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P. L. Hatch

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REPORT ON THE BIRDS OF MINNESOTA.

BY P. L. HATCH, M. D.

At this early period in the history of the Academy, little more will be expected than a classified list of the birds hitherto observed in the State. Such a list must of necessity be far from complete. Our ornithological day has just dawned. Aboriginal observations scarcely embraced scientific ends, and if so, the gastric vortex into which they all culminated has left us no indices of their values to modern science. Indeed, but for what has heretofore been accomplished by two or three individuals, whose notes, extending over twelve or fifteen years of careful observations, have been placed at our service, a report could not possibly have been made at this early hour. Several amateur naturalists have at broken intervals visited restricted sections contiguous to our towns to make collections. But for want of such an organization as this to become the warden of their acquisitions to natural history, have left us none the wiser for them. One such, however, we desire to make an exception. Prof. N. B. Moore, of Louisiana, who visited the State in 1868 and remained several months, made the most careful observations, which up to that time had been made, and in repeated conversations with a member of the committee communicated much valuable information respecting several highly interesting species of birds. He was an intelligent, devoted, accurate and indefatigable field naturalist. Nothing pertaining to his inquiries escaped his notice or his note-book. He followed the swallows back to his and their mutual home in the sunny South. The succeeding winter he spent at a favored spot for ornith-

ological study at the Balize near the delta of the Mississippi, from whence the following summer he proceeded to Florida, the favorite forests and solitary shores of which have ever been a rich harvest field for the naturalist. In due time he visited central and southern Europe, where he further prosecuted his observations of the habits of the birds, and has thus prepared himself for a task which he or some other equally qualified naturalist has yet to perform in giving the world a thorough and critical review of the history of the habits of this wonderful and interesting class of vertebrates. It is most devoutly to be hoped that his life may be spared to do this, and that his unfeigned modesty will not be allowed to deprive us of this much needed work, by one so competent to do it.

So much for the past. Our plans for the future embrace a scheme for securing frequent communications from persons residing in the different sections of the State, who have sufficient knowledge of the more common species of birds to be competent to give accurate accounts of their habits, embracing the times of vernal and autumnal migrations, if migratory; date of nesting; materials and method of constructing the nest; food successively through the year, etc.

We also propose to gather the most accurate information possible respecting the winter visitants, which embrace several very highly interesting arctic, or sub-arctic, species. This cannot be attained at once. To inaugurate such methods of general and comprehensive observation will require patience, perseverance and time; but these are the little hills which collectively constitute the mountain over which lies the only footpath to scientific knowledge, from whose summits we catch compensating glimpses of what each higher point of observation has in store for us.

An impression seems to have obtained very generally that the collection of the birds in a restricted district is a mere pastime amusement, which readily secures the aid of persons sufficiently qualified for the purpose. Nothing could scarcely be wider from the facts in the case. In no other department of natural history does one meet with greater obstacles. Our material is dearly obtained, and more dearly retained for use.

Understanding in some measure the difficulties that surround the pathway of investigation in other departments of natural history we would not detract from their magnitude by invidious comparison, but feel impelled to say in passing that the entomologist or microscopist may "sit under his own vine and fig tree" and collect more material for study in one brief hour than could the ornithologist in a month of toil remote from the comforts and repose of his home. The former, with his little net, a few vials and paper boxes—the latter still less encumbered—is master of any situation. The geologist, with hammer and a receptacle for carrying his trophies—the botanist, with an epitomized herbarium—the conchologist, with his basket, is always ready for occasion. How differently with the ornithologist. His outfit is expensive, complicated and cumbersome. He must have a suitable gun, varied ammunition, instruments for skinning, preservatives of the most deadly poisonous character, and ample arrangements for transporting his collections without injury to the plumage—and, lastly, the integrity of his material is to be maintained at the reputed valuation of civil liberty, namely, *eternal vigilance*, for his foes are legion. All of his processes are tedious and patience-taxing, from the cautious, stealthy search through forest and fen, through sedge and swamp, thickets, and wherever, for his birds, to the carefully noting their distinctive habits of flight, feeding, pairing, nesting, rearing their young, and so forth. If his collections are merely for his study, the skins are all that is required. If for museum purposes they must be mounted, and this affords us an opportunity to suggest parenthetically that immediate measures should be adopted to provide funds for this important work. It is altogether too onerous for private means, and to secure contributions of either money or mounted specimens we must show that we are earnestly at work by displaying mounted birds. It is an observed fact that no department of a general museum impresses the popular attention or the popular purse so much as mounted and tastefully arranged birds. With this pardonable digression, we return to say that the foregoing review of the difficulties in the way of the ornithological collector explains why so many who commence the study of the

birds so soon abandon it for almost any other branch of natural history.

It may be stated that until quite recently the obstacles to the study of systematic ornithology have been nearly insurmountable to the tyro amateur, for the formidable reason that no text-books could be obtained in this country, and when systematists began to supply this deficiency in some degree, instead of relief, the perplexities seemed only to have commenced, for each author discovered such glaring defects in the classification of his predecessors that he was emboldened to attempt a better one. This brought new nomenclature, which thus accumulated until, in a short time this embryotic science was near being suffocated under a confusing mass of synonymy. Even at the present time authorities are so divided upon classification and nomenclature that it is exceedingly difficult to elect any one as a more reliable guide through the labyrinth of our perplexities. Yet this is the best we can do, until further investigations shall give us a true key to a natural system.

A passing glance at the history of the methods of classification may not here be out of place. It is quite probable that most of the members of the Academy have never heretofore made the science of ornithology a study, and perhaps in the distribution of our work may find themselves too much engaged with some other department of research to give this a special attention. If we rightly apprehend the design of this organization it embraces the plan of a general exchange of the products of our labors in all departments of research within the scope of our investigations. Hence the importance of, at least, a cursory review of the history of these methods, and no apology is necessary for our failure to give the authorities which we draw upon, as we can do little more than to carefully epitomize those which are accessible to all who have the taste, time, and temper to wade through the tangled labyrinths of our ornithological literature. Suffice it to say that a few weeks spent among the archives of the Academy of Natural Science at Philadelphia, has not diminished our impressions of the labor thus required, yet the task is a pleasing—indeed a fascinating one. And volumes in this department are multiplying far

more rapidly at the present time than at any period since history began.

The great aim of ornithologists from the dawn of our science down to the present hour has been to find a key to a natural system—in other words, to comprehend the divine idea of a definite plan which can be expressed in the formulas of science.

