

Defacing Your Book

A book is a very good institution! To read a book, to think it over, and to write out notes is a useful exercise; a book which will not repay some hard thought is not worth publishing.

Maria Mitchell (1818-89),
astronomer, the first woman admitted
as a fellow to the American
Academy of Arts and Sciences

Studying a textbook without a pen or pencil in your hand is like reading with your eyes closed. Whether the notes you take are written in your textbook or in a separate notebook, one thing is certain: In order to remember important ideas, you must make written notes.

There's almost no limit to the amount of work you can put into studying your textbooks. It is hard work, but it can be rewarding if it's done right. To do it right, you must mark up the pages of your textbooks or take notes in a separate notebook. Taking notes on textbook material forces you to concentrate and makes reviewing not only easier, but also more profitable. In the absence of chapter notes, reviewing for an exam is like starting from scratch, from square one. The more careful your note taking, the more knowledge you'll gain from reviewing. This learning package will look at three systems:

Standard System:

Underlining and jotting notes in the margins.

Questions-in-the-Margin System:

Writing questions in the margins and selectively underlining.

Separate Notes System:

Summarizing each textbook paragraph in a separate notebook.

The Standard System:

Finish reading before marking: Never mark until you have finished reading a full paragraph or a headed section and have paused to think about what you've just read. This no-marking procedure prevents you from grabbing at everything that looks important at first glance. During your initial reading, it may be difficult to tell whether the author is stating a new idea or using new words to restate an idea previously discussed. You need to understand the full context of a paragraph or section before you decide what to mark.

Be extremely selective: Mark so that when you review later, only meaningful words, phrases, and sentences stand out. You'll appreciate your good original judgments, decisions, and discipline.

Use your own words: Jottings in the margins should be in your own words. Because your own words represent your own thinking, they are powerful cues to the ideas on the page.

Work swiftly: Be efficient. Don't dawdle. Read, go back for a mini-over-view, and make your markings and jottings. Then move on.

Work neatly: Neatness will pay in the long run. Neatness at first takes conscious effort but not extra time. When you review, your neat jottings and markings will draw sharper, clearer, more incisive images in your mind.

Use cross-referencing: If you find an idea on page 64 that has a direct bearing on an idea on page 28, draw a little arrow pointing upward and write "28" by it in the margin. Then turn back to page 28 and, alongside the idea there, draw an arrow pointing downward and write "64" by it. In this way you tie the two ideas together both in your mind and in your reviewing.

Be systematic:

Attachment #1 contains twelve suggestions for marking textbooks. Notice especially the use of **single** and **double underlines**; the use of **asterisks, circling, and boxing** for important items; and the use of the **top** and **bottom margins** for long notations or summaries. If some of these ideas appeal to you, work them into your marking system. Be sure to use them consistently so that you will remember instantly what they mean.

Textbook marking can be a useful aid to study and review, but marking must be done with thought and care. Otherwise it becomes busy-work. Drawing lines and boxes and inserting symbols and question marks can give you a false sense of accomplishment if you are not thinking deeply about what you read. Besides, if you over-mark your book, you will defeat your purpose: quick identification of important points. When you review, you will find yourself trying to decipher a code instead of reviewing ideas.

Attachment #2 shows a page that is over-marked but still makes good use of some of the Standard System techniques.

Remember that the "**you**" who reviews the marked book will not be quite the same "**you**" who did the marking. As the term progresses, your knowledge grows. By the end of the semester, many things that seemed so important to underscore, box, circle, star, question, comment on, or disagree with at the beginning of the semester you will be accepting as commonplace. Your early marks may hamper your review. So use the help that marking can give you, but don't go overboard.

The following attachments are examples of appropriately marked textbook pages.

Attachment #3 shows how a brief marginal note can expand a title into a summary that will be invaluable for review. It gives the dates of the Crusades, since dates are important, and ties them to a date that is instantly meaningful--1492. The cryptic "**13C**" is an abbreviation for "**thirteenth century.**" Notice also the summary notes in the margin and the circles representing concepts and geographical locations to be looked up. Underlining is used sparingly and effectively, so that review will be easy.

Attachment #4 shows how material can be organized by numbering key concepts. If they are already numbered for you in the text, that's great. If they are not, then impose your own organization. Add your own numbers--and letters, too, if they are needed for subtopics. In any case, carry the numbers and letters over to your marginal notes, so that later you can recall the entire "**package.**" In this instance, only the bare key words were placed in the margin, primarily for use as cues in reciting. Too much information in the margin will make reciting too easy.

a The main causes of
mutations ...
The genes are the ...
further, the lack of supplies
... furthermore, the shortage ..
The latest ...
cold period ...
about 1,000,000 ...
Even today ...
Life became ...
on land only ...
340 million years ...

