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WARRIORS OF THE WOODLANDS

A Military History of the Iroquois Indians

by

Charles Williams

Dawn came up clear and cold over the sleeping Huron village. The tentative rays of the northern sun reflected and refracted off the ice crystals coating the sharpened logs of the stockade. From a few of the dome-shaped wigwams within, thickening fingers of smoke reaching straight up bespoke increased activity. Others remained placid and peaceful in the early morning cold. A still sleepy squaw, her moccasins squeaking on the sparkling snow, moved out of the stockade toward the river below. Heavily encumbered with furs, and clutching a water pot to her chest, she shuffled along the icy path almost without thinking. The shock and surprise of seeing the tall, red and black painted warrior before her was complete. Before the half-formed scream could burst from her lips, the deadly gajewa had done its work and she lay dead in the snow, the blood flowing and freezing around the imprint of the six-inch marl in her skull. The destruction of the Huron nation had begun.

Within seconds, almost one thousand Mohawk and Seneca warriors had descended upon the village. The dreaded war cry, "Hadree, hadree, succomee, succomee" shattered the peace of the morning. The inhabitants of the doomed village awoke with fear and panic in their hearts. Iroquois warriors, swinging their clubs, the gajewa, and thrusting with ganenqoadusha, the deerhorn or knife blade tipped spear raced among the wigwams striking down the stunned and terrified Hurons as they bolted from their shelters. Flame and smoke began to raise as firebrands were hurled onto the bark dwellings. Resistance was scattered and ineffective. Remnants of the shattered village escaped into the near-by forests with bands of Iroquois in pursuit.

The panic spread throughout the Huron nation. Two more fortified towns fell to the wolfpack of invading Iroquois. The panic became complete and the Huron, those not captured or killed, fled into the forest toward the Tobacco Nation in the Southwest. The proud Hurons, who only fifteen years before outnumbered the Iroquois about four to one and who dominated all the people around them, ceased to exist as a separate tribe. Their warriors, regarded by the French as the best woodland fighters fled in terror into the forests and many perished there. Who were these people who, in one month, March of 1649, could completely eradicate the most powerful of their neighbors?

The origins of the Iroquoian tribes is a subject of much debate and some plain guessing. These tribes include not only the five nations, (Mohawks, Onondaga, Oneida Cayuga, Seneca) but the neutrals; Eries, Tobacco, Huron, and Andaste in the north and the Cherokee and Tuscarora in the south. One theory is that the northern Iroquois migrated north and east from the Mississippi and Ohio River valleys. Another theory is that they evolved from the mound builders centered in Ohio. In any event, by the late 1400's and early 1500's the tribes which were to make up the five nations had established themselves in New York. Early in their history, they were peaceful agriculturalists without too much talent even for hunting let alone warfare, perhaps a holdover from Hopwell Mound Builder culture. They learned fast, and by the mid-1500's they were busily fighting each other. Indeed, there was real danger they would wipe each other out. At this critical juncture, two truly fantastic personages came upon the scene--- Degandawide and his disciple Hiawatha.

Degandawide was a mystic born of a Huron woman supposedly by virgin birth. Thrown out of the Huron tribe, he wandered into Iroquois country. There he met an outlaw named Hiawatha. It was an extremely fortunate meeting for both of them. If Degandawide could be likened to Christ (which is not so farfetched as it first might seem) then Hiawatha was his St. Paul. Between them, in about 1570, they were able to convince the Five Nations to cease their quarreling with each other and form a league. A highly organized government came out of this league with many features of

our own government. (Note: There is a firm basis for belief that many fractures of the league's government were incorporated into our own. For a thorough examination of Iroquois government and society, see Thomas Henry's Wilderness Messiah, William Sloane Associates, Inc. New York 1955.) The Iroquois invited their neighbors to "sit under the Tree of Great Peace," a peace based on union and law. The refusal of their neighbors to do so was the excuse used to attack them. Much like the Moslems, the Iroquois offered a choice of accepting their code, of slavery, or of death---the book, the chain, or the sword.

Under the Iroquois organization, war parties were lead by war sachems, who were appointed by the chief matrons of his clan. He was usually a noted warrior. However, any warrior who talked enough other warriors into it could lead a war party. All missions had to have the approval of the council. Since war sachems were forbidden from sitting on the council, nor could the councilors take part in military activities, the military was under the control of and separate from the civilian government.

