

This reading includes guidelines for developing your journals. Not everything discussed in the reading will apply to how you will prepare a journal for the class however; most of the information is applicable and should be followed. Journal entries are generally prepared at the end of the day. For most individuals it is useful to keep a field note book to help remember details (see page 43 for an example).

# **THE NATURALIST'S FIELD JOURNAL**

**A Manual of Instruction Based on a System  
Established by Joseph Grinnell**

by

**Steven G. Herman**



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I took Notes of a Naturalist during the voyage of the Beagle to my chair atop the cabin, and for several hours have wandered again with Darwin over the pampas of Patagonia, through the Galapagos Isles, across the Pacific to Tahiti, and then on to Keeling in the Indian Ocean. How I long to see with the eyes of that matchless man of science, and to write with his pen! When I come home, I must study more geology. I want to be able to grasp something of the whole scope of nature in the lands and seas I visit; to be broad, not narrow; to be both a naturalist and a humanist, not a mere specialist. In technical work a man of this age must specialize, but in a reconnaissance of a part of the earth's face, whether soil or sea, I want my comprehension, like that of Charles Darwin, to be able to interpret the underlying significance of clouds, hailstones, argillaceous rock, hot springs, cacti, land planarians, ice-borne boulders, carrion beetles, wingless flies, graminivorous birds, nest building fish, viviparous reptiles, dodders, omnivorous rodents, sessile-eyed crustaceans, insect-eating plants, and foraminiferous protozoans! Nature is a chain, a million-knotted web or fishnet of life. Nothing exists of or for itself, but only in relation to other organisms, as Darwin seemed to know more thoroughly than anyone else.

Robert Cushman Murphy, in Logbook for Grace (1947), written from a journal he kept on a trip to the Antarctic as a naturalist on the whaling brig Daisy, 1912-13.

## IV

### FORMAT AND STYLE

Certain rules apply equally to all three components of the system, or are closely related and have similar origins. Consistency in style and format is one of the great values and requirements of the system. The standardization described here will enhance the value of your notes and allow them to be used -- by yourself and by others -- with efficiency and predictability. These guidelines are meant to have little or no flexibility; consistency is impossible without rules. If you choose to use this system (or are required to) you must follow these guidelines. A system is, by definition, a "complex whole, a set of connected things or parts, an organized body of material..." The content of your Journal, Species Accounts and Catalog will be the important quality that will be judged; it will be most easily evaluated and objectively viewed if it is written within the framework here described.

#### Duration, Order, and Pagination

All three parts are written on the basis of a calendar year. They are opened on 1 January (or the first day of the year that field work is done) and closed on 31 December. Ideally, a year's notes are then sent to the binder. They should be organized with the Journal first, the Species Accounts second (in respective phylogenetic order, as it is officially recognized for various groups, but with the groups arranged in order of frequency of use, e.g., birds, mammals, amphibians and reptiles, fish, and, finally, plants) and Catalog third. All entries are made chronologically within the sections. The Catalog presents a unique problem in this regard because all collected material is numbered consecutively from the first specimen taken by the collector until the death of the collector. It is likely, then, that the end of the year will find the Catalog entries in mid-page. The best way to resolve this problem is to write "last catalog entry for 19--" prominently under the last entry, then draw a diagonal line from just below the left side of the last line of script to the lower right hand corner of the page.

Page numbers in the Journal may be consecutive through the life of the observer (as they were for Grinnell) or begun anew for each calendar year. It is probably best to number them for each year. I have yet to see an indexed Journal, but indexing is an excellent goal, and it would be done most easily for individual years. There is less need to number the pages of each Species Account, most of which are not likely to exceed two or three pages. Those that cover species studied in depth may include many pages, and would benefit from numbering. In any case, Species Account pages should be numbered on a species by species basis, not consecutively through a series. The Catalog pages are numbered as the Journal pages. Here the argument for consecutive numbering through the years is stronger than it is with the Journal. Choose a pattern and stick with it. In practice it is best not to number any pages until the Journal is complete and all entries are made in the Species Accounts and Catalog. Pagination is an excellent way to assist the passage of New Year's Eve.

