Creating Islands

ProFile
A visit with John Matonich, LS

Surveyors Report
New department gives you the podium

Explorers, Surveyors & Mappers
Interrelationships past and present
For many years, Washington surveyor Denny DeMeyer has included Rudyard Kipling’s nudging admonition as a tagline on his e-mail messages. Curious, I asked him where the quote came from. “When very young,” he told me, “I remember reading a book about the early exploration of the Olympic Mountains here in Washington State. I do not remember the book, but the first or second page contained those words about “something hidden” and I never forgot them. About three years ago, my good friend Jim Aldrich, a retired CIA cartographer living in Virginia, informed me that the words were from Rudyard Kipling’s 1898 poem, *The Explorer*. After reading the entire poem, I became even more attached to the phrase. One could change the name of the poem from “The Explorer” to “The Surveyor” and it would ring just as true.”*

In keeping with that spirit, the desire to search out “something hidden” was alive and well in last Fall’s Surveyors Rendezvous, organized by Denny DeMeyer and Tim Kent. DeMeyer is the owner of Northwest Surveying & GPS in Lynden, Washington and Kent, recently retired from a long

"Something hidden. Go and find it. Go and look behind the Ranges – Something lost behind the Ranges. Lost and waiting for you. Go!"

—Rudyard Kipling

>> By Marc S. Cheves, LS
career with the U.S. Forest Service and the BLM, is now a Geomatics instructor at Oregon Institute of Technology in Klamath Falls. Held in Spokane, Washington, the Rendezvous yielded a line-up of engaging speakers – respected historians who led the audience “behind the ranges” to learn about important people and events in our country’s history.

In addition to Lewis and Clark, the Rendezvous program focused on two important early day Canadian explorers – Scottish-born Alexander Mackenzie (1764-1820) and English-born David Thompson (1770-1857) – whose lives are all inextricably entwined in the rich fabric of surveying and mapping history. Given the harsh conditions under which these explorers traveled and lived, their contributions to North American history go beyond the pages of history books to the stuff legends are made of.

Mackenzie was the first white person north of Mexico to reach the Pacific by land. He also discovered the Arctic Ocean and charted a great river which today bears his name. Thompson, in addition to exploring western Canada, was the first to explore the length of the Columbia River and much of the Pacific Northwest. And what American surveyor today has not marveled at the task Thomas Jefferson set before Lewis and Clark?

Leading off the Rendezvous presentations was British Columbia resident David Malaher, an expert in U.S.-Canadian
border history. He set the stage and opened the curtain of history at the time when five countries were vying for control of North America: France, Spain, The Netherlands, England and Russia. In 1773, the laws of claiming lands were codified into the Law of Nations, which stipulated: 1) a right of first discovery; 2) that discoverers had to go inland beyond the shore, generally by sailing up rivers; and 3) the discovering nation had to settle the land, grow in population, and become self-sufficient. Unmentioned in the law was traversing the land on foot.

It took four separate treaties to establish the U.S.-Canadian border. The Treaty of Paris of 1783 ended the American Revolution and established boundaries between the U.S. and colonies of British North America. The boundary consisted of 17 segments, and extended only as far west as the Lake of the Woods. The Treaty of 1818 established the boundary from the northwest corner of the Lake of the Woods south to the 49th Parallel, thence west for 853 miles to the Rockies. The Anglo-Russian Treaty of 1825, between Russia and Great Britain, established an ambiguous 1,476-mile boundary between Canada and Russian America (Alaska), including the southern panhandle and north along the 141st Meridian. In 1846 the Oregon Treaty divided Oregon Country between British North America and the U.S. by extending the 49th Parallel to the Pacific Coast.

According to Malaher, 60-75 percent of the entire U.S.-Canadian border was the result of the fur trade, which drove the need for definite boundaries. Hudson’s Bay Company had been chartered in 1670 in England for the purpose of trade and settlement in the Hudson Bay region and for exploration toward the discovery of the Northwest Passage to Asia. Just over a century later, in 1783, merchants in Montreal created the North West Company to break the grip of the Hudson’s Bay Company on the fur trade. Each company wanted to know where the boundaries were. A 1755 map by John Mitchell was the best map in existence, however, insets on the map covered up unknown areas.