Although they carried out warfare intermittently with their neighbors, the Algonquins and the Hurons, the Iroquois, while unified and able to mount an "army" of up to 1,000 warriors, werenot able to overcome either tribe. In July of 1609, however, an event took place which upset this balance of power and profoundly effected the course of history. On a level field northeast of the place where Fort Ticonderoga now stands, Samuel deChamplain fired the first shot in a war which was to end over 150 years later with French expulsion from North America. The white man had come to Iroquois country.

It is an oversimplification to say that Champlain sealed the doom of French America when he fired into the Iroquois war party that July day. Certainly it was an important factor, and the Iroquois never forgave France for it. However, when it suited their purposes the Iroquois were quite capable of dealing on friendly terms with the French. The real importance of the French presence was to mark the end of the old style of warfare and to introduce the pursuit of the animal which was to profoundly influence the history of the American frontier for the next 250 years. The animal was the amphibious rodent, genus *Castor*---the ubiquitous beaver.

Previous to the introduction of the gun, the chief weapon of the Iroquois was the *gajewa*, or club. It was usually about 2 feet long, made of hickory or some other hardwood, with a 4 to 6 inch ball of stone or wood at the end. Many times a piece of deer horn or flint was embedded in the ball.

The other weapon used in close combat was the *ganengoadusha*, which was a hardwood spear about 3 to 4 feet long with a 4 inch deer horn attached. This piece of horn was sometimes shaped like a hook and was used like a gaff to rip open an enemy's belly. They made very little use of the bow in warfare. They also apparently used body armor of strips of bark lashed together. The chief weapon of their opponents was the bow, and the armor apparently gave some protection while they closed to within range of their clubs. They attacked in mass formation and traveled in close formation with little attempt at concealment or quiet. They were also very good at psychological warfare. They painted their faces in grotesque patterns. Word of war was passed by marking trees to be seen by both friend and enemy. Their war cry of "Hadree, Hadree Succomee, Succomee" (We come to suck your blood) was doubly terrifying because it was true---the Iroquois, in common with their enemy, practiced cannibalism.

Even after the introduction of guns and iron tools, the Iroquois preferred hand weapons. They became very adept with the tomhawk, being able to throw it with great accuracy. They also took knife blades and mounted two or three on the end of a shaft to make a very effective club.

With the advent of the gun, tactics changed. Armor was discarded. Individual rather than mass attacks became more important. The change was more evident in Indian vs.



white warfare than in Indian vs. Indian warfare, and took place over a 100 year period.

The French were very wary about handing over guns to their allies, the Huron and the Algonquin. Nevertheless, they got enough to tip the balance of power against the Iroquois. While they were able to trade for some iron utensils from the French and Algonquin when not at war with them, the Iroquois were not able to obtain firearms.

The beaver now played a part. Not only did they draw the French, but also the Dutch and later the English. In 1614, the Dutch built the trading post and fortified town of Albany. They were willing to give the Iroquois anything they wanted in exchange for beaver pelts. The Iroquois now had all the firearms and iron tools they needed.

For about 20 years, there was enough beaver to go around. Except for the normal raiding parties, peace prevailed. However, the beaver were trapped out of Iroquois country. The Iroquois also saw the trade with the French being carried out by their enemy along water routes bordering their territory. They also realized that being the middleman in the fur trade was much more advantageous than doing all the legwork in capturing the beaver. In this feeling, they were backed up by the trade policies of the British. The British established trading posts and expected the Indians to come to them with furs. Since other Indians were reluctant to allow the Iroquois to act as middleman, tensions rose.

In 1629, the English captured Quebec and held it until 1632. This eliminated French trade and aid to the Huron-Algonquin people. They, along with the Ottawa and Neutrals spent these years warring on the western tribes and leaving the Iroquois alone. In 1633, the French came back. Among them were the Jesuits, who attempted to Christianize the Huron. They were partially successful, but this had the effect of further dividing the Huron. At this time, the Huron were the most populous of the Iroquoian tribes, numbering about 20,000 people. In 1636, a plague struck the Huron and wiped out half of them. By 1638, they had recovered enough to attack the Iroquois again.