#### Writing On One Side of the Sheet Only

Grinnell's notebook paper was lined on only one side. Commercially available paper is lined on both sides, but only one side is used for notes. There are several reasons for this rule. Most important is the fact that margins

do not work out properly if both sides are used. A margin on the left side of a reversed page is an ugly and distracting thing, and it obligates the writer to write in the direction of the binder holes instead of away from them. Beyond that, script on both sides of a sheet creates problems with xeroxing (a problem not specifically anticipated by Grinnell) because the second side is liable to "show through." Finally, opposite, "left hand" pages are useful for maps and drawings in the Journal, when an area of some size is needed. These can complement the facing text, and don't seriously confuse when they stimulate the xerox sensor.

### Neatness, Penmanship, and Space Economy

The value of neatness should be self-evident, but often such evidence is difficult to find. A neatly, evenly written page is far easier to read than one that is scribbled and includes several script styles. Styles of penmanship are usually cast at puberty, but they can be improved. This journal system should be a stimulus to do just that. A little practice will always pay in clearer script. One should not, however, go to lettering to achieve this result. Lettering normally is far too slow. Practice copying something already written on a Journal page. Your speed will improve until the only factor limiting pace is the flow of information from your field notebook through your head, not the mechanics of digit movement.

Neatness can be carried to an extreme. The act of writing neatly should always be a means, not an end in itself. Mistakes -- misspelled or omitted words, improperly written numbers, errors in localities or sentence structure -- are bound to occur. They should be dealt with by neatly crossing out the offending words with a single or at most double horizontal line, and rewriting in subsequent space or just above the written line. The "white out" material, recently introduced into our culture and applied as a liquid that dries and is written over, should never be used in a Journal, Species Accounts, or Catalog. It gives the completed page an appearance properly belonging to masonry, not natural history notes. Furthermore, it often cracks and peels off as it ages.

There is no good reason to use paragraphs in the text of Journals or Species Accounts, and they have no place in the Catalog. The indentations waste space and do not contribute significantly to readability in the required style. Accounts are adequately set off by dates and by the underlining of localities and species names.

Species lists are commonly parts of Journal entries, and usually come at the end of a day or trip account. Much space can be lost by putting these in columns, but this can be done to good effect with sufficient planning. I prefer to make such lists without columns, running the names as the remainder of the text appears, but this is another area where some judgement can be applied, providing that the result maintains neatness and doesn't sacrifice space.

### Consecutive Writing

All accounts are written consecutively. Don't start a new page for every new day in your Journal; start the next day on the next line, whether that be on the same or the next page. Every Species Account begins on a separate page but is then consecutive for each entry. The Catalog is consecutive also, as described above. This is an important pattern, often missed by beginners.

When you do come to the bottom of the page, go directly to the top of a new, properly titled page and begin writing your account on the second line. On the first line write the date left of the margin and "continued" just to the right of the margin. Some prefer to repeat the locality information here, but this is unnecessary if the writer is organized enough to keep the pages from getting shuffled or misplaced. The date and content should be enough to return the page to proper order even if temporary disorganization occurs.

### Recording the Locality

Every entry (in Journal, Species Account, or Catalog) begins with a description of the locality where the observation (or collection) was made. The precision of the locality information required varies slightly for each of the three parts. These differences will be dealt with in subsequent descriptions of Journal, Species Accounts, and Catalog, but there are a number of principles and format rules that are common to all three.

The locality should be as concise as possible without sacrificing accuracy. Order the locality information in such a way that it goes from the most detailed part to the most general, e.g., 2 miles NNE of Elko, Humboldt Co., Nevada. Always include the county and state. Remember, the main purpose of your locality entry is to allow you or someone else (perhaps decades after your expiration) to go to the same place you made your observations or collections. Distances should be recorded as direct (air) miles or kilometers from a prominent landmark. The nearest post office is commonly used for this purpose. Elevations are often appropriate parts of locality descriptions.

