

# EXPLORATION AND SCIENCE

(HPS 336)

T Th 10:30a-11:45p, LSE 104

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## Course Description

This course examines exploration as a historical process and as a broadly influential cultural activity of Western civilization. It surveys major epochs of discovery – from the Vikings to Voyager – and it discusses the interdependence of exploration with modern science, with the arts and literature, with the political economy of Western imperialism, and with changes in the global environment.

Classes will consist primarily of illustrated lectures. Questions are welcome at any time.

The course qualifies for the following General Studies credits: *Historical Awareness*; *Social and Behavioral Sciences*. It also satisfies CLAS *Science and Society* requirements.

Honors students: the class can be taken for Footnote 18 credit. Several options are available.

*Please note:* this class requires facility with reading and writing English and it assumes a certain familiarity with the general history and culture of Western civilization. It is not recommended for students who do not have such skills and training.

## Grades

There are 660 points possible. Points accumulate as possible:

- **Three book reviews.** You can select any three books from the six required readings. If you elect to write a fourth review, the highest three grades will count. Each essay is worth 100 points, for a total of 300 points. Guidelines for writing are included with the syllabus. Each essay should be 1000-1500 words in length.
- A series of **three multiple-choice exams**, worth 360 points altogether. Study guides are included with the syllabus. The third midterm will serve as final exam.

*Grade distribution:* A=660-594 points; B=593-528; C=527-462; D=461-396

## Policies

- *Incompletes* are discouraged and will be given only for bona fide emergencies.
- *Makeups:* Assignments are due on date specified. If you cannot attend that day, notify me in advance and arrangements will be made for a makeup exam or tardy submission. Late assignments without an excuse will be penalized 10 points for each day they are late.

- **NB:** No e-mail attachments accepted.
  - Please turn off or silence cell phones and other communication devices.
  - Reasonable accommodations are available for students with documented disabilities or who must miss class for a recognized religious holiday. Please inform us early in the semester if you need accommodation.
  - Academic dishonesty, including inappropriate collaboration, will not be tolerated. There are severe sanctions for cheating, plagiarizing and any other form of dishonesty For ASU *student academic integrity policy*, see:  
[http://www.asu.edu/studentaffairs/studentlife/judicial/academic\\_integrity.htm](http://www.asu.edu/studentaffairs/studentlife/judicial/academic_integrity.htm)
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## Reading Assignments

### Required readings

Dava Sobel, *Longitude*

Cory Ford, *Where the Sea Breaks Its Back*

Stephen Ambrose, *Undaunted Courage*

Wallace Stegner, *Beyond the Hundredth Meridian*

Alfred Lansing, *Endurance. Shackleton's Incredible Voyage*

Tom Wolfe, *The Right Stuff*

All required readings are available for purchase at the ASU Bookstore (or on-line). Required readings are on reserve at Noble Library.

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## Introduction

Jan 19

### **Voyage of Discovery**

Course introduction

Jan 21

### **Europe at the Edge: The Global Setting**

Jan 26

### **The Ages of Discovery**

## First Great Age of Discovery

Jan 28

### **The Great Voyages: The Renaissance Explores**

Feb 2

### **The Portuguese Paradigm: God, Gold, Glory**

Feb 4

**First Contacts**

Video: *Star Trek* [clips]; *First Contact* (50 minutes)

Read: Sobel, *Longitude*

*Book review due*

Feb 9

**Circumnavigation: The Voyage of the *Victoria***

Feb 11

**New World: Contours of a Continent, Margins of a Metaphor**

Feb 16

**The Fur Trade and Exploration: The Odyssey of Jedediah Strong Smith**

Read: Ford, *Where the Sea Breaks Its Back*.

*Book review due*

## Second Great Age of Discovery

Feb 18

**Transits of Venus, Meridians of Earth: The Enlightenment Explores**

Feb 23

**Midterm 1**

Feb 25

**Second Age: Excursions, Circumnavigations, and Grand Tours**

Mar 2

**Humboldt: Explorer of the Cosmos**

Mar 4

**America: Exploration's Nation**

Mar 9

**The Voyage of the *Beagle*: Exploration and Science**

Video: *Ladder of Creation* [clips]

Read: Ambrose, *Undaunted Courage*.