The Iroquois at this point were implementing their policy of becoming middle men in the fur trade. Roving parties of warriors, mostly Mohawk and Seneca, ambushed caravans bearing fur in the St. Lawrence. By 1640, they had closed the river to French traffic. In 1645, they negotiated a peace with France. This left them free to deal with Huron.

The action started with the Seneca capturing a Neutral Nation town in 1647. The next year in July, the Iroquois attacked in force. Three Huron towns fell and their inhabitants were killed, many by torture. That winter, the wolf pack of 1,000 Mohawk and Seneca destroyed the Huron in the action described in the opening of this paper.

Many of the Huron fled into the largest town of the Tobacco Nation. This Nation, whose name came from their expertise in growing tobacco, sheltered them. The Iroquois found out and sent a party to eliminate this pocket of Huron, and the Tobacco Nation. The Tobacco gathered their warriors and danced and feasted and gradually worked themselves into a frenzy. The Iroquois didn't appear. Finally, the war captains decided to march into the forest. The Iroquois, waiting in ambush, waited until the warriors were too far away to be recalled and then fell on the village and destroyed it and its inhabitants. By December, 1649, the Huron and the Tobacco had ceased to exist as nations. Many Hurons were adopted into the Oneida tribe and at one point there were probably more Hurons than original Oneidas in the tribe. One of the sources of strength of the Iroquois Nation was their policy of adopting defeated people into the tribe to replace battle losses.

In winter 1651, 600 Mohawk and Seneca invaded the Neutral Nation (some 10,000 people) and wiped them out.

In 1653, the Iroquois abruptly made peace with the Algonquins and set out to destroy the people who were to prove their toughest foe, the Erie. The Erie had only a few guns and relied on the bow as their principal fighting weapon. They also

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The Erie started the fighting by attacking a Seneca town and ambushing a hunting party, killing 80 braves. The Iroquois mounted a force of 1800 men and invaded Erie country. They had many guns. The Erie gathered 4,000 men into their principle town of Rique and waited for the Iroquois to attack. It was a hard fought battle, and it took four years and all the military skill they had for the Iroquois to finally defeat the Erie. When the fighting started, there were probably 15,000 Erie. At the end, only 600 captives and an unknown number of escapees (plus quite a few women and children adopted into the Iroquois) remained.

By 1658, only the upper Algonquins of the Great Lakes, and especially the Ottawa, remained as potential enemies. Under Iroquois threat, these people moved west toward Wisconsin. They tangled there with the Sioux, who proved to be as tough as the Iroquois.

The Iroquois sent a war party of Seneca after the Ottawa. This party ran into ambush by Illini and was wiped out, in 1661. The Iroquois responded to this new threat by repeated invasions, and by 1667 they had driven the Illini and their kinsmen the Miamis beyond the Mississippi. During this period, as they so often did when they occupied by a powerful enemy, they made peace with the Ottawa. With the Illini driven back, instead of turning on the Ottawa, the Iroquois turned back on the Ohio valley. In 1670, the Ohio valley was still heavily populated with Shawnee and some Erie. By 1673, it was virtually empty. By 1700, after a mopping up operation against the Illini along the Illinois River, the Iroquois stood unchallenged in northeast North America. Iroquois spread over an area composed of New York, New Jersey, Pennsylvania, Maryland, Ohio, Kentucky, West Virginia, north Virginia, Tennessee, Ontario, and parts of Illinois, Indiana, and Michigan. The last war against Indians, the conquest of the Susquehannock in 1680, was little more than a quarter century after the start. The Iroquois held a position of power and influence in America which was to be decisive in the struggle between France and England.

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The library is missing Volume V, Pictorial History of WW II, Your Air Force in Action, and five issues of "Tradition. Check your own libraries to see if you might have any of these publications.

*****Dick Moore

THE ORIGIN OF THE PINCERS MOVEMENT

by

Commander K. D. I. Mursey

During the Second Punic War, Rome was opposed by Carthage. At the outbreak of the war, the Romans set up a non-aggression treaty with Carthage, which the Romans were the first to break. In retaliation, Hannibal, who is still considered by many to be the greatest general ever, attacked and overran Segundo in Spain. In 217 B. C. he assembled an army of 80,000 men and 37 elephants, plus camp followers. They set out northward, aided by the Swiss Natives, to cross the Gothard Pass in midwinter. Even today this route is a mere track, but Hannibal accomplished his crossing with the loss of 17 elephants. He went from Segundo to the Lombardy Plain in 3 1/2 months. Hannibal's first major encounter with the Roman Army was at Lake Tressamine, against Veroc. The Romans were caught in a pincers and were smashed. 120,000 men, the pride of the Roman army, perished. Roman commanders gathered 22,000 men in a scratch army, which met the Carthaginians on the plain at Cannae. The Romans were defeated, again by a pincers movement. Roman allies, however, did succeed in tearing up the Carthaginian supply lines and communications system in Spain. This was not as serious as the Romans had hoped, however, as Hannibal had married an Iberian Princess of great wealth, and so was able to wage a 15-year war virtually out of his own pocket.

