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BIRD MIGRATION RECORDS OF WILLIAM BARTRAM.

1802-1822.

BY WITMER STONE.

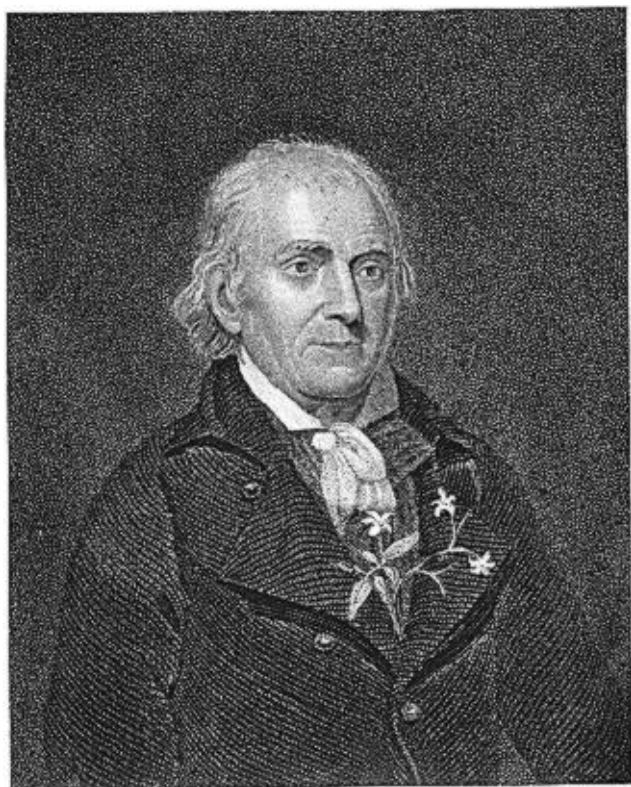
*Plates IX, X, and XI.*

THERE is preserved in the library of the Academy of Natural Sciences of Philadelphia a well worn manuscript volume with pages about four by six inches and a pasteboard cover upon which is inscribed in almost illegible characters "Calendar of Natural History, Memorable Events &c" while page one bears the heading "Calendar for the Year of our Lord 1802."

There follows a daily record of the state of the weather, the blooming of plants and trees and the appearance of birds, insects and other forms of animal life, after the manner of Gilbert White's Calendar in his Natural History of Selborne.

An insert informs us that this is the manuscript diary of William Bartram during the years 1802 to 1822, kept at the old Bartram homestead on the Schuylkill in Kingsessing, now a part of the city of Philadelphia, though at that time several miles out in the country.

The Bartram place established by John Bartram, father of William, and like him a famous botanist, is now preserved as a city park under the name of Bartram's Garden. Here one can still see the old house built by the elder Bartram with his own hands, and can walk along the box-bordered paths and admire the various trees, shrubs and herbs brought by the Bartrams from various



*Will. Bartram*

From Welch's Engraving of the Portrait by Peale.

parts of the Middle and Southern states, or raised from seeds obtained in exchange from more remote countries.<sup>1</sup>

What is more interesting to the ornithologist is the fact that to this same garden came Alexander Wilson the Scottish schoolmaster, from his little county school house which stood near by, and largely under the influence of William Bartram and the famous garden, he developed into Alexander Wilson the American Ornithologist.

The diary begins with the very year that Wilson came to Kingessing and had Bartram only seen fit to record his impressions of the young schoolmaster and his subsequent activities, what an historical storehouse this little volume would be! He kept it strictly a 'Calendar of Nature' however, and so far as we can gather from its pages such a man as Alexander Wilson might never have lived.

But there is a mine of information in these closely written pages and the data on bird migration constitute, we believe, the oldest record, covering a series of years, that we have for any part of North America. The record is by no means complete and every year one or more common birds are omitted, while we must remember that Bartram was familiar with only a portion of our native birds and made no pretense of being an 'ornithologist.'

The diary is not continuous and the writer, like many another keeper of journals found that it was easier to start on New Year's than it was to continue the record day after day. It runs from January 1, 1802 to September 20, 1808 missing here and there a few days or once or twice as much as a month, and always more detailed in winter and spring than later in the year. Then there is a gap until January 1, 1814 and another from February 13, 1814 to January 1, 1818, from which point it continues until December 31, 1822, about seven months before the death of the writer, whose increasing feebleness is reflected in the wavering lines of the handwriting. Eleven spring seasons are thus included, but only the most familiar birds are noted every year. Bartram was sixty-three years of age at the opening of the calendar and eighty-four

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<sup>1</sup> cf. William Bartram, By George Spencer Morris. 'Cassinia', 1906, p. 1. The illustrations used in this biographical sketch are reproduced in 'The Auk' through the courtesy of the Delaware Valley Ornithological Club.

at the close, but his constant out door life and the favorable situation of the gardens offset any lack of ability due to age and make it probable that he recorded the common species as soon as they came about his house.

I have recently read the journal through and have copied out every reference to birds. These I have arranged systematically and now through the courtesy of Dr. Edward J. Nolan, librarian of the Academy of Natural Sciences of Philadelphia, I am able to present them to the readers of 'The Auk' with such comments as seem pertinent.

As these data, separated from the botanical and meteorological information with which they were originally associated, give one no idea of the character of the daily entries, I have reproduced verbatim the greater part of the record for January, 1802, and the more important zoological data for the remainder of that year.

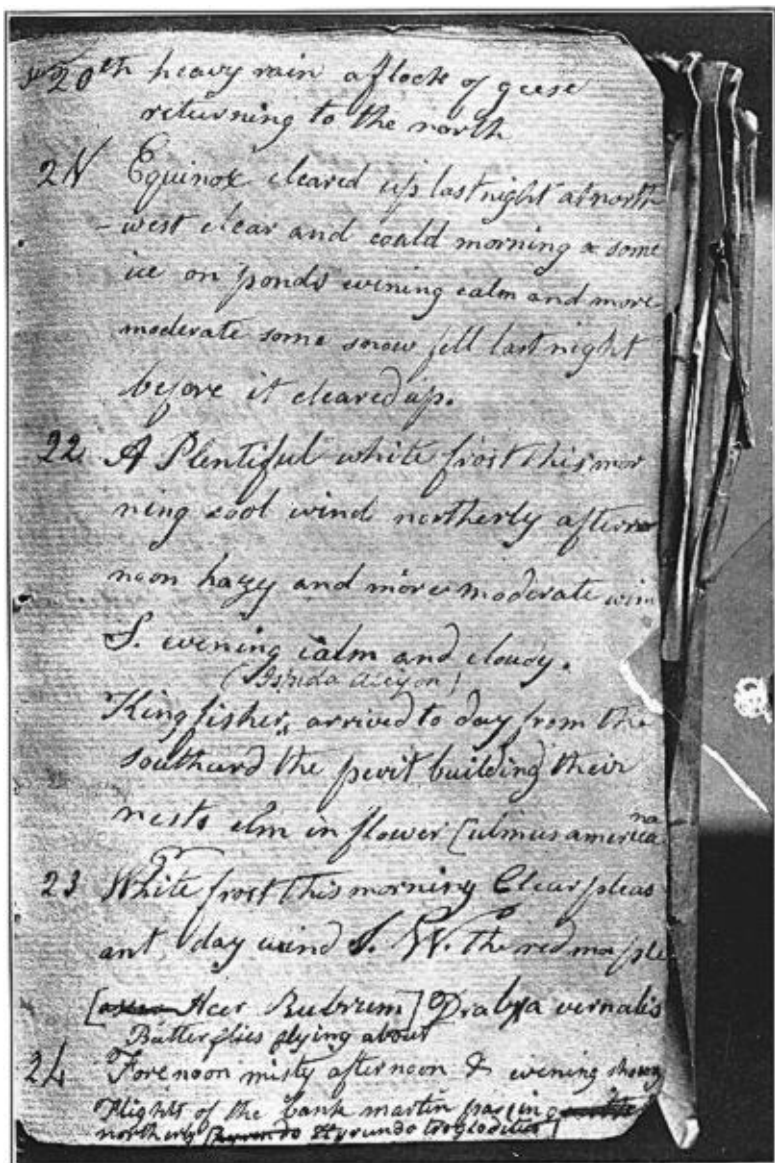
From these the reader will be brought into sympathy with the writer and will be enabled to picture the gentle old man, looking after his farm and pottering about his beautiful garden on the river shore and each evening by candle light jotting down in his little book the events of the day that stood out most prominently in his simple life.

Following this will be found the systematic compilation of bird migration data and a comparison of the average dates of arrival for certain species with the average dates of arrival at Philadelphia one hundred years later.