Why not use carbon
dating?
Check on reference
of fossils found in
Tennessee stone
quarry.

{ Adapt
fossil
layer



had known ...
who gave ...
the time ...
of time ...
When a nuclear blast
is ...
People quite close to
the ...

ATTACHMENT #2: Too Much Marking
Color Vision in Animals

I. Color Vision in People

- a. Can't explain how we see.
- b. All shades matched through mixing primary colors
- c. no proof all people see color in same way--assume they do can't's assume with animals.



Disagree?
 What kind of proof is needed that all people experience color in same way? If all people call something red, isn't that proof?

11. Color Vision in animals:

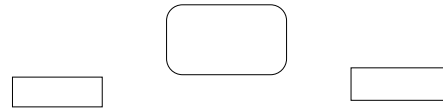
- a. Can animals see light of a given color?

- 1. Chickens
- 2. Honeybees

- b. Can animals distinguish color?

- 1. Bees can distinguish colors

- 2. Other animals which can.



Color vision is extremely puzzling to the physiologist; we have no satisfactory theory of color vision, nor can we explain how we see color. For example, we cannot explain why we see white light if we mix spectrally pure red and blue-green, or why the sensation of spectral green can be perfectly matched by a mixture of yellow and blue. We do know, however, that all shades of color can be matched by appropriate mixtures of three so-called primary colors: red, yellow, and blue. A deviating color vision, known as color blindness, is associated with reduced acuity for shades of green or red (or both). It is quite common in man, occurring in about 8 per cent of all males, and 0.6 per cent of females.



From our own experience, each of us knows that he sees colors and that these colors have names, and by inference we assume (although we have no proof) that when somebody says "red" he has the same experience we have. Such inference, however, is completely unjustified when it comes to animals of a different species, with whom we cannot talk; but even so, we can discover some facts about color vision in animals. We really want the answers to two questions: first, whether an animal can see light of a given color at all and secondly, whether different colors are perceived differently so that they can be distinguished.

Some simple tests can often answer our first question. If a chicken is fed in a darkroom that has rice grains scattered on the floor and the grains are illuminated with spectral colors, the animals will pick up all the grains in red, yellow, and green light, but not the ones in blue light, although these are clearly visible to us. Evidently the chicken eye is not able to perceive blue as light. In a similar fashion we can show that honeybees are insensitive to red, and, by using red light, we can observe their life in the "darkness" inside the hive without disturbing them. On the other hand, bees are sensitive to ultraviolet, which we do not see.



Our second question--can animals distinguish colors--has been answered by training experiments. If, for example, bees are trained to feed from a dish of sugar solution placed on a yellow disk, they will rapidly learn to seek food on a yellow background. If the full dish is now placed on a blue background and an empty dish on the yellow, the bees will continue seeking food on the yellow background. With a careful application of this and other training experiments, we are able to show that bees can distinguish colors. In similar ways, it has been

shown that at least some teleost fishes can discriminate colors, but elasmobranch cannot.
Turtles, lizards, and birds have color vision, but most mammals, except man and monkeys, are unable to discriminate color.

ATTACHMENT #3: Simple Marking of a Textbook Page

1096--to
late 13C.--
and 200
years before
Columbus.

The Crusades
From the time when they occurred to the present, the crusades have commanded public attention and called forth innumerable chronicles, histories long and short, and even poems. Their place in the historiographical tradition of Europe is thus assured, and the very word crusade has become familiar in our vocabulary. But if historians, medieval and modern, have agreed that the crusades were interesting and important, they have differed widely in explaining their origins and interpreting their significance. Indeed, it might be questioned whether they belong in a discussion of the medieval church. They were, however, launched originally by the papacy; and the church's role, though it diminished, was never negligible. In this brief account it will be possible only to summarize the more generally accepted conclusions.



Causes
1. Seljuks
manzikert



2. 11C
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First, it is clear that the eight large expeditions from 1096 to the later years of the thirteenth century, as well as the many less important ventures, were occasioned by the political and military successes of Islam. In particular, they were a response to a comparatively new menace presented in the second half of the eleventh century by the Seljuk Turks. The Seljuks had overrun the Baghdad caliphate and as a consequence of a resounding victory over a Byzantine army at Manzikert in 1071 opened the way to the conquest of Asia Minor. Byzantium had faced Islam across the straits before, but never had it lost the entire hinterland of Asia Minor.



