

An Introduction to Henry David Thoreau's Phenological Data, Collected in Concord,
Massachusetts, Between 1851 and 1861

by

Elizabeth Hall Witherell, Editor-in-Chief, *The Writings of Henry D. Thoreau*

A presentation in the brown-bag lunch series of the National Center for Ecological Analysis and Synthesis, University of California, Santa Barbara <<http://www.nceas.ucsb.edu/>>, March 27, 2008

Abstract: Thoreau recorded his detailed observations of natural phenomena in an extensive array of unpublished notes, lists and charts. This data is beginning to demonstrate its usefulness to ecologists and others attempting to understand changes in the timing of natural phenomena since Thoreau's time. Dr. Witherell will discuss how Thoreau recorded his observations and ask how a database might be developed to increase access to this material.

As you know from the announcement of this talk, Henry Thoreau carried out a project of observing and recording a range of seasonally recurring phenomena in Concord, Massachusetts, his home town, starting around 1851 and ending about 6 months before his death in May 1862.

In the flyer, That announcement includes a link to Richard Primack and Abe Miller-Rushing's recent piece in *Ecology*, "Global Warming and Flowering Times in Thoreau's Concord: A Community

Perspective" <<http://www.esajournals.org/perlserv/?request=get-abstract&doi=10.1890%2F07-0068.1>>. Primack and Miller-Rushing report on their use of some of Thoreau's data as well as

records kept by others in the Concord area as a basis for determining that "plants are now flowering seven days earlier on average than they did in Thoreau's time" (Abstract, p. 332).

Thoreau's observations are well suited to Primack and Miller-Rushing's project--Thoreau kept careful records so his data are reliable, and he's a well-known figure so his name can help draw

public attention to the seriousness of the problem of climate change.

I've described Thoreau's phenological data on several occasions to those in my field--English professors and historians--and to general audiences, and the response is usually mild interest. However, when I included these data in a talk I gave at the Concord Free Public Library last October--after a couple of pieces about Primack and Miller-Rushing had appeared in popular magazines--the audience enthusiastically agreed that this information really needs to be made available in some way. (Isn't it interesting what turning up the global temperature a few degrees will do?) Since then I've been thinking more seriously about how that might be done. The material comprises about 1800 pages and it has never been published. Thoreau's original order for it has long been lost, and the manuscripts are now owned by a number of different libraries. In addition, the manuscripts are in Thoreau's miserable handwriting, which you see here.

Chart F19e Earliest Flowering April Flowers p. 1 [MS at Morgan Library]

<i>Acer dasycarpum</i>	9 xx	near 23x	4xx	7xxx	generally 14"	9x	near 24"	29 xxx	29 xxx
<i>Alexis scordata</i>	8 x	near 25x	6 xlate fls	15 xxxx	15x	15x	8 late 1st day	60x 1/2 28xx	near
<i>Caltha palustris</i>	25xx many	7xxx	18 1st row in hollow	18 1st row in hollow	18 1st row in hollow	18 1st row in hollow	18 1st row in hollow	60x 1/2 28xx	near
<i>Rh. hirsuta</i>	15	near 29x	10xx	13 xx	8x	13x	13x	60x 1/2 28xx	near
<i>S. didoti</i>	72 xx	near 30 xx	9xx	14 xx	13x	13x	13x	60x 1/2 28xx	near
<i>Complis Americana</i>	16	near 31 x	8 xxx	13 xxx	11x	11x	11x	60x 1/2 28xx	near
<i>Myrica gale</i>	30	near 31 x	8 xxx	13 xxx	11x	11x	11x	60x 1/2 28xx	near
<i>Complis rotata</i>	27-52 xx	3xx	8xxx	11xxx	11xxx	11xxx	11xxx	60x 1/2 28xx	near
<i>Ray sp. ang. virginica</i>	28 xx	10xx	5 or 6 xxx	22 xxx	18 2 or 3 day	18 2 or 3 day	18 2 or 3 day	60x 1/2 28xx	near
<i>Ranunculus foenicul.</i>	3 xx	Before may	may 1st	may 6x	25 1st 1/2 day	may 10	may 10	60x 1/2 28xx	near
<i>Potentilla canad. var. pumila</i>	15 xx	30xx	13 1st row	18 xx	18 xx	18 xx	18 xx	60x 1/2 28xx	near
<i>Ulmus Americana</i>	25-51	30xx	18 1st row	18 xx	18 xx	18 xx	18 xx	60x 1/2 28xx	near
<i>Spargelia anglica</i>	10	10	10	10	10	10	10	60x 1/2 28xx	near
<i>Chrysopsis americana</i>	14x	14x	14x	14x	14x	14x	14x	60x 1/2 28xx	near
<i>S. humilis</i>	28 x	11x	22 xx	22 xx	22 xx	22 xx	22 xx	60x 1/2 28xx	near
<i>Acer rubrum</i>	18x	18x	18x	18x	18x	18x	18x	60x 1/2 28xx	near
<i>Ulmus fulva</i>	30 xxx	30 xxx	30 xxx	30 xxx	30 xxx	30 xxx	30 xxx	60x 1/2 28xx	near
<i>Aquilegia canadensis</i>	24 xx	24 xx	24 xx	24 xx	24 xx	24 xx	24 xx	60x 1/2 28xx	near
<i>Quercus virginiana</i>	32	32	32	32	32	32	32	60x 1/2 28xx	near
<i>Taxus canadensis</i>	23x	23x	23x	23x	23x	23x	23x	60x 1/2 28xx	near
<i>P. grandidentata</i>	21	21	21	21	21	21	21	60x 1/2 28xx	near
<i>Thuja occidentalis</i>	22	22	22	22	22	22	22	60x 1/2 28xx	near
<i>Antennaria Plantagin</i>	26 xxx	26 xxx	26 xxx	26 xxx	26 xxx	26 xxx	26 xxx	60x 1/2 28xx	near
<i>Trinitis stricta</i>	29 xxx	29 xxx	29 xxx	29 xxx	29 xxx	29 xxx	29 xxx	60x 1/2 28xx	near
<i>Oldenlandia Canadensis</i>	29	29	29	29	29	29	29	60x 1/2 28xx	near
<i>Taraxacum dens Leonis</i>	28 many	28 many	28 many	28 many	28 many	28 many	28 many	60x 1/2 28xx	near
<i>S. purpurea</i>	26	26	26	26	26	26	26	60x 1/2 28xx	near
<i>Aemone nemorosa</i>	26	26	26	26	26	26	26	60x 1/2 28xx	near
<i>Berberis odoratum</i>	29x	29x	29x	29x	29x	29x	29x	60x 1/2 28xx	near
<i>Vicia papilionata</i>	23	23	23	23	23	23	23	60x 1/2 28xx	near
<i>Sanguinaria canadensis</i>	22	22	22	22	22	22	22	60x 1/2 28xx	near
<i>Carrionia latyfolata</i>	23	23	23	23	23	23	23	60x 1/2 28xx	near
<i>S. Petasitis</i>	25	25	25	25	25	25	25	60x 1/2 28xx	near
<i>Vicia flanda</i>	23	23	23	23	23	23	23	60x 1/2 28xx	near
<i>Arbutus Uva Ursi</i>	24	24	24	24	24	24	24	60x 1/2 28xx	near
<i>S. Babingtonia</i>	24	24	24	24	24	24	24	60x 1/2 28xx	near
<i>S. verica (Douglas)</i>	24	24	24	24	24	24	24	60x 1/2 28xx	near
<i>S. alta</i>	24	24	24	24	24	24	24	60x 1/2 28xx	near
<i>Callitriche verna</i>	24	24	24	24	24	24	24	60x 1/2 28xx	near
<i>Cypripedium Thelypodis</i>	24	24	24	24	24	24	24	60x 1/2 28xx	near

Finally, this work falls between the two stools of literary and scientific studies, and as a consequence is relatively unknown by both. It's hardly been noticed by humanists because it's too scientific, and scientists have had no way to know about it. The information contained in these manuscripts has always seemed important to me, though, and Primack and Miller-Rushing's work has confirmed my conviction. This is my first opportunity to speak about this information to a group of scientists, and I'm very interested in your feedback about how best to make the work known and accessible to those who can use it.

Before I discuss Thoreau's data, I'll give you a short biography of Thoreau--even shorter than the Cliff Notes version--to place him for you; then, I'll briefly describe the Thoreau Edition and what we do, so you know where I'm coming from.

Thoreau was born on July 12, 1817, in Concord, Massachusetts--in a Journal entry for December 5, 1856, he wrote, "I have never got over my surprise that I should have been born into the most estimable place in all the world--& in the very nick of time too." His father, a shopkeeper, moved the family around Massachusetts for several years and then returned to Concord, where Thoreau put down his roots and stayed, except for a seven-month stint on Staten Island and several excursions to Cape Cod, the Maine Woods, Canada, and Minnesota. When he graduated from Harvard College in 1837, Thoreau had already begun to identify himself as a writer, and perhaps as part of establishing this new identity, he reversed the order of his names--he was christened "David Henry"--and began to call himself "Henry David." He taught school for a time, and he worked in the family pencil factory, inventing at least one machine that improved the product--he was naturally skilled, though not trained, in engineering, and he taught

himself to survey land. He supported himself primarily by surveying, and he continued to be involved in the family business--by the 1850s he and his father were supplying printing firms with finely ground lead in quantity for electrotyping. He also made a little money lecturing on the New England Lyceum circuit, the 19th Century version of town-sponsored continuing education, which took place in late fall and winter when the fields couldn't be worked.

Thoreau began keeping a journal in 1837 and published his first substantial pieces in the Transcendentalist magazine called *The Dial*. During his lifetime he published two books, *A Week on the Concord and Merrimack Rivers* and *Walden*, as well as essays about excursions to Cape Cod, the Maine Woods, and Canada, and several poems. He died, almost certainly of tuberculosis, on May 6, 1862: he had displayed symptoms of TB as early as 1836, and the story goes that in the winter of 1860 he caught a cold from a friend, exacerbated the cold by slogging through the snow counting tree rings, and never really recovered. The cold part and the tree ring part are documented, but the causal connection isn't so clear.

The Writings of Henry D. Thoreau, which I direct, is a project to produce a new edition of Thoreau's writings, including all the material he published or prepared for publication, the 47 MS volumes of his Journal, and all of the letters he wrote and received. When it's finished, the Thoreau Edition will fill about twenty-eight volumes; so far we've published 16 (the handwriting on the chart you see illustrates one of the reasons we're taking so long). The project is sponsored by the National Endowment for the Humanities and supported by UCSB and a private entity called the Barkley Foundation. It was founded by Walter Harding in 1966 at the State University of New York at Geneseo and moved to Princeton in 1972, where it was headed by William Howarth. I was hired as a graduate assistant in 1974 and I took over as Editor-in-Chief in 1980.