For a long time, the characteristics of the bill and feet of birds constituted the basis of their classification. Since about 1820 to 1825 Continental European writers have generally adopted the vocal muscles, the song, number and length of the quills, scales and feathers of the legs, the number of tail feathers, webbing of the feet, position of the hind toe, and the treatment of their young, as elements for classification.

As far back as the middle of the sixteenth century, they were classified by their habits, and the locations wherein found. There were instituted four divisions of the birds of prey—waders, swimmers, and those nesting on trees, and those which nest on the ground. To this was next added, the nature of their food. About a century later, the first attempt at a treatise on classification was published, which divided the land birds into two groups—those with curved bills and claws, and those with straight. The water birds were also divided into two such groups—the waders and the swimmers. Another work followed, early in the eighteenth century, making some improvements on the first, and the two became the basis of Linneus' classification half a century later.

This great naturalist gave us six orders, thus: Accipitres, Picæ, Passeres, Gallinæ, Anseres and Grallæ. In 1770, Brisson, another eminent naturalist, made twenty-six orders, and one-hundred and fifteen genera, based upon the bill, toes and their connecting membranes, and the feathers of the legs. Fourteen years later, Schaeffer published his *Elementa Ornithologica*, in which he divided birds according to the feet, into two families—the nudipedes, and plumipedes—as Brisson had previously divided them into the fissipedes, and palmipedes. Following him shortly afterwards Scopoli gave us retipedes, and scutipedes. Latham, who wrote in the latter part of the eighteenth and first part of the present century, constructed

six orders of land and three of water birds. From this time the divisions were varied too greatly, and too rapidly for enumeration here. Suffice it to say, that for many years the pathway of ornithological science seemed to be hedged up, by conflicting classifications. In the survey of the several routes for railroads across the continent to the Pacific, the government provided for a very extensive collection of the birds, (and all other material of scientific interest), and committed their arrangement and classification to Prof. S. F. Baird, assistant secretary of the Smithsonian Institution. After due deliberation he adopted a classification founded upon those of Keyserling, Blasius, Cabanis, Bonaparte, and Burmeister, modern European authorities, which modified classification has, by a tacit consent, come to be accepted as authority in this country. At least, the amateur ornithologist cannot do better, than to follow him in his studies of the science, until, by his own attainments, he shall be competent to follow him in that higher precedent of selecting from all sources, a system of classification still more perfectly conformed to nature.

With this brief allusion to the history of the methods of classification in ornithology, we will pass to the consideration of what we have been able to learn of the birds of our own State. Their earliest history, so far as yet known, begins with some casual observations made by the officers of the various fortifications within the present boundaries of the State. Some of these men were eminently prepared, by their general culture and habits of study, as well as by their superior sportsmanship, to give us observations of surpassing interest, in most departments of natural history; but, what little they have left us is principally confined to the game birds. A few of them preserved meagre notes, confined chiefly to the aquatic species. From some of the more observing, we have been able to gather, in fireside conversations over the dying embers of reminiscence, desultory accounts of their migrations, and relative number as compared with the present. Yet, on the whole, very little is known of them before about 1850, when the settlement of the country had been fairly begun. Abounding as it does, with lakes, ponds, lagoons, rivers, and smaller streams of water,

many of which are skirted with fringes of wild rice, and other rank vegetation, we should naturally expect to find the waders and swimmers largely represented, and so we do, especially in the more unsettled districts. But civilization, with all of its improvements in fire-arms, and other instruments of destruction, has proved too much for them, and their numbers on the whole grow steadily less. Survivors of the previous years' onslaught, learn to give us a wide berth in their lines of migration, and in the selection of their breeding places.

But of the land birds, we can speak more cheerfully. Many species have increased in great numbers. The conditions for their multiplication, and maintenance, have kept step with the march of improvements, and, let us add (at the peril of protest from the somewhat sensitive, and most assuredly interested agriculturist) the inexorable necessities of civilization. With the occupation, and cultivation of the soil, there spring up as if by magic, myriads of entomological forms, many of which are inimical to agriculture, or to our comfort. We look to the birds for relief, and thank heaven for the wisdom which provides thus beautifully, and bountifully, for the preservation of those balances in organic life, so interwoven into the welfare of our race. The Raptores, or rapacious birds, have multiplied with the vermin and reptiles so obnoxious to our grains and our sensibilities, and if, perchance, our poultry has been levied upon by a hawk by day, or an owl by night, for a meal that the ordinary chase had failed to supply him, we are paying very cheaply for the benefits of their ordinary service, and the choice of those regal birds that soar over us, instead of the loathsome reptiles which creep at our feet. But, when we learn of the growing numbers of the insectivorous songsters, many of whom by their resplendant plumage, have been called "the butterflies of the vertebrate creation," we recognize a beneficence of design in their distribution, that exalts those attributes of the Creator which ally him so closely to our inner and higher being. Twenty-five years ago the Baltimore Oriole with its body of gold and wings of jet—the Tanager with its body of fire and wings of night, were solitary wanderers in this land of the Dacotahs, only represented by a few as the avant couriers of a coming civiliza-

tion. Now, in the voluptuous Spring, they are seen everywhere flashing in the sunlight through our forests and our shrubbery the winged flora of the glorious season. And so long ago only, the voluble and mellifluous song of the Brown Thrush and the Robin, and Bluebird, and the gushing, fussy little House Wren were scarcely heard, and in only a few favored localities. Now those delicious notes are borne upon the fragrance of Spring into every open casement, and they herald the teeming Summer from every tree top. The grand chorus of feathered songsters has become an annual repast for our willing and waiting ears which makes the long dreary winter bearable with its delicious anticipations. But, hold! we are dealing with sober science, and not with song. So without further delay we will descend to our work and hand in our list of the hitherto observed forms of—

BIRDS OF MINNESOTA.

ORDER FIRST.

RAPTORES.

Fam. Vulturidæ.

GEN. CATHARTES, *Ill.*

sp. *C. aura*, *Linn.* Turkey Vulture.

Formerly more common. In summer found along the Mississippi and St. Croix rivers, where it still breeds, but is becoming more rare. Arrives late in April.

Fam. Falconidæ.

GEN. FALCO, *Linn.*

sp. *F. anatum*, *Bonapart.* Duck Hawk.

Rare. Arrives early in April. Well identified.

sp. *F. sacer*, *Foster.*

One specimen obtained near this city in a previously undescribed plumage, and believed to be the first hitherto seen in the United States. At the request of Mr. Robert Ridgway, Assistant Curator of the National Museum at Washton, it has been loaned to the Smithsonian Institute for further identification.

sp. *F. columbarius*, *Linn.* Pigeon Hawk.

