From the Pilot House

The year 2000 was a busy and productive one for the Monitor National Marine Sanctuary. As reported herein, we conducted NOAA and Navy dive operations, resulting in stabilization of the Monitor’s hull, the recovery of two large drive train components and other artifacts and the deployment of the huge engine recovery structure. We also enjoyed nearly 4 and one-half hours of prime-time national television coverage. We are very grateful to the Navy and all our other partners, whose names are mentioned in this issue, for helping make the current recovery efforts possible. We also are grateful to the Department of Defense Legacy (Resource Management) Program for granting nearly $2 million to the Navy to support their diving and recovery efforts at the Monitor Sanctuary. The sanctuary staff would also like to thank Dan Basta and Craig McLean, director and deputy director, respectively, of the National Marine Sanctuary System. They have supported, assisted, and encouraged us in many ways.

Since returning from the last dive operation last fall we’ve kept busy helping the Navy plan an even more complex expedition for 2001. In fact, we will conduct seven expeditions to the sanctuary over a seven-month period—by far the most activity during any one year. By the end of July we hope the Monitor’s engine and a large segment of armor belt will be safely in storage at The Mariners’ Museum. I hope you will log onto our Web site frequently this summer to follow our progress. It is going to be a long but very exciting year.

In closing, I must sadly acknowledge the departure of Dina Hill, our education coordinator and Cheesebox editor. Dina and I have known each other for more years than either of us cares to admit, and Dina was involved with the Monitor even before its discovery. She has been our architect and “corporate memory,” cherished employee and local friend. For years Dina and I were the only two employees at the Monitor office, so Dina performed tasks ranging from secretarial to educational to management. She still does. It’s difficult to imagine how the office would have survived without her all these years. Although we will move ahead, as we must, the Sanctuary office will never be the same. Dina, we wish you fair winds and following seas.

Follow along with the Monitor 2001 Expeditions by visiting http://oceanexplorer.noaa.gov/.

John Broadwater, Manager
alt of middips, where stabilization will take place
- Lower hull, machinery space and fire space, paying particular attention to the configuration of the engine, its attachment to the hull and its supports.
- Map and record exposed artifacts that may be damaged or destroyed by the action of currents, the collapse of por- tions of the hull, or by water-borne hull shoring and recovery activities.
- Test the difficulty of removing rivets and heads and a hull plate along the lower hull over the fire room or engine room.
- Recover the recording current meter placed near the bow in 1999.

Goals for the Phase II NOAAs, carved out from mid-July to mid-August, included:
- Document, through drawings, measurements and photography, the following areas:
  - Bennett area, particularly all hulls of middips, where the hull was shored up with gout bags.
  - Turret and its area of contact with the lower hull.
- Machinery space, with particular attention to the engine room area to be affected by Navy recovery operations.
- The Engine Recovery Structure (ERS or "bridge"), placed over the engine room during the Navy's Phase II dives (see below).
- Map and recover artifacts that were recovered during the Phase I NOAAs, focusing on the hull shoring and recovery activities.

Goals for the Navy's Phase II operations in June and July included:
- Stabilize the Monitor's hull by installing gout bags, their placement on the port side of the hull, forward of the turret.
- Excavate at the base of the engine to expose propeller shaft, and to better understand the interface between the engine and overhead structure.
- Map and record artifacts from the machinery space.
- Move or remove the skid, if necessary, to prevent further damage during engine rigging and recovery.
- Place the ERS over the wreck to facil- itate recovery, to prevent further damage during engine rigging and recovery.
- Rig and, if possible, recover the steam engine and associated hull structure.
- Provide an opportunity to realistic training in mixed gas diving and salvage operations of MSDU-2.
- Conduct an area-of-evaluation of revised USN Surface Supplied Helium-Oxygen Decompression Procedures.
- Conduct a post-mission survey and map additional engine-related areas in the vicinity of the turret, as requested by engineering personnel, for use in refining the turret recovery plan.
- Conduct certification training for the ERO-26 Diving Apparatus using helium-oxygen as the breathing medium.

Although recovery of the Monitor's engine was included in the goals for the Navy dives, the project participants knew from the start that the engine could be recovered only if there were no days lost to weather and all of the goals were met within 15 days. As always when working in the Graveyard of the Atlantic, the weather was not particularly cooperative and everything was made more complicated by a longer time than we had hoped. It became apparent mid-way through the Navy dives that there would not be sufficient time to complete the tasks that were prerequisite to engine recovery.