#### CALENDAR FOR THE YEAR OF OUR LORD 1802.

- Jany. 1. The weather serene and as warm as in the month of May after a white frost in the morning. The fields and gardings green with growing vegetables, several species in flower and abundance of insects darting in the air and birds singing as in the spring of the year, frogs lively in the springs. Wind south east.
2. Slight white frost, the day exceedingly warm and pleasant as yesterday, Wind S. W. Spiders darting their webs wasps flying about (*Vespa anularis*) the blewbird sings (*Motacilla Sialis*). Evening calm and warm.

- 5 Slight frost this morning, midday warm, wind Northerly evening calm and serene, wind S. W. Mockbird Not yet left us on his passage to the south (*Turdus polyglottos*)
- 6 White frost this morning and some ice but midday very warm and pleasant. Afternoon cloudy evening hazy, warm and thawy, wind E. Birds numerous, Snow Birds, sparrows, woodpeckers, golden crowned ren, titmice (*parus atricapillus*, *P. cristatus*) Nut hatch (*Sitta canadensis*), Crows numerous, Hawks of various species. Blue bird, Robins (*Turdus migratorius*) and an endless variety of insects
- 7 Last night plentiful showers of rain, air warm, cleared up in the afternoon, the wind S. W. evening serene and warm. Frogs whistle, the sparrow hawk scream (*Falco sparverius*).
- 11 Clear with high westerly winds and pritty coald, the wind setted at the north west with strong winds & very coald.
- 15 Clear and warm as May day, no ice to be seen in the river, the bees out till evening flying about. Sparrow hawk & Blew bird. Crocus verna, Narcissus, snow-drops, Tulip Above ground. Hamamelis is full bloom. Wind S. W.
- 17 Some frost this morning moderately cool but pleasant all the day, evening hazy, wind southwardly Ducks on Schoulskill
- 19 A Beautiful white frost this morning, a fine clear warm day, the river Schuykill exhibits very little signs of winter and the corn fields green as in the month of may. Wind S. W.
- 23 Chilly and cloudy Cleared up before sunset evening serene moderately cool, wind N. E. Blue birds, Fringilla Tristis (Yellow Bird), Fringilla Purpurea (Purple finch)
- 25 Coald and freesing, some snow Seen to fall tho the wind was S., cleared up before sunset, the wind N. W., evening serene and cool. the owl screamed last night.



A PAGE OF THE BARTRAM 'CALENDAR.'

- 27 Large flights of Crows to the southward (*Corvus frugivorus*)
- 31 Clear pleasant and moderate weather, no frost, the fields and pasture green as in the spring. Grass and grain growing night and day. Spring Aconite (*heleborus*) in flower in the garden. Large flocks of ducks in the river Schuikill. The face of the earth exhibits more the appearance of spring than winter

- February 1 A large flight of blew birds past by from the southward.
- 2. Seeds of vegetables vegetate in the garden such as radish, larkspur and many other kinds; many in flower as primula, Daphne, mezrium &c
  - 10 Bees are out of the hives seeking for flowers
  - 14 A small flock of red-wings (*Oriolus phoenicia*), the Blew birds begin to pair
  - 15 Peach buds swell
  - 16 Wood Cock (*Scolopax rufa*) Arrived from the southard Filbert in flower.
  - 17. The ground Squirrel came out of their winter quarters frisking about in the warm sun. The Crow Blackbird (*Gracula Barita*) arrived from the southard The alder in blossom
  - 21. A fine warm day. large flights of red wings. People swimming the Schuikill afternoon
  - 22. Began to snow this morning before light and continued increasing all day the air extremely cold.
  - 23 Blue Birds flying about
- March 2. Flights of red-wing passing from the southard and flocks of Cedarbirds.
- 3. Flights of Redwings and ducks passing from the southard
  - 5. Wild Geese passing northerly.
  - 10 The Killdear (*Charadrius vociferus*); Dwarf Dafodill and snowdrops in flower
  - 11 Spring frogs whistle, flocks of various kinds of ducks in Schuikill from the southard.

- 12 The crossbill passing Northerly.
  15. Blew birds build their nests.
  16. Sun set very red last night. *Crocus verna* in full flower; shad frog.
  17. Flocks of Birds of Passag flying northerly.
  18. Smoky sun, warm growing weather. Pewit and Cowpen bird arrived from the south ward. Wind S.
  20. Heavy rain, a flock of geese returning to the north.
  22. Kingfisher (*Ispida alcyon*) arrived today from the southard, the pewit building their nests; elm in flower (*ulmus americana*)
  - 23 The red maple (*Acer Rubrum*), *Draba vernalis* in flower. Butterflies flying about
  - 24 Flights of the bank martin passing morthery (*Hyrundo trogloditus*)
  26. Snow lies three inches deep and the trees loaded with it
  27. Most of the snow disappeared
  30. Turtle Dove Cooing (*Columba Carolinaensis*)
  31. Cloudy, warm growing weather. Spice Wood (*Laurus Benzoin*), Rock Saxifrage (*Saxifraga rupestris*), Rock Cress (*Arabis lyrata*), Skunk Cabage (*Dracontium foetidum*) in flower. This last plant has been in flower five or six weeks.
- April 2 The little grey fly-catcher (*Muscicapa grisea*) arrived from the Southward. The Aspen tree *Populus heterophylla* in flower. The glow worm sparkle in the grass
4. Peach trees beginning to bloom
  - 7 The house swallow arrived (*hirundo domestica*)
  11. Fox-coloured thrush (*turdus rufus*) arrived
  12. Fishing hawk (*Falco piscatorius*) and Woodthrush (*Turdus minor*) arrived from the south.
  13. Blue Violet and *Claytonia virginica* in flower
  - 14 The turtle Dove Coos (*Columba carolinensis*)
  15. Quaw bird (*Ardea Nycticorax*) arrived
  17. Ice seen this morning. Peaches and cherries suffered by the frost last night
  19. Chewink (*Fringilla Erythropalma*), Pine creeper (*Parus pinus*), arrived. Wild Tulips (*Erythronium*), *Viola*



- pedata, Anamone nemorosa. Least wood Thrush (*Turdus trogladitus*)
- 20 White frost this morning. Sassafras in flower. Yellow Butterfly (*Pappilio*)
21. A little white frost this morning. Warm pleasant Day Garden Ren (*Motacilla familiaris*), Summer Yellow Bird *Motacilla estivalis*. Plumbs, Currants, Raspberries full in Bloom. Apples beginning to flower. Sweet fern, Liquidamber *perigrinum* in bloom and swarming with bees sucking honey from the flowers
22. Cat Bird. (*Lucar*.)
- 25 Wippoor will (*Caprimulgus Virginica*) arrived.
- 26 Maryland Yellow-throat, (*Motacilla* —) the little olive Coloured warbler (*Motacilla olivacia*). Tree frog *Rana* —.
- 28 Hanging bird, (*Oryolus Baltimora*) & *O. spuria* hummingbird (*Trochilus colubris*). Lylac (*Syringa communis*) Water leaf (*Orontium aquaticum*)
29. Elm seed ripe
- May 2. Redstart (*Motacilla rutasilla*).  
The Apple tree in full flower. The borer Bee out visiting the flowers.
3. Red head (*Picus eriocephalus*), Chimney Swallow (*Hirundo pelagia*), May Bird (*Alauda calandra*), Marsh Sparrow (*Fringilla palustris*) Arrived. Rye in ears, Dogwood (*Cornus florida*). Tumble turf (*Scarabius*) and Several species of Butterflies
4. Yellow-breasted chat (*Motacilla trochilus*). A great variety of small birds of the genus of *Motacilla* and *Parus*. Nearly all the Summer passerine birds Arrived.
5. A Bull frog swallowed a large mole instantly
6. Male rice bird (*Emberiza oryzivora*) arrived
7. Blew linnet (*Emberiza cyanea*) Arrived. Various species of the Dragonfly (*Libellula*). Wasp begin to build their nests.
9. Crested flycatcher (*Muscicapa Crinita*)
- 20 Cool for the season. this has been hitherto the coolest spring, the work of vegetation almost suspended,

esculent vines such as cucumbers, mellons, squashes etc that have come up are mostly destroyed by the cool rains and chilling air and all other kitchen Garden vegetables much injured by the Coald.