I moved the project to UCSB in 1983, after my husband Michael got tenure in the Physics Department here; I took it to Northern Illinois University in 1999 when Michael became Director of Fermi National Accelerator Laboratory; and I brought it back to UCSB in 2005 when Michael returned as Vice Chancellor for Research.

The Thoreau Edition is that rare thing in the humanities--a collaborative project. I work with Thoreau specialists all over the country--primarily academics at colleges and universities who did their dissertations on Thoreau or the Transcendentalists--to whom I assign volumes or parts of volumes to edit. An Associate Editor and I review their work for accuracy and consistency and revise it when necessary, and I submit it to our publisher, Princeton University Press. The goal of the project is to produce texts that are as faithful as possible to Thoreau's intentions--in a general way, this means trying to know as much about Thoreau's work as he knew himself, and that of course involves studying the manuscripts.

It was through working with the Journal manuscripts that I was introduced to Thoreau's phenological studies. Reviewing transcripts of the manuscript volumes for the early 1850s, I noticed pairs of angled lines that appeared regularly in the margins. The lines of text so marked always contained information about some natural event or phenomenon.

For example, here's the Journal entry for March 27, 1857, 151 years ago today.

Journal March 27 1857 [MS at Morgan Library]

When will hardly believe me when I tell them
of the thickness of snow & ice at this time last
year.

May 27th 57

There is as soon as visible from my window except //
at the head of a bank in the Swallow hole behind Den-
nise.

8 1/2 AM ^{stagnant day but rather cold air -} up to the boat - At last I
push my raft gently through the smooth & running
water sheltered by the Island woods & shrub - where
I listen for birds &c - There I may expect to hear
a woodpecker tapping the rotten log here & there
I pause to hear the faint voice of some early bird and
the hum of the swish roadside. You are pretty sure
to hear a woodpecker early in the morning - over there
still earlier - but was chiefly there comes home on the
breeze the trill of the song sparrow along the
river side & I push out into wind & current -

Leave the boat & run down to the white maple
of the bridge. The ^{water} maple is well with its //
plate stamens on the 5 or 6 feet long - & prob-
ably began about the 24th - that would be about 15 days earlier
last year -

Find a very regular elliptical rolled stone - in the
^(water) probably ploughed low ground then evidently brought
from some some pond or sea side. It is about 7 inches
long. The Indians found such a stone & I have found
many of them where they hunted. Commonly one or
both ends will be worn showing that they have used it
as a pebble or hammer -

As I go up the boat I see 2 Song in -

Men will hardly believe me when I tell them
of the thickness of snow and ice of this time last
year—

Mar 27th 57

There is no snow now visible from my window except
on the heel of a bank in the swallow hole behind Den-
nises. //

A sunny day but rather cold air—

8 1/2 Am up Assabet—in boat— At last I
push myself gently through the smooth & sunny
water sheltered by the Island woods & hill—where
I listen for birds &c— There I may expect to hear
a woodpecker tapping the rotten aspen There I
pause to hear the faint voice of some early bird amid
the twigs of the still woodside. You are pretty sure
to hear a woodpecker early in the morning—over these
still waters— But now chiefly there comes borne on the
breeze the tinkle of the song-sparrow along the
river side &¹ I push out with wind & current—
Leave the boat & run down to the white maple

wht

by the bridge— The ^ maple is well out with its
white stamens on the Southward boughs—& prob. //

began about the 24th— That would be about 15 days earlier than
last year—

I find a very regular elliptical rolled stone—in the
(last fall)

freshly ^ ploughed low ground there evidently brought
from some some pond or seaside. It is about 7 inches
long. The Indians prized such a stone & I have found
many of them where they haunted— Commonly one or
both ends will be worne showing that they have used it
as a pestle or hammer—

As I go up the Assabet I see 2 Emys in-

¹"&" written over period

// sculpta on the bank in the sun - & one picta
They are all rather sluggish & I can paddle up
to take them up -

Found on the edge of Sodge's Brook - about
midway - in the cedar field - what I did not
ventilate I was regard as an Empy insculpta

// but thickly spotted with only yellowish spots
on the sides above & the back was irregularly
depressed. It looked like a very old turtle though
not unusually large - the shell was pretty smooth
beneath I could count more than 30 striae above.
When it dropped into the brook - I saw that the ^{spots} yellow
spots were admirably & concealed it - for while the
shell is brownish colored - (for a ground work)
the ^{spots} yellow spots - was the color of the sand
& pebbly bottom of the brook. It was very differently
shaped from the shell I have & I have been not

// mention yellow spots. Heard a cock in the
meadow ^{with} ^{over} it on ^{quivering} wing & ^{awake} the ^{thundering} life of the meadow
Farmer was plowing ^{the} ^{meadow} ^{with} ^{the} ^{plow} ^{and} ^{see} ^{the} ⁱⁿ

Farmer was plowing a level pasture - unplowed
for 14 years - but in some places the past was
not quite out.

// Farmer says that he had seen ^{over} 2 or 3 nights
ago I could have made 2 reports in my
journal - 1st the incidents and observations
of today - & 2^d by tomorrow I review the
same & record what has smelted before
which will often be the most significant
as poetic part - I do not know at first
what it is that charms me. The
new things of today are not to be

PROPERTY OF
THE THOREAU EDITION
RETURN TO STATE UNIVERSITY COLLEGE
GENESE, NEW YORK 14454

What was Thoreau doing with this information, I wondered. Emerson gives a clue in his eulogy for his friend: there he describes Thoreau's use of his phenological data, which includes the blossoming of plants, the leafing of trees, the freezing and thawing of ponds and rivers. Emerson writes, "On the day I speak of he looked for the Menyanthes, detected it across the wide pool, and, on examination of the florets, decided that it had been in flower five days. He drew out of his breast-pocket his diary, and read the names of all the plants that should bloom on this day, whereof he kept account as a banker when his notes fall due. The Cypripedium not due till tomorrow. He thought that, if waked up from a trance, in this swamp, he could tell by the plants what time of the year it was within two days."

The diary Emerson mentions may be one of nine small booklets now in the Berg Collection at the New York Public Library, in which Thoreau recorded notes on flowers from 1851 to 1860; more probably it was an earlier, draft version of one of these booklets that Thoreau made for his use in the field. These booklets make up part of about 1800 surviving pages of phenological data.

In the office of the Thoreau Edition we have copies of almost all of Thoreau's manuscripts, including notes and notebooks that we won't be publishing because the material they contain either isn't original--his commonplace books--or isn't literary--the 1800 pages related to his phenological research. Among these 1800 pages I found lists and charts in which Thoreau entered many of the observations that he marked in the margins of his Journal, and I learned that the usual path for one of these observations began with its being entered on a topical list in which data were organized first by year and then by day of the relevant month. The topics

of these lists include general phenomena for a given month or season, growth and leafing of plants, birds, and times of leaf fall.

The information marked in the margin of the March 27, 1857, entry appears again in a list of general phenomena for February and March.

List F18a March 27 1857 [MS at Brown University Library]

56

27th ridge with green life - 30
 under snow - most growth
 walk on F.H. P. dam mid of 30
 River 5th Wollensack Bridge seeing
 no snowing. (Other snow) Apr. 2
 Celandine begins to grow. 31
 River at lower level at mouth of H.P.
 5 April
 Sleight cuts Apr. 3
 River generally rising & breaking up 3
 Turkeys at the 2-3 last week was 20.

Near 1/3 channel in F.H. P. Jan. 28
 River 2' 1" wide - 2 more falls & 2
 4' from away.
 Red maple only frozen in angle beds 3
 Planting started by 1st day 37
 Brittonwood 1st flow has begun 5
 Celandine up for white h. turf. (at the
 winter?) 8
 snows 12
 A summer day 14
 Tip of grass rising above water 15
 Other part within ab. last of Feb. 15
 Can still cross at Bay of Wadden 18
 Launch frost 17
 Heavy snow 19
 River on west side of dam, reaches
 high on Feb. in ac. rain 7 19 20
 River fast going low 24
 Large ice white maple begins 24
 some other cattails relaxed 24
 No drifting ice Feb. 14 26
 Walker on point of breaking up 26
 F.H. P. open after several days

No snow visible but remains on
 turkeys 27
 Trout and girth on skin some 27
 places

No frost in previous garden 28
 Wadden opens 29
 Exhibit of woodchuck shows 31
 little snow.
 Flies here in 1st days Feb 25
 them .65+ at noon " " "
 A Wheel planting heads Mar 26
 Harvest cat. must delayed delayed " 26
 Bear hunting began in May " 28

57
 middle of April
 short and grass
 handsomely warm 16-17, 18 & 19 Feb.
 the lake 6.5+ at 1 P.M.
 Hear that my horses have started 18
 sit by wave without a bow!!
 some willow cat. keep 1/4 inch 19
 A boy collecting out-mud 21
 Feb. 24
 water without growth work 24
 walk on bank west coast 24
 Near of where birds expanding 25
 Sparrows grow 1/2 inch 26
 White maple beds expanded 26
 (L.V. Mar. 24)

[column 2, 13 lines up from the bottom]

No snow visible but remains of a few banks	27
Frost not quite out in some places	27

Subsequent to making the list, Thoreau transferred the information to a chart of February, March, and April phenomena. This was one of the second stage uses Thoreau made of his observations.

Chart F18d March 27 1857 [MS at Morgan Library]

9 th - A. ... 11 th - ...	10 th 8.5 th 22-125	9 th 24 ... 14 ...	22 (C)	Feb. 13	23	60	26/17
24/17 ... 2 nd ... F.N.P. ...	22 nd ... (12 th ...)	Apr 5 th 6 th ... Apr. 5	Apr. 13 th	26 ...	28 x x x	23	about 20
25 th Channel ...	30 th	29 th ... 19 ... 29 ...	Feb. 28 ...				
22 nd ...		30 th ...					14 th
20 th ...	15 th ...	18 th ...	24 ...	Feb 18 ...	17 th ...		
25 th ...		27 th ...			28 th ...		
26 th Trust out of garden		27 th ...			29 th ...		
27 th ...		30 th ...			31 st ...		
28 th ...		13 th ...			28 th ...		
29 th ...		28 th ...			29 th ...		
7 th ...		24 th ...			22 nd ...		

57

Trust out of garden

29th ...

24/17
25th
26th
27th
28th
29th
30th
31st

24
25
26
27
28
29
30
31

26/17

about 20

14th

4th ...
12th ...

2nd ...

2nd ...

29th ...

2nd ...

