GENTRY THOMAS GEORGE

NESTS AND EGGS OF BIRDS OF THE UNITED STATES

Thomas Gentry

Nests and Eggs of Birds of The United States

Gentry T.

Nests and Eggs of Birds of The United States / T. Gentry — «Public Domain»,

Содержание

Thomas G. Gentry
Nests and Eggs of Birds of The United States

Preface

FOR many years we have been of opinion that a work on NESTS and EGGS, in life-like colors, would be a valuable acquisition to ornithological science, and meet a want that has long been felt to exist. After vainly hoping that some more competent person than the writer would see the necessity therefor, and take a step in the right direction, we were beginning to despair of any such enterprise being undertaken, when, to our surprise, two publications, partially of this character, loomed up in the literary horizon, one hailing from Ohio, and the other from New England; the former, a local publication, seemed of such high pecuniary value as to be beyond the public reach; while the latter, fully up to it in merit of learning, but illustrating merely the eggs, was destined to failure from the first, and, after running a brief career, has at last ceased to exist. Under these circumstances we embarked in the project, in the confident expectation that our ornithological friends and others would give us encouraging support.

The utter impracticability and, we may say, impossibility of any scheme looking to the delineations of all the nests built by the many hundred birds belonging to our country, in the small space of a single volume, was obvious at the outset. All that we could promise our conscience were the figures of representative forms, and this we have kept in view, and endeavored to fulfil. To future series, if there should be a demand, we will leave the continuation of the subject, when, not being necessarily restricted to family types, we shall labor to invest the Plates with greater charms and attractiveness in the shape of rarer and more magnificent birds.

Upon cursory examination it will readily be perceived that the work has considerably deviated from its original aim. This change occurred shortly after the issuance of the third number, and in obedience to the popular demand, which insisted that the birds should be given with the nests, thereby entailing increased expense, but adding, it cannot be denied, largely to the beauty, utility and value of the publication. This innovation, dictated by good sense and sound knowledge, necessitated further expenditures of capital. In order that an air of uniformity should pervade the entire work, it was very essential that extra plates of birds should be furnished for the early drawings of nests. Determined that the work should be first class in every respect, and well worthy of patronage, the publisher spared not the expense, and once more exceeded the promises made to his patrons.

Especial pains have been taken with the text. The aim of the author has been to present a short, plain and detailed account of the habits of each species described, from the time of its arrival, if a migrant, until its retirement to the South in the fall. In the case of resident birds, he has been particular to give their winter history in addition to that of the breeding season, in the same orderly and continuous manner as is apparent in his descriptions of their more migratory brethren. The presentation of the events in regular sequence, if great care be not taken, is sure to lead to monotony. This he has tried to avoid, but how well he has succeeded, he defers to the judgment of his readers.

Throughout the work, considerable prominence has been given to those interesting and curious phases of bird-life which are present during the breeding-period, and which have been the principal study of the author for many years. Extraneous matter has been sedulously omitted, and nothing permitted to appear about which there could be serious doubts of accuracy. While he has drawn largely and, in very many instances, almost entirely from his own observations, recorded and unrecorded, for material, he has not hesitated to consult the writings of others, or to avail himself of the statements of reliable correspondents, where his own knowledge has been incomplete or defective. Wilson, Audubon, Nuttall, Brewer, although dead, have spoken to him through their valuable works,

and yielded up their varied observations for occasional selections. Among living authors, to Baird, Coues, Ridgway, Allen, Samuels, Cory and Minot, and others less eminent, he has had access through their writings, and he now takes this opportunity of returning to them his grateful acknowledgments.

In the arrangement of the details of the Plates, the artist has been subject to the suggestions and dictations of the author, the constant aim of the latter being to secure accuracy in this respect, as well as the greatest variety possible. The typography, for clearness, sharpness, regularity and finish, has rarely been surpassed by that of any other work. Much praise is due the enterprising publisher for his liberality and public-spiritedness.

With these few preliminary remarks, we send this beautiful book out into the world, trusting that it may meet with a cordial reception everywhere. If it be the means of acquainting man with the lovable manners and interesting domestic relations of a few, though not all, of our feathered friends, and of restraining our youth from nest-destroying propensities by offering them pictures of the homes of birds for study and contemplation, and thus abate the evil; or if it add but one new fact to the author's favorite science of ornithology, or benefit it in any way whatever, he will rest satisfied, and feel that he has not labored in vain.

Thomas G. Gentry.
Germantown, Philadelphia, Pa.,
May, 1882.