### Underlining

Localities are underlined with a straight line. The first line of the locality entry always shows the date on the left of the margin, and begins just to the right of that margin. This first line is underlined from the left to the right side of the page, including the date. Subsequent lines in the locality are underlined only from the margin to the right side of the page. If concisely and properly written, locality entries almost never run more than three lines. Most will occupy a single line. In most cases it is a good idea to strive for locality descriptions that take only one line, but don't hesitate to go beyond that in the interest of completeness. The function of underlining is lost if there is too much of it.

Species English names are underlined with a wavy line in the body of a Journal or Species Account entry (e.g., great blue heron, glaucous-winged gull, or bronzed cowbird) except that species that are the subjects in Species Accounts are not underlined in their own species accounts. All standard names of species are underlined with straight lines wherever they occur (e.g., Ardea herodias, Larus glaucescens or Tangavius aeneus).

In species lists, especially long ones, underlining may be omitted or retained, depending on arrangement. The main purpose of underlining is to draw attention easily to the item of importance; if a majority of the content is underlined, this value is lost.

## Abbreviations

Be very frugal in your use of abbreviations. They can be time-saving for you when you are writing, but time-consuming later. The most logical and apparently transparent abbreviation can become hopelessly obscure with the passage of time or to another worker. For all but the most widely used abbreviations, describe in full what they mean in every year's Journal or Species Accounts. Do this without fail! It is best to use only the most obvious abbreviations (e.g., N, S, E, W or variations of them: HQ, km, mm, ha, etc.). Write it out when in doubt. Resist the temptation to go to code in your Journal or Species Accounts.

## Capitalization

All bird names in English should be capitalized (Great Blue Heron, Glaucous-winged Gull, Bronzed Cowbird) when written in typescript or printed. In a Journal or Species Account, however, the normal function of capitalization is served more efficiently by underlining. For that reason I seldom capitalize these names. By this means I avoid some decisions and some expenditure of time. Person's names should always be capitalized, however, and other conventions should be followed in this regard, especially with respect to capitalizing the first word in a sentence and the names of cities, counties and states.

## Numbers

Substitute numerals for words whenever possible, unless a numeral is obviously awkward. In practice only the word "one" as opposed to the numeral "1" gives trouble here. Never begin a sentence with a single number (1-9); write it out. Please note that these rules are meant for use with this note-taking system. Other more complex rules exist for other prose forms.

## Dates

Dates should always be written in the form "12 June 1978." Avoid the use of the potentially confusing "12-6-78" or "6-12-78" or "June 12, 1978". The only possible exception to this rule is with the date that accompanies the locality, and appears in the margin. Because the year involved appears separately, the possibility of confusion with it is eliminated. If something is lost on the left side during xeroxing (as is often the case with bound journals) better it be a few letters in the month than the numerals in the date.

## Times

Times are always written according to the international convention, i.e., 1400 for 2:00 P.M., 2400 for midnight, 1933 for 7:33 P.M., 0220 for 2:20 A.M. and etc., NOT 14:00 or 24:00 or 19:33 or 02:20. Also be careful to note in your Journal when times "change," that is, when your time zone goes from Standard to Daylight time and vice-versa or when you travel from one time zone to another. Times are a very important part of quantification in natural history. Carry a watch.

## General Style Guidelines

Everything written in the Journal and Species Accounts should be directly quotable in a publication. Write in complete sentences as a general rule; avoid

telegraphic style unless to do otherwise is awkward or affected. Your notes should always be detailed, including even observations you might consider unimportant at the time you are writing. It is not always possible to anticipate the future importance of data. Remember that your Journal is not a diary. It is a document meant for the use of others as well as yourself. It is a scientific document and therefore is not the place for fantasy or reverie. Avoid voluminous personal reflection at all cost. Elliott Coues, in his classic Field Ornithology, published in 1874, offers succinct and very sound advice on field note style that is probably even more useful today than it was a century ago. It applies equally well to Journal and Species Accounts and should be read, reread, and heeded by all. After describing what is in the naturalist's head at the end of a field day, he says the following:

Now you know these things, but very likely no one else does; and you know them at the time, but you will not recollect a tithe of them in a few weeks or months, to say nothing of years. Don't trust your memory; it will trip you up; what is clear now will grow obscure; what is found will be lost. Write down everything while it is fresh in your mind; write it out in full -- time so spent now will be time saved in the end, when you offer your researches to the discriminating public. Don't be satisfied with a dry-as-dust item; clothe a skeleton fact, and breathe life into it with thoughts that glow; let the paper smell of the woods. There's a pulse in a new fact; catch the rhythm before it dies. Keep off the quicksands of mere memorandum -- that means something 'to be remembered,' which is just what you cannot do. Shun abbreviations; such keys rust with disuse, and may fail in after times to unlock the secret that should have been laid bare in the beginning. Use no signs intelligible only to yourself; your note-books may come to be overhauled by others whom you would not wish to disappoint. Be sparing of sentiment, a delicate thing, easily degraded to drivel; crude enthusiasm always hacks instead of hewing. Beware of literary infelicities; 'the written word remains,' it may be, after you have passed away; put down nothing for your friend's blush, or your enemy's sneer; write as if a stranger were looking over your shoulder.

Coues was perhaps the most brilliant and accomplished American ornithologist in the last half of the 19th Century. He was one of Grinnell's primary mentors, though the two apparently never met and Coues died in 1899 when Grinnell was 22. The brief passage quoted above is packed with information on style and content. Read it and respect it and your notes will reflect its good influence. It is the best possible advice.



## THE FIELD NOTEBOOK

Your field notebook will be your primary note receptacle; it should be with you at all times -- a functional extension of your cerebral cortex. It will fit in jacket pockets as well as shirt pockets. Don't carry it in a hip pocket or it will warp and age prematurely.

The field notebook was not formally described as a component of the system when I learned it. So great was the emphasis on writing notes directly into the Species Accounts that it was implied that the use of an "auxiliary" notebook was evidence of mental retardation and degeneracy. In fact almost everyone used one, then transcribed their notes into the proper Species Accounts. So keen were the teaching assistants on catching violators that some students were driven to sprinkle water droplets on Journal pages written on dates that rain fell in the vicinity. Years later I met a graduate student who carried a snapshot -- slightly out of focus and a bit tilted -- of one of the instructors writing notes in a field notebook. The photograph had been taken over the professor's shoulder.

The goal of taking species notes directly into the formal account is ambitious, scientifically advantageous, and economical in terms of time, but it is practical under only uncommon circumstances. It is impossible to accomplish, for example, sitting in a moving car or while standing up, and most of us spend a great deal of our time in those two positions. The Journal is written at the end of the day, partly from fresh memory. But details like mileages, numbers, and even species seen cannot be accurately retained even for a few busy hours; these details must be written down at the time of observation. The same is true for most Species Account information. It is also true that the reliability of this approach depends on transcription occurring very shortly after the initial notes were taken -- ideally that evening.

Every one of your field notebooks should be "opened" by writing your name, permanent address, and telephone number in a clearly delineated space on the back cover. I know of several lost notebooks that have been recovered as a result of this precaution. Secondly, the date on which notes begin in that notebook should be written in ink on the front cover, followed by a dash. When that notebook is full, and a new one opened, the final date for notes in that notebook should be entered following the dash.

Every page in the field notebook should be dated. Pages subsequent to the first one on a given day should also have "continued" or an abbreviation of it following the date. The importance of dating each page cannot be overemphasized.

Some workers write on both sides of the field notebook paper. I prefer to write most of my notes on one side, reserving the other side for information that usually doesn't find its way into my formal Journal or Species Accounts -- items like license numbers, titles of books or papers I want to find, directions given me by others, recipes, addresses, maps, shopping lists, abbreviated lecture notes. One of my colleagues uses the inside of the back cover for important telephone numbers; he neatly revises the list when he opens a new field notebook.