...	...	52	53	54	55	56	57 ...
26	Frost out of garden	...	...	...	...	...	27 Not quite out in some places

—

I'll give you another example, taken from a Journal entry for May 12, 1852. For this one we even have the notes Thoreau made in the field that are the basis for the Journal entry. According to his walking companion, Ellery Channing, Thoreau regularly made such notes, but very few examples of them have been identified among Thoreau's papers. This may be because no one has looked through his surviving manuscripts with a mind to see them, or it may be because, even as parsimonious as Thoreau was, he just couldn't find another use for these scraps of paper, or perhaps it's because, like many writers, he didn't want to reveal too much of his process.

If the reason is the last, Thoreau needn't have worried--the few field notes that we have are really hard to read, and only a couple can be related to Journal passages. Channing wrote about them, "I have seen bits of this note-book, but never recognized any word in it; and I have read its expansion in the Journal, in many pages, of that which took him but minutes to write in the field" (*Thoreau, The Poet-Naturalist*, p. 66).

Field notes laid in MS Vol 13, MA 1302.19 May 12, 1852 [MS at Morgan Library]

black-bellied ^{gull} ~~at 2~~ ^{at 2} ~~in~~
 sewing - bird - chica see note
 flying squirrel

black
 willows - 9c - no 70
 sun without lamp - not a juv
 - bright beyond gold - not very identified - The
 miles at the a piece between a town the 1st
 - The length don't change as in a thin piece - best
 Larches ^{Wednesday} ~~the best~~ ^{Thursday} ~~the best~~
 that fire low over banner field with a
 mountains - below timber - common &
 grasshopper in bloom - just all cleared
 to 2 days ago Edna learning not for 2
 or 3 days ^{was for months} ~~in~~ but not tracks?

3

6570

[Transcript of portion for May 12]

Wednesday

Swallows

that flie low over barren fields & sit on
mulleins--bobolink--currants &
gooseberries in bloom--Mt ash leaved
[out] 2 days ago Elms leaving out for 2
or 3 days

sugar maples

rain but not toads

Here's the Journal entry that draws on that set of notes.

Journal May 12 1852 [MS at Morgan Library]

May 12th

Morning - Swallows (I suppose barn-) flying low over the Depot field - a barn field - sitting in the meadows. ^{Barlow's}

|| Currants & goose berries are in bloom in the garden. The nut ash leafed out as much as 2 days ago. The elms have been leafing out for 2 or 3 days.

|| Sugar maples on the common are in ^{blow} bloom. Hear the peepers in the ram to night but not the dream toads.

May 13th '62

The best men that I know are not serene - a world for them selves. They dwell in form. They flatter & study effect - and more finely than the rest. The world of some appears unimpaired. My neighbors select granite for the underpinning of their houses & barns - they build their fences of one - but they do not ^{granitic} their sills rest on an underpinning of granite - their sills are rotten. That stuff is human made of which is not coexistent in your thought with the purest & subtlest truth. While there are manners - & compliments we do not meet. I accuse my friend acquaintance of an immense perversity. They do not teach me the lesson of honesty that I sincerely trust the brute world do - or of steadiness & solidity that the rocks do. I cannot associate with those who do not understand me.

May 12th

Morning-- Swallows (I suppose barn-) flying low over the Depot Field--a barren field--& sitting on the muleins.

// Currants & goose berries are in bloom in the garden. The mt ash leafed out as much as 2 days ago. The elms have been leafing out for 2 or 3 days.

// Sugar maples on the common are in blossom

Hear the peepers in the rain to-night 9 1/2 but not the dream toads--

In this case, the Journal entry is based very closely on the note Thoreau made in the field: the low-flying swallows, the currants and gooseberries, the mountain ash, the elms, the sugar maples, and the rain and toads comprise pretty much the entire account.

The Mountain Ash information made it to a list of botanical information for May.

List MA610 May 12 1852 [MS at Morgan Library]

May 6-52 Home chestnut bark longer than the leaves of any tree D¹²
 side - with long - little long - next hair - cut the old ones
 - early apple - late bird - usually - appears, brown leaves - mostly
 no showing than bark - Alders are beginning to - Hicoria's are
 quite

7 - Trees generally beginning to leaf out - except birch - cotton - black cotton
 8 - Part of - big ones here of the willows - about 7 leaves
 making by some or not.

8 - Home chestnut leaves had burst the 2 day -
 8 - Apples - with some make a show

What maple came with small leaves - as far as most the reg. maple

9 - Birch & Red & beginning to leaf out - (what vs red maple)
 10 - 2 or 3 as an end of earlier than history
 chestnut bark more advanced than others

11 - Birch had scales more advanced - all female developed
 12 - Birch & Red the trees in woods had more than this part of distance
 - like chestnut are both greenish -

11 - S. maple leafing

12 - Elm - late out - may leafed 2 days & others 2 or 3 days

13 - Female fr. process leafing if the stink has leaf unfolded some
 14 - White - just opening to buds - next few minute leaves unfolding
 what time to have started (in a mass of white)
 - probably white of bark bark -

14 - S. maple leafing

15 - The birch bark white - white - the white & leaf

16 - Birch leaves on tree - in

17 - maple and birch conspicuous - the white by just unfolding

18 - White reds just begin to unfold with leaf & green

19 - New leaf on tree 3/4 - or

20 - Red long - the just beginning to leaf

21 - Chestnut bark 1 inch or more long

22 - Birch leaf large - in some

23 - 28 - in some with the cut - 2 or 3 leaves maple, birch & poplar show
 30 - Elm leaf had more than white

and the currant and gooseberry information appears in a chart that records Thoreau's early efforts to track flowering times. His title for this chart, for which I'll show you the first page in a minute, is

The Flowering of Plants, accidentally observed in '51, with considerable care in '52; the Spring of '51 being 10 days, and more earlier than that of '52. The names those used by Gray
 X Observed in good season The XX before the names refers to '52
 XX Very early in '52

Chart F28a May 12 1852 [MS at the Berg Collection, NYPL]

	51	52	53	54
XXI <i>Kalmia latifolia</i> <i>florosa</i>	May 6 th (prime May 14)		Before May	May 1 st May 3 rd of yesterday
X <i>Viola blanda</i>	6 th day before?		" "	XX May 1 st of other 5 th of me
<i>Geranium sanguinale</i>	17 th Oct. 23		May 12 some time	May 8 th or yesterday about 2 nd of 11
XX <i>Pyrola asarifolia</i>	" 6 th mid July 18		Before May	X May 1 st & July 2 nd
XV <i>Pedicularis canadensis</i>	Apr. 25 6 th first Aug 3 rd 11		" Apr. 24	XX Apr 29 Aug 16
XX <i>Rubus odoratus</i>	6 th (spring out of flower May 30)		Before May	Apr 29 hardly yesterday
X <i>Fragaria virginiana</i>	" 7 th		" "	X Sunday 17 th
<i>Lemna angustifolia</i>			within a day or 2 of May 4 th	
<i>Polygonum bistorta</i>	May 1 st		Before May	May 1 st just tomorrow
X <i>Onoclea sensibilis</i>	" 8 th before		May 1 st 10 pollen 25	May 11 ab. tomorrow
<i>Impatiens capensis</i>	" 8 th (about pollen May 25)		Before May	XX May 5 th
XX <i>Salix alba</i>	" 9 th		Before May	
XX <i>Asplenium platyneuron</i>	" 9 th		Before May 1 st & 2 nd var. May 1 st	May 10 th very yesterday
X <i>Viola pedata</i>	" 9 th prot. eastern days X		Apr 30 th or before	X May 12
<i>Salix serotina</i>	" 9 th		May 1 st abundant	May 18 today at least
<i>Acer saccharinum</i>	" 10 th prot. western days X		May 7 th	May 11 th today & yesterday
2 <i>Prunus americana</i>	" 10 th		" 6 th	May 11 th yesterday & today X
<i>somnifera</i>			" 6 th	May 11
<i>Rubus triflorus</i> ??	10 th prot. about May 1 st 18 th July 1 st 18 th July 1 st 18 th July 1 st 18 th		Ripe July 1 st	May 29
2 <i>Cerasus</i>	" 10 th		Apr 30 th	X May 7 th
various grasses			1 st week of May	
<i>Fraxinus americana</i>			Between the 12 th & 18 th of May	May 14 tomorrow XX (about 25)
<i>Worms Thyridis</i>			June 3 rd out of flower	Apr 25
2 XX <i>Salix rubra</i>	" 12 th		May 4 th	X May 9 th & 10 th
X " <i>Hortensia</i>			Each day of flower May 2 nd	May 11 th & 12 th of 11

[gooseberry and currant entries are at bottom of chart]

...		51	52	
?	XX	Ribes Rubrum	-----	12th
	X	" Hirtellum		Is this the same with the gooseberry of the garden now in blossom?

Since 1988, I've worked on and off trying to get a handle on these lists and charts. It's been difficult to find time to focus on them, since I've also been running the Thoreau Edition--we've published eight volumes in that period--and teaching from time to time. So my knowledge is still imperfect, but I've learned several more things just in the course of preparing this talk, as I tried to think about them from the point of view of what you might be interested in.

I haven't exhaustively studied the relationship between the marginal marks in the Journal and the lists, but I've checked enough of them to be relatively certain that most of the data on the lists come from Journal observations. As I said, the lists are topical, by month or by category of event, and they're organized primarily by year and secondarily by date. Many of the lists are written over and through business letters that Thoreau recycled. Surviving lists gather information about all the months except July, August, and September, as well as about flowering, birds, leafing, animals, reptiles, insects, and fish. The most extensive lists are of general phenomena for May, June, and October through March--taken together 75-100 pages--and of flowers--three lists equalling 60-80 pages.

The long general phenomena lists seem not to be end products; instead I think many of them represent an intermediate stage for the data between the Journal record and the chart.