Plate I. – AMPELIS CEDRORUM, Sclater. – Cedar-Bird

The Cedar-Bird, though mainly a denizen of the wooded regions of North America, and occasionally of cultivated fields and orchards, has been known to nest from Florida to the Red River country. But, wherever found during the non-breeding period, it is the same gregarious, nomadic species.

After the beginning of October, the search for food so completely engrosses the attention, that it is not until the latter part of May, or the beginning of June, that the flocks break up into pairs.

Nidification now becomes the all-absorbing passion, and the birds after mating, which business is generally conducted in a quiet and unostentatious manner, repair to the woods or hedges in quest of a suitable shrub or tree in which to establish a home. This matter requires considerable labor and care; and, ordinarily, no little time is devoted thereto.

The place usually selected, is a retired and unfrequented thicket or nook; or occasionally, an orchard in close proximity to an occupied dwelling. When the former, the cedar, with its tall, nearly vertical branches and dark green foliage, is, of all our forest-trees, pre-eminently fitted to receive, support, and conceal the nest; when the latter, the apple is accorded the preference.

Having chosen the locality, the birds waste no time in idleness, but apply themselves to the task of building, with the most commendable zeal and perseverance. Each bird has its allotted part of the work to perform: the duty of the male being to collect the materials; that of the female, to shape and fix them in their proper places. Occasionally the latter, when not thus occupied, accompanies her partner in his frequent journeys, and assists in collecting and bringing in his load. The time employed in the labor of construction, making due allowances for recreation and rest, is between five and six days.

In form, the typical structure is nearly hemispherical, and presents a rather neat and elegant appearance. It is compactly made, and, in the generality of instances, exhibits anything but bulkiness. In position, it rests upon the horizontal limb of a tree, or is wedged in among several upward-growing branchlets, at elevations varying from three to twenty feet.

During the period of nidification, almost any substance, having the requisite flexibility and strength, is in demand; consequently, the materials of composition are as varied as they are numerous, and depend in a great measure upon the *environment*. In thickets, small twigs, stems of grasses, dried leaves, lichens, and the tendrils of the vine, make up the bulk of the structure; but in places situated in close proximity to houses, wrapping-twine, strips of rags, and such other substances as are ready prepared and accessible, are utilized. The lining is generally fine roots of grasses, bits of string, flower-stalks, lichens and tendrils. The cavity seldom exceeds three inches in width, and scarcely two and a half in depth; while the external diameter varies from four and a half inches to five; and the height, from two and a half to three.

The specimen which we have figured, and which may be regarded as typical in its character, was obtained in the vicinity of Bridgeton, N. J., in the summer of 1878, and was neatly erected upon the horizontal branch of an oak, and held in position by two nearly vertical branches of the same tree. It was placed at a height of nearly twenty feet above the ground, and consists almost exclusively of fibres of the long greenish-yellow lichens which constitute so conspicuous a feature of the trees of that locality, in their sylvan retreats. Externally, besides a few fine rootlets, there is noticeable much white wrapping-string, which relieves, in a great degree, the monotony of the fabric. Internally, there is the same green moss-like lichen. The cavity is beautifully symmetrical, and measures about three inches in width, and nearly two inches in depth. The external diameter is five inches, and the height, two inches. The nest is most elaborately finished, and is evidently the workmanship of superior mechanics. The Plate represents it three-fourths the natural size, placed upon an apple branch.

Among other fabrics which the writer possesses, is one which was obtained in June, 1871, in Germantown, Pa., saddled upon the horizontal branch of an apple-tree. It is rather firmly and compactly built, and is composed, exteriorly, of stems of the common timothy, fine rootlets, dried leaves of the mullein, and green leaves of the apple, which are held together by broad strips of colored rags, bits of lint, and divers strings, the latter constituting a prominent feature. Interiorly, there is a promiscuous lining of flower-bearing stems, fragments of strings, fine roots of grasses, fibres of linen, and tendrils of some species of cucurbitaceous plant. The nest is about four and a half inches in external diameter, and nearly three in height. The cavity is three inches wide, and two and a half inches deep in the middle.

This last model of architecture, as already remarked, was placed upon the limb of an apple-tree, near its extremity, and barely at a distance of fifteen paces from an occupied dwelling. The rags, etc., which form such a prominent feature of the outside, were purposely furnished by an inmate of the house. When first proffered, it was thought that the birds would be slow to perceive the use to which they could be put, but not so, for they entered into the idea with the most praiseworthy alacrity. And even after the materials were no longer supplied, they would repeatedly fly to the bush upon which they had been laid, as though soliciting a continuance of such favors.