*Book review due*

Mar 11

**The Arts of Discovery**

Video: *The West of the Imagination: The West as Romantic Horizon* (50 mins)

Mar 16 & 18 **Spring break**

Mar 23

**Terra Australis: The Burke and Wills Expedition**

Mar 25

**The Dark Continent: Europe Explores Africa**

Mar 30

**How the Canyon Became Grand**

Read: Stegner, *Beyond the Hundredth Meridian*.

**Book review due**

April 1

**Midterm 2**

Apr 6

**Arctic Quest: The Search for Sir John Franklin**

Apr 8

**The Worst – and Best – Journey in the World: Antarctica**

Read: Lansing, *Endurance*.

**Book review due**

### **Third Great Age of Discovery**

Apr 13

**The Third Age: Modernism Explores**

Apr 15

**Ice: Antarctica**

Apr 20

**Space Race**

Video: ABC News, *Racing for the Moon* (50 mins)

Apr 22

**The Exploration of Mars**

Guest Lecture: Dr. Phil Christensen

Read: Wolfe, *The Right Stuff*.

**Book review due**

Apr 27

**Abyss: The Deep Oceans**

Video: *The Next Frontier* [clips]

Apr 29

**Exploration and Empire: Geopolitics and Discovery**

May 4

**Seeking Newer Worlds: Voyager**

May 11 9:50-11:40a

**Midterm 3 (final exam)**

# GUIDE TO MIDTERMS (HPS 336)

## First Midterm

### *Critical concepts*

- the concept and properties of the three great ages of discovery
- the main maritime cultures of the 15<sup>th</sup> century
- the status of European exploration on the eve of the Great Voyages of the First Age
- the motivations behind European exploration
- the main features of European ship technology
- the state of the navigational arts
- the natural wealth of those places of interest to Europeans (eg, spices, gold, furs)
- the features of the “Portuguese paradigm”
- the major achievements of discovery – first to round Africa, first to reach India, etc.
- basic navigational devices available in the period

### *Identifications*

Ferdinand Magellan	Juan Sebastian del Cano	sea otter
Prince Henry “the Navigator”	Afonso de Albuquerque	Hernando de Soto
St Francis Xavier	Society of Jesus (Jesuits)	Francisco de Coronado
Malacca (city and strait)	South Sea	Mick Leahy
Fur desert	<i>Victoria</i>	Sieur de LaSalle
Vasco da Gama	Zheng Ho	caravel
Jedediah Strong Smith	Luis de Camões	
Strait of Magellan	Alexander Mackenzie	
Northwest Passage	Cape of Good Hope	
Northeast Passage	Vitus Bering	
Hudson’s Bay Company	monsoonal winds	
Goa	Vasco Nuñez de Balboa	

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## Second Midterm

### *Critical concepts*

- the core properties of the Second Great Age of Discovery
- ways in which modern science begins to influence exploration
- the reasons for the revival of exploration in the 18<sup>th</sup> century
- the spectrum of natural philosophy expeditions in the 18<sup>th</sup> century
- the contributing causes for natural history expeditions
- the role of exploration in stimulating larger cultural questions
- contrasts between first and second age explorers
- economic incentives behind continental exploration
- reasons for the different character of exploration in various continents

## ***Identifications***

Alexander von Humboldt	Army Corps of Topographical Engineers
Aimé Bonpland	Pierre-Louis Moreau de Maupertuis
Frederick Church	Henry Stanley
Charles Darwin	Franz Boas
Alfred Russel Wallace	Burke and Wills Expedition
Lt. Charles Wilkes	Long Expedition
U.S. Exploring Expedition	Clarence Dutton
Pacific Railroad Surveys	Ives Expedition
Clarence King	Great Surveys [of the American West]
Grand Reconnaissance	<i>Cosmos</i>
Karl Bodmer	<i>Voyage of the Beagle</i>
George Catlin	Galapagos Islands
Alfred Jacob Miller	John Wesley Powell
Capt. James Cook	Charles Sturt
Transit of Venus	Charles-Marie de LaCondamine
Isabella Godin	Red Centre
Linnaeus (Carl von Linné)	California State Survey
Linnaean apostles	Joseph Banks
Grand Tour	Mount Chimborazo