Phase I NOAAs

On April 26 when, despite gale warnings and predictions of 11-skelton weather, the Research Vessel Cape Fear arrived at Cape Hatteras, Members of the NOAA dive team had begun arriving the previous day. Training or "turn- in" days are always conducted prior to beginning NOAA dives on the Monitor because of the Monitor's depth of 225 feet and frequent strong currents.

Adverse weather conditions complicated completion of the training dives but on April 29 the "turn-in" was successfully carried out. The first dive on the Monitor was made on May 1 in relatively calm seas (1 to 2 knots) and warm, blue Gulf Stream water. The team secured a buoy line to a bottom anchor, surveyed the wreck, and recovered the current meter. Information about the water depth, current direction and speed is available from the Monitor since August 1999.
seal. Positions for the ERS legs were indicated by large markers placed on the bottom in predetermined locations. Cameras mounted on the ERS allowed scientists to view the seal where the ERS was in relation to the wreck as it was lowered to the bottom. A Remote Operated Vehicle documented the position from the bottom.

On July 17 the second team of NOAA divers arrived in Hatiten as Navy divers continued filling the grout bags. NOAA divers conducted a 100 foot training dive on a shallow site near the Monitor.

On July 19 Navy divers completed a visual and video inspection of the wake. Their inspection was made by divers and included two inspections in and around the engine room. They also surveyed the ERS legs that were being de-seated with electric shocks and observed the periscope on the ERS debris on the bottom.

On July 21 the mission reached another major milestone—determining the stabilization phase of the mission was completed when Navy divers installed and filled the final grout bag. Diving from the RV Cape Fear, NOAA divers made two sets of dives, mapping the location of the ERS and inspecting the final grout bag while it was being filled. NOAA divers completed four sets of dives the next day, all concentrating on the lower half and engine room area. The last dive, which did not enduntil after midnight, resulted in the removal and recovery of a sample of the lower half of the boiler and rudder, and was in remarkably good condition, compared to some other parts of the hull, offering encouragement that the entire ship and supporting hull and frame can be recovered as a single unit. NOAA divers continued mapping, photographing, and survey tasks.

On July 26 Navy divers recovered a section of engine room floor plate. One surface of the plate has a high-relief pattern of diagonal bundles, making the plate virtually unused. The pattern is identical to engine room plate from another Civil War period ship, the CSS Nashville. On July 27 NOAA divers recovered a section of propeller shaft with a coupling and stuffing box. This section can be related to the section recovered with the propeller in 1998.

The Navy phase of Monitor 2000 ended on Friday, July 28, with the recovery of the Monitor’s skid (the beam that supported the rudder and propeller shaft). The 28-foot-long, 7700-pound skid was lifted from the water at 11:00 A.M. and placed on the deck of the barge.

To permit the Navy to begin recovering the eight anchors that mounded the barge in place, NOAA divers offered to complete several Navy “housekeeping” tasks, including recovering tools and cables from the seabed. By 8:00 p.m., all eight anchors—weighing between 6,000 and 20,000 pounds each—were retrieved and the barge got under way for New Norfolk. The first time the barge had moved from its position over the Monitor since being moored on June 21. Sanctuary staff assisted at Hatiten to oversee completion of the NOAA dives.

With the exception of August 8, when rough seas forced cancellation of operations, divers were able to reach the wreck every day through the last day of Monitor 2000 and completed a number of tasks. The carried out an excavation within the engine room. They also mapped the fire room floor and turret base in preparation for restoration of the engine areas. They mapped the steam condenser, which was much more accessible following the removal of the skid and shaft section. They also removed quite a bit of modern debris—cable, rope, metal fragments, and other items left behind from the Navy phase of the expedition.

As mapping in the engine room continued, NOAA divers began installing the main steam pipe between the boilers and engine. They also made key measurements for five gauges on the engine’s high-steam chest. One team videotaped several artifacts in the stern, what appeared to be a ceramic bowl with a handle, a brass ring that may be associated with the lantern, and a cylindrical lead weight that appears to be identical to those identified last year. The lead ring was recovered during this set of dives.