The birds having constructed their home, the female commences on the day following its completion to deposit her complement of eggs. The time thus spent varies from four to six days, and depends upon the number which is to constitute a setting. Oviposition being accomplished, incubation follows, sometimes immediately on the deposit of the last egg, but, not generally, until the succeeding day. This is the exclusive task of the female for nearly fourteen consecutive days. Although the male does not assist in the labor, yet he shows himself to be a very kind and attentive husband, by providing food for his partner, and keeping a vigilant lookout for approaching enemies. This he signals by a low single note, which the female quickly acknowledges, and instantly the two timid creatures beat a hasty retreat to an adjoining tree or shrub beyond the reach of peril, where they become passive spectators of the demolishment of their home, with all its precious burden.

The eggs, which are from four to six in number, resemble those of the Waxwing, but differ in size, being somewhat smaller. Their groundcolor passes from a light slate to a dark stone-color. The markings are chiefly blotches of dark purplish-brown, lighter shades of the same color, and peuumbræ of light purple, either by themselves, or surrounding the darker spots. In form, they are either oblong-oval, or nearly spherical; and in length, they vary from .80 to .90 of an inch, and in breadth, from .50 to .70 of an inch.

Plate II. – CONTOPUS VIRENS, Cabanis. – Wood Pewee

The Wood Pewee, like most of its congeners, has a somewhat extended habitat, ranging from the Atlantic westward to the Plains, and from Texas to New Brunswick. It visits the United States about the 15th of April, and from this time until its departure for Guatemala in October, it is principally an occupant of high-wooded regions with a scanty growth of underbrush, and timbered river-bottoms.

But as the season advances, and the amatory feelings become awakened, these shady retreats are deserted by a few individuals of more venturesome disposition, and a temporary abiding-place is sought for amid the stirring scenes of active farm-life. This generally occurs during the last of May or the beginning of June, and is the prelude to the more important act of mating, which follows.

The assumption of matrimonial relations, however, is not a matter that is entered into without more or less consideration. Occasionally, much time is spent in its preparation. This is presumably the case when a young female is courted by some venerable male. But when an apparently experienced individual is the object of his devotion, the state of things is different. His advances are then either encouraged and reciprocated, or they are declined, and the disappointed suitor compelled to seek a partner elsewhere. It is probable, moreover, that the same birds pair together on each return of the breeding-season, unless prevented by death, or some other of the numerous vicissitudes of life.

The ceremony of mating being over – which business is ordinarily of short continuance, seldom lasting for a greater period than two days – the newly-wedded pair now set out to discover a suitable place for the building of a home. This is a matter of considerable moment, often requiring the performance of long and extended tours of observation and exploration. These reconnoissances generally last for a week, but eventually result in the choice of a locality well adapted, as far as the essential conditions of shelter and security are concerned, to become the depository of a nest. The site generally chosen for this important purpose is a tall open woods with a preponderance of ash or oak trees; but where a time-honored orchard is the recipient of this favor, which is sometimes the case, the apple, 011 account of the many advantages which it possesses, is preferred above all other fruit-trees.

The site being mutually agreed upon, the happy pair proceed with all possible dispatch and diligence to construct a domicile: the male to collect and bring in the necessary materials; the female, to fix them in their proper places, and also to give shape and symmetry to the structure. The time devoted to this work varies with the industry of the builders, the style of the nest, and the character of the neighborhood. But, where the birds are laboring under the most favorable circumstances, the task is easily accomplished in five days.

This admirable piece of bird-architecture, which rivals in beauty and symmetry the nest of our little Ruby-throated Humming-bird, is either saddled upon a living or dead limb that is horizontal and lichen-clad, or else upon the crotch of a bifurcated branch, and is placed above the ground at elevations varying from five to thirty feet. According to Nutt all, "the body of the fabric" occasionally consists of "wiry grass or root fibres;" but we have yet to meet with a nest with "*small branching lichens* held together with cobwebs and caterpillars' silk, moistened with saliva," as that author remarks. In a structure before us, which is typical in its character, small strips of inner bark plucked from trees of chestnut and oak, bits of tow, and fragments of wool, circularly arranged and compactly pi-essed together, are the prevailing constituents. Externally, it is closely invested with the bluish-gray crustaceous lichens which are so plentiful upon the trunks of certain trees, and also upon fence-rails. In diameter, it measures three and a half inches; in height, one and a half inches. The width of the cavity is about two inches; the depth in the centre, three-fourths of an inch.

The most beautiful fabric, as well as the most compactly built, which we have seen, was obtained in the spring of 1870, not far from Germantown, Pa. It was placed upon a horizontal branch of an apple-tree, in close proximity to a farm-house. Externally, it is thickly covered with *bluish-gray crustaceous lichens*, which are held in place by a few cobwebs, and fragments of the silk of caterpillars.