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## **Third Midterm**

### ***Critical concepts***

- the special traits of the Third Great Age of Discovery
- the dates of the major pulses of Antarctic exploration
- the main contours of Arctic exploration
- the motivations behind Antarctica's "heroic age"
- the various explorations of the solar system
- the changing concept of sovereignty, especially over the terranes of the Third Age
- the origins of deep sea exploration

### ***Identifications***

International Geophysical Year (IGY )	Voyager missions
Robert Scott	Pioneer missions
William Beebe	Mariner missions
Ernest Shackleton	<i>Apollo 11</i>
Apsley Cherry-Garrard	Richard Byrd
Sputnik	Antarctic Treaty
Projects Mercury, Gemini, Apollo	HMS <i>Challenger</i>
international polar years	<i>The Worst Journey in the World</i>
Antarctica's "heroic age"	Franklin Expedition
rights of first discovery	Robert Peary
common heritage of all mankind	Lady Jane Franklin
Law of the Sea	Viking mission
<i>terra nullius</i>	<i>Alvin</i>
<i>Trieste</i>	

## EXPLORATION and SCIENCE (HPS 336)

### GUIDELINES

#### Book Reviews

You are expected to read all the required readings, but you must submit written reviews for only three of them – which three is your choice. You may also elect to write a fourth review, in which case, the best three scores will be used toward your final grade. Even in this case, however, the review is due on the day scheduled for that book; you may not go back at the end of class and pick from previous options.

The review is not a book report but a personal essay that examines *what is said, how it is said, and whether it was worth saying*.

The essay, that is, must identify the important themes, arguments, and data of the book; it must consider how the author organizes and conveys that material; and it must extend some judgment about the success of the book on the reader, the book's probable audiences, and its overall character. The order of presentation and the degree of emphasis given to each aspect is up to the student, but the choice should bear some relationship to the character of the book in question. The choice of voice, first person or third, is up to you. Insight, thoughtfulness, care of expression – all are important criteria in evaluating the essay.

Remember, speak to the *book*, not just its themes. Don't simply retell the saga or tragedy, or elaborate on why a protagonist (or author) is a hero or a jerk. Go beyond those reactions to explain why.

Finally, these books are non-fiction: they speak to real events, although the author may use some of the literary or rhetorical devices more common to fiction. The assigned readings are emphatically not novels.

Some particulars:

- Reviews should run between 1000-1500 words.
- No email attachments accepted
- Review due by end of class on the day posted in syllabus
- Even if you elect to do a fourth review, it is due on the day specified for the book in question.
- Quotations from the book are very effective. Avoid very long block quotes, however.

Two sample reviews follow. Both refer to the same book, but are written in different styles. No one style is favored: it is the quality of analysis and clarity of expression that matter most. Find a form that works best for yourself. If you need guidance with the mechanics, please consider using the university writing center.

Sample A -  
Review of Alan Moorehead, *The Blue Nile*

*The Blue Nile* tells the story of how Europe discovered and rediscovered parts of the Nile River. It makes an odd contribution to “exploration” history because Europeans knew the lower Nile, Egypt, since forever, and they had known, forgotten, and then relearned the two sources of the Nile. The resulting narrative is thus full of oddities. It is neither a comprehensive history of the region nor a complete inventory of discoveries but a selective anthology of perhaps the most interesting and defining of the encounters; the book does not have a thesis so much as a theme. What holds it all together is the geography of the Nile itself and the author’s felicitous voice.

At Khartoum the Nile merges two giant tributaries. One, the White Nile, drains from the south, through the Sudan, and ultimately from the Great Lakes of the Rift Valley, specifically, Lake Victoria. The lake regulates its flow, which is more or less constant. The other tributary, the Blue Nile, is shorter, draining from the Ethiopian highlands, and it thus rises and recedes with the annual seasonal rainfall on the plateau, and accounts for the lower Nile’s famous flooding. Travel up the White Nile is difficult because of hostile tribes and an enormous papyrus swamp, the Sudd, that is impassable by boat. Travel up the Blue Nile is impracticable because of suspicious tribe and because the river plunges through steep gorges. Most successful travelers reached the region not along the Nile’s banks but from ports on the Red Sea. Yet the sources of the two Niles held for long centuries a kind of mythic pull for European travelers. During the era of what this class is calling the second great age of discovery the search for the Nile’s sources became a kind of collective vision quest.

