrilly blown; an arrow sang through the broken window and passed his head to stand quivering in the floor. Somebody cried out, and the man who had drawn the bow was kneeling beside him, blood spurting from his arm.

He poked his head up to look out the window and saw a hillside covered with trees among which men were moving about; one or two lay on the ground, and another, a roughly dressed man with a beard, was trying to crawl behind a tree, with an arrow

sticking almost ludicrously out of his back, leaving a train of bright red blood on the snow. As Harve watched, more arrows showered about the roughly dressed man; one struck him right in the side, his limbs seemed to give out and he lay still, twitching slightly.

A heavy voice, with the metallic accents of a mechanical device, proclaimed from somewhere. “The track has been blocked with old rails. Volunteers are called for to clear it. Working party will be protected by centrifugals.” Harve leaped to his feet the impulse of battle growing in him, and located Sergeant Gowan near the door. “I’ll volunteer!” he cried.

She glanced at him, pointed to the door. “Through there,” she uttered curtly. “Here’s a helmet,” There was a flash of light, a puff of choking smoke. “Watch the fire-arrows,” said someone, and, with a bang, of the door, Harve was out into the cold winter day. He raced toward the engine. Something struck the side of the car with a clang, and he realized with a sick feeling of fear that they were trying to kill. His impressions became a haze of excitement.

With several others under the command of a sergeant (no woman this!) he began to haul at the rusty sections of rail that encumbered the track. He saw, in a glance at the car behind the engine, that part of the side had been lowered, and an apparatus not unlike a drum stood within. Presently it began to whirl and spit forth jets of steam; the shower of arrows about the working party decreased in intensity.

“Didn’t know we had centrifugals,” someone cried near him and at that moment a red shaft seemed to go right through the man next to Harve. “Oh, oh,” said the man, precisely as though he were reproaching a naughty child, and slumped gently to the ground. Harve staggered as the weight of the rail they had been hauling together came on his arms, pulled, bent, and pulled again.

A shadow passed across the snow. Harve glanced up, saw something like a great bird, heard a cheer and a shout of “All over.”

CHAPTER III – The Individual in the New World (Time — December, 1936)

THE human animal has an amazing capacity for adjusting itself to conditions. To Harvard Mellen, tem months out of prison, and six years out of the world, it hardly seemed that he had ever been out of the new orbit he travelled. Like thousands of others he had learned not to go out without his ray-protecting glasses; like thousands of others he had come to regard being stopped by a policeman, desirous of seeing the number tattooed on his arm, as a commonplace.

There was hardly a ripple in the tide of life to indicate that he was living in a land beleaguered by war and revolution. His daily existence was not vastly different from what it would have been before 1930. Pie rose in the comfortable room overlooking Schenley Park, ate his breakfast of eggs, coffee and toast, took an hour's exercise and went to work.

The changes were mainly in little things; the coffee he drank was synthetic; his hour's exercise consisted not of a round of golf but of compulsory archery practice in the park ; the newspaper he read was the chaste tabloid of 24 pages which was the, only printed vehicle of news available in the city; and when he wished to spend an evening in his library, he did not take down a book, but a pictograph. If it were a story he would see the people in it and hear them speak; if it were a technical book the demonstrations would be made before his eyes, and poetry was chanted by an experienced reader while the screen flowed with mellifluous bands of color artfully contrived to express the mood of the poem.

On a typical day in December, he noted in his abbreviated newspaper a communique from the Russian front; centrifugals and cavalry had broken the Russian line and the Allied armies were closing in round Tula, where the last strength of the Soviets was gathered; President de Roebeck had appointed a new man to the War Council; a train from Cincinnati to Pittsburgh had been wrecked by nightriders with the loss of most of its crew; a notice that train service to St. Louis had been discontinued in favor of aerial express and passenger service; a budget of small local items, and the oneinch ads allowed to every merchant who wished to advertise.

Plarve went to the laboratory (when he had finished his archery practice) in an electric trolley as he would have done before the war, analyzed his specimens of iron ore and left at the ordinary hour of 17:30, or 5:30 as he would have called it in the old days. Dinner was held at a public canteen — a vast place with subdued lights, where the ubiquitous radio delivered music from a distant city or discoursed wittily on topics of the day. After dinner he went home to his pictographs, or (this being one of the days Sergeant Gowan was in town) sought entertainment at some theatre with her and afterward went with her to his rooms for an evening's conversation. To her he was never tired of extolling the new order of things.