Not abundant. Appears late in April, and disappears latter part of August or first part of September.

sp. *F. sparverius*, *Linn.* Sparrow Hawk.

Abundant. By the first of April the males arrive in small parties, followed in ten to fourteen days by the females, in smaller parties, or singly. Breeds here extensively, and remains until into October.

GEN. *ASTUR*, *Lacepede*.

sp. *A. atricapillus*, *Wilson*. Goshawk.

Winter resident, and common. Plumage varied.

GEN. *ACCIPITER*, *Bris*.

sp. *A. cooperii*, *Bon*. Coopers Hawk.

Quite rare, or, at least, not common.

sp. *A. fuscus*, *Gms*. Sharp-shinned Hawk.

Common in all ages of plumage; arriving and retiring simultaneously with *Falco sparverius*. Breeds in the timber and, like most of the raptorial birds, little seen at this time.

GEN. *BUTEO*, *Cuv*.

sp. *B. borealis*, *Gms*. Red-tailed Hawk.

A permanent resident. Breeds in the timbered sections. Plumage extremely varied.

sp. *B. lineatus*, *Gms*. Red-shouldered Hawk.

Rather frequent in winter, but leaves us early in spring for higher latitudes to breed.

sp. *B. pennsylvanicus*, *Will*. Broad-winged Hawk.

Rather common from April 1st to about September 1st. Not often seen during incubation.

GEN. *ARCHIBUTEO*, *Brehm*.

sp. *A. sancti johannes*, *Gms*. Black Hawk.

Rare; seen only a few days in migration.

sp. *A. isopus*, *Gms*. Rough-legged Hawk.

Not common. Habits unobserved yet.

GEN. *NAUCLERUS*, *Vig*.

sp. *N. furcatus*, *Linn*. Swallow-tailed Hawk.

This beautiful kite is common in the heavily timbered lands; arriving about the first of April and retiring near the middle of September.

GEN. *CIRCUS*, *Lacepede*.

sp. *C. nudsonicus*, *Linn*. Marsh Hawk.

A permanent resident, and common.

GEN. *AQUILA*, *Morkring*.

sp. *C. canadensis*, *Linn*. Golden Eagle.

Not common. Breeds along the larger rivers, and usually observed in the younger plumage.

sp. *A. leucocephalus*, *Linn*. Bald Eagle.

Common all over the wood lands of the State.

GEN. *PANDION*, *Sav*.

sp. *P. carolinensis*, *Gms*. Fish Hawk.

Arrives early in April; breeds here, and retires about the first of October. Is not common.

Fam. Strigidae.**GEN. STRIX.**

sp. *S. pranticola*, *Bon.* Barn Owl.

A common species, in various plumage.

GEN. BUBO, *Cuv.*

• sp. *B. virginianus*, *Gms.* Great Horned Owl.

Probably two varieties, and common.

GEN. SCOPS, *Sav.*

sp. *S. asio*, *Linn.* Screech Owl.

Very common.

GEN. OTUS, *Cuv.*

sp. *O. wilsonianus*, *Less.* Long-eared Owl.

Common. Resident.

GEN. BRACHYOTUS, *Gould.*

sp. *B. cassini*, *Bd.* Short-eared Owl.

Not unfrequent, but not common.

GEN. SURNIUM, *Sav.*

sp. *S. cinereum*, *Gms.* Great Grey Owl.

This huge species is very common.

sp. *S. nebulosum*, *Forster.* Barred Owl.

Found everywhere in the State.

GEN. NYCTALE, *Brehm.*

sp. *N. richardsonii*, *Bon.* Richardson's Owl.

Only an occasional visitor in winter.

sp. *N. albifrons*, *Shaw.* White faced Owl.

Rare. Some think the species doubtful.

sp. *N. acadica*, *Gms.* Sawwhet Owl.

Common in the wooded sections.

GEN. NYCTEA, *Steph.*

sp. *N. nyctea*, *Daudin.* Snowy Owl.

Frequently met with in winter.

GEN. SURNIA, *Dumeril.*

sp. *S. ulula*, *Linn.* Hawk Owl.

Not very common. Resident.

ORDER SECOND.**SCANSORES:****Fam. Cuculidae.****GEN. COCCYGUS, *Viel.***

sp. *C. americanus*, *Bon.* Yellow-billed Cuckoo.

Arrives 1st to 10th of May. Breeds in thickets in the woodlands, and leaves us late in August.

sp. *C. erythrophthalmus*, *Bon.* Black-billed Cuckoo.

More common than the Yellow-billed. Migrations about the same time, if any difference a little later.

Fam. Picidae.

GEN. *PICUS*, *Linn.*

sp. *P. villosus*, *Linn.* Hairy Woodpecker.

Very common. Permanent.

sp. *P. pubescens*, *Linn.* Downy Woodpecker.

Also a permanent resident, and common.

GEN. *PICOIDES*, *Lacép.*

sp. *P. arctica*, *Sw.* Black-backed Three-toed Woodpecker.

Rather uncommon winter visitor. Habits very little known.

GEN. *MELANERPES*, *Sw.*

sp. *M. erythrocephalus*, *Sw.* Red-headed Woodpecker.

Abundant; arriving usually about the 15th of March, and remaining late in autumn.

GEN. *COLAPTES*, *Sw.*

sp. *C. auratus*, *Sw.* Yellow-shafted Woodpecker.

Very abundant, exceeding all other species of its order. Arrives about the first of April in pairs, and after rearing several broods leaves in families about the 20th of October.

ORDER THIRD.

INCESSORES:

Fam. Trochilidae.

GEN. *TROCHILUS*, *Linn.*

sp. *C. colubris*, *Linn.* Ruby-throated Hummingbird.

Common, almost abundant; arriving about the 15th of May, and departing late in August.

Fam. Cypselidae.

GEN. *CHÆTURA*, *Steph.*

sp. *C. pelagica*, *Steph.* Chimney Swallow.

Abundant. Arrives 15th of April; leaves 1st of September.

Fam. Caprimulgidae.

GEN. *ANTROSTOMUS*, *Gould.*

sp. *A. vociferus*, *Bon.* Whip-poor-will.

Very common from 1st of May to 15th of September.

GEN. CHORDEILES, Sw.

sp. *C. popetue*, Vieil. Nighthawk.