The base consists of dried stems of grasses, and on these is reared a neat and cosy superstructure composed of the inner fibres of the wild and cultivated species of the vine, and a slight sprinkling of wool. These materials are variously interwoven, and arranged around the margin so as to form a cavity. The dimensions of this nest are as follows: External diameter, three and a half inches; height, one and a half inches; width of cavity, two inches; depth in the centre, three-fourths of an inch. In the Plate it is represented the natural size – built upon an oak branch.

In the details of form and dimensions, this nest differs immaterially from specimens which we have met with and seen from other localities. But wherever obtained, they will always be found to bear a very close resemblance to one another, differing chiefly in the character of the articles which constitute the inner arrangement. We will merely mention one example which was taken by Mr. Welch, in Lynn, Mass., and which will give our readers some faint conception of the extent to which variation is often carried. This structure was placed upon a dead limb of a forest-tree. Its walls were composed of small dry stems and vegetable down, finely interwoven, and covered on the outside with lichens which were cemented to it by a viscid secretion that was apparently supplied by the builders. The base wras somewhat flattened, much thinner than the walls, and composed of finer materials. The external diameter was three inches, and the height one and a half inches; the cavity, two and a half inches at the rim, and the central depth about one inch.

Having finished their home, only a day or so intervenes when oviposition becomes the controlling instinct. The female now proceeds to deposit her complement of four eggs, which she does on consecutive days, at the rate of a single egg daily. This is followed, on the day succeeding the last deposit, by the trying duty of incubation. Upon the female devolves this arduous and irksome labor. For about eleven days she is thus engaged, until her patience is finally crowned with success. Although the male takes no part in this duty, yet he contributes his share to the prosperity of the undertaking, by guarding his partner from danger, and supplying her with the essential articles of food. When his home is assailed by feathered enemies, if they are not more than a match for his strength, he is not slow to wreak instant vengeance upon them. But in the case of human depredators, where effort would be futile, no exertion is put forth to cause desistance from any contemplated assault, save a little scolding.

The eggs are four in number, and resemble in configuration those of the common Phoebe-Bird. They are obtuse at one extremity, and slightly tapering at the other. The ground is a rich cream-color, and is diversified about the larger end with a wreath of purple and lilac spots, which are large, and occasionally confluent. In length, they measure .76 of an inch, and in width .54. It is pretty well established that but a single set is deposited by any given pair of birds in a season. Nests with eggs, however, have been taken during the last of July, or the beginning of August; but whether a second laying or not, we cannot say – possibly the work of birds whose early efforts had been frustrated.

Plate III. – MIMUS. CAROLINENSIS, Gray. – Cat-Bird

The Cat-Bird is one of the most common and conspicuous of all our feathered visitants. It reaches the United States from its Central American home, on or about the 10th of April, and thence diffuses itself over the whole country, northward as far as the Saskatchewan, and westward to the Rocky Mountains.

Immediately upon its arrival, it seeks the shelter of dense woods, or the security of waste fields and bramble-ridden hedges. In such situations, among the dead leaves that lie scattered upon the ground, it gleans a well-earned subsistence. But later, when the leaves begin to appear, and with them an abundance of insect-life, these retreats are deserted by a few venturesome individuals, and an abiding-place is sought amid the quiet scenes of rural gardens.

A week or ten days, however, elapse before the sexes are ready to assume conjugal relations. Being vigorous feeders, and living in the midst of plenty,' they are seemingly all unconscious of the better and nobler instincts of their being. But feeding eventually satisfies appetite, and conduces to the awakening of the amatory forces from their hitherto dormant condition. The males, by their altered demeanor, are the first to show signs of change. We no longer observe them engaged in the pursuit of the juicy caterpillar, or the gilded butterfly, with the same energy and zest as before. Their aims are higher, their aspirations loftier. Perched upon a small tree, or screened from observation by dense clumps of bushes, with heads bent skyward, they startle the echoes of woodland and valley with their strange, ecstatic music. But the females still continue feeding, as though utterly oblivious of the concert which is intended for their benefit. After a day or two thus spent, they become less absorbed in such matters, yield to the potency of song, and coyly emerge from obscurity to welcome and encourage their would-be suitors. The period of courtship is short, and unattended by any of those peculiar antics which characterize many species at this time.