List F24b2 All Phenom for Dec 1851, 56 61 [MS at Middlebury Library]

AM Phenomena for December

15/ The boys have been skating for a week 14"
 In the west garden
 Bluebirds
 Horned larks riddled
 The one has gone down about 2 feet being left
 The bird part in the water on the meadows
 A pair of old pines - wading in the snow 17"
 Pine young & old, ~~of which is also to be seen~~
 Snow on the pines - & white pine - & others down to
 will be the end of the woodchips 19"

Large hawk sailing & accompanying 20
 Since the 15th and ~~since the 15th and~~
 have been ~~seen~~
 Color painted ~~in~~
~~of the~~ 21 & 22
 A hawk - many winged -
 under mid day - 23

16/ 19/ 20/ 21/ 22/ 23/ 24/ 25/ 26/ 27/ 28/ 29/ 30/ 31/
 H.P. Johnson
 (A hawk of last week, ~~seen~~ ~~on~~ ~~the~~ ~~15th~~ ~~and~~ ~~the~~ ~~16th~~ ~~and~~ ~~the~~ ~~17th~~ ~~and~~ ~~the~~ ~~18th~~ ~~and~~ ~~the~~ ~~19th~~ ~~and~~ ~~the~~ ~~20th~~ ~~and~~ ~~the~~ ~~21st~~ ~~and~~ ~~the~~ ~~22nd~~ ~~and~~ ~~the~~ ~~23rd~~ ~~and~~ ~~the~~ ~~24th~~ ~~and~~ ~~the~~ ~~25th~~ ~~and~~ ~~the~~ ~~26th~~ ~~and~~ ~~the~~ ~~27th~~ ~~and~~ ~~the~~ ~~28th~~ ~~and~~ ~~the~~ ~~29th~~ ~~and~~ ~~the~~ ~~30th~~ ~~and~~ ~~the~~ ~~31st~~)
~~seen~~ ~~on~~ ~~the~~ ~~15th~~ ~~and~~ ~~the~~ ~~16th~~ ~~and~~ ~~the~~ ~~17th~~ ~~and~~ ~~the~~ ~~18th~~ ~~and~~ ~~the~~ ~~19th~~ ~~and~~ ~~the~~ ~~20th~~ ~~and~~ ~~the~~ ~~21st~~ ~~and~~ ~~the~~ ~~22nd~~ ~~and~~ ~~the~~ ~~23rd~~ ~~and~~ ~~the~~ ~~24th~~ ~~and~~ ~~the~~ ~~25th~~ ~~and~~ ~~the~~ ~~26th~~ ~~and~~ ~~the~~ ~~27th~~ ~~and~~ ~~the~~ ~~28th~~ ~~and~~ ~~the~~ ~~29th~~ ~~and~~ ~~the~~ ~~30th~~ ~~and~~ ~~the~~ ~~31st~~)
~~seen~~ ~~on~~ ~~the~~ ~~15th~~ ~~and~~ ~~the~~ ~~16th~~ ~~and~~ ~~the~~ ~~17th~~ ~~and~~ ~~the~~ ~~18th~~ ~~and~~ ~~the~~ ~~19th~~ ~~and~~ ~~the~~ ~~20th~~ ~~and~~ ~~the~~ ~~21st~~ ~~and~~ ~~the~~ ~~22nd~~ ~~and~~ ~~the~~ ~~23rd~~ ~~and~~ ~~the~~ ~~24th~~ ~~and~~ ~~the~~ ~~25th~~ ~~and~~ ~~the~~ ~~26th~~ ~~and~~ ~~the~~ ~~27th~~ ~~and~~ ~~the~~ ~~28th~~ ~~and~~ ~~the~~ ~~29th~~ ~~and~~ ~~the~~ ~~30th~~ ~~and~~ ~~the~~ ~~31st~~)

I have been working
 about quality for electric wiring, some as
 by return of post of Mr. Johnson

16/ 19/ 20/ 21/ 22/ 23/ 24/ 25/ 26/ 27/ 28/ 29/ 30/ 31/
 H.P. Johnson
 (A hawk of last week, ~~seen~~ ~~on~~ ~~the~~ ~~15th~~ ~~and~~ ~~the~~ ~~16th~~ ~~and~~ ~~the~~ ~~17th~~ ~~and~~ ~~the~~ ~~18th~~ ~~and~~ ~~the~~ ~~19th~~ ~~and~~ ~~the~~ ~~20th~~ ~~and~~ ~~the~~ ~~21st~~ ~~and~~ ~~the~~ ~~22nd~~ ~~and~~ ~~the~~ ~~23rd~~ ~~and~~ ~~the~~ ~~24th~~ ~~and~~ ~~the~~ ~~25th~~ ~~and~~ ~~the~~ ~~26th~~ ~~and~~ ~~the~~ ~~27th~~ ~~and~~ ~~the~~ ~~28th~~ ~~and~~ ~~the~~ ~~29th~~ ~~and~~ ~~the~~ ~~30th~~ ~~and~~ ~~the~~ ~~31st~~)
~~seen~~ ~~on~~ ~~the~~ ~~15th~~ ~~and~~ ~~the~~ ~~16th~~ ~~and~~ ~~the~~ ~~17th~~ ~~and~~ ~~the~~ ~~18th~~ ~~and~~ ~~the~~ ~~19th~~ ~~and~~ ~~the~~ ~~20th~~ ~~and~~ ~~the~~ ~~21st~~ ~~and~~ ~~the~~ ~~22nd~~ ~~and~~ ~~the~~ ~~23rd~~ ~~and~~ ~~the~~ ~~24th~~ ~~and~~ ~~the~~ ~~25th~~ ~~and~~ ~~the~~ ~~26th~~ ~~and~~ ~~the~~ ~~27th~~ ~~and~~ ~~the~~ ~~28th~~ ~~and~~ ~~the~~ ~~29th~~ ~~and~~ ~~the~~ ~~30th~~ ~~and~~ ~~the~~ ~~31st~~)

VEMM
FW6

AM Phenomena for December
The cold winter & warm Feb.

156

Went very good of the ground
River generally frozen over but with some strips of places
within on under snow & some by means of ponds

113

After snow in
Ground the river in white ice just below P.H.P.
Rabbit tracks were numerous made in snow
7 or 8 tracks of the same kind as before are fallen
wood along river
No ice in river lower - & buds - (21)

Monday 4th Dec 1877
The river is rather low - in evening 5 or 6 inches above 10' ice
in most of the river of section below
The current of water is in center of river
Some frost seen at P.H.P. yesterday
It must have been from the 4th of month
Normal at night of the dark white frozen part - as if there
had been no interval between midsummer & midwinter
only leaves of 8th of the winter on the side (12th 11th 10th 9th 8th)

113

At 8 am 8th Dec cold at P.H.P. 8"
Ice covers a part of the river at P.H.P. 9"
Frost on the bank 4 miles thick yesterday
After frost began of 1st Dec - but snow on the river
No frost on the bank - but snow on the river - (19)
A winter case at P.H.P. - (15 under 15")
Fine clear cold white snowing 10'

Small leaf frost on trees
Ther. at P.H.P. 32°
Cold evening - snow on the river & wood in evening
A. no hunting - The bank of the river

Wednesday 12th Dec
A snow then 1/2 the snow in the
River generally frozen again to 3
After snow gone
Pinkish tint of young ducks
Begins to snow - but snow on the river 14

Clear again in night with clear bright NW. in
Below land - but in night 15
Rather cold in the evening - a quiet morning

VEMIM
F46

Sci Phenomena for Dec ember

60

Rain & gentle wind, rain marked 1"
 Tuba low 3. Brown & Clark 3"
 Karon 4.5 g. today, trace 4"
 Even a little things - mostly and "Hobbes"
 The miserable Canada judges
 A. H. but Helen - he false gods
 C. says that basket was 1" per an 16"
 This even tonight the 2" important over 22
 There has been ^{fall snow} sleeping since the 4"
 7 or 8 inches gone at least 23
 Surks are about here the mid. this month.
 A stop and for valves 25 25
 Cross after across each app 30
 Catch young turtles now & see
 Turtle done here yet -

61

Over a little 1"
 Warm rain last night 2
 clear & cooler
 14th cold morning - 1st hand some frost on windows 3"
 Another cold moon. 14th at 8am 4"
 C. finds T. H. P from me - & think he and some
 Also nice as far down - the bridge at least
 An early stage mountain - 7"
 with the hills now which has united the good since the fighting
 comes across 1/2 inch in air - Temp. prob. 58° or more
 2nd pleasant - long drive with 5 or 8
 Then at 1/2 P - 60° + (and 2-2) sun.
 River some 25.
 Another warm water in a river 9"
 2 or 3 good things for state lot clouds - 11
 Milder at station some lot sunset
 Cold - (20° at 8am) 1 first test plena 12

You'll note that many entries on the December list are cancelled: this seems to be Thoreau's indication to himself that he had transferred the information to a chart, which he formatted differently, or used it in another list, such as one summarizing April weather or one recording November flowers.

List F19d rainy days and other weather in April [MS at Beinicke Library]

F23d1 November flowers [MS at Berg Collection, NYPL]

April weather alternate rain & clearing up more 30-53
warm & hazy April rain 4" & 1/2 75 42-53

Apr 11 - other gentle April rain Apr 12-3-2
trans & back - wetting.

Rain rain - on 15-52 - clear on 16
Apr 18 a storm (less the morning) 8 hrs 5 hrs in evening - 52
(the Easter Sunday - 17) - with heavy rain water in the air
19 - morning wind.

Apr weather moist & rain & clearing warm 26-52

1st April with rain Ept 17 26-53 after long fair weather

then all night Apr 1st 53 a next fair weather

2 the morning a rather thin shower Apr 6-53

April showers 13-53 (at 4 o'clock) Thursday

May 31st-54 changes at last for all winds to drizzle
Apr 12-54 rain & fog a wet day.

April rain 10"-54

Apr 21-54 scarcely an April shower yet

Rain on 22 & 23 evening rain - April showers
quite a heavy thunder shower on 26-54

Apr 28-29-30 3 days of rain principally on 54
with 3 rain again 54

Apr 1st 55 12 hrs of strong steady rain warm rain
succeeding a very warm & hazy day. the rain 11 AM
& after W wind.

missing rain the night of the 5-58 after a thick
haze in the day -

Rain on the 7 9"-58 with clear & blue light
in rain low just before sunset -

Rain (with some sleet) the 11- & ~~the~~ 12" 58 cold
rainy

14 & 15 overcast mostly with April days - with a
thick misty - with the weather - (after a storm
and variety & personal (a very warm day -)

Rain at evening very dark - 17-58
Rain on day with a hot - 20-55 after a wind -

most of the morning after a warm shower - 2-5-55
cloudy - 10-11-55 at 12-55 heavy 26-55
Apr 19-29-30. 30-55. 30-55. 30-55. 30-55.

59

Apr. 14 more to rain after E wind on 13th - then
 7th storm (beginning with 18th wind) following wind.
 22nd a fine rain
 23rd rain-rain - followed by cooler & windier

6.0

Apr 4 after the morning mist & rain, &
 a day slightly showery -
 6th rain - more or less - April weather
 8-9-10-11th was a less rainy - but heavy or
 steady - April weather
 16th pm a fine April rain rather warm making
 a dark night -

[Faint, mostly illegible handwritten notes]

8.0

[Faint, mostly illegible handwritten notes]

56

Apr 3rd 1st rain to a very long time - 1.77
 fog chiefly taking off the snow - 56
 the snow the 4th & morning 75th
 cannot rain in eve. 7 12th - 56 after W-E wind &
 thick haze & fog -
 still cloudy & rain threatening 15-56
 midday mist & slightly misty 16 - rather rain
 thunder & lightning proved & laid in night of 16th 56
 moist muggy rain threatening from after a very rain & clouds
 W-E SW wind - becoming a severe shower April shower
 4 N E storm the 20th late 2 hrs bright sunny -
 rain threatening April day - sprinkles a little in the eve 24-56
 2nd thunder & rain early in morning 29-56 (after 11
 E wind & sea from the horizon, pm) & fair
 day after -
 may 2nd & 3rd cool rainy days -

57

Apr 10th rain at New Bedford.
 also 14th " all day " very strong " day to a fortnight past
 25th " pm " strong " cold rain or sleet from
 with ice - driving wind clouds - succeeded by shower
 about light -
 27 - a time about morning E. wind & some showers
 uncertain if this rain or not -
 may 4th rain

58

Apr 9th some April rain at last (last month)
 rain eve 7 12 - the 13th & 14th with lightning after 7 13th & 14th
 Apr. 20 pm rain from beginning at last.