Very abundant. Spring migration. same; fall, earlier.

Fam. Alcedinidae.

GEN. CERYLE, Boie.

sp. *C. alcyon*, Bots. Belted Kingfisher.

Spring migration greatly varied—15th of March to 1st of May. Common. Retires about the 15th of October.

Fam. Colopteridae.

GEN. TYRANNUS, Cuv.

sp. *C. carolinensis*, Bd. King Bird.

Very abundant for its species. Arrives about the first of May, and retires not far from the first of September.

GEN. MYIARCHUS, Cab.

sp. *M. crinitus*, Cab. Great Crested Flycatcher.

Rare. Barely identified.

GEN. SAYORNIS, Bon.

sp. *S. fuscus*, Bd. Phœbebird, or Pewee.

Not very common. Arrives about the 15th of April, and disappears about the 15th of September.

GEN. CONTOPUS, Cab.

sp. *C. virens*, Cab. Wood Pewee.

Not unfrequently met in some favored localities, but its local habits entirely unnoted.

sp. *C. richardsonii*, Bd. Short legged Pewee.

One characteristic specimen obtained under circumstances to intimate that it may not be uncommon, although so far east of its assigned province.

GEN. EMPIDONAX, Cab.

sp. *E. trillii*, Bd. Trallis Flycatcher.

Rare. Arrives late in May.

Sp. *E. pusillus*, Cab. Little Flycatcher (?)

One specimen obtained. Agrees with Baird's diagnosis.

sp. *E. minimus*, Bd. Least Flycatcher.

Common from May 20th to September.

sp. *E. scadicus*, Bd. Green-crested Flycatcher.

Rather rare—little observed.

sp. *E. flaviventris*, Bd. Yellow-bellied Flycatcher.

Also somewhat rare and unobserved.

Fam. Turdidae.

GEN. TURDUS, Linn.

sp. *T. mustelinus*, Gme. Wood Thrush.

Common after the 20th of May till fall.

sp. *T. pallasi*, *Cab.* Hermit Thrush.

Seldom seen, but identified.

sp. *T. swainsonii*, *Cab.* Olive-backed Thrush.

Common. Arrives about the 20th of May, and retires about the 1st of September.

sp. *T. migratorius*, *Linn.* Robin.

Very common; appearing some years by the 20th of March, and only quitting us late in October.

GEN. *SIALIA*, *Sw.*

sp. *S. sialis*, *Bd.* Bluebird.

Common as the last. Migrations, same.

GEN. *REGULUS*, *Cuv.*

sp. *R. calendula*, *Licht.* Ruby-crowned Wren.

Considerable flocks observed along the streams in spring migration about the 20th of April. Said to breed here, but this is not yet certain. Leaves October 1st.

Fam. *Silvicolidae*.

GEN. *ANTHUS*, *Bech.*

sp. *A. ludovicianus*, *Licht.* Tit Lark.

Common in both migrations, appearing about the 15th of May, and disappearing in October. No nests obtained.

GEN. *NEOCORYS*, *Scl.*

sp. *N. spraguei*, *Scl.* Missouri Sky Lark.

Believed to be here, but not settled.

GEN. *MNIOTILTA*, *Viel.*

sp. *M. varia*, *Viel.* Black and White Creeper.

For its kind, common. Arrives about the 15th of May, and returns south about the 15th of September. Nests, occasionally found.

GEN. *PARULA*, *Bon.*

sp. *P. americana*, *Bon.* Blue-Yellow-backed Warbler.

Barely identified.

GEN. *GEOTHLYPIS*, *Cab.*

sp. *G. trichas*, *Cab.* Maryland Yellow-Throat.

Very common. Arrives about the 20th of May, and disappears late in August.

sp. *G. philadelphia*, *Bd.* Mourning Warbler.

Rare, and unnoted.

GEN. *OPORORNIS*, *Bd.*

sp. *O. agilis*, *Bd.* Connecticut Warbler.

Also rare, with habits unnoted.

GEN. *ICTERIA*, *Viel.*

sp. *I. viridis*, *Bon.* Yellow-breasted Chat.

Another rare species.

GEN. HELMINTHOPHAGA, *Cab.*

sp. *H. pinus*, *Bd.* Blue-winged Yellow Warbler.

Only one individual obtained.

sp. *H. ruficapilla*, *Bd.* Nashville Warbler.

Identified, but little observed.

sp. *H. celata*, *Bd.* Orange-crowned Warbler.

Rather common. Arrives about the first of May. Breeds here. Time of fall migration not yet determined.

GEN. SEIURUS, *Sw.*

sp. *S. aurocapillus*, *Sw.* Golden-crowned Warbler.

Rarely met with.

sp. *S. noveboracensis*, *Nutt.* Water Thrush.

Frequently seen but not yet studied.

GEN. DENDROICA, *Gray*

sp. *D. coronata*, *Gr.* Yellow-rumped Warbler.

The first of the Warblers to arrive in the spring, and last to leave us in autumn. Spends but few weeks with us in either migration, breeding still farther to the north. First seen about the 1st of April, and last about the 10th of October. Abundant.

sp. *D. virens*, *Bon.* Black-throated Green Warbler.

Arrives late in May. Rare.

sp. *D. castanea*, *Bd.* Bay-breasted Warbler.

Only identified.

sp. *D. pennsylvanica*, *Bd.* Chestnut-sided Warbler.

Breeds here. Arrives in the latter part of May, and remains until the first frosts of autumn. Common.

sp. *D. maculosa*, *Bd.* Black and Yellow Warbler.

Quite rare. Arrives in April.

sp. *D. palmarum*, *Bd.* Yellow-red-poll Warbler.

Believed to breed here. Arrives about the first of May, and probably common in some sections of the State.

sp. *D. aestiva*, *Bd.* Yellow Warbler.

Very abundant; breeding in thickets. Arrives about the first of May and retires about the first of September.

GEN. MYIODIOTES, *Aud.*

sp. *M. pusillus*, *Bon.* Green Black-capped Flycatcher.

Arrives about the 10th of May, and breeds here. Is not very common.

GEN. SETOPHAGA, *Sw.*

sp. *S. ruticilla*, *Sw.* Redstart.

Very common in restricted districts. Breeds here; arriving near the 18th of May, and retiring about the first of September.

GEN. PYRANGA, *Viel.*

sp. *P. rubra*, *Viel.* Scarlet Tanager.

Once rare; has become quite common; arriving about the middle of May, and after breeding leaves September 1st, or about.