In the Middle and Western States mating occasionally commences as early as the 25th of April, when the season is remarkably forward, but generally about the first of May – seldom later. In the Territories, from some unknown cause, it is delayed to a later period. Very little time is wasted after this event has occurred, in celebrating the occasion, for the pair soon begin to look for a proper nesting-place. This is a labor not entered into without previous care and deliberation. Ordinarily a week or ten days are spent in making a choice of locality. The site selected is usually a brier, cedar, thorn-apple, or a bush in the midst of a grove or hedge, seldom remote from a settlement. The nest is sometimes placed in a maple, and when such is the case, the birds take the precaution to build it pretty well up. During the summer of 1880, my son discovered one in a crotch of the red maple, at an elevation of thirty feet from the ground. This, however, is exceptional, as the height usually ranges from three to about twelve feet. It sometimes happens that an injudicious selection of locality has been made, and a nest has been nearly completed before the mistake is discovered. In this predicament, instead of "making the best of a bad bargain," the birds ignore the site for another better suited to their purposes. The situation being finally decided upon, both birds work diligently during the cooler hours of the morning and evening, for five or six days, in the construction of their home. In some instances, particularly during moonlit nights, the work has been carried on long after twilight has faded from the earth. Unlike the case of the Cedar-Bird, which we have already cited, there does not seem to be any regular division of labor. Both birds collect the materials, as well as arrange them in the nest. When a suitable article has been found, the finder does not fly immediately to the nest and adjust the piece, but indulges in short flights from one object to an adjoining one, carefully surveying the premises all the while, until within a few yards of the nest, when she rapidly flies thither, and having disposed of her burden, goes off in quest of others. Where accustomed to man, the Cat-Bird does not seem to be much annoyed by his presence.

Nidification ordinarily commences about the 18th of May. The nest is placed in various positions – sometimes 011 a horizontal limb, occasionally in a crotch, but generally among the branches of the bush upon which it reposes. The materials of composition are as varied as they are numerous. In thickets, and also in places removed from human habitations, a platform of dried leaves, slender sticks, or weeds is used as a basis, on which is reared a superstructure of small twigs, fine roots, herbaceous plants, bits of straws, pine needles, and other materials which are common to such situations. But when a nest is built in close proximity to the home of man, bits of string, strands of silk or thread, and bunches of cotton or wool are appropriated, and made to do excellent service.

From the foregoing remarks it is obvious that nests vary according to changes in the *environment*. Hence, what is typical in one locality might be deemed but a deviation from the normal form, when compared with a nest of the same species found in an entirely different neighborhood, and *vice versa*. Mr. Ingersoll describes a nest found near Norwich, Connecticut, which was suspended between two small bushes in such a manner that it had no other support than that afforded by a slender spray from each bush; but the large mass of crooked sticks below offered so many hooked ends and projections that the nest was very secure. The writer describes elsewhere a nest that was carelessly made, and bearing a close resemblance to the structure of the Maryland Yellow-throat, which he supposed to be the work of young or indolent birds. Another, on the contrary, showed superior workmanship. The outside of this cosy and beautiful nest was composed of wool, raw cotton, strings, fragments of lamp-wick, a slight intermixture of tangled silk, fragments of lichens, etc., held *in situ* by strands of silk. Upon this basis was built a superstructure of fine rootlets, intermingled with patches of wool.

The nest which we have figured in the Plate was found in the vicinity of Philadelphia, Pa., in the summer of 1876. It is represented the usual size, and shown in its natural position upon a cluster of blackberry branches. Exteriorly, it is formed of wrapping string, bits of thread, fine roots, cotton ravelings, a few grayish lichens, and bunches of discolored raw cotton in great quantities. Interiorly, there is a lining of slender grass stems, which monotony is relieved in a measure by a piece of lamp-wick. The external diameter is five inches, and the height about two and a half. The cavity is three and a half inches, and the depth an inch and a half.

Such facts as are detailed above, with innumerable others of a similar nature that might be adduced, most abundantly and conclusively prove that birds are not the dull, senseless, routine-loving creatures which those who have some pre-conceived opinion to uphold, or cherished theory to sustain, are wont to argue. Though many of their actions are purely instinctive or mechanical, yet evidence is not wanting to show that they are gifted with a faculty similar in character to that possessed by man, but differing in degree. A thousand circumstances justify the belief that they often reason *a priori* from cause to consequences, providently managing with a constant aim for future comfort, convenience and necessity. Instinct is always the same thing, never advancing, never retrograding. Reason tends to improvement, always seeking a higher plane of existence. To say that changes in nest-building imply a *change of instinct*, is to perplex the understanding by a perversion of language; but to ascribe them to the operations of reason, influenced by motives, seems to be the most rational view to take of the matter.