21. The lightning fly sparkles in the night (Cantharus —)
  22. *Ardea virescens*, Green bittern, *Muscicapa rapax* wood pewit arrived. Wheat just begining to ear appears to be blasted in many instances, young birds drowned in their nest on the ground by the heavy rains.
  27. Cool. The fire-side is agreeable morning and evening.
  31. Early cherries and strawberries begining to ripen young birds leave their nests such as blue birds, robins, crow blackbirds.
- June 22. Warmest day that we have had this summer
- 29 A male bird of *Loxia Oryzivora* found dead under a tree about five mile from philadelphia, supposed to have escaped from a cage Grain harvest has begun
  30. A luminous Northern light this evening. (*Aurora borealis*)
- July 9. Morning clear and cool, evening cool enough to sit comfortably by the fireside
21. Apples ripe. Oat harvest. Some cases of yellow fever in the city.
  23. *Lilium superbum* in flower we have a plant now in the Garden the stem of which is upwards of eleven feet high terminating in a pyramed, at top composed of 32 perfect Flowers and exhibits a truly superb spectacle.
  25. Sow Buckwheat. Whistling Cricket (*Tetigonia*) in the Evening and Night. Cicada.
  - 28 Fire Flies abundant.
- August 7. Malignous Fever rages in Philadelphia and Baltimore, The inhabitants on recommendation of the Board of Health are moving out onto the Country.
- September 6. Whip-or-will crys this evening they are now on their passage to the South.  
[lapse until Dec. 1.]
- December 2. MockingBird yet with us feeding on Smilax berries
4. Heavy white frost some Ice Mockbird.

11. Cold and frosty. Butcher Bird.
13. Schuylkill scaled over with Ice. Yet *Picus auratus*, Yellow Rump, Blue Bird, Butcher Bird and Mock Bird are with us.
15. Clear and cold. Mock bird, Yellow Rump, Robbins, and Blue Birds
18. Slight fall of snow. *Picus auratus*, Butcher Bird
20. Rained all night Mock-Bird
22. *Ampelis* feeding on Fruit of *Celtis*, *Juniperus* and *Diosperus*
24. Evening serene and calm A very small Owl was caught having no horns, (*capitæ laevi*) not much exceeding the size of a sparrow much like one Figured by Edwards a native of Hudson's Bay.
25. Morning clear. Schuylkill scaled-over with Ice surface of the earth white with hoar frost. serene & warm all day evening calm & moderate wind southerly.
26. Cloudy and moderate. Bluebird
30. Drizzling day. Some Snow about noon but soon turned to Rain
31. Cleared last night. Morning cool. Blue Bird Butcher Bird, *Fringilla tristis*, *Regulus cristatus*. No Ice in Schuylkill. Wasps flying. Moles throw up the Earth. Frogs in springy places. *Dracontium foetidum* above ground.

## SYSTEMATIC LIST OF BIRD NOTES.

**Larus argentatus.** HERRING GULL.

Gulls are still frequent on the river in winter as far as Bartram's Garden and must have been plentiful in his time. He apparently only thought of mentioning them when compiling a particularly full winter list, or at an unusually late date. These are the only records:

1821. February 19. Sea gulls from south passing to the north.  
April 11. Gulls.
1822. February 22. Sea gulls.

**Sterna hirundo.** COMMON TERN?

1822. April 11. Rain showers all night, cleared this morning, blustery Terns.

**Anatidae spp. DUCKS.**

Nowhere, perhaps, is the difference in bird-life one hundred years ago more noticeable than in comparing Bartram's notes on the abundance of ducks to be seen on the river, with the scattering individuals that now venture to stop there. We find the following spring records:

1802. January 17. Ducks in Schoulskill. Pleasant day wind S.  
 " 31. Large flights of Ducks in the river.  
 March 3. Flights of Ducks passing from the southard showery all day and warm, wind S.  
 " 11. Flocks of various kinds of Ducks in Schuylkill from the southard. Pleasant forenoon succeeded by wind.
1803. February 2. Several sorts of Ducks arrived from the South on their return to the North viz: *Anas nigra*, *A. boschas*, *Mergus merganser*. Foggy and drizzling, changed about noon with rain from the south.  
 " 23. Green-winged Teal passing to the North. clear pleasant warm day wind S.  
 " 28. Flocks of Ducks passing northward. Ice on ponds. After sunrise became cloudy and thawy. Evening cloudy and warm; like for rain. Wind S. E.  
 March 4. Great numbers of Ducks in Schuylkill from the south. Warm pleasant day, wind S.  
 " 14. Ducks passing northerly. Morning cloudy and misty, cleared about noon.
1804. February 12. Ducks arrive from the south. Pleasant warm day. Wind S. W.  
 " 19. Black Duck arrived from the south on their passage or return to the north. Warm pleasant spring weather.  
 " 21. Blue-winged & Green-winged Teal migrating north on their return to breed. Clear pleasant weather. Wind S.  
 " 27. Flocks of Ducks in Schuylkill arrived from the south. Morning clear and cold, afternoon hazy, and thawy wind S. W. Ice driving with the tide.  
 " 29. Ducks from the south. Hazy, warm, thawing weather. Wind S. W.  
 April 17. Flocks of Ducks returning from the north. Cool, rain, wind high N. E.
1805. February 23. Large flights of Ducks. Warm and pleasant Wind S.<sup>1</sup>

<sup>1</sup>There is much irregularity in the fullness of the record and the meagre mention of ducks in some years does not, I feel sure, indicate their scarcity.

- 1806. March 30. Ducks and Teal arrived from the south. Wind S. Some Ice on ponds this morning. Noon and evening warm and delightful. Peach nearly in bloom as also Elm and Maple.
- 1818. January 27. A few fishing Ducks. Wind N. E. a little thawy, Schuylkill clear of Ice.
- March 9. Ducks arrived from S. Pleasant moderate day.
- " 13. Teal from the south passing northerly. Warm as May, wind S. Snowdrops. This evening the spring and shad Frogs.
- 1819. March 26. Ducks. Forenoon clear fine spring weather, Wind S.
- " 31. Ducks passing Northerly. Cold blustering day. Wind N. W.
- 1820. March 27. Ducks passing northerly. Warm growing weather. Land frog chatters.
- 1821. February 10. Teal passing northerly. Cloudy. Wind W.
- " 19. Ducks from the south passing to the north. Pleasant warm day. Wind S.
- 1822. February 22. Ducks from the south. Clear moderate, wind N. W.

Autumn duck records are few and I find only the following:

- 1804. October 3. Several kinds of Ducks pass. Clear and pleasant, wind S. W.
- " 24. Cloudy, showery about noon, cleared afternoon, wind N. Soon after great flight of Ducks passing southward.
- 1818. August 24. Blue-wing Teal. Morning clear and cold Wind N. W. Evening cloudy & rain.

**Branta canadensis canadensis.** CANADA GOOSE.

- 1802. March 5. Wild Geese passing Northerly.
- " 20. A flock of Geese returning to the north.
- 1803. March 14. Some Wild Geese have passed.
- " 30. Wild Geese passing northerly all Day.
- 1804. March 17. Flocks of Geese flying to the north.
- " 21. Geese passing northward.
- 1805. March 8 and 17. Flocks of Geese pass by to north.
- 1807. April 16. Large flights of Geese passing northerly.
- 1808. March 8. Geese from southward.
- " 16. Flocks of Geese passt by from So. in morning.
- 1814. February 13. Wild Geese (*Anser canadensis*) pass northerly.
- 1819. March 26, 31 and April 10. Geese passing northerly.
- 1820. March 27. Geese passing northerly.
- 1821. April 21. Large flights of Geese passing North.
- 1822. March 15. Flights of Geese passing to the north.

The autumnal records are as follows:

1804. October 20. Flocks of Geese pass south.  
 " 24. Great flight of Geese passing southward.  
 1805. October 6. Geese pass to the South.  
 November 8 and 10. Flocks of Geese passt by.  
 1807. October 17. Wild Geese passing southerly.  
 1818. November 27. Flights of Wild Geese passing southerly.  
 1820. October 25. Wild Geese pass southerly.

**Branta bernicla glaucogaster.** BRANT.

One record on April 16, 1820 'Brant Geese passing northerly.'

**Chen hyperboreus nivalis.** GREATER SNOW GOOSE.

1807. April 15. Pleasant, clear Forenoon, wind S. which bro't a large Flight of white Brant Geese & a pair of Ravens. The former passt on to the north, the latter westward. Afternoon & evening wind N. No fruit trees yet in bloom. Cornel Tree in blossom.

**Ardea herodias herodias.** GREAT BLUE HERON.

Only mentioned once:

1803. April 14. *Ardea Herodias* arrived. Misty, sun appeared 2 or 3 hours about Midday red as blood through dry mist or Smoke.

**Butorides virescens virescens.** GREEN HERON.

Entered as 'Green Bittern' or as '*Ardea virescens*,' arriving on the following dates:

- |                 |                 |
|-----------------|-----------------|
| 1802. May 22.   | 1807. April 20. |
| 1805. May 4.    | 1822. May 4.    |
| 1806. April 28. |                 |

**Nycticorax nycticorax naevius.** BLACK-CROWNED NIGHT HERON.

Always entered as the 'Quaw-bird' usually with '*Ardea Nycticorax*' added. Arrived:

- |                 |                 |
|-----------------|-----------------|
| 1802. April 15. | 1820. April 13. |
| 1803. April 7.  | 1822. May 4.    |
| 1805. April 23. |                 |

**Philohela minor.** WOODCOCK.

The records of what was then evidently a very common species are as follows:

1802. February 16. Wood Cock (*Scolopax rufa*) arived from the southard.



**Colinus virginianus virginianus.** BOB-WHITE.

1803. January 9. Partredges.  
August 15. Partredge resumes their Winter language.
1804. January 28. Partredges call *Ho-oi-hee*.  
February 11. Partredges.
1818. January 17. Partredge. Our Partredge migrates southerly at commencement of winter, but yet abundance remain with us, perhaps northern broods.
1822. May 4. Partredge (*Tetrao marlandica*).