Excellent video of the engineering space was recorded, including both sides of the engine, the valve chest and the condenser. The video will facilitate a complete map of the engine room and engine. The airlift and various cables that had been left on the bottom were recovered.

August 10, the last day of NOAA dive operations, brought another day of strong currents over the Monitor. Divers recovered an intact iron stove that had been dropped by a boat that had been present on the Monitor. The stove was an iron frame with a stove pipe on top and a stove pipe on the bottom. The stove pipe had been found in the interior of the ship when it was raised. The stove pipe had been found in the interior of the ship when it was raised.

The success of Monitor 2000 was due in large part to a great team, made up of skilled people from many diverse organizations. A list of project participants and sponsors follows.

And we are on to Monitor 2001!  

**Monitor 2000 Project Participants and Sponsors**

U.S. Navy (Naval Sea Systems Command, Mobile Diving and Salvage Unit Two (MDSU 2))

Cambridge Foundation

Department of Defense Legacy Revitalization Management Program

Cape Fear Marine Oceographic Institution

Hatteras Institute

Marlboro Museum

The Mariners’ Museum

National Maritime Studies Program E.C. Alston

National Geographic Society

National Undersea Research Center, University of North Carolina at Wilmington

Newport News Shipbuilding

Oceaneering International, Inc.

Washington State University

University of North Carolina at Wilmington

Safet Industries

U.S. Army Transportation Division, Fort Eustis

U.S. Coast Guard, Group Cape Hatteras

**This intact iron stove**

**The Monitor’s propeller has made considerable progress through the conservation process but it is not yet ready for travel to the Conservators’ Institute in 1998 and some of them who had been involved in the propeller recovery. Using this saw, the tail shaft was severed near the hub in minutes and the main section of the shaft was severed in 62 minutes.

After the shaft was removed, the propeller was laid out and the propeller was left in the section of shaft inside the propeller hub.

After several days of slow, tedious work, the operation was larger than anticipated for the propeller to begin. This was another slow process, requiring more than a week to complete.

“...the conception was peeled away, details of the Monitor’s propeller came vividly to life. These details have provided some insight about the fabrication process for Ericsson’s screw propeller.”

**What’s Been Revealed?**

One of the benefits of allowing the electrolytic reduction process to decide when the covering corrosion is ready to come off on an object in treatment becomes very clear when looking at the Monitor’s propeller. With time, the thick calcium corrosion covering the forging was loosened from the surfaces of the propeller, preserving the highly gphalitized (and in some instances very soft) surfaces. As the reduction process were further details of the Monitor’s propeller came vividly to life. These details have provided some insight about the fabrication process for Ericsson’s screw propeller.

Scape maps on various surfaces of the propeller were also revealed as a result of the conservation process. These marks were probably left in the casting by workers at the Washington Navy Yard that was recovered from the Monitor’s hull when she was sent there for repairs in October 1862.
2000 Monitor Expedition

The Monitor's keel was one of several large items recovered during the 2000 Expeditions (Monitor Collection, NOAA).

As always, the ever-challenging Hatteras environment provided several days of rough weather during the Monitor 2000 Expeditions (Monitor Collection, NOAA).

A large section of the Monitor's propeller shaft sits on the deck of the large following recovery. A section of bulkhead is attached to the shaft (Monitor Collection, NOAA).

The Monitor's turret appears to be in good condition but deck plates aft of the turret have separated from the wreck and can be seen hanging to the bottom sediment (Monitor Collection, NOAA).

The H-shaped midships bulkhead support is clearly visible in the wreck. The edges of lower hull plates, once lying atop the bulkhead, slipped behind the support as the lower hull collapsed (Monitor Collection, NOAA).

Divers to the Monitor were greeted by the local wildlife (Monitor Collection, NOAA).

Unlike the stern, the Monitor's bow has remained relatively unchanged over the past decade. The large growths are corals and sponges (Monitor Collection, NOAA).

This group shot shows the members of the NOAA dive team (Monitor Collection, NOAA).
1999 Field Activities: Laying the Groundwork

Two expeditions to the Monitor were conducted during the 1999 field season, in June and August. Surface and bottom conditions were relatively good, and almost all mission objectives were accomplished. Like the 1998 expedition, goals for the 1999 expedition were designed to complete tasks described in the Monitor-long range preservation plan that NOAA submitted to Congress in 1998.