Family Hirundinidae.**GEN. HIRUNDO, Linn.**

sp. *H. horreorum*, *Barton*, Barn Swallow.

Arrives near the 25th of April. Rather common. Retires about the 25th of August.

sp. *H. lunifrons*, *Say*, Cliff Swallow.

Abundant in the sand-cliff sections. Arrives about the first of April, and retires about the first of September.

sp. *H. bicolor*, *Viel.* White-bellied Swallow.

Exceedingly common; reaching us 15th of April, and leaving 25th to 30th of August.

GEN. COTYLE, Boie.

sp. *C. riparia*, *Boie*, Bank Swallow.

Not so common or observed as the others.

sp. *C. ferripennis*, *Bon.* Rough-winged Swallow.

Rare, or unobserved.

GEN. PROGNE, Boie.

sp. *P. purpurea*, *Boie*, Purple Martin.

Abundant from 15th of April till September.

Fam. Bombycillidae.**GEN. AMPELIS, Linn.**

sp. *A. garrulus*, *Linn.* Bohemian Waxwing.

An irregular migrant from the north in winter, arriving from the 20th of November to the 2^d of December, and retiring before the first of March. Sometimes quite numerous, but usually in small flocks.

sp. *A. cedrorum*, *B.L.* Cedar Bird.

Common from 25th of May until October 1st.

Fam. Laniidae.**GEN. COLLYRIO, Moerhing.**

sp. *C. borealis*, *Bd.* Great Northern Shrike.

Very common from the middle of April to the first of November, a few lingering much later, and stragglers occasionally remaining all winter. One such had no white on the base of the four outer primaries.

sp. *C. excubitoroides*, *Bd.* White-rumped Shrike.

Rare, but represented.

GEN. VIREO, Viel.

sp. *V. olivaceus*, *Viel.* Red-eyed Vireo.

Very common in the vicinity of water in the timber. Arrives about 20th of May, and nests in the brush lands, retiring about September 25th.

sp. *V. gilvus*, *Boie*, Warbling Vireo.

A sweet singer, rearing its young in our familiar places; arriving about same time with the last species, and leaving, perhaps a little earlier. Common.

sp. *V. bellii*, *Aud.* Bells Vireo.

Identified in migration. Not common.

sp. *V. flavifrons*, *Viel.* Yellow-throated Vireo.

Rare. A beautiful singer.

Fam. Liotrichidae.GEN. MIMUS, *Boic.*sp. *M. carolinensis*, *Gray*. Catbird.

Very common after May 15th until the first of October.

GEN. HARPORHYNCHUS, *Cab.*sp. *H. rufus*, *Cab.* Brown Thrush.

Equally common with the last, from April 25th to September 25th.

GEN. CISTOTHORUS, *Cab.*sp. *C. palustris*, *Cab.* Long-billed Marsh Wren.

Common in many marshy sections.

GEN. TROGLODYTES, *Viel.*sp. *T. aedon*, *Viel.* House Wren.

Very common from April 20th to September 1st.

sp. *T. hyemalis*, *Viel.* Winter Wren.

Rare.

Fam. Certhiidae.GEN. CERTHIA, *Linn.*sp. *C. americana*, *Bon.* American Creeper.

Not very rare, yet not common.

GEN. SITTA, *Linn.*sp. *S. carolinensis*, *Gms.* White-billed Nuthatch.

Common. Permanent resident.

Fam. Paridae.GEN. PARUS, *Linn.*sp. *P. atricapillus*, *Linn.* Chickadee.

Very common, and permanent resident also.

Fam. Alaudidae.GEN. EREMOPHILA, *Boic.*sp. *E. cornuta*, *Bois.* Shore Lark.

Permanent and common.

Fam. Fringillidae.GEN. HESPERIPHONA, *Bon.*sp. *H. vespertina*, *Bon.* Evening Grosbeak.

A winter visitant, arriving in November, remaining until early spring. Is found in the vicinity of swamps, and is quite tame.

GEN. PINICOLA, *Viel.*sp. *P. canadensis*, *Cab.* Pine Grosbeak.

Rarely met with up to this time.

GEN. CARPODACUS, *Kaup.*sp. *C. purpurea*, *Gray.* Purple Finch.

Not much observed, but here.

GEN. CHRYSOMITRIS, *Boic.*sp. *C. tristis*, *Bon.* Yellowbird.

Very common after the 15th of May until October.

sp. *C. pinus*, *Bon.* Pine Finch.

Common. Habits same as the last species.

GEN. *CURVIROSTRIS*, *Scopoli.*

sp. *C. americana*, *Wilson.* Red Crossbill.

Rather common in winter. Some years plenty.

sp. *C. leucoptera*, *Wilson.* White-winged Crossbill.

Less common, yet not rare.

GEN. *ÆGIOTHUS*, *Cab.*

sp. *A. linaria*, *Cab.* Lesser Red Poll.

Abundant winter resident, and exceedingly domestic; feeds about our doors in large flocks.

GEN. *PLECTROPHANES*, *Meyer.*

sp. *P. nivalla*, *Meyer.* Snow Bunting.

Very abundant from November 1st to March 25th.

sp. *P. lapponicus*, *Selby.* Lapland Longspur.

Very abundant in occasional winters, but not as constant as *nivallis*. Migrations about the same.

GEN. *PASSERCULUS*, *Sav.*

sp. *P. savanna*, *Bon.* Savanna Sparrow.

Common. Arrives first of May; breeds here, retires early in September.

GEN. *POCÆTES*, *Bd.*

sp. *P. gramineus*, *Bd.* Grass Finch.

Common. Breeds here. Their characteristic shyness has delayed the determination of their migrations.

GEN. *CHONDESTES*, *Sw.*

sp. *C. grammaca*, *Bon.* Lark Finch.

Rather common. Arrives about the 20th of April, and, after breeding here, departs about the 15th of October.

GEN. *ZONOTRICHIA*, *Sw.*

sp. *Z. albicollis*, *Bon.* White-throated Sparrow.

Another common sparrow which nests about our yards. Arriving about the 20th of April, and retiring about the 15th of October.

sp. *Z. leucophrys*, *Sw.* White-crowned Sparrow.

Rarely met with.

GEN. *JUNCO*, *Wagler.*

sp. *J. hyemalis*, *Selal.* Snowbird.

Abundant in both migrations, the first of which begins about the 25th of March and lasts into May, and the latter commencing about the middle of September, ends first of November.

GEN. *SPIZELLA*, *Bon.*

sp. *S. monticola*, *Bd.* Tree Sparrow.