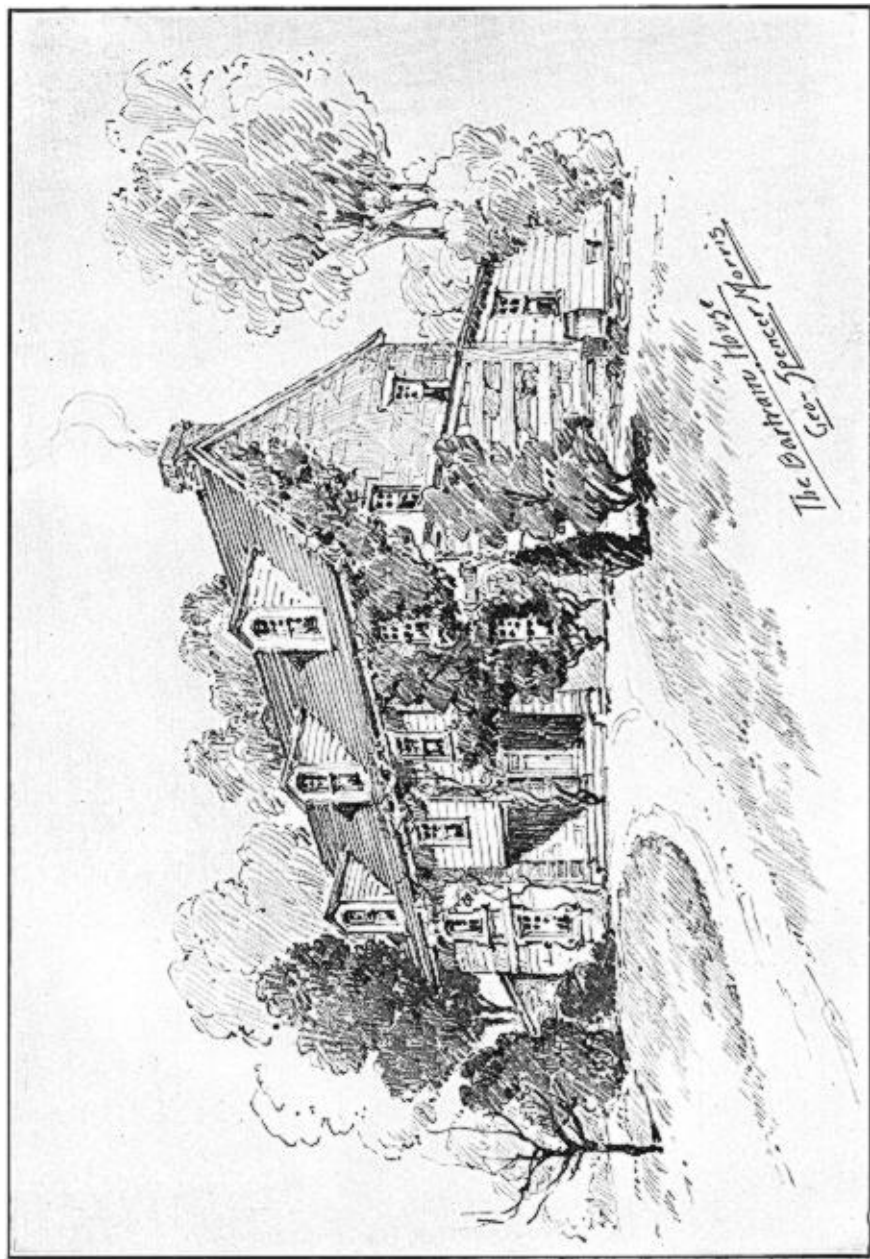
**Ectopistes migratorius.** PASSENGER PIGEON.

This bird is recorded in but three of the years covered by the Journal. Whether like some other species it seemed to the writer too common to merit mention except when it occurred in unusual numbers, or whether the records given constitute the only occasion when the birds occurred near the garden, I cannot say. Wilson writing at this very period states that, "Every spring as well as fall more or less of them are seen in the neighborhood of Philadelphia, but it is only once in several years that they appear in such formidable bodies, and this commonly when the snows are heavy to the north, the winter here more than usually mild, and acorns, &c., abundant."

Bartram's records are as follows:

1803. March 16. Clear warm day, Alder in flower. Large flights of Wild Pidgeons.  
September 11. Wild Pidgeons arived from North Clear & dry, wind southerly. Poke berries & wild Grapes ripe.
1804. January 7. Wild Pidgeons in the Forest feeding on Acorn. The day warm as summer, evening cloudy.  
February 19. Large Flights of Wild Pidgeons (*Columba migratoria*). Warm, pleasant, spring weather, seeds vegetate in open ground.  
March 1. Pidgeons flying northerly. Cloudy morning, began to snow about 11 o'clock. Every appearance & feeling of winter.  
" 13. Pidgeons in flocks. Rainy day cleared at evening.  
April 8. Flights of Pidgeons. Cool, flying clouds from N. W.  
April 22. Flocks of Pidgeons flying northerly Cloudy & warm, wind S. River Schuylkill overflowing, the rapid waters carry along Bridges, rafts, & timber swept from the shores.
1807. January 9. Wild Pidgeons flying in flocks clear & cool.  
February 10. A flight of Pidgeons passt. by Northerly. Cloudy and thawy, evening tempestuous with rain.





**Zenaidura macroura carolinensis.** MOURNING DOVE.

1802. March 30. Turtle Dove Cooing (*Columba carolinaensis*).

April 14. The Turtle Dove Coos (*Columba caroliniensis*).

It is then recorded as present: 1803, Jan. 10, 15, 19, 26. Feb. 12, 15 ('in flocks') 18, 27 and March 3; 1804, Feb. 19; 1807, Jan. 4; 1818, Dec. 23; 1821, May 12.

**Cathartes aura septentrionalis.** TURKEY VULTURE.

Only once mentioned. They occur in this region now only as straggling individuals and a flock is very rare so that conditions appear to be about the same.

1804. June 1. Flock of *Vultur aura*.

**Pandion haliaëtus carolinensis.** OSPREY.

Arrival recorded for seven years, usually under the name 'Fishing Hawk,' but once as 'Fishing Eagle' and once as '*Falco piscatorius*'.

1802. April 12. 1807. April 16.

1803. April 29. 1818. April 2.

1805. April 7. 1819. April 17.

1806. April 15.

**Haliaëtus leucocephalus leucocephalus.** BALD EAGLE.

1803. January 10. Grey Eagle.

**Falco sparverius sparverius.** SPARROW HAWK.

Evidently a common resident then as now:

Mentioned in winter lists on January 7, 1802 and January 6, 1804.

**Falcones spp.** HAWKS.

The river meadows below the Gardens have always been a great rendezvous for hawks.

'Hawks of various species' mentioned as present on January 6, 1802, January 9, 1803, and February 2, 1805 also:

1804. December 3. Many Owls & Hawks seen flying, sign of cold stormy weather coming.

1818. November 1. Hawks (*Falco*) arived from north.

**Cryptoglaux acadica acadica.** ACADIAN OWL.

1802. December 24. A very small Owl was caught, having no horns (*capitae laevi*) not much exceeding the size of a sparrow.

**Megascops asio asio.** SCREECH OWL.

1802. January 25. The Owl screamed last night.  
 1803. January 3. Little Horned Owl appeared near the House  
           hunting mice.  
       February 20. Little Owl (*Strix asio*) whistles this morning  
           about Daybreak.

Also recorded on February 21, 1807, January 12, 1814, July 14, 1818 and  
 January 16, 1820.

**Coccyzus americanus americanus.** YELLOW-BILLED CUCKOO.

Date of arrival of the 'Cuccow' recorded six times, and once as '*Cuculus  
 carolinensis*.' Bartram evidently did not distinguish the two species.

- |                 |              |
|-----------------|--------------|
| 1803. May 7.    | 1818. May 8. |
| 1804. May 6.    | 1820. May 4. |
| 1805. April 30. | 1822. May 2. |
| 1807. May 12.   |              |

**Ceryle alcyon alcyon.** BELTED KINGFISHER.

Dates of arrival are given for six years. Usually the bird is called simply  
 'Kingfisher' but sometimes '*Ispida alcyon*.' Apparently Bartram never  
 found it in winter.