"War and all," he would say, "we are living better lives than were possible in the old days."

“But isn’t it a fictitious prosperity,” Sergeant Gowan would argue, with a woman’s tendency to conservative misgivings. “Wars are like fevers. They always bring a temporary flush.”

“Not this one. The flush is due to inflation of the currency, and you can’t inflate a currency that is based on work and not on wealth, because you can’t increase the amount of labor that is done.”

“And don’t you believe that peace will put many of these workers out of work? It always has.”

“I doubt it. There are so many hands needed for rebuilding. Our system is better, too. Take the case of the laboratory where I work. We have three stenographers. Work is slack just now, and has been. Under the old system, one of the stenographers would have been turned out to spend seven or eight weeks hunting for a job, and we would have lost that much labor. As it is, Colonel Macy merely reports that he has an extra stenographer, and she is detailed to the McCreery store where they need more for Christmas. It’s all so much more efficient.”

“Yes, but in gaining this efficiency, haven’t we lost some of the finer things? Perhaps I’m too young to know,” she smiled, “but it seems to me that there was more elegance, more easy living in the old days. I remember what good times we had at home when we were children and my mother never had to work. That sort of thing.”

“That was just the trouble with the old days. Our civilization was elegant because it was becoming decadent. Everybody was too busy having a good time to think of serious things. Life was getting itself filled up with little hypocrisies and lies, and growing more and more rotten at the bottom. We needed this dip into the primitive to clear the air. When life and death are immediate problems there isn’t time for gossip. For instance, you wouldn’t have dared to visit me here; it would have ruined your reputation and our friendship. I’d have had to marry you and we’d have hated each other for the rest of our lives because we had been forced into it. Now everyone is too busy to care.”

“Admitted. But what about books and art and that sort of thing? We aren’t producing anything new in that way. All the pictographs are of the old authors.”

“All that will have to come later. We’re merely starting. Do you ever read Darwin or Ellsworth Huntington? They will tell you that a race always declines unless natural selection has a chance to operate. Under a civilization like the one we are leaving behind, the unfit are preserved and even get to high places. Now we’re eliminating the unfit.

We're back to barbarism for a minute; we have to be, that a finer civilization may rise out of the ruins."

"Are you so sure that the new civilization will be finer?"

"Well — yes. The unfit are going. Who would have dared to suggest that criminals be sterilized in the old days? Or idiots? But it's done every day now. And look at the decrease in insanity. There is fighting going on but no murder — at least not as there was. The mechanical basis of our civilization will be more secure, too. Think of the tremendous waste there used to be in the old days, when a man could buy an automobile one month and trade it in for another the next. Now if he wants to get a new machine, whether it's a Wagstaff or an auto, he has to get permission, and all the time and labor that went into producing the unnecessary machine is put on something useful."

"True enough, no doubt. But still, I think we're losing something. Where is our democracy? Don't you think the men who wrote the Constitution would hate to see us now, with everyone in the country enrolled in the army and under orders? And where are our state and local governments? There hasn't been a mayor of Pittsburgh in four years."

"But democracy is not so much a form of government as the spirit behind it. England was as democratic as it could be under a king. Even before the war the old form of a big, unwieldy congress always quarrelling with and impeding the president was breaking down. There were too many laws. Honestly don't you think the present system is better? No one is losing anything by not voting. Here I am, for instance, just out of prison, and I'm already a captain. There was nothing like it before.

...By the way, I'm to try my examination for promotion to major next month."

"Oh, are you? I'm glad. You'll be a colonel soon, and won't be able to speak to a mere sergeant... But about the system, I don't know. Didn't the Chinese have something like that, years ago? Examinations and promotion and more examinations, till it was all a matter of memorizing things and their civilization became stagnant. I'm afraid we're going to get something like that — a mere rule of efficiency, in which the individual will be a kind of robot."

Harve Mellen mused. "That's on the knees of the future," he said finally. "Perhaps you're right... Still — " he flung out his hand in an expansive gesture. "This doesn't look like it."

Margaret Gowan looked about her at the room with its dark furniture, rows of pictograph books and soft carpet. Out the window the lights of the city were visible across the park, like planets against the velvet black of the Monongahela hills. Along the crest

where houses had been before the revolution, the gaunt outlines of an electric brick-laying madiine stood against the sky, while beyond them soared the orderly row of lights that marked the passing of the night aerial express for St. Louis and San Francisco; a symbol of new hopes and enterprises rising out of the wreck of war.