Second, the crusades were made possible by the religious, political, and economic energy so characteristic of the eleventh century. The Cluny reform reached a climax in the second half of the century, and it was not difficult for an ecclesiastically militant church to direct its forces to the military defense of Christendom and the recovery of the Holy City, Jerusalem. Politically and economically, eleventh-century Europe was entering one of those periods of expansion which have characterized its civilization down to modern times.

ATTACHMENT #4: Marking a Textbook: Numbers and Letters
Memory

1. Three stages of memory
- a) acquisition
 - b) retention
 - c) retrieval

2. Methods of retrieval.
- a) recall
 - b) recognition

○ ○ ○ To begin with, we must distinguish among **three stages** which are implied by any act of remembering. Consider a person working on a crossword puzzle who is trying to recall an eight-letter word meaning "African anteater." If she does, we can be sure that she succeeded in all three stages of the memorial process. The first is **a acquisition**. To remember, one must first have learned; the subject must somewhere have encountered this particular item of biological exotica. During this acquisition stage, the relevant experiences presumably left some enduring record in the nervous system, the **memory trace**. Next comes **b retention**, during which the information is filed away for later use (until the next crossword puzzle). The final stage is **c retrieval**, the point at which one tries to remember, to dredge up this particular memory trace from among all others. Many failures to remember are failures of retrieval and not of storage. Our subject may be unable to come up with the correct answer at the time, but when she later sees the solution she realizes that she knew it all along. "Of course, Aardvark!"

○ ○ A previously acquired item of information can be **retrieved in two ways: a recall** and **b recognition**. An individual who is asked to recall must produce an item or a set of items. "Where did you park your car?" or "What is the name of the boy who sat next to you in third grade?" are examples of recall questions. The experimental psychologist typically tests for the recall of materials that were learned in the laboratory; this assures that any failures in recall are not simply failures of original acquisition. Thus a subject might have to learn a dozen unrelated adjectives which he will later be asked to recite. Recall need not be verbal. An example is the retention of a motor skill such as playing golf; here memory is best assessed by observing how the subject hits a golf ball and not by how he talks about his swing. Another example is the memory of visual patterns. This is sometimes tested by the method of reproduction in which the subject tries to draw what he has seen. (Unfortunately, such reproduction failures may only prove that he cannot draw and not that he cannot remember.)

A memory trace can also be tapped with a recognition test. A person who is shown an item must indicate whether he has encountered it before, either in general ("Did you ever see this face before?") or in a particular context ("Is this one of the girls who played on your high school field hockey team?"). In the laboratory the subject is usually asked to pick out the previously learned item from among several false alternatives. Examples are multiple-choice or true-false tests which clearly put a greater premium on recognition than do essay or short-answer fill-in examinations, which emphasize

recall.

The Questions-in-the-Margin System

The guidelines for using the Questions-in-the Margin System to mark up your textbook are surprisingly few.

Survey an entire chapter.

Return to the first paragraph and read it thoroughly to answer this questions: "What's important here?"

Write a brief, telegraphic question in the margin of your textbook that requires for an answer the important point or points that you perceive in the paragraph.

Underline only the key words, phrases, and sentences that make up the answer to the question you wrote in the margin.

These four steps provide you with the essential questions and the appropriate answers. With this strong, uncomplicated system, you need nothing else.

Attachment #5 is an example of how to formulate the questions. Your questions may be specific or general-- whichever best helps you master the facts and ideas in your textbook. To add interest and variety, make up some true-false questions as well as some fill-ins. The closer your questions are to actual test questions, the better will be your memory of the facts and ideas.

ATTACHMENT #5: Questions-in-the-Margin System

Watch Out For Quicksand!

happened to Pickett? While hiking in the swampland of Florida, Fred watched Jack Pickett disappear before his eyes. Pickett had stepped onto what looked like an ordinary patch of dry sand and then started to sink. Within fifteen minutes, Pickett had disappeared completely beneath the surface.

How long did it take?

Is quicksand real? Pickett was a victim of quicksand. If you think quicksand is something found only in adventure stories or films, you're making a big mistake. And that mistake could cost you your life.

What did a geologist say about it?

What is the firm ground to do? Geologist Gerald H. Matthes, who once escaped quicksand himself, always gave this message to students: "Anyone who ever walks off the pavement should learn about quicksand." It can be found just about anywhere.

