BY ALIX KIRSTA

n spring 1804, four Spanish frigates set sail for home from Montevideo to Cádiz, at the end of an important mission. Led by the warship Nuestra Senora de las Mercedes, they were transporting millions of gold and silver coins, along with other valuables, from Spain's South American colonies to reinforce Spanish finances during the Napoleonic Wars. Spain had pledged its support to France and anticipated a conflict with the British. On October 5, as the frigates neared the Iberian peninsula, a British squadron lying in wait demanded

A new era of deep-sea exploration is uncovering some historic shipwrecks. But who gets the spoils?

Buried treasure 1

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In search of the Black Swan: Odyssey CEO Greg Stemm views the Black Swan site online they change course and head for Britain. A fierce battle ensued and minutes later the *Mercedes* sank with its entire crew and cargo in the Atlantic Ocean near Portugal. Soon after, Spain declared war on Britain.

The location of the wreck remained a mystery for more than 200 years, despite amateur divers' efforts. Then, in March 2007, an American salvage company called Odyssey Marine Exploration announced that it had located an unidentified shipwreck bearing millions of dollars worth of gold and silver in international waters off the coast of Spain. The find made headlines. Details of the wreck's exact location were kept secret to deter potential looters—to this day, Odyssey has referred to the site only by its codename: "Black Swan".

But, as far as Spanish officials were

'I used to dream of what we would find if we could see through the waves'

concerned, the wreck's location meant this could only be the Nuestra Senora de las Mercedes. A statement that Odyssey had recovered 500,000 gold and silver coins (valued at £326 million) and flown the haul to a secret Florida warehouse met

with outrage from many marine archaeologists. Greg Stemm, Odyssey's CEO and co-founder, was denounced by the Spanish as a "modern pirate" who had plundered their heritage for commercial gain. Last December a US District judge ruled that Odyssey must return the recovered fortune to Spain. Odyssey is appealing against the ruling.

The furore over the Black Swan has made underwater heritage sites into a major issue, sparking a debate over who has the right to excavate, and keep, these submerged treasures.

Renowned as today's most prolific—and controversial—deep-sea explorer, Odyssey has become a pioneer in shipwreck exploration and recovery. Although Stemm baulks at being called a "treasure hunter", his policy of selling salvaged treasures to subsidise his explorations has angered conservationists and archaeologists. They believe historic shipwrecks should be excavated only by governments or academic institutions, or left undisturbed.

To many, 52-year-old Stemm's work is every child's fantasy. Raised in Florida, he was always fascinated by ocean exploration and was happiest at sea, fishing with his grandfathers. Even the death of one grandfather in a boating accident couldn't diminish his passion: "I used to dream of what we would find underneath our boat if we could magically see through the waves." Stemm's earliest inspirations were deep-sea explorers such as Jacques Cousteau and Mel Fisher, who provided Stemm's first glimpse of that invisible world. "I feel very fortunate to be part of the team that is unveiling even more of the museum lying on the ocean floor."

So far, only a fraction of that a museum has been discovered. The

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ROV (remote operated vehicle) technology used by oil and gas industries for offshore work could be adapted for exploration at far lower depths.

Greg Stemm and Project

Manager Tom Dettweiler

from the Black Swan site

examine "pieces of eight"

A new world beckoned. Stemm compiled a list of some 3,000 known wrecks and likely locations. Historical documents revealed which vessels had borne valuable cargo. "There are billions of dollars worth of fascinating things lying on the ocean bottom, and technology has evolved to the point

and technology has evolved to the point that we can recover them in an archaeologically sound manner," he says.

Advances in robotic technology have enabled explorers to find and survey wreck sites with previously unimaginable precision. Improved satellite navigation pinpoints exact locations; side-scan sonar locates buried wrecks; magnetometers detect deposits of iron and other metals. Once a likely site is

English artist Francis
Sartorius's rendering of the
sinking of the Mercedes

UN estimates that three million shipwrecks scatter the ocean bed, the debris of more than 2,000 years of maritime disasters buried—until now—beyond human reach.

When Stemm and his partner John Morris founded Odyssey in 1994, their goal was to explore these impenetrable depths. Their timing was auspicious: until the 1990s, the field was confined to amateur divers, treasure hunters and looters, who explored mainly shallow

waters. Soon Stemm realised that new

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identified, Odyssey's super-detective Zeus—a 200-horsepower, tank-size ROV—swings into action. The eight-ton robot circles the seabed, sometimes thousands of feet down, linked to a research trawler from where Stemm's team controls its operations.

"Proper archaeological excavation is a lengthy, painstaking process," admits Stemm. "Zeus acts as the archaeologists' hands and eyes. It's equipped with lights to illuminate pitch-black wreck sites and enables high-definition still and video cameras to transmit images live from the seabed." Its lenses can pinpoint an object smaller than a grape: on board ship, archaeologists analyse thousands of on-screen images of every object. Zeus's articulated arms and giant claws, as well as a silicone limpet for handling fragile objects, allow it to retrieve anything from a 42lb cannon to a glass statue without damage.