Hannibal possessed a brilliant mind, and often served as his own espionage department, entering Rome as a spy. By so doing, he was able to size up the situation and decided that his occupation of the area in general was having much better results than seizing one city would have. Unfortunately, he underestimated his opponent's. After studying Hannibal's previous victories, Scipio Africanus took an army to Carthage. Hannibal met his first defeat at Zama. Scipio used heavy cavalry rather than elephants, and told his men to aim for the throats and trunks of the elephants. Ironically, Hannibal was defeated by his own pincers tactic.

451 A. D. brought the invasion of the Huns under Attila. Troy was the scene of the Hun-Franco battle, in which Attila was defeated by Aetius, who used Hannibal's pincer movement to great advantage. He also used a phalanx tactic, which was very effective against undisciplined horse.

For 15 centuries the pincers movement was rarely used. Then, in 1942, it again came into prominence. Erwin Rommel had thoroughly studied Hannibal's tactics. By improving the pincers movement and applying it effectively, he held strategic points and wreaked havoc with Allied morale. He lost at El Alamein simply because of a lack of supplies. In fact, he had just enough petrol to retreat. At Suez, in 1943, he attempted a pincers movement, but was defeated by a brilliant man, Harold Alexander. When he reached Cape Horn, Rommel was ordered to stand his ground and fight. He disobeyed a direct order and retreated to France. When he reached there, he was greeted warmly and proudly by Hitler himself, and given command of the West Wall.

In Viet Nam, the pincer tactic is not applicable, just as it was not useful in the Pacific war. However, modern warfare does owe a lot to the barbaric mind of Hannibal.

-----Faye Jones

In the past seventeen years, the U. S. has given away:

8,540 jet fighters	146,780 machine guns
20,279 tanks	359,423 trucks
30,340 missiles and rockets	3,698 personnel carriers
29,716 mortars	3,292 training aircraft
2.1 million rifles	36 destroyers
1.4 million carbines	24 submarines
	33 tugs

-----Chuck Williams

IRONCLADS OF THE CIVIL WAR

by

John Carter

To use a cliché, the Civil War on the water was quite unlike any other war or campaign before or since. One of the strange features of this war was that it was devoid of huge naval actions. The reason for this was that the North had gained sea control by default and, therefore, proceeded to clamp an airtight commercial blockade onto the South. This blockade was ineffective at first, but, as the Federals bought and built warships, it became clear that this situation would not last long. Realizing that the South would lose the war if the blockade continued, the Confederate Secretary of the Navy, Stephen Mallory, moved into action. He knew that the Confederate Navy could never achieve parity with the Union Navy in terms of conventional warships because the North already had a strong lead, and their shipyards could out-produce his with no trouble at all. It also took two to three years to construct a large wooden warship, powerful enough to drive off the blockaders, and with enough protection so that it could not be sunk by them. Accordingly, he thought of the ironclad.

The ironclad was not a new idea. Dupuy de Lome, the French engineer, had built the "Gloire", an ironclad frigate. The English, to avoid inferiority at sea, replied with the "Warrior." However, neither of these designs was very much different from the steam-propelled wooden warships and they took longer to build. Therefore, what Mallory also needed was a ship that could be completed quickly. During the burning of Norfolk Navy Yard, the steam frigate, Merrimack, had been sunk. She had barely burned to the waterline and, therefore, her hull and engine would probably be in good condition. He, therefore, decided to raise the Merrimack and armor her. The North replied with the Monitor, and the war had begun. Neither of the designs for these vessels was like anything anyone had seen before.

The previous half-century had seen many developments and inventions in the field of naval ordnance and ship-propulsion, and it might be well to set some of these down here, because they were to have an influence on ironclad designing.