- |                 |                 |
|-----------------|-----------------|
| 1802. March 23. | 1818. March 16. |
| 1804. April 8.  | 1821. April 11. |
| 1805. April 7.  | 1822. April 13. |

In autumn he has the following. Evidently the bird did not summer  
 about the garden, nor does it today.

1818. August 27. Kingfisher arived from north with their young.  
       October 9. Kingfisher arived from the north on their passage  
           to the south.  
 1820. October 17. Kingfisher.

**Dryobates pubescens pubescens.** DOWNY WOODPECKER.

1818. January 17. *Picus punctatus* (least speckled woodpecker).

**Sphyrapicus varius varius.** YELLOW-BELLIED SAPSUCKER.

1804. October 19. *Picus varius* arived from N.  
 1818. January 17. *P. varius* (Pine Woodpecker).  
       November 10. Pine Woodpecker arived from the north.

**Ceophlœus pileatus abieticola.** PILEATED WOODPECKER.

Listed but once; without comment. Now long extinct in the vicinity of  
 Philadelphia

1818. January 17. *Picus pileatus*.

**Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.

Six dates of arrival are given by Bartram for the 'Red-head Woodpecker,' 'Red-head' or '*Picus eriocephalus*.'

1802. May 3.	1819. May 5.
1803. May 4.	1820. May 1.
1818. May 10.	1822. May 8.

In the autumn there is one record

1818. October 8. Red-head Woodpecker yet with us.

There are also two records of a Woodpecker which I take to be this bird in the juvenal plumage, which is worn well into the first winter.

1818. January 17. *Picus cinereus*.

October 8. Grey Woodpecker yet with us.

**Colaptes auratus luteus.** FLICKER.

Bartram refers to this bird as '*Picus auratus*,' 'Golden wing Woodpecker' and 'Flicca,' but mentions it only in the winter months when its occurrence, apparently, as at present, was regarded as worthy of note. He mentions it as present, December 13 and 18, 1802; January 11, 26, February 5 and December 10, 1803; January 6, 1804; January 1, and 5, 1819 and December 10, 1820. Usually he simply uses his quaint phrase 'yet with us' but on February 5, 1803, he tells us that they are 'feeding on *Celtis*, Red Cedar &c'.

**Chaetura pelagica.** CHIMNEY SWIFT.

The swift is termed 'Chimney Swallow,' '*Hirundo pelagica*' or 'Chimney-bird' by Bartram and its arrival is recorded as follows:

1802. May 3.	1806. April 26.
1803. May 2.	1818. May 11.
1804. April 29.	1819. June 5.

Bartram particularly mentions after the last 'first appearance this year.' It seems inconceivable however that it had not arrived in the vicinity long before. In fact all his dates for this species are late compared with recent observations.

For the Autumn he gives three records

1803. September 29.	Chimney-bird left us.
1806. September 9.	Chimney-bird yet with us.
1821. August 19.	Chimney Swallow yet with us.

**Archilochus colubris.** RUBY-THROATED HUMMINGBIRD.

Almost always referred to as the 'Huming Bird' to which is added in one instance *Trochilus colubris*. Dates of arrival as follows:

1802. April 28.	1819. May 4.
1803. April 21.	1820. April 26.
1818. May 10.	1822. May 1.

On the second date of the list he adds that 'Apple and Judas Trees bloom and Glow-worms sparkle'. In the autumn the 'Humming Bird' was 'yet with us' on September 19, 1804, October 14, 1805, October 16, 1806, on which day there was white frost; September 3, 1818, and September 15, 1819.

**Tyrannus tyrannus.** KINGBIRD.

The 'Kingbird's' arrival is recorded for nine seasons.

1803. May 4.	1819. May 7.
1804. May 4.	1820. May 14.
1806. April 28.	1821. April 25.
1807. April 20.	1822. May 1.
1818. May 9.	

In autumn it was 'yet with us' on September 3, 1818.

**Myiarchus crinitus.** CRESTED FLYCATCHER.

Recorded regularly as '*Muscicapa crinita*,' the vernacular name being used but once.

1802. May 9.	1821. May 10.
1818. May 8.	1822. May 9.
1819. May 22.	

**Myiochanes virens.** WOOD PEWEE.

Only the following, although the bird according to Wilson was a regular breeder in the garden.

1802. May 22.	<i>Muscicapa rapax</i> , Wood Pewit, arrived.
1822. May 3.	Wood Pewit.

**Sayornis phœbe.** PHEBE.

One of the few species whose arrival is reported every year, always under the familiar name of 'Pewit.' The dates are as follows:

1802. March 18.	1818. March 13.
1803. March 15.	1819. March 24.
1804. March 22.	1820. March 17.
1805. March 7.	1821. March 10.
1806. March 9.	1822. March 8.
1807. March 16.	

The nest building of 'Pewit' is chronicled in

1802. March 22.	1805. March 18.
1803. March 21.	1818. April 3.
1804. April 27.	

In the autumn 'Pewit yet with us' is recorded on

1803. October 8.	1818. September 3.
1804. October 14.	1819. September 18.
1805. Sept. 30, Oct. 9, 12, 14	1820. October 12.

and finally Nov. 1.

1806. December 1.

Among the few records for 1814 when the diary lasted but a month and a half we find this interesting note:

1814. January 13. Moderate winter weather. Ice in the River but driving with the Tides. Pewit was seen.

**Otocoris alpestris alpestris.** HORNED LARK.

1803. January 9. *Alauda alpestris.* Morning clear & cold River frozen over near half inch thick of Ice.

1804. February 19. *Alauda alpestris.* Warm pleasant spring weather.

1818. January 17. *Alauda alpestris.*

**Cyanocitta cristata cristata.** BLUE JAY.

'Jays' are recorded on January 5 and 9, 1803; January 24, 1804; February 2, 1805; March 13, 1818; January 26 and December 30, 1822. The winter is the only time when any attempt is made to give complete lists of birds seen, which accounts for the mention of many resident species at this season only.

**Corvus brachyrhynchos brachyrhynchos.** CROW.

Crows are reported in January of nearly every year.

1802. January 27. Large flights of Crows to the southward (*Corvus frugivorus*).

1805. February 2. Large flights of Crows pass morning & evening to & from their roosts.

1822. February 22. Flights of Crows passing to N. E.

These records apparently refer to the roost at Merchantville, N. J.

May 18, 1818. 'Young Crows' are recorded.

**Corvus corax principalis.** RAVEN.

1807. April 15. A pair of Ravens passt westward.

**Dolichonyx oryzivorus.** BOBOLINK.

1802. May 6. Male rice bird (*Emberiza oryzivora*) arived.

1803. May 13. Rice Bird arived.

June 2. Female Rice Bird passing to the north after the males to breed.

1818. May 10. Rice bird (Bob-lincoln).

1819. May 17. Rice birds on their passage northerly.

1822. May 3. Rice bird passing northerly.

The only autumn record is:

1818. August 24. Rice birds arrive from the north to feed on grain of *Zizania*, *Persicaria* & grass.

**Molothrus ater ater.** COWBIRD.

The arrivals of the 'Cowpen Bird' are as follows:

1802. March 18.	1808. March 22.
1803. March 12.	1819. April 6.
1805. February 23.	1822. April 19.
1807. March 17.	

**Agelaius phœniceus phœniceus.** RED-WINGED BLACKBIRD.

Usually Bartram speaks of the 'Red-wing Blackbird' sometimes abbreviating it to 'Redwing' and occasionally using 'Red-wing Sterling,' or 'Blackbird, *Oriolus phœnicia*'.

1802. February 14.	1808. March 3.
1803. February 8.	1818. February 28.
1804. February 16.	1819. February 10.
1805. February 11.	1820. February 15.
1806. February 20.	1821. February 19.
1807. February 22.	1822. February 22.

Additional records are of 'flights passing northerly all day' — March 11, 1803, etc. While on December 10, 1803 and December 29, 1819 he writes 'Red-wings yet with us'.

**Icterus spurius.** ORCHARD ORIOLE.

Recorded as '*Oriolus spurius*' except once when '*O. bicolor*' is used presumably referring to this species.

1802. April 28.	1820. April 23.
1808. April 25.	1822. April 30.
1819. April 28 ( <i>O. bicolor</i> ).	

On July 24, 1804 is the record '*Oriolus spurius* yet given us short songs.

**Icterus galbula.** BALTIMORE ORIOLE.

The records are as follows:

1802. April 28. Hanging bird ( <i>Oryolus Baltimora</i> ).
1803. May 3. Baltimore.
1806. April 28. Oriolus [possibly the other species].
1818. May 2. Baltimore arrived.
1820. April 26. <i>Oriolus baltimore</i> .
1822. May 1. <i>Oriolus baltimore</i> , Hangnest or Baltimore Fire bird.

Also one autumn record.

1804. August 19. Baltimore Bird yet with us.
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**Sturnella magna magna.** MEADOWLARK.