But such methods take huge amounts of time and money. Stemm's team can spend years uncovering a valuable wreck, and running costs for his two research trawlers are £1.3 million a month: in 2008, Odyssey's operations totalled £14 million.

dyssey celebrated its first major find in 2003. The 210-foot steamship SS Republic, carrying cargo from New York to New Orleans, went down in a violent hurricane on October 25, 1865. According to reports, "some \$400,000 in treasure" was lost. Stemm's team located the Republic 100 miles off the Georgia coast, 1,700 feet deep. Tens of thousands of newly minted gold and silver dollar coins were recovered, perfectly preserved and covered in sand and

coral: independent numismatists eventually valued the Republic's total haul of coins at between \$50 and \$200 million.

The find made an object Odyssey's name and led to lucrative merchandising than a spin-offs including a travelling shipwreck museum.

'Zeus's lenses can pinpoint smaller grape'

computer treasure hunts, DVDs and replica artefacts. Eventually, the company was listed on Nasdaq.

At that time, Stemm also announced he had located 80-gun British warship HMS Sussex, which sank off Gibraltar in a storm in 1694. It was reportedly carrying £1 million in gold coins to support the Duke of Savoy during the war against Louis XIV: experts valued the haul at up to £3.3 billion.

Aware that this might be his most lucrative project, Stemm acted fast. Although the site was in non-territorial waters, the Sussex belongs to Britain: under the 1982 UN Convention on the Law of the Sea, all sunken warships, wherever buried, retain sovereign immunity. Odyssey entered negotiations with the British government and agreed a salvage deal with the Disposal Services Authority, a division of the Ministry of Defence that collects and sells surplus $\frac{\pi}{5}$

Zeus in action government assets. Under the agreement, Odyssey would conduct all excavation in return for 80 per cent of the value of all cargo up to \$45 million, and 50 per cent up to \$500 million.

I, Robot: Odyssey's

remotely operated

Heritage groups reacted furiously. "It was the worst example of a government being in breach of new lawslaws that English Heritage uses as a best practice for all Britain's protected wrecks in our waters," says Robert Yorke, chairman of the Joint Nautical Archaeology Policy Committee. The 2001 Unesco Convention on the Protection of Underwater Cultural Heritage introduced rules to extend protection to historic wrecks in international waters against looting and potentially damaging salvage operations. "The first rule is that wrecks should be left in situ: only if there is a severe threat or a clear research objective should excavation

take place. It also states that underwater cultural heritage shall not be commercially exploited," says Yorke.

Cannon haul:

HMS Victory

just one of over 100

that went down with

The row led to an amendment in Odyssey's agreement with the MoD. stipulating that any future excavation would be supervised by independent archaeologists. Although no further exploration work has taken place on the Sussex site. Odyssey's ventures have become no less controversial.

In the wake of the company's dispute with Spain over ownership of cargo>

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from the Black Swan site, Stemm announced in February 2009 that he had found HMS Victory. Once Britain's mightiest warship, she disappeared in treacherous storms near the Channel Islands in 1744. Her disappearance (with all 1,100 hands on board) was a national tragedy. The Victory-the predecessor of Nelson's flagship-is the most important marine find of the last two centuries: she is the only Royal Navy warship buried with her full complement of over 100 bronze cannons. Two of these were salvaged by Odyssey, with government approval, and are in safekeeping at Portsmouth dockyard.

The discovery, however, has generated concern in heritage circles, with questions raised in Parliament over the fate of the wreck. Although there's no dispute over Britain's ownership of the Victory and her cargo, it is no secret that Odyssey hopes for a government salvage agreement similar to that involving the Sussex.

So far, no decision has been taken; Odyssey is consulting with a number of government departments over the possible excavation of the *Victory*. For many experts this is a test case, raising questions as to whether the *Victory*, a mass war grave, should be disturbed at all. Marine archaeologists argue that

since she has remained safely buried for more than 260 years, there's no hurry to excavate. "These wrecks have lain in an oxygen-free environment, covered in silt, for many years, and are beautifully preserved. They are time capsules: any disturbance will lead to loss of historical information," claims Robert Yorke.

Greg Stemm remains unconvinced. Last year Odyssey completed a four-year survey of almost five square nautical miles of the Western English Channel, recording 267 wrecks. It notes damage to 112 vessels, apparently as a result of repeated ploughing of the seabed by deep-sea fishing trawlers and scallop dredgers—which the report's author, marine archaeologist Sean Kingsley, calls "bulldozers of the deep".

Far from being safe, says Stemm, the Victory lies in the middle of the busiest trawling zone in the Western Channel. He admits to being shocked by the damage. "We thought, beyond 170 or 190 feet, beyond the reach of divers, we'd find pristine shipwrecks, but we found an industrial wasteland criss-crossed by bulldozers. The deep ocean is the last uncharted frontier and it's mind-boggling to think of the possible discoveries to be made. Yet if these treasures are left unrecovered, they are in danger of being lost for ever."

Two robbers in Columbus, Georgia, are on the run after allegedly stealing an order of chicken wings from a pizza-delivery man.

Police say one of the men pointed a pistol at the 19-year-old Domino's driver and said in a sinister voice, "Give me the wings." The men then fled the scene, leaving the cash and the unharmed delivery man. The pizzas were also untouched.

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