The first of these developments, in chronological order, was the pivot-gun. This consisted of the old four-wheel gun carriage placed on top of a slide which rotated on a circular rail. This was a tremendous improvement over the old carriage, which was placed on the deck, for it only traversed about three degrees from the beam line. The new type of carriage allowed the gun to fire on either broadside and it could traverse sixty degrees forward or aft of the beam on the side from which it was firing. Some pivot guns were mounted on the bow to cover the gap that had been left in the "radius of fire" up until now. At first very few of these guns were mounted on the wooden ships because the circular rail took up the space that had been occupied by three or four of the old mountings, and at that time it was numbers that counted. However, revolutionary ordnance developments were to change this situation.

In the 1830's the French general, Paixhans, developed a gun that fired an explosive-filled projectile that exploded on its target. This spelled the doom of the wooden warship for the shell would blow a hole in the side of the ship if it were embedded there, and if it passed through the side, its explosion inside the ship would cause fires and other considerable damage. The old solid projectile had relied on its "smashing" effect to create damage, but the shell could create damage by both smashing and exploding. Later in the 1850's, a number of people began independent research on the major points of stress in a gun when it was fired. As a result of the information obtained from these experiments, much larger ordnance was made possible

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because the risk of a gun bursting was now minimized. Just prior to the Civil War rifling was introduced into cannons. Rifling increased a gun's range and accuracy and the penetration power. These developments made the pivot gun practicable and at the same time started a revolution in ordnance that did not end until after 1914.

For years ships had been propelled by wind which, though it was inexpensive, was unreliable. Steam power was first used in seagoing vessels to drive a pair of paddle wheels. This was impractical in warships because the paddle wheels were exposed to enemy fire. To power the paddle wheels the boilers and the machinery had to be mounted above the water where they, too, were exposed to enemy fire. However, in the 1850's, the propeller was developed and this made possible steam propulsion in warships, because all of the machinery and boilers could be placed below the waterline.

Although the Merrimack was not the first Confederate ironclad, we shall deal with her first because she was the first of the most prevalent type of rebel ironclad. As we have seen, Mallory intended to raise the hull of the sunken Merrimack and armor it. He assigned Lieutenants Porter and Brooke to carry out this task. Their design took into account the South's production limitations, and yet they produced a remarkably good vessel, when we consider the conditions under which the ship was built.

Their design called for the hull to be built to the water line. For a short distance at the bow and stern the deck was covered with iron plates about an inch thick. On top of the remaining hull area an elliptical casemate, sloped like the roof of a house, was built. This entire casemate consisted of twenty-four inch-thick oak planks backing four-inch-thick iron plating. On top of the forward end of the casemate a cone-shaped pilot house was built and this was fitted with slits so that the helmsman could steer the ship. Each broadside was pierced with portholes for four guns, three nine-inch and one six-inch Dahlgren guns. At either end of the casemate, the plating was pierced for guns, once along the center line, and once at a forty-five degree angle from the centerline to the right and left of the center gun ports. A seven-inch Brooke rifle mounted on a pivot-gun carriage was placed to fire through these three gun ports. A heavy iron beak was affixed to the bow to facilitate the ramming of enemy warships. As we can see, this design was entirely new, and the appearance of this ship, renamed the Virginia, was formidable.

This design had many advantages. The sloping sides caused shot to deflect and also presented a greater thickness of iron plating than would have been presented if the sides had been vertical. Because this ship carried no masts, there were heavy guns covering all points around the ship. This was almost totally unprecedented. The iron beak allowed the Virginia to ram other ships in naval competition and sink them quickly, as the U.S.S. Cumberland discovered to her own discomfort. With these advantages, she seemed invulnerable.

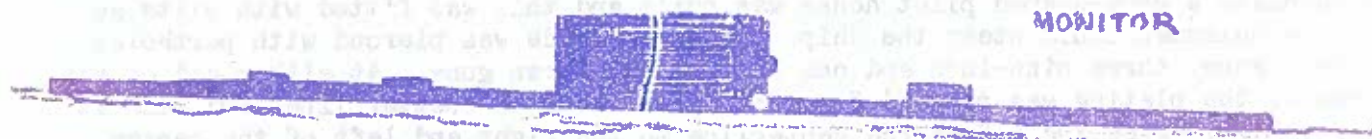
There were disadvantages to this design, however. The engines had been in salt water for several months and they had corroded. Therefore, the vessel, whose designed speed was nine knots, could, in practice, only make five knots. Because of the heavy weight of the iron, the ship was very difficult to maneuver. Other defects were to appear on that, the most trying of all testing grounds, the battle field.