At the time, boundaries came in three flavors: astronomical (which were merely cardinal directions), geographic (which referenced natural features), and mathematical (which required surveying). As demonstrated by the Treaty of 1783, the best knowledge of the time was incorrect and had left a 140-mile gap between the headwaters of the Mississippi and the Lake of the Woods. Cunning fur trappers exploited this lack of boundary knowledge, poaching on territory where they didn’t belong.

In 1762, France ceded the Louisiana Territory to Spain to avoid having...
Louisiana fall into British hands during the Seven Years War (1754–63). Welsh explorer John Evans, in the employ of Spain, explored up the Missouri River in 1796 and instructed members of the Hudson’s Bay Company and Northwest Company to cease trading for furs in Spanish territory and get out of the Mandan Villages on the Missouri.

Enter David Thompson. In 1797, Thompson quit the Hudson’s Bay Company and joined the North West Company. His first task was to locate the headwaters of the Mississippi. In doing so, he had been instructed to confront the Spanish, and journeyed as far as the Mandan Indian villages on the Missouri River (see map on page 46). Later on, we’ll learn more about Thompson.

The fruits of the trapper’s labors were moved to market by hardy French-Canadians known as voyageurs. Legendary in strength and appetite, the voyageurs were short, stout men who could paddle upstream for 18 hours a day. Each man required eight pounds of fresh meat or pemmican a day. Pemmican consisted of dried meat mixed with berries and fat. The canoes were enormous, up to 40 feet long and capable of transporting up to a ton and a half of trade goods or furs. Paddled by only a half dozen voyageurs, they sometimes had to be pulled upstream with ropes or portaged around rocks and rapids.

Travel time by river was unpredictable. It once took Thompson and his party three days to cover two and a half miles. Another time, his canoes traveled 74 miles downstream in just five hours. Going over one set of falls, Thompson and his men lost their canoes and almost all their gear, but Thompson was able to save his sextant. Near starvation, they limped into an Indian encampment a week later.

In these years of celebration for Lewis and Clark’s exploration, we have marveled at the unbelievable conditions under which explorers and surveyors labored, and at the results of their explorations. In the July/August 2004 issue of The American Surveyor, we published a 1795 map by Aaron Arrowsmith. Most notable about the map is large empty space representing the entire western United States, a frontier yet to be explored. The same was true for Canada, even though Mitchell’s map and the Arrowsmith map contained more information about Canada than the United States.

The price of discovery more often than not was indescribable hardship, to which Thompson and Mackenzie were no strangers. But knowledge was a precious commodity and each exploration yielded new findings. Then, as now, commerce provided the wind in the sail of each expedition.

Keep a journal.

This was a primary requirement by Jefferson. Lewis and Clark wrote 750,000 words about their journey, and others in the party wrote more than a million words. Some of the various journals have been lost, but the Lewis and Clark journals are today possessed by the American Philosophical Union.
Acquire the best equipment. Additionally, these expeditions were in compliance with the requirements of international law for claiming territory.

Rendezvous 2005 revealed the threads of fur and yarns of treaties that exist among America’s fabric of surveying and exploration. The following pages detail a bit more of what inspired men like Mackenzie and Thompson and Lewis and Clark to “see what lay beyond the next bend of the river.” Rendezvous 2006 will be held in Winston-Salem, North Carolina, an area rich with survey history. The “explorer’s spirit” is still alive and kicking at every conference. Why not make plans now to join in! “...Something lost behind the Ranges. Lost and waiting for you. Go!”


Historian and author Jack Nisbet eloquently provided details about the life of David Thompson. In the background is a portrait of the inventor of the achromatic lens.

David Thompson

Historian and author Jack Nisbet presented the portion of the program about David Thompson. A noted author, Nisbet has written two fascinating books about the life and times of Thompson – *The Mapmaker’s Eye: David Thompson on the Columbia Plateau and Sources of the River: Tracking David Thompson Across Western North America.*

Born in 1770 into poor circumstances within sight of the famous Westminster Abbey in London, Thompson grew up in a heady time, the Industrial Revolution. It was a time of invention, when not only new instruments were being developed, but also a means of keeping accurate time, necessary for the determination of longitude. The famous British explorer Capt. James Cook, a national hero, was also born poor. In addition to exploring all over the world, Cook, the son of a Yorkshire farmer, made charts of the St. Lawrence River that aided in the landing of British troops leading up to the battle for Quebec in 1759. He also prepared the maps for the War of 1812.