Common. Arrives about the first of April, and after three or four weeks disappears to reappear from its more northern breeding place about the 15th of September, quitting again in October.

sp. *S. pusilla*, *Bon.* Field Sparrow.

Arrives some years by the 25th of March and remains till into October or even November. Common.

sp. *S. socialis*, *Bon.* Chipping Sparrow.

About same as last species.

sp. *S. pallida*, *Bon.* Clay-colored Bunting.

Believed to have been seen; not certain.

GEN. MELOSPIZA, *Bd.*

sp. *M. melodia*, *Bd.* Song Sparrow.

Abundant for the species, arriving one season on the 19th of March in a flock of several hundreds. Breeds here and returns southward in the first part of October.

sp. *M. palustris*, *Bd.* Swamp Sparrow.

Common from 15th of April till the middle of October.

GEN. PASSERELLA, *Sw.*

sp. *S. lilaca*, *Sw.* Fox-colored Sparrow.

Not common. Probably breeds further north.

GEN. GUIRACA, *Sw.*

sp. *G. ludoviciana*, *Sw.* Rose-breasted Grosbeak.

Common. Nests in the thickets. Arrives about May 1st, and departs about September 15th.

GEN. CYANOSPIZA, *Bd.*

sp. *C. cyanea*, *Bd.* Indigo Bld.

Frequently seen and heard in late years. Arriving the latter part of May, breeds, and disappears the first of September.

GEN. PIPILO, *Viel.*

sp. *P. erythrophthalmus*, *Viel.* Ground Robin.

Very common from April 20th to September 20th.

Fam. Icteridae.

GEN. DOLYCHONYX, *Sw.*

sp. *D. oryzivorus*, *Sw.* Bobolink.

Not very common, but represented from the middle of April until some time in September. Breeds here.

GEN. MOLOTHRUS, *Sw.*

sp. *M. pecoris*, *Sw.* Cow Bld.

Common, and rapidly multiplying from year to year. Arrives about the 15th of April and remains considerably into October.

GEN. AGELAIUS, *Viel.*

sp. *A. phoeniceus*, *Viel.* Swamp Blackbird.

Very abundant. Breeds here; first appearing about the first of April, and retiring some time in October.

GEN. XANTHOCEPHALUS, *Bon.*

sp. *X. leucocephalus*, *Bd.* Yellow-headed Blackbird.

Quite common in many sections, where it breeds; arriving about the 20th of May, and retiring 20th of October.

GEN. STURNELLA, *Viel.*

sp. *S. magna*, *Sw.* Meadow Lark.

Alike common, but more uniformly distributed than the last. Arrives about the 10th of April, soon enters upon incubation. Retires about the 15th of October.

GEN. *ICTERUS*, *Brisson*.sp. *I. spurius*, *Bon.* Orchard Oriole.

Is becoming quite common after the 25th of May. After breeding, it retires about the 1st of September.

sp. *I. baltimore*, *Daud.* Baltimore Oriole.

One of the multiplying species, and quite common — almost abundant. Arrives in the fore part of May, and, after extensive breeding about our habitations, retires not far from the first of September.

GEN. *SCOLECOPHAGUS*, *Sw.*sp. *S. ferrugineus*, *Sw.* Rusty Blackbird.

Common from the first of April till the last of October.

GEN. *QUISCALUS*, *Wil.*sp. *Q. versicolor*, *Viel.* Crow Blackbird.

Abundant from the 20th of March until about the first of November, sometimes later. Occasionally stragglers remain all winter.

Fam. Corvidae:GEN. *CORVUS*, *Linn.*sp. *C. carnivorus*, *Bartram.* American Raven.

Rarely seen excepting on wing in transit.

sp. *C. americanus*, *Aud.* Common Crow.

Permanent resident, but not common.

GEN. *PICA*, *Brisson.*sp. *P. hudsonica*, *Bon.* Magpie.

Occasionally found along the Minnesota river.

GEN. *CYANURA*, *Sw.*sp. *C. cristata*, *Sw.* Blue Jay.

Abundant and permanent.

GEN. *PERISOREUS*, *Bon.*sp. *P. canadensis*, *Bon.* Canada Jay. (?)

We hear of *white* jays being occasionally seen. We suspect albino *cristata*; possibly *canadensis*.

ORDER FOURTH.

RASORES.

Fam. Columbidae.GEN. *ECTOPISTES*, *Sw.*sp. *E. migratorius*, *Sw.* Wild Pigeon.

Variable with years, but on the whole, abundant.

GEN. *ZENAIDURA*, *Bon.*sp. *Z. carolinensis*, *Bd.* Carolina Dove.

Common from May 1st until October 1st.

Fam. Phasianidae.GEN. *MELEAGRIS*, *Linn.*sp. *M. gallopavo*, *Linn.* Wild Turkey.

No specimen obtained, but reported a resident of the extreme southwest part of the State.

Fam. Tetraonidae.GEN. *PEDIOCÆTES*, *Bd.*sp. *P. phasianellus*, *Bd.* Sharp-tailed Grouse.

Common in some sections of brush land.

GEN. *CUPIDONIA*, *Reich.*sp. *C. cupido*. Pinnated Grouse.

Abundant of late years; formerly scarce.

GEN. *BONASA*, *Steph.*sp. *B. umbellus*, *Steph.* Ruffed Grouse.

Another abundant increasing species.

GEN. *LAGOPUS*, *Viel.*sp. *L. albus*, *Aud.* Willow Grouse.

Rather rare winter visitant.

Fam. Perdiciidae.GEN. *ORTYX*, *Steph.*sp. *O. virginianus*, *Bon.* Quail.

Becoming acclimatized. Introduced many years ago and protected by law; is increasing, but not yet very common.

ORDER FIFTH.

GRALLATORES.**Fam. Gruidae.**GEN. *GRUS*, *Linn.*sp. *G. americana*, *Ord.* White Crane.

Rare. Seen mostly in transit.

sp. *G. canadensis*, *Temm.* Sand-hill Crane.

Common. Breeds here; arriving about the first of April—oftentimes later, —and remaining till 15th of October.

Fam. Ardeidae.GEN. *HERODIAS*, *Boie.*sp. *H. egretta*, *Gray.* White Heron.

Not very common. Probably breeds here.

GEN. *ARDEA*, *Linn.*sp. *A. herodias*, *Linn.* Great blue heron.

Rather common. Breeds here. Arrives about the 15th of April, and retires about the 15th of October.