59

may 29 - driving rain & SE wind
 Apr 3 on eastern wind & rain.
 11th rain all day -

Principal rain of Spring 3 days in May 1st 54

Series of rainy days

Rain after E wind. H max. 31st 52 - 20th max
temperature E wind 19th 55

N. E. Storm

1st April Storm -

Frost still in Mar.

Hill decidedly grazed

Walter's sheep 1st or 2nd year 13 years

Ford in woods - V. ma.

Pickering's

lightning Mar. 8-54.

Rain from Mar 16-54 - 7th 23-60

Storm in Mar 2nd 55 - E V. ma.

Rain low 13th Mar 55 - 15th Mar 59

very hot no frost V. ma.

Relief from Mar 29 - 1st Apr 1st

10⁰⁰

2/100
100
4.20

- 3 Potentilla canadensis 1 out 3-53
- 3 " norvegica 3-53
- 11 Veronica americana 3-53 - 11-53
- 22 Zinnia 3-53 - 22-53 - 6-55
- 3/1 A. laevis! 3-53

Nov. Feb. 21. 1850.

- 25 Sol. nemoralis 3-53 - 25-53 H. in at root - some say handsome make 10-58
- 7 P. hydrophoroides 7-53

Miss S. Moore & Co.

- 13 may seed - 8-53 - 13-51

Please to send me

- 19 mallows 14-53

Twenty pounds of *Cruciferae* of exactly the same quality as that you sent me last.

- 20 R. bulbosus! - full bloom 20-53

Send it to ~~NYPL~~

81 Cliff St. N.Y.

J. J. Knight

- 3) S. pulchra 8-58

NYPL

I wish you would send it to me

- 3) Phytolacca angustifolia a few flowers on within a week 8-58

as soon as possible, as I have unfortunately broken

- 10 Starbony C. on me 10-51

this order

- 14 Lepidium 14-51 (not in year)

flowers perfectly

- 15 mullain still yellow & red at least within a week 22-51

May '51

Latest dates above flowering ^(46 on) in name

- 1st Nov. small white aster (Dumosa?) Ran. Pichens &
- 1st Fleatane 9 Bidem connata
- 1st Horned rams 9 A. 3-ribbed G. red
- 1 Succory 10 A starbony ac & C.
- 2 Polyg. arifolone 11 common dandelion Dec. 9th
- 2 Blue stemmed G. red 11 A. puricans
- 2 Polyg. angustifolia 11/3 Veronica arifolone
- 3 Butten & eggs 14 full Butten at
- 3 A. longipolius 14 Shepherd's Purse Dec. 7-51
- 3 Potentilla canadensis 14 mallows
- 3 " norvegica 14 Lepidium
- 3 A. laevis! 15 Step. media
- 3 6-10 white wrens 15 Noddy mustard
- 7 Fringed Gentian 15 mullain
- 7 A. undulatus 16 Carastium hirsutum
- 7 P. hydrophoroides 19 Ant. dandelion Dec. 3, 52
- 8 S. pulchra 19 some white G. red
- 9 V. pedata by nest box

- 19 Tansy (Dec 12-52)
- 20 R. bulbosus
- 22 Zinnia
- 22 Potentilla argenta
- 22 Turnip (willi?)
- 22 C. red & sup. D. mag
- 22 Zinnia
- 24 Intel head
- 25 Sol. nemoralis
- 27 Red clover

N.B. V. L. Cunningham November 22
 The following may all be
 Vicia tetrasperma (of Oct 22-59)
 V. cucullata - little to a Ran. abortivum
 clover white & yellow
 spurrey = Veronica ulmaria
 Catnep
 V. arvensis Nov. 6-59

The most common observed of the above flowers are - (in the order of the commonness) something which is to that purpose, with flowers. (consider ac. & note below)

- Garrow 11 times
- (C. hirtellus) 9 "
- (C. Tenny) 9 10 "
- Antennal Dandelion 8 "
- Hedge mustard 5
- Aster undulatus 5
- Red Clover 4
- Potentilla arguta 4
- Common Dandelion 4
- Canada Snap Dragon 3
- Gravel 3
- V. pedata 3
- Pol. nemorosus 3

The most interesting of these 13 are the Garrow hirtellus Canada Snap Dragon & violet
 They are the flowers seen in
 C. h. for 15' & 20' of Nov.

N.B. others were noticed but once or 2

N.B. Note. I find that in Dec. 52 some flowers still arrived - it being very warm & pleasant. viz. Tenny still full Dec 6-12
 Ant. Dandelion - few days before 6" (say 3") that purple 7" - com-
 mon Dandelion 9" & violet (prob. pedata) 12". Ac. 5

Then the last of plant in the list on last sheet - that has been

- Ant. Dandelion Dec. 3
- Common Dandelion Dec 9
- Tenny Dec 12
- V. pedata Dec. 12

Antenn. 9 rods & hirtellus plant
 flowering in Nov. are late
 frosts

New York, July 7.

Mr. Thoreau, —

Please send me Fifty pounds
Blacklead as early as possible.

NYPL

Address 82 Cliff St.

Yours perfectly
Yours

Wm. J. Knapp

As you saw in the first image I put up, the charts are set up like spreadsheets, arranged with years across the top and phenomena down the left side. I've identified seventeen extant charts. They don't cover as many topics as the lists--perhaps Thoreau never intended that they would; perhaps he didn't survive long enough to complete all the charts he planned to make. Phenomena of the months of February through June and October through December are charted, as well as flowering, birds, leafing, insects, and the dates Walden froze and thawed from 1845 through 1861.

Here are the first pages of the general phenomena charts. Several begin with data about river height and all cover weather conditions including rain, wind, fog, haze, and thundershowers. Frost, snow, and ice are reported in the cold months and dog days in the warm months.

Chart F18d Feb Mar Apr events and av date trans inc p. 1 [MS at Morgan Library]
 Chart F19c Gen Phenom April [MS at Morgan Library]
 Chart F20a2 Gen Phenom May p. 1 [MS at Morgan Library]
 Chart F21a2 Gen Phenom June p. 1 [MS at Morgan Library]
 Chart F22c Gen Phenom Oct p. 1 [MS at Beinecke Library, Yale]
 Chart F23f Gen Phenom Nov p. 1 [MS at Morgan Library]
 Chart F24c All Phenom Dec p. 1 [MS at Beinecke Library, Yale]

25th 531 River when lowest in year.

Open winter (mostly) (last day lowest) 11.31st May 13 (C) 24 meat mostly gone water going down (Apr 1st little to any food - or than far - r. going down for a month)

lowest 31st 30' but a foot above summer level. March covered with dry ice snow. 13. very low - falling on ice Feb. 18

14th 530 River when highest in year. (Feb. 17. 58 over road at Hub. Bridge) max 18-58 (not high) water 5' down at minimum - 2' more (17th approx 4 highest for year up to 24 at least)

Feb. 13 6 pretty high channel - meanders ice left up May 6th 5 rain Apr. 22nd 20th 18-52 or after

Feb. 10 28 29 Feb. 11 higher than 11 in water 17 at 1 o'clock for man. v. up. 29-2 may 1st high for man. 5 before 15th

10th 530 River when (below Hub. bridge) max 12-56 entirely above again v. 14th max 24-56 legs 5' open at bank only - generally - can't be discharge 18th still closed at Cardinal there

Apr. 23: 52 8 1/2 in. above horizontal part there Feb. 27 before 12" low open but long? on way. in part place heating up. down max 4 - frozen ice. afterwards 20th 14. icy cloud this side with some snow but for 18th at least Feb. 29 v. high but not 7. Frost chimney down

Apr. 29-2 may 1st high for man. 5 before 15th 12th out of river further May 9th 8th at least

18th still closed at Cardinal there

May 8th at least

Apr. 29-2 may 1st high for man. 5 before 15th 12th out of river further May 9th 8th at least

2nd 530 Last skating

Feb. 20th Imp. cast

Apr. 29-2 may 1st high for man. 5 before 15th 12th out of river further May 9th 8th at least

7th 1st Dues + Utown over fields in high wind - falling air with snow. V. may 30-54 (not by 1st 55) 1st very pleasant - but heavy wind. 9 miles at (bridge) 2 hours

Feb. 20th Imp. cast

Apr. 29-2 may 1st high for man. 5 before 15th 12th out of river further May 9th 8th at least

Feb 22 (C) mansion and all up

Feb. 25-51 v. near 11-55 " 26 "

Apr. 29-2 may 1st high for man. 5 before 15th 12th out of river further May 9th 8th at least

10th 1st when 1st instead Frost seen morning

22nd

Apr. 29-2 may 1st high for man. 5 before 15th 12th out of river further May 9th 8th at least

19th 1st wind that makes noise in river. Frost diminished. 1st snow (Came in river after warm morning) 19-55 followed by heavy snow next day

Feb. 29th Frost diminished

Apr. 29-2 may 1st high for man. 5 before 15th 12th out of river further May 9th 8th at least

12th 1st snow on edge canal a 200' wide max 19-57

26th with Apr. 1 but little

Apr. 29-2 may 1st high for man. 5 before 15th 12th out of river further May 9th 8th at least

6th snow chiefly gone (13th on snow again) (max 18-55 (1-19 base for some water)

Feb. 13 low. snow got back. 20-22 1 a slight before 28th 10th 1st really big day

Apr. 29-2 may 1st high for man. 5 before 15th 12th out of river further May 9th 8th at least

30th 1st will snow higher still

Feb. 27 1/2 cov. 6 still covered 7 " " 10" prof. ready and about low 14 mostly gone 20 still on N side 28 almost 21 almost gone 53

Apr. 29-2 may 1st high for man. 5 before 15th 12th out of river further May 9th 8th at least