London, like any major metropolis of the time, was a vibrant place, but crime was rampant and even bear-baiting took place for public entertainment. Stocks and pillories were in use to punish criminals. Public executions had been standard forms of punishment all over Europe for centuries. With smallpox rampant, 60 percent of children didn’t live past the age of nine. Social activists realized that education was the way to present opportunity and help youngsters avoid a life of crime. These activists created a network of charity hospitals, which included the Greycoat, Greencoat, Bluecoat and Blackcoat schools. The schools were vocational institutions that taught a classical education and several practical trades, including carpentry. Students who showed special abilities in mathematics could progress on to surveying techniques. Although Thompson’s father died when he was two, Thompson had an inquisitive mind, and showed a flair for mathematics. He was enrolled at age seven in the Greycoat School—still in

**3 Acquire** the best equipment.

At the time, the best instrument makers were in Philadelphia, so this is where they went. They also went to the Arsenal in Harper’s Ferry, where the U.S. Army provided, among many other items, the famous collapsible boat which didn’t work.

**4 Have** plans and goals.

Jefferson was very good at this, and had 17 specific questions. Among these were such things as the religion, height, weight of the natives; the presence of volcanoes; flora and fauna; and the location of rivers and tributaries.

**5 Consider** previously-explored areas as a staging area or jumping-off spot.

From St. Louis to the Mandan Villages along the Missouri River had already been extensively explored.

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6 Acquire native information and knowledge.

The natives knew a lot about the territory which they inhabited. Sacajawea knew a lot about plants. Interestingly, the fact that Sacajawea had a baby worked as a sign of the party’s peaceful intent.

7 Make a wise choice for second in command.

William Clark chose Meriwether Lewis.

8 Bring a dog.

The dog Seaman was brought along as an alarm.
Carefully choose experienced frontiersmen for the exploring party.

Expect and plan for rough water conditions.

Indians will tell bear stories to scare explorers and keep them near.

Rule: never stray from the party and go alone.

Thomas Jefferson traveled to Paris as the U.S. Ambassador. While there, he purchased instruments from the Dollond & Company Paris office which were possibly later used by Lewis and Clark.

The winter of 1796-97 was one of change for Thompson. Unhappy at his job at the Hudson’s Bay Company, he decided to sign on with its main competitor, the North West Company. There he received the acknowledgment and encouragement for exploration that he had been seeking. Thompson was assigned the task of establishing the positions of the North West Company trading posts, called “houses,” which were likely to be affected by Jay’s Treaty of 1794. Among other issues, Jay’s Treaty was designed to clear up some of the problems created by America’s separation from England after the Revolution, including the closing of British posts operating in American territory.

In 1798, he visited the Mandan Villages at the Great Bend of the Missouri River (see map on page 46). This map was later used by Lewis and Clark. The tribal elders Thompson met helped him gain the Indians’ perspective of the land. As he explored, he named things such as rivers after the people who lived there. After he crossed the Continental Divide in 1807, Thompson was particularly influenced by the Kootenai tribe and then the Kalispel tribal elders, and worked closely with the Indians in all his travels.

Respected for his fairness and good judgment, he was often asked to settle disputes between the Indians. He refused to use alcohol as a trade item, and legend has it that he often read to his illiterate men from the Bible. Legend also has it that the Salish people from the Inland Northwest believed that he could read the stars, and called him Koo-Koo-Sint, or “Stargazer.” But Thompson himself never mentioned this. To illustrate the differences in perspectives, Thompson explained, “Both Canadians and Indians often inquired of me why I observed the Sun, and sometimes the Moon, in the day time, and passed whole nights with my instruments looking at the Moon and Stars. I told them it was to determine the distance and direction from the place I observed to other places; neither the Canadians nor the Indians believed me for both argued that if what I said was the truth, I ought to look to the ground, and over it; and not to the Stars.”