At this time, the security of military secrets would have given a modern CIA agent heart failure. Long before the Virginia was completed, the average Northern citizen had a fairly good idea of her character and her intent. Gideon Welles, the Union Secretary of the Navy, realized that an ironclad warship was needed to prevent her from carrying out her intentions, and, accordingly, he set up a three-man board to evaluate the plans of private contractors. This board studied a number of designs, including one for a ship to be armored with rubber. In the end they accepted three, the New Ironsides, the Galena, and the Monitor.

The Monitor's design was even more revolutionary than that of her intended antagonist. John Ericsson, her designer, had studied warship construction for some years. He had one of the first to use strengthened guns and had helped to develop the propeller. Many people credit him with the reciprocating engine which remained in use in ships until the early 1900's. All of this experience led him to certain beliefs of warship design. These were, in essence:

1. To provide the smallest target possible to the enemy.
2. To mount a few heavy guns located in a position giving them a three-hundred-and sixty degree radius of fire.
3. The engines should be completely out of the enemies' reach.
4. Both should be impervious to enemy fire.

The Monitor was the embodiment of these principles. She had a flat-bottomed hull that was one hundred and twenty-two feet long with an over-hanging keel one hundred and seventy-two feet long set on top. This comprised the hull which had a freeboard of one foot and a draft of ten feet. A revolving turret, mounting two Dahlgren guns, was set in a well on the center of the keel. A small square pilot house was set on the deck near the bow. This was what people saw from the outside.



Her armor was very well proportioned. All cannon shots struck at a fairly shallow angle and so only one inch was laid on the deck. There were four small funnels and ventilation pipes that were to be removed during combat. However, on the sides of the keel there were ten one-inch thick layers of iron plates and on the turret eight one-inch layers were bolted to the backing frames. The top of the turret had a grating of bar iron; the pilot house was made of bar iron stacked "log cabin style." This was a remarkably good layout when we consider how revolutionary these principles were.

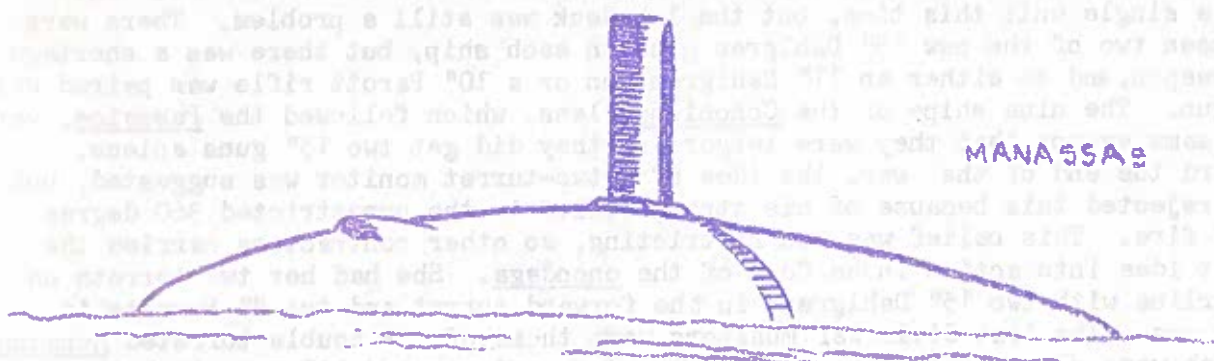
There were other innovations, too: one of the most important was a balanced rudder, a new device which was easier to handle than the old type of rudder. There were also forced draft fans to ventilate the ship while she was at sea. Her anchor was mounted in a well under the overhang in the keel, at the bow. Because the anchor was raised and lowered from inside the hull, the Monitor could anchor under fire if she was firing at a stationary target.

Like her larger sister in the Confederate Navy the Monitor had defeats. Because of her low freeboard the water washed over her deck in even the smallest seaway, and her low freeboard gave her very little reserve buoyancy. In storms her overhang would drop onto waves with a structure-weakening slap. This unseaworthiness sank on her second voyage. Her pilot house obstructed fire over the bow, and thus, made a chase difficult to pursue. However, as has been said, this was an entirely new type of vessel and, therefore, she was a very good model.