The first phase of field activities was carried out from June 17 through June 27. Working from the Navy salvage ship USS Graap (ARS 51), Navy divers focused on a survey and assessment of the lower hull and engineering spaces to facilitate planing for the hull and recovering the engine. This mission was carried out by the Monitor Sanctuaries Division of NOAA’s Office of the Supervisor of Salvage and Diving, Naval Sea Systems Command; Combat Logistics Squadron 1; Mobile Diving and Salvage Unit Two (MDSU2); and The Mariners’ Museum.

Mission objectives included 1) surveying the engine room area; 2) acquiring geotechnical data in the vicinity of the turret; 3) mapping exposed objects in the stern debris field; 4) providing an opportunity for realistic training of high diving and salvage operations for personnel from the USS Graap and MDSU2; and 5) assessing the effectiveness of Navy surface-supplied, mixed gas diving systems.

The second phase of 1999 Monitor operations carried out from August 1 through August 26 and included NOAA’s Marine Sanctuaries Division, the NOAA Diving Center, the National Undersea Research Center at the University of North Carolina at Wilmington, the Monitor Equipped with a 11/2-foot length of copper pipe that may be part of the Monitor’s radiator system. The pipe has a thickness of approximately one inch. As with all artifacts recovered from the Monitor, the material recovered during the June expedition was transported to the Mariners’ Museum in Newport News, VA, for conservation and eventual exhibition.

Monitor Research Expedition, August 1-26

The second phase of Monitor operations for 1999 lasted for nearly the entire month of August, with the first week given over to train- ing dives. The first group of divers reported that part of the thick layer of silt covering the wreck during the June expedition had disappeared, exposing the wreck more clearly.

Divers documented a large segment of deck plating that has partially separated from the wreck about halfway between the midship bulkhead and the pilot house. This section of deck plating may have also been documented during the 1979 NOAA expedition. There is a deck light embedded in the deck plating. Using a digital camera, divers documented this feature and the 4-foot-by-6-foot hole that resulted from the separated plating. Divers observed the hole in the wash basin, still in the shell in which it was secured, adjacent to the hole in the deck. The basin could not be located because of deck plates that obstructed access.

Portions of the wreck were documented by divers who used a deep-viewing camera. The engineering space was recorded from the port and starboard sides, the bilge starboard, the deck area that connects to the bow, the port armor belt and the stern of the engine.

A recording current meter was deployed approximately 100 feet off the Monitor’s bow. It recorded water temperature as well as current direction and speed until recovered during the expedition.

Divers conducted a small test excavation at the base of the turret to determine the condition of the turret shell that was installed on the Monitor in November 1962 to protect the crew from sharpshoaters on shore. An excavation conducted in late August indicated that the turret shell had partially collapsed. The loss rate was documented by video conducted in June and August of this year, which indicated that at least part of the shell is intact. Divers conducted the excavation reaching the top of the inverted turret beneath approximately 3 feet of sand and were able to measure the 7-inch “lip” to which the rifle shield was attached.

There were several metal artifacts recovered during the Monitor expedition. These include two intact bottles, a clear glass apothecary bottle approximately 3 inches in diameter and 3.5 inches in height, and a 6-inch-high octagonal US Navy insulated bottle. Divers also recovered a slab from the head of a small wooden cask and a 16-inch-diameter copper hoop possibly from the same cask. All artifacts were taken to The Mariners’ Museum for conservation. Two small wood samples were also recovered for analysis, one from a deck beam and the other possibly from a deck plank.

Late-breaking News!

The NOAA dive team just returned from Phase I of Monitor 2001 (March 26 to April 1). In addition to obtaining much-needed survey information, the team recovered sixteen artifacts from the wreck of the Monitor. Among them were a brass handle from a Sharpes and Hankins bayonet. Readers may recall that in the 1996 issue of Chesapeake we reported the recovery of a Sharpes and Hankins hilt plate.

Other artifacts recovered included a wooden chimney for a stove, a brass oil lamp, a brass marine fitting, several condiment bottles and an intact white ironstone teapot.

On December 11 the History Channel aired a two-hour program on the US Monitor and the Monitor National Marine Sanctuary. The program featured interviews with Monitor staff, US Navy personnel, curators from The Mariners’ Museum, and others familiar with the history of the famous ironclad and current recovery efforts.