Thompson’s accomplishments were many. Between the time of his arrival in Canada (1784) and when he ceased surveying in the west (1812) at the age of 42, he walked over and produced detailed maps of the country from the eastern end of Lake Superior to the Pacific Ocean and between latitudes 40º and 60º N. He made 5 large maps of this area that today reside in the Archives of Essentially, Thompson did the same kind of positioning that would be performed at sea, except he did it on land.

From the MAC exhibit: A Canoe to Fit the Country: Several Plateau tribes paddled canoes, sheathed with pine bark, and beautifully adapted for local rivers and shallow lakes. Unable to find suitable birch bark, Thompson improvised a 26-foot wooden boat of split cedar planks sewn together with spruce roots.
Ontario in Toronto, the Public Record Office in Kew, and the British Library in London, as well as many smaller maps of routes in eastern Canada. Incorporating work from the explorations of George Vancouver, Simon Fraser, and Lewis and Clark, Thompson’s large maps created the first accurate picture of the northwest quadrant of our continent. As a writer, he left behind around 100 field journals and several drafts of a manuscript titled A Narrative of Travels in Western North America 1784-1812, which he called his Travels. His physical endurance (and that of his fellow travelers) was phenomenal as he spent 28 years traveling more than 55,000 miles and mapping 1.5 million acres. The positional accuracy of his maps, in many cases, was within a mile of where we today know places to be.

By 1810, he had mapped much of what is now Montana, Idaho, Oregon and Washington and British Columbia. In 1811, he mapped the Columbia River from its source to its mouth, which explains why his work, at the time, was so important. In 1812, he moved to Montreal, never to return to the western mountains or Pacific coast. Thompson’s trade routes served the Columbia District of the fur trade effectively for half a century, but unfortunately, became moot after the Treaty of Oregon in 1846 gave the territory to the United States. Even though the 49th parallel east of the Rockies was set as the boundary between the U.S. and Canada in 1818, it was not until the 1846 treaty that the 49th parallel was extended to the Pacific Ocean to complete the entire boundary. How different our borders would look today if the boundary line followed the Columbia River!

Thompson’s skills as a naturalist were comparable to those of Lewis and Clark. As a fur trader, he established many trading posts, four of which were west of the Continental Divide, and of these, three were in present-day United States. Along the way, he married an Indian woman, Charlotte Small, and they became the parents of thirteen children, five of them born while they were in the wilderness. Charlotte was 13 at the time they married, and they were married for 58 years. Thompson’s wife and first three children traveled with him on his first trip across the Divide, but stayed for only one winter; after that they remained on the Prairies at fur trade posts where family members were employed. In 1814, Thompson completed an enormous map showing the northwest from Lake Superior to the Pacific. He later became a member of the U.S.-Canada Boundary Commission, and surveyed several portions of the border and determined the international boundary lines through the Great Lakes and west to Lake of the Woods. By 1816, the U.S.-Canada border extended 2,500 miles, of which he had surveyed 35 percent. Some of his maps were official for both countries into the 1950s. In their later years, the Thompsons had little money. He was not able to sell his Travels or his maps. He sometimes resorted to township surveying to support himself and his family. At one point, he even had to sell his surveying equipment to buy food. He died in 1856, at age 87, in obscurity and a pauper. Charlotte died three months later.

Fifty years after his death, Canadian geologist Joseph Burr Tyrell recovered and edited Thompson’s manuscripts. They were published by the Champlain Society in 1916, placing Thompson in his rightful place among the other explorers of North America. His grave stone in Montreal’s Mount Royal Cemetery bears the following inscription:

David Thompson 1770-1857
To the memory of the greatest of Canadian geographers, who for 34 years explored and mapped the main travel routes between the St. Lawrence and the Pacific.

Alexandr
Mackenzie

Renowned scholar and Lewis and Clark historian Robert Carriker gave a fascinating presentation on Alexander Mackenzie, the first explorer to cross North America. Carriker, a professor of history at Gonzaga University in Spokane, feels that the Canadians have not celebrated Mackenzie enough. In terms of an American equivalent to Mackenzie, Carriker claims it would probably be the famous mountain-explorer Jedidiah Smith. Thomas Jefferson was familiar with the work of Mackenzie, and shared it with Lewis and Clark as they planned their expedition.