F21a2

General Phenomena June 57

	52	53	54	55	56	57	58	59	60
River lowest	1 st down at last 11.30 am & 3 am - 21.50 no. 10.10	16.50 am high half 11.00 am 21.50 am low no. 10.10	7.00 am no. 10.10				14.00 am high 5.00 am 11.00 no. 10.10	29.00 am high no. 10.10	1 st 13.10 am 2.00
River highest								15.00 am high no. 10.10	18.00 am high 22.15 15.10 am 0.6
Haze	2 nd 15		17 day long haze 18.00 am high no. 10.10				25.00 am high no. 10.10		4.00 am high no. 10.10
Fog	16.00 am high no. 10.10		17.00 am high no. 10.10						12.00 am high no. 10.10
sun light yellow									23
great fog			1 st quite a fog 2 nd quite a fog 3 rd quite a fog 4 th quite a fog 5 th quite a fog 6 th quite a fog 7 th quite a fog			8			
missing weather				7	6 driving 25 at N. end	18 driving 25 at N. end			
Rain	25 heavy rain no. 10.10	22.00 am high no. 10.10	23.00 am high no. 10.10	24.00 am high no. 10.10	25.00 am high no. 10.10	26.00 am high no. 10.10	27.00 am high no. 10.10	28.00 am high no. 10.10	29.00 am high no. 10.10
5 of 5 days		23.00 am high no. 10.10	24.00 am high no. 10.10	25.00 am high no. 10.10	26.00 am high no. 10.10	27.00 am high no. 10.10	28.00 am high no. 10.10	29.00 am high no. 10.10	30.00 am high no. 10.10
Thunder thores	3.00 am high no. 10.10	22.00 am high no. 10.10	23.00 am high no. 10.10	24.00 am high no. 10.10	25.00 am high no. 10.10	26.00 am high no. 10.10	27.00 am high no. 10.10	28.00 am high no. 10.10	29.00 am high no. 10.10
Succession of Thunder thores	22								9.00 am high no. 10.10

Phenomena

52
57
14 good snow but 2 feet less
in the forest part without
water on top

River when lowest

River - 14 ft. lowest
since - 1st of Feb. 1882

River when highest

Rain

Freezing rain & driving mist

Warm foggy days

Mist overhanging near by jobs

P. pine & fir like hickory

Rain here now on 17th

Rain ends in snow

Water in snow
23 years in former
winter
21-13 there going into
winter setting in
water

Snow turns to rain

Deeper snow
Nov 25 deeper than before
with 30"
Dec. 15 40" or more

Thick coats, with deeper snow

Bring home box traps

A great snow storm
Old Federal Sun storm 23
with 3 feet of snow

Snow blown over land & river
like steam

Snow ~~blows~~ 17-23

Damp snow plaster trees

Slush

30 snow
40 snow
20 snow
15 snow
ground

Slushy snow frozen solid

Dry snow squeaks

Slushy snow

52

53

54

55

56

7 or 8 thin low snow
faint blushing
8th of ice in snow. 14th
15th
was snow 16th rain 14th
2. rain part of day
17th

20 needs small
orphaned

22 warm rain in
12 large white, p-
1930 snow on all day

16 F. steady gentle snow
2nd of blushing

16

23

22

13' snow
winter snow
than light 12th

5 a little rain now
22 slight but snow - 21
25
perhaps about 12th
with 5"

18 a little rain
21 1/2 in. rain
24 snow in
25

13 morning & good
15th snow on
16th snow on

3' about 13th
1st of snow
25th day
Nov. 30

24 fine rain

26 warm 3 in. deep
27 snow
27

3' 50-6 inch

9th
15th
25th
30th

14th
24th
3-56 a.c. f
fresh

5' 100 lbs. of snow

29 driving blushing
31 4 inch more
with 2 feet

27

27

4' 100 lbs.

24" left now

3'

52

53

54

55

18 snow
22 snow
13 snow

5' 11 snow
5' 10 snow
5' 9 snow

20

14 good
16 good
18 good

17 good
19 good
21 good

December - 57 58 59 60 61
 26 min temp low
 8:20 pm 4 1/4
 net about 25

23 Great necks, some Rain (Nov 30)
 Then kept on rain till morning & wind fresh

some yellow

28

2 was rain
 but night
 23-24-25

5 pm misting
 13 pm misting train

18 mist in air

6 yellow in mist

18

few flake at noon
 starting

5 yellow in air
 10 2 pm tonight - Nov 3
 10 am & keep flake
 14 2 pm again flake
 26 2 pm
 29 with low water & phenon
 with day - V 20
 v. 8 - (14) ground water
 scold up leave on outside
 29 with low water & phenon
 with day - V 20

good little flake
 23 2 with dark ground
 24 ground mist

Nov. 25 now for
 water

8" - night
 2.0 - fast 1 hour flake
 2.0 - 4.0 in morning
 in air - low 3.0 4.0

at day - 17 ground water
 at night - 22

4.0 - 4.5 in night
 20.3 with deep 17 ground water
 14 pm & night 3 with
 30 pm - ground side fall
 30 with water - Nov. 30
 Nov 20 17
 5 (Nov 16)

17 ground water Nov 25 from 17
 22 2" in night
 23 3" or 4" in night
 25 5" or 6" in night

10-20

57 58 59 60 61
 11 no ground 20 min temp low
 22 min temp low

22 min temp low

Two charts contain data about leafing--when it begins and when leaves fall:

Chart F27a Leafing trees shrubs 1852-60 p. 1 [MS at Morgan Library]

Chart F23e Fall of Leaf p. 1 [MS at Morgan Library]

Three contain information about the flowering of plants, trees, and shrubs

Chart F28a Flowering of plants p. 1 [MS at Berg Collection, NYPL]

Chart F28d Flowers [MS unknown location, formerly private owner]

Chart F19e Earliest Flowering April Flowers p. 1 [MS at Morgan Library]

The Flowering of Plants, accidentally observed in '51, with considerable care in '52; the Spring of '51 being 10 days and more earlier than that of '52. The names those used by Gray.

X Observed in good season '52
 XX very early
 The XX before the names refer to '52

	'51	'52		53	54
XX <i>S. sylvicarpus</i> Tuckerm.	Feb. 13			March 26 th 21	8 x Ap. 8 th 2 or 3 days early
X <i>Alnus incana</i>	Mar. 30	Apr. 8		X " 25 th	7 x (both Ap. 6 th in a late place
XX " <i>incana</i>		" 11		X " 22	3
XX <i>Acer dasycarpum</i>		" 9		X " 23	- XX Ap. 4 - 5 days after Ap. 3
XX <i>Salix humilis</i>	Mar. 23	" 12		XX m. " 30 (about)	11 xx Ap. 8 th flowers next day but
				X Ap. 3	14 Ap. 14 th x - stem field.
<i>Ulmus Americana</i>				? fruit May 2 nd	Apr. 27 not 3 or 4 days??
XX " <i>fulva</i>		15	Cherry 10 at 15 days other?	- Y June 6 -	- X Ap. 13 fruiting
XX <i>Populus tremuloides</i>		15		X Mar 29 th (female)	10 - XX Ap. 10 th - 5 or 6 days before
X <i>Corylus Americana</i>		16		X " 23 (male)	5 xxx Ap. 8
" <i>rostrata</i> , when				Apr 2 nd (female) not	6 xxx " " fruit?
XX <i>Carex Pennsylvanica</i>		22		X Mar. 27 th	9 xxx? Ap. 7 th - probably not
XX <i>Castrea Palustris</i>		25 many		XXX Ap. 7 th	15 xxx Ap. 11 th - probably not
Red stemmed Moss				Apr. 2 nd	12
X <i>Helianthus media</i>		26		X (Mar. 21 st)	1 May 11 th - probably not long
				Feb. 5 th winter	

	1	2	3	4	5	6	7	8	9	10	11	12
<i>Mamm. mediu</i>		Apr. 26	Apr. 26	Apr. 20	Apr. 25	Apr. 16	Apr. 13	Apr. 30				
<i>Lept. hardy pueri</i>		24x	29x	30x	35x	36x	37x	38x				
<i>Parula collaris</i> (Av. Apr. 25)		26	27	28	29	30	31	32	33	34	35	36
<i>Alnus incana</i> (Av. Apr. 25)		Apr. 11	x 22	Apr. 6	Apr. 7	Apr. 9						18 birds
<i>White throats</i> (Av. Apr. 2)		Apr. 9	x 23	Apr. 4	Apr. 7	Apr. 9	27-29	29				
<i>Alnus serotina</i>		Apr. 8	x 25	Apr. 6	Apr. 15	Apr. 15						
<i>P. hamulata</i>		Apr. 15	x 29	Apr. 10	Apr. 13	Apr. 13						
<i>P. fischeri</i> (1) 235		Apr. 12	xx 30	Apr. 9	Apr. 13	Apr. 13		Apr. 3				
<i>Corvus Americanus</i>		Apr. 16	x 31	Apr. 8	Apr. 13	Apr. 13		Apr. 2				

26	42	40
39	22	23
37	37	35
31	38	38
20	40	40
21		24
23	179	29
2		
219	36	229
1199		33
25		

Three cover birds.

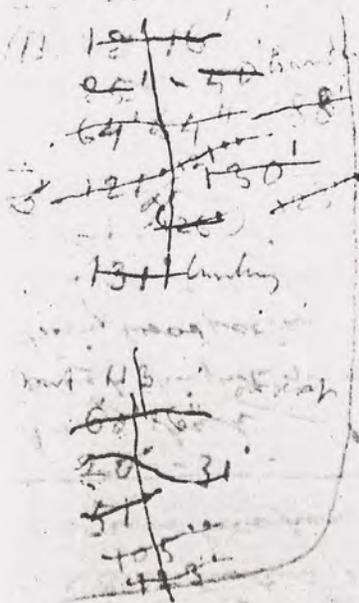
PDFs Chart F31c Birds 1852-54 P. 1 [MS at Agassiz Museum, Harvard]
Chart F31e2 Birds 1855-58 pp. 1-4 [MS at Berg Collection, NYPL]
Chart F19f1 Birds for April p. 1 [MS at Agassiz Museum, Harvard]

51

52

- A small bird 52
- Wren
- Sharp-shinned Hawk? 51
- Some birds black with a little white
- Chipping Sparrow May 2nd Aug 6 not heard in morn.
- Purple Finch " 1st
- Passing sparrow in house
- Barn Swallow " 7th
- Hermit Thrush
- Martin May 8 prob long before
- (or ruby?) - bated near
- Warbling May 6
- Small black striped warbler in willow (was it a myrtle bird?) " 19th
- Blue Heron " 24th
- Loon " 25th still sings July 27-28-31
- Wood Thrush " none heard of late
- King-fisher " 25th
- Black & white Creeper May 1st
- Cat bird " " Aug 1st none heard long time
- Swamp Sparrow
- Chickadee May 1st Aug 6 no song
- Pigeon Hawk?
- Red Start
- Barn Swallow May 8
- Starke driven run Oct. 27 - Oct 27 '51 " 26 heard June 16 seen Aug 31st
- Summer Yellowbird May 7th
- Chipping Swallow " 8
- Cliff Swallow
- Hawk - white wings, wings black tipped beneath
- Myrtle bird May 2nd
- Indigo bird & mate " 2nd
- Red-breasted Nuthatch? with Red?
- Brown Towhee May 3rd Aug 1st none heard for long time
- Whip-poor-will May 16