The nest being completed, which is usually the case in about five days from the time of starting, a brief season elapses before any eggs are laid. In the Northern States this happens about the third week of May, and then only one is deposited each day, for four or five days. The necessary complement being laid, the female immediately takes the nest, and incubation follows. This is her exclusive task for a period of twelve or thirteen days. While she is thus engaged, the male stations himself close-by the nest, only departing therefrom in quest of food for himself and partner. Should an enemy approach, he assails the intruder with commendable fearlessness and boldness. Various snakes, particularly the black-snake, are their inveterate foes. When an attack is made by one of these wily creatures, both parents, heedless of danger, often fly so close to the assailant as to lose their lives

in efforts to prevent the nest being ravished and despoiled. But in the case of human depredators, knowing that resistance would be futile, they seek to deter them from any contemplated sacrilege by the most discordant cries and frantic gestures.

The young are objects of tenderest solicitude. Both parents vie with each other in rendering them every needed service. While one is absent from home in search of food for their rapacious appetites, the other is guarding the nest and its precious charges with the most jealous care. Earthworms, spiders, flies, caterpillars of non-irritating properties, together with such berries as the season affords, are collected in vast quantities, and fed to these helpless creatures. But as they increase in size and age, other articles are added to their voluminous bill of fare. In about twelve days from the time of hatching, the young are able to quit the nest, and in six days more, are ready to be initiated into the mysteries of flight. This important duty devolves exclusively upon the male parent.

The eggs are oval in form, of a dark emerald green color, very highly polished, and measure .97 of an inch in length, and .68 in width. There is small chance of confounding this with any other American bird's eggs – certainly after a specimen has been once seen. Dr. Abbott, as quoted by Ernest Ingersoll, once discovered a nest, at Trenton, N. J., that contained purely white eggs, which hatched in due time into perfect young. Similar instances are known in the case of other species laying dark eggs, where one or two white examples have been found among others of the normal color in the same nest-complement. But a single brood is positively known to be raised, although cases have come under our observation of nests with fresh eggs as late as the 15th of August – possibly the work of birds whose early efforts had been frustrated by enemies, or by some accident.

Plate IV. – ICTERUS SPURIUS, Bonaparte. – Orchard Oriole

The Orchard Oriole is quite abundant throughout most of the United States, from the Atlantic to the Missouri Valley, and on the southwest to the valley of the Rio Grande. Individuals have been met with by Mr. J. A. Allen as far west as the base of the Rocky Mountains, in Colorado, the extreme limit of its western range. It is probable that it breeds throughout the entire area of its distribution – sparingly, however, in New England, according to eminent authority; but quite freely in the Central States, from New York to South Carolina, and thence south-west to Texas.

The period of its arrival in the United States from the genial clime of Guatemala, where it winters, has been fixed by Mr. Dresser, who has carefully studied its nesting-habits in Texas, as early as the first or second week of April. But, farther north, its presence is not observed before the last week of April, or the beginning of May.

Unlike the Warblers and Thrushes, which prefer secluded localities, the subject of our sketch delights in cultivated grounds, particularly where the apple and the pear abound. Here it takes up its quarters, accomplishes the object of its mission, and thence retires to its distant winter-home. Occasionally, a few individuals are to be found in waste grounds, dense thickets, or along the borders of woods, but such cases are exceptional, and conditioned only by the close proximity of some time-honored orchard.

Mating does not occur until the 10th of May, more than two weeks after the advent of the sexes. But from the first, the male, who precedes his partner by some two or three days, may be heard in the early morning, and quite as frequently at the close of the day, from the tall tree-tops, chanting his wanton rhapsodies, for a half-hour at a time, utterly unmindful of passers-by. His roundelay, which is undoubtedly the free and happy expression of a heart actuated by the generous impulses of love, though composed of rather shrill and sprightly notes, and uttered with considerable agitation, is quite as pleasing as that of his nearest kin, the Baltimore Oriole. Clear, distinct and resonant, it thrills the air around, and is at last borne to the ears of some lonely female, tired with travel, and unblest by a partner. The life of the Orchard Oriole seems to be one of joyous song. Although, fond of a dainty tid-bit, in the form of a juicy worm, he is not given to gormandizing; he only eats from sheer necessity; for, after having satisfied the demands of Nature, he resumes his soul-stirring strains, to the delight of man and bird.

The sexes having come together in a wise and business-like way, with little or none of the bluster that is customary on such occasions, a conference ensues, which results in a temporary separation for mutual good; one bird going in one direction, and the other in an entirely opposite course. The selection of a suitable spot for a home is the *vera causa* of this divergence. This is evidently a labor of little moment, as, ordinarily, but a day or two is thus spent. It must not be inferred, however, that the birds are not particular as to place. A large experience has convinced us that great care and deliberation are then exercised. Many a tree is visited, and often the same tree again and again, before a decision is reached; and when at last a suitable site has been chosen, the happy pair set to work with praiseworthy diligence to construct a home.