Recorded either as '*Alauda magna*' or 'Meadow Lark.' It is mentioned in winter lists on Jan. 9, Feb. 21, Dec. 11 and 26, 1803; Jan. 6, 1804; Feb. 3, 1808; Jan. 17, 1818; Dec. 10, 1820; Jan. 3, 1821; Dec. 8 and 30, 1822. On April 2, 1819; and March 5, 1820, the first spring singing is recorded.

**Quiscalus quiscula quiscula.** PURPLE GRACKLE.

Usually referred to as 'Crow Blackbird,' '*Gracula Barita*' or '*Gracula purpurea*' and once as '*Grackle*.' Arrivals:

1802. February 17.	1818. March 1.
1803. February 23.	1819. March 6.
1804. March 11.	1820. February 17.
1805. February 22.	1821. February 26.
1807. March 12.	1822. February 22.

There are two autumn records, October 9, 1820 and November 30, 1822 when Bartram writes 'Crow blackbirds yet.' while, on September 11, 1820 he records 'Evening flight of blackbirds passing to their roost in Jersey' This may of course refer in part at least to the Red-wing.

**Loxia curvirostra minor.** RED CROSSBILL.

1802. March 12.	Crossbill passing Northerly. Drizzling warm day.
1803 October 9.	<i>Loxia curvirostra</i> arived from N. Asters, Golden rods, Helianthus, Rudbeckia and Coreopsis in flower.
December 24.	Crossbill in Flocks feeding on Pine seeds & Seeds of the Ash. Christmas Eve.
" 26.	Crossbill.
1805. February 26.	Crossbill arived from south on their way northward.
1819 January 5 and 6.	Crossbill.

**Carpodacus purpureus purpureus.** PURPLE FINCH.

Referred to as 'Purple Finch' and '*Fringilla purpurea*,' usually mentioned only in midwinter, when more complete lists were recorded.

It is mentioned as present on Jan. 23, 1802; Jan. 15, 1803; Jan. 26, 1804; Feb. 28, 1818; January 2 and 6, 1819; and December 30, 1822.

On January 27, 1804 is the record 'Purple Finch feeding on seeds of the Ash' and on October 12 of the same year 'Purple Finch' & Hemp bird arrived from the north.' What the 'Hemp bird' might be I have been unable to ascertain but it is possible that the females and immature males of the Purple Finch may have been so designated. The 'Hempbird' was also present on Jan. 12, 1821.

**Acanthis linaria linaria.** RED-POLL.

There are the following records. That of April 30 is unusual but it seems certainly to refer to this species.

1818. January 18.	Snow, Last night freezing. <i>F. rubricapilla</i> (Red-cap Finch).
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- April 30. Little red-cap Finch busy picking Affides off the  
Apple buds. Frost this morning, cold, blustering.  
1822. January 19. Red-crowned Linnet.  
January 25, and 29. *Fringilla flammea*.

**Astragalinus tristis tristis.** GOLDFINCH.

- Entered as '*Fringilla tristis*,' once with 'Yellow Bird' added. Jan. 23  
and Dec. 31, 1802; Jan. 18, and Mar. 13, 1818 and Jan. 1 and 6, 1819.

**Plectrophenax nivalis nivalis.** SNOW BUNTING.

- Only mentioned once, apparently as rare as it is today.  
1803. January 9. *Emberiza nivalis*.

**Melospiza melodia melodia.** SONG SPARROW.

The following appear to refer to this species:

1803. February 12. Sparrows sing (*Fringilla rufa*).  
March 3. Sparrows sing.  
1804. Red Sparrow arrived [possibly = Fox Sparrows].  
1818. January 17. *F. melodus*.  
February 5. Song Sparrow sings.  
May 18. Young Song Sparrows.

**Melospiza georgiana.** SWAMP SPARROW.

1802. May 3. Marsh Sparrow (*Fringilla palustris*) arrived.  
I am not at all sure that this refers to our Swamp Sparrow. Bartram's  
knowledge of the species of Sparrows was evidently limited, until after  
the appearance of Wilson's 'Ornithology.'

**Spizella passerina passerina.** CHIPPING SPARROW.

Curiously enough there are very few records of this common species.  
They are as follows:

1818. April 22. Domestic Sparrow lays eggs.  
1820. March 16. Chipping Sparrow arrived a week past.  
April 11. House Sparrow building its nest.

**Zonotrichia albicollis albicollis.** WHITE-THROATED SPARROW.

- Recorded as '*Fringilla albicollis*' on Jan. 9, 1803, Jan. 2 and 17, 1818.  
On May 1, 1819 is the entry 'White-throat Sparrow disappeared, gone  
on to the north to breed' and on April 13, 1822 'White-throat Sparrow is  
bound northerly'.

**Junco hyemalis hyemalis.** JUNCO.

- Referred to as 'Snow bird' or '*Fringilla hyemalis*' and mentioned in  
winter lists on Jan. 6, 1802; Jan. 9, 1803; Jan. 24, 1814; and Jan. 17,  
1818.

On February 8, 1803 we find 'Snowbirds begin to associate, meditating their departure for the north,' and again on March 11, 1803, 'Snowbirds and other sparrows assemble meditating their journey to the north.'

Dates of arrival in autumn are as follows, all quite late as compared with our recent records:

1803. October 22.	1819. October 20.
1805. October 28.	1820. October 25.
1806. October 29.	1821. October 30.

**Pipilo erythrophthalmus erythrophthalmus.** TOWHEE.

No bird mentioned in the Journal is referred to by as many names as is the Towhee. Two or three times the technical name is attempted with such results as '*Fringilla erythrophalma*' or '*F. eriophalma*,' while the vernacular names are variously spelled, 'Towhee' 'Towe Bird,' 'Towhee bunting,' 'Chewink,' 'Tewink,' 'Tiewink,' and 'Ground Robin.'

Dates of arrival are:

1802. April 19.	1818. May 2.
1803. April 15.	1819. April 18.
1804. April 14.	1821. April 24.

In autumn the 'Tewink' is recorded as 'yet with us':

1803. October 22.	1818. November 20.
1804. October 3.	1819. October 8.
1805. October 25.	1820. October 17.

There were several years when individual birds wintered in the garden as we find the following:

1806. January 18. Saw a Tewink in a sheltered situation Very cold, 10° above zero.

The next winter a bird is reported on Dec. 24, 1806, Jan. 16, 20, 22 and 27, 1807.

In 1820 we find: 'December 28. Towhee bird (*Fringilla eriophalma*). Began to snow, now five inches on the earth,' but on January 2, in spite of the snow he was 'yet with us' and on May 13 following we read 'Towhee bunting building its nest in the garden.'

**Passerina cyanea.** INDIGO BIRD.

Always referred to as the 'Blue Linnet' with '*Emberiza Cyanea*' added one one occasion.

Arrival dates are as follows:

1802. May 7.	1819. May 8.
1804. May 8.	1820. May 9.
1807. May 6.	1821. May 12.
1818. May 8.	1822. May 3.

Autumn dates when the species was still present are:

1803. October 2.	1818. September 3.
1804. October 3.	1819. September 18.



1803. January 9. Ampelis. March 11 Cedar Bird appears.  
 1807. January 19. and 1818 January 29, Cedarbirds.  
 1820. May 16. Ampelis feeding on blossoms of double flowering  
 Cherry.  
 1821. January 2. Ampelis feeding on berries of *Euonymus atropur-*  
*pureus*.  
 1821. January. 12 and 1822. January 23, 26, 29 Cedarbirds.

**Progne subis subis.** PURPLE MARTIN.

1804. August 19. Purple Martin yet with us.  
 1805. April 4. *Hirundo purpurea* arrived.  
 1807. April 11. Martin arrived.  
 1821. April 25. Purple Martin.

**Riparia riparia.** BANK SWALLOW.

Usually recorded as 'Bank Martin' but a few records of 'Martin' seem to refer to this species rather than to the preceding, of this however I am not positive.

1802. March 24. Flights of Bank Martin passing northerly (*Hirundo trogloditus*).  
 1803. March 30, 31, and April 3. Bank Martin passing northerly all day.  
 September 29. Bank Martin passing daily in large flights southerly.  
 1804. April 8. Flights of Martin.  
 October 5 and 9. Flights of Bank Martin passing southerly.