GEN. *ARDETTA*, *Gray.*sp. *A. exilis*, *Gray.* Least Bittern.

Rather rare, but occasionally found from the 15th of April to the 15th of October.

GEN. *BOTAURUS*, *Steph.*sp. *B. lentiginosus*, *Steph.* Bittern.

Very common from first of April till late in October.

GEN. BUTORIDES, *Blyth*.sp. *B. virescens*, *Bon.* Green Heron.

Not really common; arriving about the 15th of April, and retiring about the 1st of October.

GEN. NYCTIARDEA, *Sw.*sp. *N. gardeni*, *Bd.* Night Heron.

Another rather uncommon species, seen only in spring. Arrives about the 20th of April. It probably breeds here.

Fam. Charadriidae.GEN. CHARADRIUS, *Linn.*sp. *C. virginicus*, *Borck.* Golden Plover.

Common in fall migration from September 1st until into October. Breed still farther north.

GEN. AEGIALITES, *Boie.*sp. *A. vociferans*, *Cassin.* Killdeer Plover.

Common from the 20th of March till the 15th of October.

sp. *A. semi-palmatus*, *Cab.* King Plover.

Not rare in autumnal migration.

GEN. SQUATAROLA, *Cuv.*sp. *S. helvetica*, *Cuv.* Black-bellied Plover.

Another rather common fall migrant.

Fam. Haematopodidae.GEN. STREPSILAS, *Ill.*sp. *S. interpres*, *Ill.* Turnstone.

Rather rare; arrives about the 1st of May and shortly passes on to the north to breed.

Fam. Recurvirostridae.GEN. RECURVIROSTRA, *Linn.*sp. *R. americana*, *Gms.* American Avocet.

Not common, but occasionally found in migration, latter part of May and late in August.

GEN. HIMANTOPUS, *Bris.*sp. *H. nigricollis*, *Viel.* Black-necked Stilt.

Occasionally met in autumn.

Fam. Phalaropodidae.GEN. PHALAROPUS, *Bris.*sp. *P. wilsonii*, *Sab.* Wilson's Phalarope.

Summer resident, breeding here; arrives late in May, and departs early in September.

sp. *P. hyperboreus*, *Tenn.* Northern Phalarope.

Much the same as *Wilsonii*.

Fam. Scolopacidae.**GEN. PHILOHELA, Gray.**

sp. *P. minor*, Gray. Woodcock.

Common; breeds here; arrives about the 20th of March, and remains until late in September.

GEN. GALLINAGO, Leach.

sp. *G. Wilsoni*. English Snipe.

Common; probably breeds here. Arrives in May, and perhaps earlier, and is seen as late as the middle of October.

GEN. MACROHAMPHUS, Leach.

sp. *M. griseus*, Leach. Gray Snipe.

Not common, but met in autumn.

GEN. TRINGA, Linn.

sp. *T. alpina*, Cassin. Red-backed Sandpiper.

Common; breeds here, but its habits not yet much observed.

sp. *T. maculata*, Vieil. Jack Snipe.

Common from first of April till into October.

sp. *T. Wilsoni*, Nuttall. Least Sandpiper.

Arrives in May and departs about the first of September. Common, and probably breed here.

GEN. EREUNETES, Ill.

sp. *E. petrifcatus*, Ill. Semi-palmated Sandpiper.

Identified only.

GEN. MICROPALAMA, Bd.

sp. *M. himantopus*, Bd. Silt Sandpiper.

Thoroughly identified; habits unnoted.

GEN. SYMPHEMIA, Raf.

sp. *S. semipalmata*, Hart. Willet.

Common; breeds here. Arrives late in May, and retires early in September.

GEN. GAMBETTA, Kaup.

sp. *G. melanoleuca*, Bon. Tattler.

Common from May till some time in September.

sp. *G. flavipes*, Bon. Yellow-legs.

Breeds here; is common from May till into September.

GEN. RHYACOPHILUS, Kaup.

sp. *R. solitarius*, Bon. Solitary Sandpiper.

Also common, summer resident.

GEN. TRINGIDES, Bon.

sp. *T. macularius*, Gray. Spotted Sandpiper.

Very common from 25th May till 1st of October.

GEN. ACTITURUS, Bon.

sp. *A. bartramius*, Bon. Bartram's Sandpiper.

Also very common in May, and again in September. Probably does not breed here.

GEN. LIMOSA, Bris.

sp. *L. fedoa*, Ord. Marbled Godwit.

Not common. Arrives about the 20th of May, and shortly goes further north, returning in September, and remaining into October. No nests seen.

GEN. NUMENIUS, *Linn.*sp. *N. longirostris*, *Wtl.* Long-billed Curlew.

Abundant in north part of the State.

GEN. RALLUS, *Linn.*sp. *R. virginianus*, *Linn.* Virginia Rail.

Common from May till into October.

GEN. PORZANA, *Viel.*sp. *P. carolina*, *Linn.* Sora Rail.

Very common from May till near November.

sp. *P. noveboracensis*, *Yellow Rail.*

Rather rare, but well identified.

GEN. FULICA, *Linn.*sp. *F. americana*, *Gme.* Coot, or Mud-hen.

Abundant after the 15th of April till about the 1st of November.

GEN. GALLINULA, *Bris.*sp. *G. galeata*, *Bon.* Florida Gallinula.

Rare.

ORDER SIXTH.

NATATORES.

Fam. Anatidae.

GEN. CYGNUS, *Linn.*sp. *C. americanus*, *Sharp.* White Swan.

Common, only in the remote parts of the State, from April 1st until late in autumn. Breeds here.

GEN. ANSER, *Linn.*sp. *A. hyperboreus*, *Fallas.* Snow Goose.

Not common.

sp. *A. gambelli*, *Hart.* White-fronted Goose.

Rare, or not observed.

GEN. BERNICLA, *Steph.*sp. *B. canadensis*, *Boie.* Canada Goose.

Abundant; breeds here and a few remain all winter.

sp. *B. hutchinsoni*, *Bon.*

Apparently not common.

sp. *B. brenta*, *Steph.* Brant.

Common; arrives about the first of April; breeds here, and retires about the first of November.

sp. *B. nigricans*, *Cassin.* Black Brant.

Often met in some localities, but its habits unnoted.

GEN. ANAS, *Linn.*sp. *A. boschas*, *Linn.* Mallard Duck.

Common; breeds here; arrives about the 20th of March and retires late in the fall. A few remain all winter.

sp. *A. obscura*, *Gme.* Black Duck.