As previously remarked, an apple- or a pear-tree is generally chosen for nesting purposes. This is especially the case, as far as we are able to ascertain, in the Central and Western States; but in Texas, the nest is suspended from the upper branches of a mesquite-tree. In the North, the common red maple, and several species of coniferous trees, are occasionally chosen, from some peculiar advantages which they possess. A nest in the writer's collection, which was built in the summit of a common swamp maple, occupies a very anomalous position. It is placed within a crotch formed by four nearly upright, slightly divergent branches, and is secured by long, flexible grasses from the

nest, wrapped tightly around the twigs. Another specimen, from Germantown, Pa., is made to dangle from the end of a pine-branch. A peculiarity about the latter nest is the strained position which the four branches to which it is fastened are made to assume. The main twig, which is also the thickest (being about three-fourths of an inch in diameter) shows evidence of having been forced from a horizontal position to one that is almost vertical. The latter is really the best authenticated case we have seen of the truly pensile style of nest. In most instances these structures are but partially suspended, being supported from beneath by projecting branches.

In five or six days from the time of the assumption of matrimonial relations, the nest is started, and through the united efforts of both birds for the period of a week, is brought to completion. Although nidification usually commences about the 20th of May, from some inexplicable cause or other, this essential business is often deferred until the middle of June and, occasionally, as late as the beginning of August. But in the latter case, the birds are undoubtedly prevented by varions accidents from carrying out their designs earlier in the season. In the building of a home, either the male collects the materials, and the female weaves them into a nest, or the converse is the case.

There is little variety noticeable in the materials that compose the nest. The generality of domiciles which we have seen from Texas, Georgia, Florida, New Jersey, Pennsylvania, and several of the Western States, have no lining, but are entirely constituted of one substance – a flexible kind of grass or reed. In a few cases we have discovered a slight lining of vegetable wool, doubtless plucked from the young and developing fronds of various species of ferns. Bits of yarn, down of seeds, and animal wool, have been mentioned by various observers as occasional linings.

Such is the homogeneity of its texture, that once seen and recognized, it can never be forgotten or confounded. A nest from Texas is the exact counterpart of a similar structure from Pennsylvania, or of one from Michigan. The abundance of the particular species of grass out of which these birds construct their homes, and the facility with which it is obtainable in localities remote from each other, conspire to produce the resemblances which are found to exist.

Plate IV exhibits a nest of this species which was obtained in the vicinity of Germantown, Pa., during the summer of 1880. It was suspended from the branches of a pear-tree, in the manner shown in the drawing, at an elevation of forty feet from the ground. It is built exteriorly of a peculiar kind of long, tough and flexible grass, which is common in Pennsylvania. The material is woven through and through in a very wonderful manner, and with as much neatness and intricacy as if actually done by a needle. It is hemispherical in shape, and open at the top. The external diameter is four inches, and height two and a half inches; the cavity is two and a half inches wide, and two and three-quarters in depth. The color of the outside is yellow, while that of the inside is a deep brownish-red.

Another specimen which the writer possesses from the same locality, is built of the same material, more highly colored interiorly, but less so exteriorly. It is pouch-shaped, and measures two and a half inches in internal diameter, and four and a half inches in depth. The length is five inches, and the external diameter three inches. When in position, this nest was so placed that the short spurs of the pear upon which it was built, with their beautiful green wreaths of leaves, met and roofed it over, thus constituting a natural covering for the protection of the young during the prevalence of inclement weather.

Dr. Brewer describes a nest taken by Mr. Brandigee in Berlin, Conn. This structure was elaborately and skilfully woven of long green blades of grass, lined on the inside with bits of yarn, animal wool, and a woolly substance of purely vegetable origin. In external diameter and height it measured four inches; in depth, three inches, and in internal diameter three and a half inches – being widest in the middle. Specimens, similarly colored, have been frequently observed in Pennsylvania.

By far the most remarkable structure which we have seen is the one we are about to describe. This domicile was built in a red or swamp maple, at an elevation of nearly thirty feet from the ground. It is a double nest, composed entirely of long, flexible, yellow grasses, and securely fastened between three nearly vertical branches, in a linear direction. The main nest is inversely sub-conical, four inches

high, with an external diameter of three and a half inches in the middle, and four at the top. The diameter of the cavity is three inches, and the depth two and three-fourths inches. The smaller is joined to the first by a continuation of the grasses of the latter, is somewhat similarly shaped, but less compact in structure. The height is one and three-fourths inches, external diameter in the long direction three and one-fourth inches, and in the short, but two inches. The depth of the cavity is one and three-fourths inches, and the width, one and a half inches. In one side there is a circular hole one inch in diameter. Various opinions have been ventured as to the object of this additional structure. Some have contended that it was never intended for occupancy or ornament, but is simply a fabric which the authors have failed to complete. But its completeness and finish operate against such a theory. The writer, as well as others who have witnessed this curious specimen of mechanism, are convinced that it was erected for a special purpose – namely, the accommodation of either parent while the other is sitting. The opening alluded to, served for the head of the nonsitting bird, who, from his position, looking away from the main building, could detect the approach of enemies, like a sentry upon an outpost.