Later dates of arrival are:

- |                 |                 |
|-----------------|-----------------|
| 1805. March 26. | 1818. April 8.  |
| 1806. March 31. | 1819. April 12. |
| 1807. March 24. | 1820. April 13. |
| 1808. March 31. | 1821. April 25. |

**Hirundo erythrogastra.** BARN SWALLOW.

Referred to as 'Barn Swallow' or 'House Swallow' and once as *Hirundo domestica*. Dates of arrival are:

- |                 |                 |
|-----------------|-----------------|
| 1802. April 7.  | 1807. April 11. |
| 1803. April 1.  | 1818. April 15. |
| 1804. April 8.  | 1819. April 17. |
| 1805. April 4.  | 1820. April 13. |
| 1806. April 10. | 1822. April 11. |

Autumn records of 'yet with us':

- |                     |                     |
|---------------------|---------------------|
| 1803. September 29. | 1818. September 12. |
| 1804. August 19.    | 1819. September 12. |
| 1806. August 18.    | 1821. August 24.    |

**Lanius borealis.** NORTHERN SHRIKE.

Always recorded as 'Butcher Bird.'

1802. December 11, 13, 18 and 31.

1803. January 11. 1822. February 3.

**Vireosylva olivacea.** RED-EYED VIREO?

The following probably refer to this species.

1802. April 26. Little Olive Coloured Warbler (*Motacilla olivacea*).

1803. May 1. Olive Flycatcher arrived.

1808. April 25. Olive col<sup>d</sup> Ran.

**Vireosylva gilva gilva.** WARBLING VIREO.

1818. April 27. Warbling Ren.

September 3. Warbling Flycatcher yet with us.

1820. April 26. Warbling Flycatcher.

**Vireo griseus griseus.** WHITE-EYED VIREO.

1821. May 13. Whip-tom-Kelly building its nest in the garden.

**Dendroica aestiva aestiva.** YELLOW WARBLER.

Recorded as 'Summer Yellow Bird' sometimes with '*Motacilla estivalis*' or '*M. estivans*' added. Arrived:

1802. April 21. 1808. April 21.

1803. April 22. 1818. April 27.

1804. April 18. 1819. April 24.

1806. April 23. 1820. April 24.

1807. April 20. 1821. April 25.

**Dendroica coronata.** MYRTLE WARBLER.

Always referred to as 'Yellow-rump' sometimes with *Parus virginianus* added. Arrived:

1803. October 2. 1818. October 8.

1804. October 3. 1819. October 8.

Frequently recorded in winter 'feeding on the Cedar berries,' 1802, December 13, 15; 1803, January 15, 19, 22, March 11; 1804, December 22; 1805, January 19; 1806, December 16; 1807, January 10, 17, 19, 1818, January 2; 1820, April 15.

**Geothlypis trichas trichas.** MARYLAND YELLOW-THROAT.

Arrived:

1802. April 26.

1820. April 23.

1803. May 3.

**Icteria virens virens.** YELLOW-BREASTED CHAT.

Arrived:

1802. May 4.	1820. May 8.
1803. May 3.	1821. May 10.
1807. May 6.	1822. May 9.
1819. May 14.	

**Seiurus aurocapillus.** OVEN-BIRD.

This bird is referred to by a variety of names as seen in the records of arrival; viz:

1802. April 19.	Least Wood Thrush ( <i>Turdus trogloditus</i> ).
1805. April 22.	<i>Turdus trogloditus</i> .
1808. April 25.	<i>Turdus trogloditus</i> .
1818. May 10.	Little Yellow-crested or Ground Thrush.
1819. April 25.	<i>Turdus cristatus</i> , Least golden-crowned Thrush.

**Setophaga ruticilla.** REDSTART.

Arrived:

1802. May 2.	1819. May 4.
1805. April 18.	1820. April 24.

**Anthus rubescens.** PIPIT.

1803. March 7.	<i>Alauda migratoria</i> .
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**Toxostoma rufum.** BROWN THRASHER.

The Thrasher is referred to as 'Fox-coloured Thrush', 'Red Thrush', 'Red-brown Thrush', 'Brown Thrush', 'Great Brown Thrush' or simply 'Thrush'; the second and last being used most frequently. The technical name '*Turdus rufus*' is often added.

The dates of arrival are:

1802. April 11.	1818. April 17.
1803. April 11.	1819. April 7.
1804. April 17.	1820. April 15.
1805. April 9.	1821. April 24.
1807. April 21.	1822. April 19.

It is recorded as 'yet with us':

1803. October 8.	1806. October 29.
1804. October 3.	1818. November 20.
1805. October 9.	1819. October 8.

**Dumetella carolinensis.** CATBIRD.

Once the generic term '*Lucar*' is added to the vernacular name.

Dates of arrival are:

- |                 |                 |
|-----------------|-----------------|
| 1802. April 22. | 1818. May 2.    |
| 1803. April 24. | 1819. April 30. |
| 1805. April 22. | 1820. April 27. |
| 1808. April 24. | 1822. April 24. |
- Latest autumn records are:
- |                   |                   |
|-------------------|-------------------|
| 1803. October 8.  | 1818. October 8.  |
| 1804. October 14. | 1819. October 8.  |
| 1805. November 6. | 1820. October 12. |
| 1806. October 7.  |                   |

Other entries are:

1804. July 24. Catbird yet gives us short songs.  
 1807. July 16. Catbird ceases singing.  
 1818. August 4. Catbird done moulting.  
 1820. January 8. Was surprised at hearing the voice of the Catbird  
                   in the garden.  
           January 9. The Catbird feeding on the berries of *Sideroxylon*.  
           January 10. Tempestuous, toward evening began to snow  
                       which soon covered the ground. Catbird yet  
                       in the garden.

**Mimus polyglottos polyglottos.** MOCKINGBIRD.

This bird now only an accidental straggler in eastern Pennsylvania was apparently of regular occurrence at the time the journal was written.

The references to it are given in full.

1802. January 5. Mocking Bird (*Turdus polyglottos*) not yet left  
                   us on his passage to the south.  
           December 2. Mocking Bird yet with us.  
           December 4, 13, 15, 20. Mock Bird.  
 1803. January 19, 22. Mock Bird.  
           October 29. Mockbird on his passage southerly.  
           November 8. Mockbird yet with us, being northern passengers  
                       on their journey southward, feeding on Smilax  
                       &c.  
           November 18, December 10, 26, 31. Mockbird yet.  
 1804. January 1, 3, 6. Mockbird. [very cold weather then ensued].  
           November 2. Mockingbird with us on his passage southerly.  
 1820. April 18. Mockingbird arrives from the south, caught a  
                   male one in a trap-cage bated with a female  
                   one.  
           April 20. Caught another Mockingbird in trap-cage.

**Thryothorus ludovicianus ludovicianus.** CAROLINA WREN.

In the earlier records this bird is called the 'Great Yellow-throated' or 'Great Yellow-breasted Wren' but in 1820 it is the 'Great Carolina Wren'.

1804. September 11. Many kinds of small birds on their passage southward particularly the Great Yellow-throated Wren and species of *Motacilla*.

It is then recorded on a number of days through November and December until January 31, 1805. There is no other record until March 27, 1820.

**Tragodytes aëdon aëdon.** HOUSE WREN.

Once called, 'Garden Ren' (*Motacilla familiaris*) otherwise 'House Wren' or 'Ren'.

Arrived:

1802. April 21.	1819. April 18.
1805. April 20.	1820. April 15.
1806. April 20.	1821. April 24.
1807. April 21.	1822. April 18.
1818. April 22.	

Two autumn dates are given when the species was 'yet with us':

1804. September 26.	1819. September 19.
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**Nannus hiemalis hiemalis.** WINTER WREN.

1814. February 7.	Little Winter Wren.
1818. January 17.	<i>C[erthia] migratoria.</i> Little Winter Wren.
	November 10. Winter Wren arrived from the north.
1819. January 1.	Winter Wren.

**Certhia familiaris americana.** BROWN CREEPER.

This bird is referred to by the name 'Pine Creeper,' once with the name 'Parus pinus' added and once 'Certhia caudacuta'.

1802. April 19, arrived.	1818. October 8 arrived.
1818. February 28.	1819. October 9 "
1819. April 18 arrived.	

**Bæolophus bicolor.** TUFTED TITMOUSE.

1802. January 6.	<i>Parus cristatus.</i>
1804. February 12.	Titmouse sings.
1818. January 17.	<i>Parus bicolor.</i>

**Penthestes atricapillus atricapillus.** BLACK-CAPPED CHICKADEE.

1802. January 6.	<i>Parus atricapillus.</i>
1818. January 17.	<i>P. atricapillus.</i>
1821. September 11.	Black-cap approaches our dwelling with his lively, cheerful, notes; reminds us of winter coming.



**Sitta canadensis.** RED-BREASTED NUTHATCH.

Recorded as *Sitta canadensis* on January 6, 1802 and January 17, 1818.

**Sitta carolinensis carolinensis.** WHITE-BREASTED NUTHATCH.

*Sitta atricapilla* is recorded January 17, 1818.

**Poliophtila cærulea cærulea.** BLUE-GRAY GNATCATCHER.

Referred to as 'Little Grey Flycatcher', 'Blue-grey Flycatcher', 'Little Gray Squeeling Flycatcher' and '*Motacilla grisea*'.