When the Monitor and the Virginia met, they fought a tactically inconclusive battle. Strategically, however, the Monitor won since she achieved her objective by thwarting the Virginia. By her continued presence in Hampton Roads, she neutralized the Virginia until the Northern troops captured Norfolk Navy Yard at which

time that vessel was burned to prevent capture.

Even as the Virginia was being built, other ironclads were under construction all over the Confederacy. Two, the Louisiana and Mississippi, mounting sixteen and twenty guns respectively, were begun at New Orleans, but were burned to prevent capture when Farragut attacked. These were much like the Virginia, but the other ironclad at New Orleans, the Manassas, was quite different. Designed as a tugboat, she was bought and cut down to the waterline. Then an iron casemate, which looked like half of an eggshell was built onto the hull. One gun was mounted to fire over the bow; a funnel built on the center of the casemate finished out her appearance above the waterline. Her real weapon, though, was an underwater ram which she attempted to use twice, but failed. The Manassas's armor was thin and on the whole she was unsuccessful.



Even as the Virginia was being built, other ironclads were under construction all over the Confederacy. Two, the

The other rebel ironclads were almost stereotypes of each other. They were of the same slope-sided pattern as the Virginia, except that instead of having an elliptically-shaped casemate, the sides were brought to corners. That is, the casemate was now usually rectangular or even octagonal in shape. This change helped to simplify construction. As in the case of the Virginia, there was usually a pivot-gun mounted to fire out of the forward and after gunports. There were also either one or two guns mounted to fire on each broadside from the old type carriages. The Albemarle and the Neuse varied by not having guns mounted in this position. As a rule, these guns were either 7" or 6.4" Brooke rifles, although, of course, there were variations in this area. The engines were almost always salvaged from other vessels, and they were always unreliable which sometimes created embarrassing combat situations. Owing to the fact that there were only three good ironworks in the Confederacy, the armor was often of a rather patchwork make-up. The iron always took a long time to arrive and frequently the builders in sheer desperation used boiler plating, interlocking railroad rails or whatever else came to hand. The designs called for four to six-inch thicknesses of iron, but, obviously, this specification was seldom realized. The underwater lines were kept simple to make construction easier, and in fact, the keynote of the rebels' ironclad designs was simplicity.

The basic design of these vessels was a rather good one. The North captured three of them and put them into blockaders which shows that they were fairly good. Their main fault lay in the South's poor industrial capacity, for it was always the machinery and armor which were hard to obtain and which were of poor quality once they were obtained. Furthermore, the four to six inches of iron that were authorized were inadequate against the heavy ordnance mounted by the Northern monitors. Their other great fault lay, not in their construction, but in their use. The Southerners were offered frequent opportunities to unite the ironclads

into squadrons or to use them in separate, but simultaneous operations to throw the blockade off balance, but they never did this. As a result, the North was allowed to deal with them separately, one at a time, and this she did.

In the North, the Monitor's strategic victory over the Virginia caused more ships of this type to be ordered, and accordingly, the ten ships of the Passaic class were begun. Their design was basically the same as that of their predecessor with the exception of some improvements inspired by lessons learned with the earlier ship. The first improvement was to place the pilot house on top of the turret, out of the field of fire, with the steering cables encased in a tube that was twelve inches in diameter and that extended down through the center of the turret. There had been so much trouble with water entering the Monitor's low funnels that it was decided to place two tall, thin pipes in a position close to the turret, on the centerline, where they would not interfere too much with the field of fire. The hull was a single unit this time, but the low deck was still a problem. There were to have been two of the new 15" Dahlgren guns on each ship, but there was a shortage of this weapon, and so either an 11" Dahlgren gun or a 10" Parott rifle was paired with one 15" gun. The nine ships of the Cononicus class, which followed the Passaics, were much the same except that they were larger and they did get two 15" guns apiece.

Toward the end of the war, the idea of a two-turret monitor was suggested, but Ericsson rejected this because of his strong belief in the unrestricted 360 degree radius of fire. This belief was too restricting, so other contractors carried the two-turret idea into action in the form of the Onondaga. She had her two turrets on the centerline with two 15" Dahlgrens in the forward turret and two 8" Parotts in the after one. The last Civil War monitors were those of the double turreted Monadnock class which were slightly larger than the Onondaga and mounted 15" guns in both turrets.