The book has four parts. The first (and shortest) describes the eccentric travels of James Bruce, a Scottish aristocrat, bent on finding the sources of the Blue Nile. He does, although he had been preceded by a Portuguese priest named Father Lobo. When Bruce returned to Britain, few believed him, and he became an object of ridicule. Still, this British “Don Quixote,” as Moorehead terms him, blazed the way for others. The remaining three chapters track Europeans as they move en masse up river. Part Two describes Napoleon’s mad invasion of Egypt that overthrew Mameluke rule and injected French scientists who began to measure and map everything in sight. Napoleon eventually deserted his army; the expedition ended in failure; but the Institut d’Egypt established a kind of standard for Enlightenment encounters with exotic parts of the world and its published *Description de l’Egypte* became a guidebook for adventurers, explorers, traders, and aspiring conquerors.

Part Three sketches the seedy realm of the upper Nile, as a renewed (and partly Europeanized) Egypt tries to assert control over it. Later, after the British assume effective control over Egypt to protect bondholders of the Suez Canal, and then must establish a protectorate, the scene deteriorates further. Mostly, Part Three is a device to move the narrative to Ethiopia and the rediscovery of the Blue Nile’s sources. The river itself doesn’t permit travel.

Part Four complements the French invasion of Egypt with a British invasion of Ethiopia. Over the years a small enclave of European technicians and missionaries had established themselves at the Ethiopian court. Emperor Theodore – a demented tyrant – proposes marriage to Queen Victoria, then seizes the Europeans as hostages and threatens to kill them, and the British mount a rescue expedition from India, complete with elephants. The trek inland is an extraordinary feat of engineering. Then, at Magdala, the British army destroys the Ethiopians, Theodore kills himself, the hostages are rescued, and Ethiopia is thrown open, more or less, to the modern world. The source of the Blue Nile no longer remains an impossible dream.

Alan Moorehead is a gifted writer of popular history. The text moves quickly and confidently: it skips along at times like a novel; and this is the great asset of the book. I would recommend it to anyone looking for a good read or an easy introduction to the region and to the style of exploration of this period. Many of the events, moreover, resemble those of today from the same region, so many in fact that it is uncanny, as though nothing ever really changes here.

Yet Moorehead's strength is also a kind of weakness. The text reads so smoothly that you forget to ask about all the years, personalities, and events that are not included; you hardly notice they are missing. The book gives an illusion of completeness that it doesn't deserve. It also fails to embed its encounters within any larger context. They are simply how history unfolded here. In that regard it is striking how many encounters have been violent. Apart from Bruce's quixotic adventure, the story begins and ends with invasions. This was indeed a way of learning about the world, but it is not one that normally gets into celebratory surveys. Along the Nile exploration bonded not only with science but with arms. It makes for a rousing story but not, alas, for an Enlightened one.

## Sample B

Alan Moorehead, *The Blue Nile*

The first modern European to reach the sources of the Blue Nile was a giant Scot, fluent in tongues, hostile to priests, capable of accommodating to court life in Britain or Ethiopia ("The court in London and that in Abyssinia are in their principles the same"), and open to all the exotica thrown his way in the sublime confidence that "Man is the same creature everywhere although different in colour." When James Bruce returns to Britain, however, he is not honored but mocked. It's the kind of opening one might expect from an Indiana Jones movie.

It gets better. Napoleon invades Egypt, disastrously. But as part of forcibly modernizing an Arab country that did not ask for Enlightenment, he introduces a company of savants, the Institut d'Egypt, that sets a kind of standard for scientific exploration elsewhere. The Rosetta Stone is the most famous discovery to result, but artifacts counted less than methodologies: here we see science shoulder to shoulder with soldiers. Knowledge, like political power, would seem to come from the barrel of a gun. The story advances up the Nile into Sudan, which seems to have changed eerily little from then to today. The chronicle concludes on the Ethiopian highlands where another ancient civilization meets modern imperialism. The Emperor Theodore decides to fight British military engineers head-on. The battle of Magdala ends in a rout. Theodore's European hostages are released, the country undergoes upheaval, the Brits leave.