Mackenzie, a Scotsman born in 1764, came to the Mohawk Valley in New York around 1774. The American Revolution ended just as Mackenzie’s career was starting. In 1778, he migrated to Montreal, and at age 16 joined the fur trade. At the time, there was intense
Plan for flexibility in travel mode: go by canoe or walk overland.

Guides can make routing mistakes, too.

Beware of the Indian middleman: their desire is to make you dependent on them.
18 Observe the environment and habitat changes.

On the expedition, 178 plants and 128 animals, previously unknown, were discovered.

19 Indians in the Pacific Northwest are expert watermen.

By the time Lewis and Clark reached this area, the party was also

20 Indians along the coast are more sophisticated than the interior Indians.

Trade-wise, trinkets such as buttons or strips of cloth wouldn’t do. Durable goods like metal pots were required.
competition between Montreal, Quebec and Albany for the valuable furs. Research and development was important because once an area was trapped out, exploration and a knowledge of geography was critical. But as of 1783, little was known about the West.

The Hudson’s Bay Company came into the Hudson Bay area soon after its charter was issued in 1670, and had as its territory all the land draining into Hudson’s Bay. The Hudson’s Bay Company did not value its employees. As a result, the Northwest Company was created, and all employees were shareholders. The two companies competed fiercely. Because of the discoveries of Capt. James Cook along the West Coast, the fur companies knew the Pacific Ocean lay somewhere to the west, and sought a commercial route to the Pacific Ocean. They had a lat and long for Montreal, and the same for the Pacific Ocean, but knew nothing of what lay in between.

On June 3, 1789, Mackenzie left Athabasca on Great Slave Lake on a journey that would begin to answer many questions about the West (see map on pages 52-53). The party worked from 4 a.m. to 11 p.m. every day, floating down a river that would later be named after him. Conditions were atrocious. At Gamsell Bend, they came to the proverbial fork in the river. The choice they made led them north to the Arctic Circle. They had traveled downstream 1,075 miles in 14 days. Backtracking, the journey upstream took two months. Mackenzie had an idea that the Peace River might lead them to the Pacific, but before he attempted that voyage, he decided he needed more surveying equipment and knowledge about astronomic observations. He returned to London and obtained the equipment, and from the Hudson’s Bay survey expert, Philip Turnor, obtained the training. Time, necessary for longitude, was still difficult because of the inaccuracy of timepieces.

On May 9, 1793, he departed on the Peace River, and after much exploration arrived at the Pacific Ocean on July 22, 1793. Finally, a route to the Pacific Ocean had been discovered. Voyages, Mackenzie’s book about the expedition, was published in 1801. Eagerly-awaited by Jefferson, several copies of Voyages were purchased, and from the book Jefferson developed 25 “lessons learned”
24 Be prepared to hear many Indian languages.

25 Publish journals of the journey.

Gonzaga University history professor Dr. Robert Carriker tied all the people and events together in a knowledgeable and engaging style.

“They had a lat and long for Montreal, and the same for the Pacific Ocean, but knew nothing of what lay in between.”

... to help prepare Lewis And Clark (see bottom bar beginning on page 42). The engrossing book detailed the trials and tribulations of Mackenzie’s voyages and greatly contributed to the spread of knowledge about the continent. His dangerous journey would not have been possible without the help and cooperation of the native people. In 1802, he became Sir Alexander Mackenzie. Gradually, he retreated from the fur trade and finally returned to Scotland, where he married. He and his wife became the parents of three children. Mackenzie died in 1820.

A fascinating tidbit of history is available at canoe-odyssey.com, a website devoted to retracing Mackenzie’s odyssey. Donaldson’s travels spanned five years and took him more than 7,000 miles from Montreal, Mackenzie’s starting point.

In an interesting twist of history, Mackenzie’s voyages across North America were recognized by Napoleon as the means by which he could embark on a re-conquest of Canada. Napoleon, in an intrigue that had all the makings of a spy thriller, arranged for Mackenzie’s book to be smuggled from England and translated into French. Mackenzie’s description of the Western Canada river system was so precise that Napoleon, languishing in prison, gave orders to Bernadotte, his key Marshall, to lay out a strategic plan to retake New France. Mackenzie thus became an unwitting accomplice by providing the navigational details to invade Canada by a surprise attack from New Orleans, via the Mississippi River...