The monitors were designed to thwart the threat of the Southern ironclads and in this role they were a success, since their operations were carried out in calm coastal waters. However, the North also attempted to use them to bombard forts, and, at this, they were a dismal failure since this sort of job calls for smothering fire. A squadron of monitors simply did not carry enough guns to smother a fort that mounted forty or fifty guns. Their low freeboard and low reserve buoyancy was a real weakness, for it meant that they would sink quickly if they struck a mine, taking most of their crew with them. Otherwise, they were completely satisfactory.

I have not covered all of the ironclads that the North and South put into action, but have only attempted to cover the major types. The main significance of their construction and use lay in the fact that this was the first war in which ironclads actually fought. Although most people were not immediately aware of it, they had rendered the wooden ship obsolete and set up some of the basic principles for battleship design which led to the great dreadnoughts of World Wars I and II.



C.S.S. VIRGINIA

The 'K' Boats
by
Don Everett
(1963)

The 'K' Boats were one of the great tragedies of World War I. Designed as a result of panic over the early effectiveness of German submarines and the strategic misconception that submarines could work directly with a battle fleet, the 'K' class was in trouble from the very start. The muddle of British submarine development prior to the outbreak of the first World War led Churchill to recall 'Jackey' Fisher as first Sea Lord. Fisher ordered the well-tried 'E' class in production, disregarding the six experimental types then being built in various British yards. The proposal was submitted for a fast steam-electric fleet type submarine and Fisher refused to have anything to do with it. His instinct told him that steam, boilers and funnels did not mix with submarines. However, the clamor was so great for a fast fleet type sub that Fisher finally authorized four steam-electric types with the provision that a diesel engine be included as a safety factor. Steam was the only answer to the requirement of 22 knots necessary to maintain station with a battle fleet. The entire project was shrouded in secrecy. Thus the 'K' class was born. In May 1915, Fisher resigned as First Lord. As soon as he left, 10 more 'K' types were ordered. There were two Steam powered submarines before the 'K' class, the 'Archimede' and the 'Swordfish', both of which were giving nothing but trouble for their captains but with orders for fourteen 'K' boats placed it was a bit late for second thoughts.

In all 17 of the 'K' boats were completed. This is incredible since the first batch had proven to be anything but successful. There were problems with sealing the subs in a dive. In addition to the large number of hatches there were the funnels and vents to worry about. The boats were slow to dive. It usually took about five minutes to shut down the boilers and go under. The record was 3 minutes, 25 seconds, held by K8. When they did go down they had an alarming tendency to go sharply by the bow, and could not be corrected until after burying the nose of the boat in the sea floor. This happened to every boat in the class at one time or another, and to some many times. Since the boats operated in the North Sea the shallow waters undoubtedly saved many lives. The boats were also basically unseaworthy as the water would wash over the tower and superstructure and down the vents and funnels putting out the boiler fires.

As though this were not bad enough, the class was subjected to an incredible chain of bad luck and disaster throughout its existence. K-2 began her acceptance trials with an explosion and fire. K-13 sunk on her trials and only 47 survived. K-5 dived during fleet exercises and was never seen again. In December 1917, Admiral Beatty staged a fleet exercise known as the Battle of May Island. The 'K' boats, in 2 flotillas of 9 boats each, participated. K-14 collided with K-22. The 13th flotilla reversed course to assist them, thus crossing the bows of the battle fleet. The heavy mist, the fleets speed of 21 knots, and poor judgement did the rest. Collision followed collision as the battle fleet slashed through the flotillas. When it was all over, 2 boats were sunk and 5 damaged. Of the 2 sunk, there were only 8 surviving crewmen.

All these accidents were heavily censored at the time. It was only recently that the Admiralty declassified the documents pertaining to the accidents. In all, the 'K' class was involved in 16 major accidents and countless minor ones. Only once did a 'K' boat even engage the enemy.

Mr. Everett spent two years of preparation for this book. Based on published works, admiralty files, and interviews with survivors of the 'K' boats, the book is very interesting and well written. Highly recommended.

NOTE: If the book can no longer be obtained by special order, the Denver Public Library has a copy of it.



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