The Mariners’ Museum has published a collection of letters written by Monitor crewman George Gour. Titled The Monitor Chronicles, the book is available as well from the Museum Shop by calling (757) 591-7792. The cost is $35.00. Gour, who served aboard the Monitor as a first-class fireman until the ship sank in December 1862, wrote frequent letters home to his wife Martha. His letters detail life aboard the ironclad as seen through eyes of an enlisted man. The volume was edited by William Marvil. David A. Mindell of the Massachusetts Institute of Technology has published War, Technology, and Experience: aboard the US Monitor. This book investigates how the Monitor’s crew coped with the stresses of life aboard this new ship and how the technology of the Monitor was viewed by the country. It is available from major bookstores.

Stay tuned to the Monitor Santuaries Division’s website for announcements of new publications available from the Sanctuary office. We are currently working on new Sanctuary and Monitor Collection brochures, bookmarks, and an updated information book, all of which will be available by September 2001. We will have a new directory by the end of the year. Monitor paper models are also available in limited quantity.

NOAA and Partners Plan for 2001 Engine Recovery

Planning for Monitor 2001 got under way with several meetings between NOAA, the Navy, and The Mariners’ Museum. Tentative plans call for the field season to begin in April, when NOAA and the Navy completed work at the site. The underwater site will be required before the engine can be recovered. Tasks include clearing sediment from the engine room, preparing the engine for recovery, and connecting the propeller to the engine using a new propeller shaft.

The second phase of Navy operations will begin in June and run for 30 to 60 days, depending on the dive system and team size. Using a large barge in size to the one used for Monitor 2000, Navy divers will rig and recover the engine. Other components from the engineering space, such as the condenser, may also be recovered.
Our historical note for this issue was taken from an article that appeared in the Chicago Tribune on January 4, 1864. It found it interesting that this year involves many maritime and scientific activities. The catalog marks the start of the year and the bottom of the monitors without having them out of the water. We thought our readers might be interested in what they were discussing in the Civil War and how it was done before the invention of scuba gear.

The Divers and the Monitors

During a recent visit to Port Royal, I witnessed with considerable interest the operations of the divers employed to clean the bottoms of the monitores, and perform other operations under the water. Messrs. Joseph H. Smith and James B. Phelps have a contract with the Government for the performance of this work, and have shown great skill in the art of submarine navigation.

Their principal divers — appropriately named Waters — is so used to this work that he has become accustomed to the water in six or seven hours at a time under water. A man of Herculean strength and proportions, when clad in his submarine armor he becomes monstrous in size and appearance. A more singular sight than to see him tumble or tumble in the water at the bottom of the sea is, from sight, or upon going up, blowing, as the air escapes from his helmet, like a young whale, can scarcely be imagined. These divers have his own ideas of a joke, and when he has a curious audience will have his scapula about his back in the water, with the air of a vertebral river god.

The divers, when clothed in his armor, is weighed with one hundred and eighty-five pounds. Besides this armor he has two leaden pads, fitting to his breast and back. The soles of his shoes are of lead, and an inch and a half thick. All this weight is needed to overcome the buoyancy given by the mass of air forced into the suit, which is the matter of Indian rubber, worn by the divers. When below the surface he can instantly bring himself up to the surface by a small capsule containing a number of compressed air and the suit of the diver is then immediately thrown up to the surface. The work of cleaning the bottoms of the monitors is very arduous. The divers sit upon a spar, lashed athwart the bottom of the vessel, so arranged as to be moved as the work progresses, and with a scraper fixed to a long handle worked on both sides of himself as far as he can reach. The mass of oysters that become attached to the iron hulls of one of the monitors, even during one summer here, is immense. By actual measurement it was estimated that two hundred and fifty bushels of oysters, shells and sea grass were taken from the bottom of the Monitor alone. The captains of the monitors have sometimes indulged in the novelty of a mess of oysters raised on the hulls of their own vessels.

Besides cleaning the monitors the divers perform other important services. They have ramscoped the interior of the Kentuck, attached buoys to lost anchors, and made under water examinations of the rebel obstructions. Waters recently examined the sunken Weeshaank and met an unusual danger for even his perilous calling. The sea was so violent that he was twice thrown from the deck of the monitor. Finally getting hold of the iron ladder he climbed to the top of the turret, when a heavy sea cast him inside the turret between the guns. Fearing that his air hose would become entangled, he made his way out with all possible speed, and was forced to give up his investigations until calmer weather offered a more favorable opportunity.