What is soft ground to do? Here are some of Matthes' tips on how to prevent yourself from helplessly being sucked under by quicksand. First, if you step into quicksand this is firm ground. If you are on firm ground, you may be able to run out. But you have to move fast. If, however, the sand pulls you in too quickly for you to escape this way, you will sink yourself flat on your back. That's right-- you can actually float in quicksand. Don't make the common mistake of raising your arms. Resting on the surface, your arms can help you to float. Any movements you make should be slow and deliberate. Quick, jerky movements can cause you to be completely sucked in, just as Jack Pickett was. Try doing a slow breaststroke or slowly pulling yourself to firm ground. Above all, don't panic!

How do you get out of it?

What is the best advice?

THE SEPARATE NOTES SYSTEM

Here are some guidelines for making separate notes on the material in your textbooks.

1. **Use the Cornell Note-taking System format.** (See LAC Learning Package: How to Take Notes) Make a 2 1/2-inch margin on the left of your paper, leaving a 6-inch-wide area on the right in which to make notes. Use the narrow margin for key words. This is the ideal format for recording, reciting, and reviewing. **Attachments #6 and #7** illustrate this format.

2. **Finish reading before you take notes.** Never write a note until you have finished reading a full paragraph or a headed section. This prohibition will keep you from summarizing everything that looks important at first glance.
3. **Be extremely selective.** Pick out the essentials and write them concisely. This rule is probably the most difficult of all to follow, because to be selective you must read critically and think about what you have read. Then you'll be able to summarize each paragraph in one sentence. Don't try to master every idea, fact, and detail in the book; get the important ideas and the basic principles. Don't try to rewrite the textbook in longhand, for you won't be accomplishing a thing. Simply read the paragraph and reread it if necessary, decide at that time what is important, and write your one-sentence summary.
4. **Use your own words.** After finishing the paragraph or section, ask "What is the author's main point?" Recite it, and then quickly write it in the words you just spoke. Do not mechanically transfer words from the textbook to your notebook. You will be by-passing your mind and wasting time and energy.
5. **Write full sentences.** Do not make notes in outline form. Rather, write full sentences expressing full thoughts. This is what you will have to do during an exam. Also when you review and restudy, you will be able to perceive each idea instantly. Neat writing will also be of help when you review.
6. **Be swift.** You don't have all day and night for note taking. Keep alert and press for efficiency. Read, go back for a mini-overview, recite the author's idea, and write it. Then attack the next portion of the chapter.
7. **Don't forget visual materials.** Important diagrams, like important facts and ideas, should be transferred to your notebook, recited, and reviewed. In biology, for example, a sure way of memorizing the structure of the amoeba is to sketch it, with all parts labeled. Take notes regarding the important aspects of maps, charts, and tables as well; they are vital parts of your text.

Attachment #6 shows the kind of notes you might use for material that requires an orderly listing of facts, principles, or rules. Though at first glance the notes in this example may appear to be a formal outline, they are not. The facts in the wide column under "general rules for contour line" form a simple list, and the sentences are almost complete.

Attachment #7 shows notes on material that deals more with ideas and their relationships than with facts. Here you would be reading for concepts and theories that are likely to connect many paragraphs. You would skim in your overview to get an idea of what the main concepts are and how extensively they are treated. Your task then would be to summarize and condense many paragraphs into one or two.

Slow readers often find that note taking forces them to concentrate better, and they go through each chapter faster than before. Rapid readers slow down a bit, but they learn to read with a new thoroughness.

Attachment #6

The Cornell Format Used for Material
Emphasizing Facts

Key Words	Notes on the Chapter
Contour Lines 1. Steep slope 2. Gentle slope 3. Cross 4. Streams	General Rules for Contour Lines 1. Steep slope - lines close together 2. Gentle slope - lines are spread. 3. Lines <u>never</u> cross. 4. Lines cross streams - bend up stream.

Attachment #7

Notes on Material Emphasizing Ideas
and Relationships

Key Words	Notes on the Chapter
<u>Song of Roland</u> Defeat French Valor Magic Horn No love story Knighthood	Song of Roland (Medieval epic) One of the noblest poems in Europe. Celebrating a defeat, the French fought with such supreme valor that the defeat was vindicated. Roland had a magic horn which Charlemagne could hear. Poem is wonderfully concentrated on a single incident virtually no love story. A rugged, primitive poem. The finest ideals of knighthood have been crystallized in it.