Birds in A Large Hawk



Crow
Haw Hawk scream

Bluebird
Lark

Robin

55

Jan 31

May 15

56

Feb. 17 East Hill Spring art
No. bird - but later with hiker -

- Golden Eagle
- Pig. Hawk
- Sp. "
- Falco lineatus
- Barn Owl
- BB Sylvia cantona
- BB S. virens
- Savannah Sparrow
- Crow
- Glossy Ibis
- Killdeer

Mar 6 fine NE - building
Mar 2

- 14 Bluebird
- 17 Lark
- 15 Redwing
- 13 Robin
- 24 Heron
- 16 Song
- 25 Black
- 8 Quail
- 35 Hummer
- 26 F. Hawk
- 27 Phoebe
- 63 Cow
- 19 Jay
- 57 Song
- White
- 40 Boy
- 31 Owl

135 NW 30
138 - Normal
20 - March
24 - April
26 - April
29 - April
30 - April
34 - April
39 - April
44 - April
46 - April
49 - April
53 - April
55 - April
58 - April
59 - April
61 - April
64 - April
67 - April
72 - April
78 - April
82 - April
87 - April
95 - April
105 - April
112 - April
118 - April
121 - April
124 - April
129 - April

Mar 9
Feb 26 - Heard for M
in rocks on meadow Sept 20

Mar 8 - regular song 22' - in full blast
Mar 8 - 2 eggs May 6' - 1/2 done with eggs May 12
some eggs hatched May 14' - nearly grown June 15

15'

23 1/2

Number	Species	Date	Notes
5	Sparrow	Mar 8	30 Rusty Grackle (Apr 18C) Apr 3 - Mar 29 - Mar 19
6	Goshawk	Dec 10	Apr 24 (1) Foxglove Spar Mar 14
7	Titmouse (Spring)	Apr 2	9
12	Greenish Owl	Apr 4	87
12	male birds	Feb 20	
18	crow	Mar 5	
4	Blue Jay	Mar 22	9
7	chickadee	9	Spring water Feb 4 - Mar 8
30	Parula	Apr 6	
9	heron	9	all winter
22	Shrike	Mar 9	
14	Bluebird	Mar 7	Feb 24
17	Lark	Mar 12	Feb 26
15	Redwing	Feb 26	
13	Robin	Mar 10	Mar 8 - Feb 25
24	Herring Gull	Mar 12	
16	song Spar	Feb 26	Feb 24 - all winter
25	Black Duck	Mar 14	
8	Quail	Mar 20	
35	Hummer	Apr 18	Mar 26
26	F. Manalis	Mar 15	all winter (Mar 14)
	Hawk	Mar 21	
27	Procter	Mar 15	Apr 9
63	Cowbird	Apr 18	Apr 9
19	Geese	Mar 16	Mar 6
5	song Spar	all winter	
	White Duck	Mar 22	
10	Booby	Mar 23	
31	Small	Mar 22	
11	North	Mar 25	Feb 17 - Feb 18
43	Wren	Mar 26	Mar 9
47	Pen	Mar 26	Mar 6
21	Tree Spar	Apr 5	Mar 8
12	Pig	Feb 18	
28	Pigeon	Mar 18	
43	crow	Apr 3	Apr 1
64	Large	Apr 20	
	Small	Apr 30	
32	Rust	Mar 31	
45	song	Apr 1	
47	Blue	Apr 3	
36	Imp	Mar 26	
52	Red	Apr 8	
45	Pine	Apr 2	Mar 31
44	White	Apr 8	Mar 29
46	Turtle	Apr 2	
49	Wood	Apr 4	
50	Brown	Apr 6	
44	White	Apr 4	Apr 3 - Apr 1
32	Fork	Apr 5	Mar 23
	Small	Apr 7	
54	Wren	Apr 9	
61	Sharp	Apr 13	Apr 16 - 15
53	Chip	Apr 9	Apr 8
48	Purple	Apr 1	Apr 12 - Apr 3
	Sparrow	Apr 15	
67	Bank	Apr 18	Apr 23
59	Hermit	Apr 18	Apr 15
	Wren	Apr 13	

Canada warbler? June 4
 Solitary Tattler Aug 28 - May 26-1911
 Tringa fusca Aug 19
 Mocking bird Aug 10
 upland plover Aug 11 - May 12 (6) 131
 Golden plover Sep 4
 d wren Sep 30
 warbler Nov 1
 Turnstone? or semi - Nov 30 (?)
 helminth msp?
 Semipalm. plover Nov 13
 Thrush Nov 4
 Pine Siskin Nov 25
 Great white owl about Nov. 20
 Short eared owl (?) Dec. 8
 Chimney swift Nov 6-53
 Eagle Dec 26
 864¹¹ warbler
 67¹¹ Red breasted Sapsucker Dec 14 Apr 19 (55)
 140 Mountain Chickadee Dec 28
 (Noddy?)
 6+ Brown Creeper Feb. 14 - Jan 22
 Jan 11 Dec 21

Strange warbler June 15
 Lost Oct 10 - Apr 24
 Green winged Teal Aug 29 - Mar 23
 2 warblers Sep 23
 56
 Snowbird Nov 7-53 Dec 14
 Turkey vulture Mar 20 - 19
 Heron or marsh hawk Jan 30
 Eagle or fish hawk Apr 6
 small hawk Apr 22
 A warbler May 18
 111 Turken Aquatic(?) May 19
 110 Sylvia strata May 20
 small hawk May 24
 115 Ch. admiral? black night May 25
 yet heard of an egg
 "warbling yellowish b. Aug 18
 small yet. bird? etc. Sep. 4
 vis-like bird in garden Sep 28

57
 Hawk Mar 8
 New warbler May 29
 small hawk Oct 22
 58

55
 140 Large hawk Jan 31
 140 Earliest Spangula or woodpecker Feb. 17
 v. Feb 15-57 - 2 Mar 19-57
 140 Hairy Woodpecker Apr. 9 (3) real eggs 105
 small dark ducks Apr. 15
 140 Golden eye Apr. 16 - Mar 27
 v. Feb 28-57
 Hawk Apr 23
 Hawk Aug 1st
 140 Blue vireo-like bird May 5
 140 Redstart-like - warbler May 15
 Blue heron-like May 16
 New warbler? May 28
 Warbler June 4

34 Alauda alpestris Mar 24
 85 Solitary in white? (vis) May 3
 105 Plover like note Sparrow May 15
 42 T. Parula (?) July 26 (20) Apr. 15
 55 Marsh wren Aug 5 - Mar 24, 9
 121 Plover-like note Aug 9
 126 R. vireo-like bird Sep 9
 126 Rallies Carolina Sep. 18
 127 Tringa pectoralis Sep. 25
 128 Chipmunk-like bird in garden Sep. 27

- 62 Ruby-cracked Wren
- 66 Warbling vireo
- a warbler
- 60 Blue Heron
- 70 Loon
- 65 Wood Thrush
- 87 Kingfisher
- 77 Blue-white Creeper
- 81 Catbird
- 73 Swamp Sparrow
- 74 Ch. Wink
- 66 Pigeon Hawk
- 82 Red Start
- 69 Barn Swallow
- 71 Starling
- 83 Summer Yel. bird
- 78 Chipping Wren
- 86 Cliff Swallow
- 67 Indigo Bird
- 64 White-throated Sparrow
- 84 Indigo bird
- 75 Brown Thrasher
- 106 Whip-poor-will
- 79 Small Pewee
- 87 Pewee
- Thru-worm Eater
- 89 Gold-billed
- 80 Redstart
- 90 Live-forever Wren
- 92 Maryland Yel. Thrush

- Apr. 18 93 Wilson Thrush May 7
- Apr. 27 Golden Robin May 8 May 7(1)
- Apr. 20 95 Night Heron May 8
- Apr. 19 - Apr. 15 88 Parula Warbler May 6(5) - May 4
- Apr. 24 96 Pr. May 9
- Apr. 25 Apr. 21 - Apr. 15(1) 91 Bobolink May 10 - May 6
- Apr. 23 Apr. 15 - Apr. 11 97 Kingbird May 10 - 9
- Apr. 27 99 Red eye May 11
- May 10 101 Tanager May 12 (1) - 26(1) May 15
- Apr. 26 100 Warbler - May 12
- Apr. 26 98 Yel. throat vireo May 27 - May 20
- Apr. 26 22-56 109 Rosebreast Grosbeak May 25 - May 18
- May 10 NYPL 100 Hybrid May 13
- Apr. 24 - Apr. 23(1) 51 Goldfinch May 5 - Apr. 7
- Apr. 24 New Warbler May 23
- May 2 102 Hummingbird May 16(1) - May 15
- May 2 Apr. 28 105 Maculosa May 20 - May 15
- May 4 105 Ch. Wink May 15 - 52
- Apr. 23 103 Peep May 15
- May 4 Apr. 23 - May 15 101 Wood Pewee May 17
- Apr. 27 Apr. 26 108 Kinglet hawk May 17
- May 16 112 Great. Tit-tail May 19 - May 23
- May 2 Apr. 30 109 Cherry bird May 20 - May 14
- May 4 121 New bird June 20 - 24
- May 4 100 Bluebird May 20
- May 6 100 Cuckoo May 14 - (1)
- May 1st Apr. 30 114 S. Blackburnian May 20 - May 15
- May 6 121 121 R. Virginia May 16
- May 7 108 108 Chestnut-sided Warbler May 20 - May 17 - 18 - 20

And one deals with insects.

Chart F31a Insects &c p. 1 [MS at Beinecke Library, Yale]

Insects 51

52

53

Grubs stretch under leaves
Hialis or Perla or ice

Jan 10 to Mar. 7

Ants come out of stumps

Mar 12 Choppers say a fork
might.

Caterpillars
Dusky leaf-eat grubs a new (T. p. granetia grubs?)
Small fuzzy grubs (with legs - 21 days old)

Mar. 13

Jan

Bluish Cicindela

Mar 20 v. Apr. 11

Black & buff butterfly Vanessa Antiope

Mar 20

Honey Bee

~~Apr. 10 - Bee hunting~~ Sep 30 Mar 21 - Swarm June

found in all 27 stumps (stump 10)

Water-bugs & Skaters
Skaters

Apr 11 - Open out Oct 22 - leave Mar 22 (12? + 20?)
found Oct 26 - A large one
(Apr. 29)

Grasshopper

Mar 22 - many 1st time

Caterpillar (common)

nest in wild cherry May 20 - Mar. 22. Nest 2 or 3 mi

Ephemera over River

Mar. 26 -

Small light-colored ants

out hills May 7

Mar 29

Wasp

in run Oct 2nd May 6

Apr 2nd insect-works
out Nov. 19

Large red-black ants

Apr 2nd

Flag-like bees etc.