Commerce Department Awards Bronze Medals To John D. Broadwater and Dina B. Hill

The U.S. Department of Commerce has awarded Bronze Medals to John D. Broadwater and Dina B. Hill of the National Oceanic and Atmospheric Administration's National Marine Sanctuary Program for exemplary leadership in developing and implementing the U.S. Marine Sanctuary and recovery evaluation. Dr. Broadwater, who serves as manager of the Monitor National Marine Sanctuary, and Ms. Hill, education coordinator for the Sanctuary, were presented the awards on Nov. 19 by NOAA Administrator, Dr. James Baker at a ceremony in College Park, Md.

Broadwater and Hill lead NOAA's current efforts to prevent the disintegration of the famous Civil War ironclad warship USS Monitor through a program of hull stabilization and recovery of selected components for exhibit. Plans for 2001 include recovery of the Monitor's engine, which will then be preserved at the The Mariners' Museum, Newport News, Virginia. The Bronze Medal is the highest honor awarded by NOAA, an agency of the U.S. Department of Commerce. It is granted by the Administrator for a significant contribution to NOAA or the Department.


The site will include background information, interesting facts and updates on the progress of engine recovery.

Editor's Corner

A you read this issue of Chesapeake and NOAA's partners are moving steadily towards recovery of the Monitor's engine this summer, and towards the success of the gun turret next year. The Monitor Sanctuary staff has always managed to stay busy but recent years have passed all previous levels of activity. This is a bittersweet time for me. I have resigned my position as education coordinator of the Monitor Sanctuary effective June 1. After more than twenty-five years of being involved with the Monitor, it is time to move on to other things. I became a grandmother in 1999, and I will spend more time with my grandson. Those of you who have grandchildren know what wonderful blessings they are, and I do not want to miss watching him grow. I also want to spend more time with my butterfly and herb gardens, and the creatures who visit there. The roses are quite wonderful when you take the time to smell them.

This is a time of great reflection. My involvement with the Monitor has provided me with associations with a wide variety of people, some notable, some new gone, and all — well, okay, mostly enjoyable.

I have been remembering the ones who are no longer with us. I remember John Neven, one of the discoverers of the wrecks of the Monitor in 1973, and his commanding speaking presence. It did not matter so much what he said; audiences were mesmerized by his voice and projection. And there was Harold "Doc" Edgerton, father of the strobe light and inventor of the camera that located the wrecks of the Monitor. Doc was a true genius and funny, enthusiastic and friendly; whether working on proposals for Monitor research or planning searches for the Loch Ness monster, he was a great pleasure to know. And of course there was Ernest Peterkin. Like the others, Pete left us all too soon, before the major recoveries began. Since his expertise was in how the Monitor was built, Pete would have been up to his ears in our recovery plans and living every minute of it.

I have been remembering Dr. Nancy Foster, who was head of the Sanctuary Program for several years and was always a supporter of the program no matter what the situation. Dr. Foster was a strong, dynamic leader and a remarkable woman. We all had a great friend with her passing last year. My memories of her are among my most treasured.

I have been remembering the people who have offered their expertise to the Monitor over the years. We have worked with archaeologists, conservators, conservators, historians, art historians, marine biologists, biologists, marine ecologists, ecologists, and technical divers from all over the United States. Each brought a slightly different perspective to the project and significantly broadened our capabilities. I have enjoyed working with all of you.

I have been remembering the members of the news media who visit our Monitor Exploits over the years. I have remained amazed at the interest that work on the Monitor generates and grateful for the good relations I have had with the media. National and local representatives of television, newspapers, and radio come to Hampton, title for two hours through very rough seas, spend long periods of time bouncing around on a ship to get their photographs and interviews, ride another two hours back through rougher seas, and maintain good attitudes about it all. It has been a pleasure working with such a great group of people. And thank you all for getting your story out there.

And I have been thinking about the heart and soul of the Monitor: you, the people who have encouraged and supported us and our efforts to save the Monitor for future generations. Thank you for taking part in my job fun and interesting and challenging. To all of you, and so many more, may you visit us very much. But my grandson — and the roses — beckon.

Dina Hill