Not common.

GEN. DAFILA, *Leach*.sp. *D. acuta*, *Jen.* Pintail Duck.

Common; arriving early in April, and, after breeding, retires about the first of November.

GEN. NETTION, *Kaup*.sp. *N. carolinensis*, *Bd.* Green-winged Teal.

Common; arriving about the first of April, and retiring in October. Breeds here.

GEN. QUERQUEDULA, *Steph.*sp. *Q. discors*, *Steph.* Blue-winged Teal.

Less numerous than the last; arriving a little later, and retiring a little earlier. Breeds here.

GEN. SPATULA, *Boie*.sp. *S. clypeata*, *Boie*. Shoveler Duck.

Common. Breeds here. Arrives about the first of April, and departs early in November.

GEN. CHAULELASMUS, *Gray*.sp. *C. streperus*, *Gray*. Gadwall Duck.

Rare and unobserved.

GEN. MARECA, *Steph.*sp. *M. americana*, *Steph.* American Widgeon.

Common; breeds here; arriving about the first of April and retiring about the first of November.

GEN. AIX, *Boie*.sp. *A. sponsa*, *Boie*. Wood Duck.

Common; breeds all about us in the timber; arriving about the 25th of March; retiring in November.

GEN. FULIX, *Sun.*sp. *F. marila*, *Bd.* Scaup Duck.

Not really rare, but not very common; migrations same as the last species.

sp. *F. affinis*, *Bd.* Blue-bill Duck.

Very abundant in some years, and never really rare. Breeds here; arrives about the 25th of March, and retires about the 25th of October.

sp. *F. collaris*, *Bd.* Ring-necked Duck.

Common. Migrations like the last; breeds here, abundantly.

GEN. AYTHYA, *Boie*.sp. *A. americana*, *Bon.* Red-head Duck.

Common, but less so than formerly. Arrives and departs with the following. Breeds here.

sp. *A. vallisneria*, *Bon.* Canvas-back Duck.

Once common, it is becoming rare. Breeds here. Arrives about the 10th of April; retires about October 25th.

GEN. BUCEPHALA, *Bd.*sp. *B. americana*, *Bd.* Golden-eye Duck

Not very common. Arrives very early in spring, and breeds further north. Returns about December 1st.

sp. *B. albeola*, *Bd.* Butter-ball Duck.

Abundant early in April. Goes north to breed; returning here in September, and going south about November 1st.

GEN. ERISMATURA, *Bon.*sp. *E. rubida*, *Bon.* Ruddy Duck.

Rare. Its habits unnoted.

GEN. MELANETTA, *Bois.*sp. *M. velvetina*, *Bd.* Velvet Duck.

Very rare—only seen in winter.

GEN. HARELDA, *Leach.*sp. *H. glacialis*, *Leach.* Long-tailed Duck.

Only one individual observed yet.

GEN. MERGUS, *Linn.*sp. *M. americanus*, *Less.* Sheldrake.

Common resident. Often seen in winter, and breeds about us.

sp. *M. serrator*, *Linn.* Red-breasted Merganser.

Same as last.

GEN. LOPHODYTES, *Reich.*sp. *L. cucullatus*, *Reich.* Hooded Merganser.

Less common than either of the last two, but a permanent resident.

Fam. Laridae.GEN. LARUS, *Linn.*sp. *L. argentatus*, *Brem.* Herring Gull.

Reaches us in snowy flocks, of ten to fifty, about the first of April, and soon passes on northward to breed, and returns late in September, remaining here but a short time. *

GEN. CHROICOCEPHALUS, *Eyton.*sp. *C. atricilla*, *Linn.* Laughing Gull.

Rare.

sp. *C. philadelphia*, *Lawrence.* Bonaparte's Gull.About like *argentatus* in numbers and seasons of migration.GEN. RISSA, *Leach.*sp. *R. tridactylus*, *Bon.* Kittiwake Gull.

Irregular visitant in all respects.

GEN. HYDROCHELIDON, *Bois.*sp. *H. plumbea*, *Will.* Short-tailed Tern.

Abundant; arriving about the 15th of May, and retiring about the 25th of August. No nest seen.

Several other species of Terns visit us, but have not been identified yet.

Fam. Pelicanidae.GEN. PELICANUS, *Linn.*sp. *P. erythrorhynchus*, *Ome.* White Pelican.

Common. Breeds in the State. Arrives first of April, and retires about the first of November.

Fam. Phalacrocoracidae.GEN. GRACULUS, *Linn.*sp. *G. carbo*, *Gray.* Common Cormorant.

Less common than formerly. Breeds along our larger rivers. Arrives about the 15th of April.

Fam. Colymbidae.**GEN. COLYMBUS, Linn.**sp. *C. torquatus*, *Brem.* Loon.

Very common from 15th of April to 1st of November.

sp. *C. septentrionalis*, *Linn.* Red-throated Diver.

Rather rare. No nests obtained.

GEN. PODICEPS, Latham.sp. *P. cornutus*, *Latham.* Horned Grebe.

Rather common for its species, and a permanent resident.

GEN. PODILYMBUS, Lesson.sp. *P. podiceps*, *Law.* Pied-billed Grebe.

Common; breeds here, and a permanent resident.

MAMMALIA OF MINNESOTA.

BY. A. E. AMES, M. D.

[Read before the Academy, December 2d, 1878.]

This class of animals appeared on the earth at an early time. The fossil remains of the mole, hare, beaver, hyena, bear, martin, cat, dog, mastodon, elephant, hog, ox, horse, etc., are found in the Eocene, Miocene, Pliocene, and Post-tertiary epochs. In the Cenozoic time, the edentates, herbivorous, and carnivorous animals exceeded in number and size of any other period.

As for the origin and early life of the Mammalia, that theme rightfully belongs to the department of Paleontology.

The culmination of the Mammalia class of animals took place in the Post-tertiary epoch. In the *domestication* of the horse, ox, sheep and dog, many *species* of the same *genera* have been produced, by changing in breeding. We have been led by economy in this, that we might supply our manufacturies with rare material, and that we might enjoy profitable labor and good food. Zoological nomenclature arranges animals into orders, sub-orders; families, and sub-families; genus and sub-genus. To this I have appended the English name.

It is not the intention of this report to present the outlines of zoological knowledge of the life-organism of this class of animals. Such a report would detail the anatomical and physiological character, the appearance, habits, etc., of each species. At this time, it would make a report too voluminous to print in the Bulletin of our Academy.