Apr 7

54

Feb 18

No snow Mar 5th
Feb 9th
Mar. 7 - fuzzy in swamps Apr 23

6th were they fuzzy?

Mar 17 (v. Apr 12) - Apr. 5

Mar 16 - 1st about willow Apr. 20

Small greenish Apr 5

Small greenish Mar 17 - Large coupled May 23

Mar 13 - coupled May 23

June 24

Small green Apr. 19

Indian May 4

Full moon

white large

Mar 7 (?)

Apr 7 - common one

March 30

Apr. 21st at work

Apr. 20 about willows

Finally, there's the Pond Kalendar, which gives freezing and thawing dates for Walden and Flint's Pond and Fair Haven Bay.

Pond Kalendar [MS at Morgan Library]

15

4586-93 days
4689 112 "

5081-91 days

5283 77 "

5374 97 "

5485 103 "

5586 110 "

5687 100 "

NB I calculate in Spring of 60 that Walker
passed on the NW. Dec 25"
F.H. P. about Dec 2'

(32)

40%

Fond Kalendar
Walden Flats Fair Haven
Freeze Thaws Freeze Thaws Freeze Thaws

1845	Dec 22	Apr. 1			
'46	" 16	Mar. 25			
'47		Apr. 8			
48					
'49	Dec 31(?)		Between Dec. 23 & 28		Before Dec. 9
'50	" 27		Dec. 16		Week before Dec. 8
'51		Mar. 28			
'52	Jan. 5	Apr. 18	Dec 21(?)		Nov. 23
'53	Dec 31	Mar. 23	Dec. 5	Mar. 21	Dec. 4 Mar. 22
'54	Dec 18	Apr 7 th		Mar. 31	before Dec. 8 Apr. 5 th or 6 th
'55	Dec. 30 th	Mar. 31		Mar. 28 th	Apr 5 th
'56	Dec 19	Apr. 18			Apr. 13 th
56	Dec. 28	Mar 29			Mar 26 ap. Monday
58	Dec 25	Mar 28 th		Prob. Mar 28	Mar 28 th x 2
59	Dec 25	Mar 29			Dec 9 th Mar 23
60	on 16 (Sat. e.)	May 15		Mar 15	
61	Dec. 29				
62					

The general phenomena charts may be of less interest to ecologists than the more specific charts. For Thoreau, the perceiver of information was as important as what was perceived, and you find in these charts a number of subjective categories--a "finger-cold day," for example--mixed in with the objective ones like the height of the water as marked on a particular bridge.

My interest in this material isn't the same as an ecologist's would be. I want to know how it fits into the intellectual work Thoreau was doing to prepare for writing, and what it means about his understanding of the laws of nature. I'm interested in how and when he developed the categories of information he used for his lists of general phenomena--lists of these categories are extant--and how those categories both grew out of his observations and helped to shape what he observed.

F32d1 June Categories [MS at Morgan Library]

F23d3 categories Nov phenom [MS at Morgan Library]

Richard he high
 + winter like morning
 Ambrose's drift
 Miss fleas
 Corns fly S.W.
 Tortoise still he out
 many crickets heard
 Reign of crickets
 Note col. in wood
 Radical birds to
 some extent
 always in the snow

+ 20 Thunder storm
 + 28 Lightening in air
 9000 of cleared land to west
 + 14 very heavy
 + 28 much of the snow in air
 + 8 began to fall a few
 + 10 snow heavy cut off
 + 30 snow on the head
 + 32 snow in horizon
 + 5 snow on the ground
 + 5 snow on the ground

159 Spring low
 160 Spring low
 161 Spring low
 162 Spring low
 163 Spring low
 164 Spring low
 165 Spring low
 166 Spring low
 167 Spring low
 168 Spring low
 169 Spring low
 170 Spring low

171 Spring low
 172 Spring low
 173 Spring low
 174 Spring low
 175 Spring low
 176 Spring low
 177 Spring low
 178 Spring low
 179 Spring low
 180 Spring low

Rain snow to
 Rain highest
 Rain in the hall
 Rain in last hall
 N.E. storm driving "Duck"
 Rain falling from the sky
 Frost set
 Still cloudy through the day
 Thunder storm
 Lightning in eve

Turbid water within
 East + putting
 Turbidity water
 heavy a thick coat the snow
 Turbidity water
 very cold
 Ice - fairly on bushes
 Ice on the ground
 Fine snow
 Heavy snow fine continuously
 1st snow

20 snow on the
 21 snow on the
 22 snow on the
 23 snow on the
 24 snow on the
 25 snow on the
 26 snow on the
 27 snow on the
 28 snow on the
 29 snow on the
 30 snow on the

31 snow on the
 32 snow on the
 33 snow on the
 34 snow on the
 35 snow on the
 36 snow on the
 37 snow on the
 38 snow on the
 39 snow on the
 40 snow on the

Spring low
 Farmers ditch dry much
 ditches in horizon
 Wild geese down middle

High wind
 strong N.W. wind
 Strong S.W. wind
 Reflection from the mountains

Double shadow on bank
 Rising light from rain
 Peak in W. light
 Golden yellow sunset

Dark night
 Turbidity water
 Gloom
 Heavy
 Fading
 Winter the snow

181 Spring low
 182 Spring low
 183 Spring low
 184 Spring low
 185 Spring low
 186 Spring low
 187 Spring low
 188 Spring low
 189 Spring low
 190 Spring low

New York March 5/56.

Mr. Mooreau,

Lead Pencil Manufacturer

Concord, Ms.

Dear Sir. Inclosed please find \$5 for which please send, as soon as possible, marked for electricity as heretofore.

Respectfully yours
John Moore

John Mooreau
Concord Mass

19	11	16	11	6	20	14	12	20	16	145
----	----	----	----	---	----	----	----	----	----	-----

1st break fine
 Fred's...
 Sp...
 Nov...
 N...
 S...
 S...

7	23	21	29	25	21	23
16	14	30	18	23	30	28
7	6	18	95	18	18	57
15	25	25	02	39	22	19
11	25	27	27	139	116	23
16	19	25		28	23	113
81	113	77				36
17	19	26				19

J. H. 9/12/8

you bill \$30 -
 2
 3
 3
 5
 5
 51

Mr. Johnson has sent the
 bill in receipt of the box of
 plum toys but as we have to wait for the
 (ship until they arrive, we will not open
 the box until necessary but as the
 for the first time from your bill
 After we inform you we will
 that we should have to wait 2 or 3 weeks
 before you can receive the same therefore
 we wait in time for our bill to be ready
 expecting to have to wait for the plum toys
 in future we will remit the cost
 when we give the order

27	27
1	21
6	24
3	23
102	17

New York 17th Nov 88

Johnson by

6	12	14	32	10
10	10	80	27	
19	60	19	20	1221
38	40	44	19	34

I want to know more about what kind of context Thoreau saw himself working within--he distinguished his goals from those of scientists who were becoming professionalized in the 1850s. He was a member of the fledgling Association for the Advancement of Science for the year 1853--in early March 1853 he filled out this questionnaire and returned it to Spencer Fullerton Baird, Secretary of the Smithsonian Institution and the first permanent secretary of the AAS.

Questionnaire returned to Spencer Fullerton Baird [MS at Morgan Library]

[To be returned to S. F. BAIRD, Washington, with the blanks filled.]

NAME.....	Henry, (David) Thoreau
OCCUPATION (Professional, or otherwise.)	Literary and Scientific, Combined with Land-surveying
POST-OFFICE ADDRESS.....	Henry D. Thoreau Concord Mass.
BRANCHES OF SCIENCE IN WHICH ESPECIAL IN- TEREST IS FELT.....	The Manners & Customs of the Indians of the Algonquin Group previous to contact with the civilized man.

REMARKS.

I may add that I am an
observer of nature generally,
and the character of my
observations, so far as they are
scientific, may be inferred from
the fact that I am especially
attracted by such books of science
as White, Selborne and Hum-
boldt's "Aspects of Nature".

With thanks, for your
"directions", received long since
I remain

Yours
Henry D. Thoreau

Thoreau lists his occupation as

Literary and Scientific, Combined with Land-Surveying.

In response to “Branches of science in which especial interest is felt”, he named

The Manners & Customs of the Indians of the Algonquin Group previous to contact with the Civilized Man.

I may add that I am an observer of nature generally, and the character of my observations, so far as they are scientific, may be inferred from the fact that I am especially attracted by such books of science as Whites Selborne and Humboldt’s “Aspects of Nature”.

but having completed questionnaire, he wrote in his Journal for March 5, 1853:

The Secretary of the Association for the Adv. of Science--requested me as he probably has thousands of others--by a printed circular letter from Washington the other day--to fill the blanks against certain questions--among which the most important one was--what branch of science I was specially interested in--Using the term science in the most comprehensive sense possible-- Now though I could state to a select few that department of human inquiry which engages me--& should be rejoiced at an opportunity so to do--I felt that it would be to make myself the laughing stock of the scientific community--to describe or attempt to describe to them that branch of science which specially interests me--in as much as they do not believe in a science which deals with the higher law. So I was obliged to speak to their condition and describe to them that poor part of me which alone they can understand.

The fact is I am a mystic--a transcendentalist--& a natural philosopher to boot. Now I think--of it--I should have told them at once that I was a transcendentalist--that would have been the shortest way of telling them that they would not understand my

explanations.

How absurd that though I probably stand as near to nature as any of them, and am by constitution as good an observer as most--yet a true account of my relation to nature should excite their ridicule only.

If it had been the secretary of an association of which Plato or Aristotle was the President--I should not have hesitated to describe my studies at once & particularly.

(Journal 5, pp. 469-470)

When Baird proposed him for membership in the AAS again at the end of 1853, he declined, though “with hearty thanks,” giving as his reason that he wouldn’t be able to travel to meetings.

Let me conclude by noting that though my use of this work of Thoreau’s would be different from Richard Primack’s and Abe Miller-Rushing’s--and almost certainly from those of any of the scientists or informatics specialists here--our interests are not incompatible. We both need to have the data in a more accessible format.

This could begin with making available digital images of the manuscripts. Then more people could see them, and Thoreau’s miniscule handwriting could be sufficiently enlarged as to make it legible. Most of the material is owned by ten institutions, and since libraries have long since realized the value of digitizing fragile and important material--both for preservation and to increase public awareness--I imagine they would be enthusiastic.

Then, it seems to me, the fullest use by the widest range of people could be ensured by keying the data from both the lists and the charts into a database program that would allow

access by date, phenomenon, and repository.

But this part is outside my area of expertise, and I'd be happy to hear from you about how I should approach this material. I can read Thoreau's hand, but I don't know how to organize this information. Any advice, or questions?