All in all, an amazing read. Except for the Sudan, where the text slows to a crawl, like boats trying to cross the Sudd, I could hardly put it down. I wouldn't recommend this book to my worst enemies since it's too good for them. I wondered why it wasn't assigned reading to this course (which could use more readings from outside the U.S., ahem).

That, at least, was my sentiment when I closed the last page. Then I began to think more deeply about what I had read – which was easy since so many scenes and episodes remained vividly in my mind. I wondered if maybe I hadn't gotten the whole story. I poked around some other sources and, yes, learned that the Nile has a more complex history of discovery by the West.

The junction of the White and Blue Niles at Khartoum makes a convenient divide. But if Moorehead wants to call this book the "Blue Nile," then why all that stuff about Napoleon, Berthollet and Monge, the Mamelukes, the monuments, all of which barely get beyond the Nile's major cataracts? I can see why he shuns the White Nile; he was already writing a complementary book about its exploration and colonization. But why not speak more fully about Portuguese exploration, which made it to Ethiopia several times, and one of whose missionaries, Jerome Lobo, even wrote a book about the experience? A lot gets left out. Surely, too, Ethiopia had a robust history before the initial Brits rode their donkeys up the plateau. Why not explain that as well? The reason is that this is basically an Anglophile book. It's about the British and their primary rivals in Africa, the French. Well, that is an author's choice. But what gets said about

Wikipedia, that it's a good place to begin but a bad place to end, might be said about *The Blue Nile* as well.

What I kept coming back to was the caliber of the writing. Alan Moorehead knows how to write popular prose. He can take complicated subjects and, without condescension and without hyperventilation, make them interesting and readable. He has a particular talent for standing back and interpreting what is going on even amid the most exuberant events such as battles. He does not try to jolt the text by wild verbiage and heightened rhetoric, the rhetorical equivalent of jabbing cattle prods into it (I've read lots of stuff that does). Rather, he stands back, refuses to exaggerate, tries to create a sense of literary order where, in reality, there was probably only confusion. Here is his understated description of the final assault at Magdala:

Refugees were now streaming down towards the British lines on every side, and the infantry were obliged to pass through them as they advanced in skirmishing order to the foot of the Magdala cliffs. The first salvos of rockets were directed on the gate, a pagoda-like affair with a roof and two heavy wooden doors, and three assaulting parties immediately went forward with scaling ladders, some of them using the path, while others scrambled directly up the cliffs towards the ramparts. It was a long climb; rain was falling again, and the noise of thunder combined with the crashing of shells above their heads. Towards 4 p.m. the advance guard reached the gate and here they came under rifle fire while they hacked away at the doors with crowbars. It was not a very heavy fire – only a handful of the enemy were shooting at them from above – but nine of the British went down before they forced their way through.

Not exactly prose for a Victorian Cross.

In his Epilogue Moorehead explains why the military engagements matter. “Three abortive cavalry charges against modern fire-arms had destroyed the isolation of the Nile valley from Lake Tana to the sea.” While none lasted more than a few hours or involved more than a “few thousand men,” they constituted “genuine crises” for “none of these countries were ever to be the same again.” In other words, it was not the size and ferocity of the battles but their context that made them decisive, and that is what Moorehead's calm prose emphasizes. It deliberately keeps the firing from overwhelming the setting.

So I went from enthusiasm about the book to skepticism to a kind of appreciation. There is a lot more to the narrative of the Nile than Moorehead writes. I wish he had elaborated on that larger context more than he does, which is basically confined to a handful of paragraphs in the Epilogue. A few passages suggest themes he might have developed more fully: “It seems absurd that such momentous consequences should come from three insignificant battles – hardly battles, merely a running of spearsmen against modern guns.” “The Moslem imam and the Coptic priest are still today as firmly entrenched as they ever were. In this sense at least the inhabitants of the Nile have never been conquered.” “Both peoples were determined to resist the western invaders, but then they also hated one another, and by nature as well as by religion they were mortal enemies.” Such observations, published in 1962 about events in the 19<sup>th</sup> century, sound very contemporary.

In this way *The Blue Nile* speaks to more than exploration. If it begins with Indiana Jones, it ends with Walter Cronkite. I ended the book wanting to read more.