READING AND TAKING NOTES ON ACCOMPANYING MATERIAL

In many courses, assignments and lectures focus on a single textbook, but instructors often assign outside reading in other publications. Reasons for assigning the extra work include the following:

1. To amplify topics treated in the textbook or mentioned in class lectures.
2. To go into greater detail--for example, by assigning original documents or primary sources.
3. To expose students to another point of view or a different philosophy.
4. To bring background material into discussions.

Instructors generally do not expect you to master this material as thoroughly as you master your textbook. Nevertheless, once the assignment has been made, you must cope with it, even though in addition to the extra reading you have all your regular assignments to do. Clearly, you cannot spend an inordinate amount of time, but you must learn something from your assignment. Here are some suggestions for doing so.

1. Try to figure out why the book was assigned. You might ask the instructor. If you find out, then you can skim the book looking for pertinent material, disregarding all the rest.
2. Read the preface. The preface provides inside information. It may tell you how this book is different from your textbook.
3. Study the table of contents. Notice especially the chapter titles to see whether they are like those in your textbook or different. If the chapters with similar titles contain the same information as the chapters in your textbook, then read the chapters that do not duplicate your textbook's coverage. (Do this with topics covered in your classroom lectures, too.)

information gained with notes spread out before you, try to see the overall pattern. From the overall pattern, come up with the author's central thesis, principle, problem, solution, or whatever.

4. Don't leave the book with only an unclear view of what it is about. You must come up with something so definite that you can talk about it the next day or write about it two weeks later. Do not waste time on details, but be ready to answer general questions: What was the author's central approach? How was it different from that of your textbook? How was it the same? Look for the central issues around which everything else is organized.

5. Have the courage to think big. If you lack courage, you'll waste time on minor details that you won't remember. Select the big issues and concentrate on them.

When a highly condensed summary of a book or long selection is required, you need a special approach. The introduction-thesis-body-conclusion sequence is useful in forcing you to understand the material and the way the author develops and supports it. Furthermore, a summary that follows this sequence can be highly condensed; you may be able to capture the main ideas of an accompanying book in only a page or two of notes.

Summary

What's the purpose of marking my textbook?

Marking your textbook promotes concentration and thereby increases understanding. Marks both in the margin and on the text itself simplify reviewing.

What are my options for taking notes?

You have a choice of three systems:

- (1) the Standard System
- (2) the Questions-in-the-Margin System
- (3) the Separate Notes System.

What steps are involved in the Standard System?

There are seven steps:

Finish reading before marking.

Be extremely selective.

Use your own words.

Work swiftly.

Work neatly.

Use cross-referencing.

Are there pitfalls to textbook marking?

The major pitfall is overmarking. Your purpose is to aid concentration and review, not to decorate your textbook with circles, underlines, and squiggles. Keep in mind that your learning increases as the semester goes on, so try not to mark too many things that will seem obvious to you in a few weeks. Overmarking will only slow down your review.

What are the guidelines for the Questions-in-the-Margin System?

Survey the entire chapter to get a feel for it. Then read one paragraph at a time. At the end of each paragraph, take a moment to decide what's important. Once you've done this, try to formulate a question that will draw out the paragraph's main point or points. Then underline the words, terms, or phrases that make up the answer to your question.

What are the guidelines for taking separate notes?

Use note paper that has been ruled for the Cornell Note-taking System format. Read a full paragraph before you begin taking notes. Write down only the essentials and, to ensure understanding, express them in your own words. Write complete sentences, swiftly and neatly. Don't ignore the visuals: Treat an important diagram like an important idea. Neither should be left out of your notes.

What are outside readings?

Outside readings are books and articles that your instructor assigns to supplement your regular textbook in some way.

Should I approach these readings as I do assignments in my textbook?

No. Instructors generally want you to take a broad view of outside reading. Start by deciding why your instructor assigned the book. The preface and table of contents usually provide clues, as do summarizing paragraphs at the end of each chapter. Your goal is to grasp the author's main thesis, as well as the principles that are applied, the methodology that is used, and the problems and solutions that are mentioned. In short, concentrate on big issues rather than on details.

Should I stop once I've taken notes?

No. Capitalize on what you've learned in the note-taking process by summarizing your notes. If you've used the Cornell System, summarize in the 2" section at the bottom of the page. If you've used the Standard System or the Questions-in-the-Margin System, summarize either at the end of the textbook chapter or on a separate sheet of paper. Then cover the right-hand material and use the key words in the left-hand column to recite your notes.