Although excessively rare today about Philadelphia it seems to have been of regular occurrence a century ago.

Arrived:

1802. April 2.	1819. April 18.
1804. April 13.	1820. April 15.
1805. April 4.	1821. April 24.
1806. April 1.	1822. April 19.
1807. April 20.	

**Regulus satrapa satrapa.** GOLDEN-CROWNED KINGLET.

In almost every instance Bartram records both the "Golden and Ruby-crown Wren" together. The winter records certainly do not apply to the latter and whether the dates of arrival apply to one or both it is impossible to say.

Arrivals:

1804. September 30.	1820. October 18.
1818. November 10.	1821. October 4.
1819. October 7.	

Winter records are January 6 and December 31, 1802; January 11, 1803; January 2, 1818; January 5, 6 and February 1, 1819.

**Hylocichla mustelina.** WOOD THRUSH.

Called 'Wood Thrush,' 'Wood Robbin,' 'Song Thrush,' and '*Turdus minor*.'

Arrived:

1803. May 2.	
1807. April 26.	1820. May 8.
1808. April 27.	1821. May 5.
1818. May 9.	1822. April 26.
1819. April 18.	

An arrival date, April 12, 1802, must refer to the Hermit Thrush while autumn dates September 29, 1803, November 20, 1818 and October 3, 1819 are of doubtful application.

**Planesticus migratorius migratorius.** ROBIN.

No species is more frequently recorded: always as 'Robbin' occasionally with the addition of '*Turdus migratorius*.'

Every winter they occurred in flocks feeding on fruits of *Celtis*, Red Cedar. 'Pasimmons' and once on frozen apples thawed on the trees.'

1802. January 6 and December 15.

1803. January 9, 11, 15, 19, 26. February 5, 7.

February 8. Sings.

February 20. Seeks his mate.

April 5, build their nest.

December 10. yet with us.

1804. January 6, 12, 16 (large flights seem to be on their passage south), 27, February 8, March 1.

October 3 flights from the north.

1805. January 13, 18, February 2 large flights.

March 18 pair and begin building their nest.

1806. December 16, 19 large flights.

1807. January 4, 10, 17, 19.

1808. March 9 Robbin sings.

1818. January 17, 19.

February 28 Robbin sings.

April 3 builds nest.

September 7 flights from the north.

1819. March 5. Robbings arrive.

1820. December 10, 15, 19, 26 large flights.

1821. January 3, 12, 14, 15, 16, 17, 18.

January 19, 20 but few seen.

January 21. Robbings yet in plenty. Three inches of snow.

January 30. Robbings. [On the 25th the temperature was 8° below zero and on the 29th "the ice on the Schuylkill is 12-14 inches in thickness and the Delaware so strong opposite the city affording a constant and safe intercourse with New Jersey on the ice. Carts and Sleds constantly passing loaded with wood, hay &c. Many teams drawn by six horses]

1822. January 4, 16, 23, 25, 26, 29. February 3, 7, 10, 13, 22.

**Sialia sialis sialis.** BLUEBIRD.

Present throughout the winter months, and often recorded singing in January, and feeding on berries of *Prinos verticillatus*, *Celtis*, *Euonymus* and Red Cedar.

Nesting dates etc.

1802. March 15. Build their nests.

1803. February 20. Bluebird seeks his mate.

March 6. Bluebirds pair.

- April 5. Building their nest.  
 May 12. Brought out their young.  
 1804. May 18. Bro't out their brood.  
 1805. March 18. Pair and begin building their nest.  
 May 18. Bro't out their young brood.  
 1808. March 9. Bluebirds pair.  
 1818. April 3. Building their nest.  
 April 22. Bluebird lays eggs.  
 May 18. Young Bluebirds.  
 1819. May 7. Bluebird brought out their first brood which are under protection of the father whilst the hen is laying for the next family.  
 1820. March 16. Building nest.

#### COMPARISON OF MIGRATION DATA WITH RECENT RECORDS.

The thought that will naturally occur to anyone who has read the foregoing record is: How do Bartram's dates of arrival compare with those of a century later?

I have called attention elsewhere to the difficulty of securing results of value by comparing individual migration records.<sup>1</sup> By comparing dates of first arrival we may have in one instance a very early straggler and in another the beginning of the main flight, records which are really not comparable at all. Furthermore I have shown that the average dates of arrival for a number of years will differ materially in the records of equally good observers situated only a few miles apart, owing to the fact that the first migrants of a given species may be present for some days in one neighborhood before any are seen in a nearby locality.

For this reason it seems to me that reliable results can only be obtained by combining the records of a number of observers clustered around a given center and selecting as a date for comparison the day upon which the species has reached a majority of the stations, dropping off a definite proportion of obviously late records under each species.

The Delaware Valley Ornithological Club has had for twelve years a corps of from 20 to 35 observers recording migration immediately about Philadelphia and the results of their work is published annually in 'Cassinia.'

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<sup>1</sup> Proc. Acad. Nat. Sci. Phila. 1908, p. 134.

I have computed the average of the earliest arrival date furnished by any of these observers for each year, and also a 'bulk arrival' date as explained above, for comparison with Bartram's average date of arrival for 1802-1822, and the three sets of dates are given in the accompanying table.

We should expect most of the dates of any single observer of our corps to fall between the two dates given and in sixteen cases Bartram's dates do so, indicating that there has been no change in the time of arrival during a century. In four cases they are later than the date of 'bulk' arrival—Kingfisher 5 days, Chimney Swift 9 days, Bobolink 1 day, Towhee 1 day.—The Kingfisher is an irregular species often wintering here while Bartram's dates for the Chimney Swift are in all probability inaccurate since Barton (see below) gives April 23 which agrees well with our recent records.

Five species on Bartram's list are earlier than our average first arrival—Hummingbird 3 days, Orchard Oriole 4 days, Baltimore Oriole 1 day, Red-eyed Vireo 3 days, Yellow Warbler 2 days.—Of these the Vireo is probably too early as Bartram did not know either the Solitary or Yellow-throated Vireos and may have confused them with it. For the Yellow Warbler his location was peculiarly favorable while for the Hummingbird and Orchard Oriole the recent records are not so full as might be and the dates computed are probably late.

Prof. W. W. Cooke<sup>1</sup> has recently made a comparison of the dates of arrival given by Dr. Benjamin Smith Barton in his 'Fragments of Natural History' for 1799, with his own computations from the recent records of the U. S. Department of Agriculture for the vicinity of Philadelphia. It is interesting to compare these dates with those just given as Barton's observations and Bartram's were undoubtedly made in almost the same spot. We find that in fifteen species which occur in both lists, the date of arrival is the same in only one. In seven cases Bartram's dates are later than Barton's by from one to nine days (average five days); while in seven cases they are earlier by from two to seven days (average four days).

Prof. Cooke's computed dates for arrival at Philadelphia for

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<sup>1</sup> 'Cassinia', 1912, p. 7.

these fifteen species agree with the average date of first arrival that I have computed from the Delaware Valley Club's records in but one instance. In eight cases they are earlier than mine by from one to four days (average two days), while in six cases they are later by from one to three days (average two days). These facts seem to demonstrate pretty conclusively the futility of figuring closely on comparisons of observations of single individuals or upon 'first arrival' records of any sort. At the same time I think that from a study of the accompanying table we are justified in saying that no appreciable change in the time of arrival of these birds has taken place in the past century.

	Bartram	D. V. O. C.	
	1802-1821	1901-1912	
	Average Date of First Arrival	Average Date of First Arrival	Average Date of 'Bulk Arrival'
Spotted Sandpiper	April 18	April 16	April 27
Killdeer Plover	Feb. 28	February 27	March 11
Kingfisher	April 3	March 13	March 29
Chimney Swift	May 2	April 18	April 23
Hummingbird	April 30	May 3	May 10
Kingbird	May 1	April 29	May 5
Phoebe	March 14	March 11	March 21
Bobolink	May 10	May 4	May 9
Red-winged Blackbird	Feb. 18	Feb. 28	March 9
Orchard Oriole	April 27	May 1	May 6
Baltimore Oriole	April 30	May 1	May 5
Purple Grackle	Feb. 28	Feb. 22	Feb. 28
Towhee	April 20	April 5	April 19
Indigo bird	May 8	May 3	May 8
Scarlet Tanager	May 1	May 1	May 6
Barn Swallow	April 10	April 10	April 23
Red-eyed Vireo	April 28	May 1	May 7
Yellow Warbler	April 23	April 25	April 30
Maryland Yellow-throat	April 27	April 23	April 28
Yellow-breasted Chat	May 8	May 2	May 8
Ovenbird	April 23	April 25	April 30
Redstart	April 27	April 27	May 4
Brown Thrasher	April 15	April 14	April 23
Catbird	April 26	April 24	April 30
House Wren	April 20	April 20	April 26
Wood Thrush	April 29	April 24	April 30