The nest being completed, on the following day the female begins to deposit her complement of three or four eggs, at the rate of one egg daily. Incubation now ensues, sometimes on the day of the last deposit, but generally on the morrow. This duty lasts from fourteen to fifteen days, and is wholly the work of the female. While she is thus occupied, the male stands guard over the nest, or acts the part of a dutiful and affectionate husband, by providing her with the necessary food. Should their home be disturbed by feathered assailants, or by man, the female leaves the nest, and by loud cries and menacing gestures, seeks, with the assistance of her partner, to drive off the intruders. Often the attack is carried on with a boldness and determination that challenge admiration.

The love for offspring is very intense, and manifests itself in unwearied devotion, and the tenderest solicitude. From early morn until dusk, one parent or the other is constantly on the go for appropriate articles of fare. Usually but one is absent at a time on this important business. But the demands for food are so pressing, that both are sometimes compelled to leave home, but only for a short time, and then never beyond seeing distance of the nest. At first the young are fed upon smooth caterpillars, aphides, spiders, ants, butterflies, and dipterous insects; but as they mature, small beetles and other hard-shelled articulates are added to their varied and extensive *menu*. At the age of fifteen days, they quit the nest, receive instructions in ærial navigation under the tutorage of the paternal head, and in ten days more, are prepared to shift for themselves.

One peculiarity of this species must have struck the attention of every careful observer of its habits; that is, its remarkable sociability. Audubon cites a case where no less than nine pairs were found breeding in the same enclosure. We have known instances where as many as five nests, all occupied, were crowded in the same orchard, within a short distance of each other. The most perfect good feeling and harmony prevailed in this little colony, the birds mingling together with the freedom and ease of inhabitants of the best regulated human communities.

The eggs are oblong-oval in form, pointed at one extremity, and marked with pale purple blotches and a few deep dark purplish-brown dashes upon a light bluish-white background. Specimens from Washington measure .85 by .62 of an inch; from New Mexico,79 by .54; and from Pennsylvania,88 by .58.

Plate V. – TYRANNUS CAROLINENSIS, Baird. – Kingbird

The Kingbird, or Bee Martin, has an extensive range, being found during the summer throughout the continent of North America, from Texas and Florida in the south, as far as the 57th parallel of north latitude. Westward, north of the 44th parallel, it ranges from the Atlantic seaboard to Oregon and Washington on the shores of the Pacific.

Its arrival in the United States from Mexico, Central and South America, and tropical Cuba, where it winters, generally occurs during the early part of April. Having taken the step, the birds are not long in spreading themselves over their immense breeding-grounds, which have been found to be co-extensive with the whole territory over which they range. They reach the Middle Atlantic States from the 20th of April to the first of May; the New England, from the first to the 10th of the latter month, and their more northern habitats, not later than the 15th.

Careful observations, carried through a series of years, have convinced us that the appearance of the males always antedates that of the females by a week or ten days. Their advent is unheralded by song, or noisy demonstration, and is as mysterious as their departure. Our knowledge of the fact is mainly furnished by the eye, and not by the ear, which is ordinarily the first organ that apprises us thereof.

Like most of its kin, the Kingbird is not gifted with a fine voice. When it does essay a madrigal, its shrill, unmusical syllables are anything but pleasing and welcome to the cultivated ear. It may be otherwise with beings of its own special class. At all events, his song, if such it can be truly called, has the anticipated effect – namely, that of calling from her wanderings, the partner, whose presence he is anxiously awaiting in his shady retreat.

Unblessed with the talent of producing sweet and soul-inspiring music, Nature has made amends for her seeming neglect by endowing him with certain mental and spiritual qualities which amply compensate for the want of a melodious voice. A noble, self-sacrificing nature, and a courageous but affectionate disposition, are traits of character which our little friend possesses in a remarkable degree.

Aware of these high qualities, the female, never unduly coy, but innocent, arch and simple, seeks rather than shuns the society of her suitor, almost as soon as she has reached his whereabouts, and proudly but courteously receives his attentions, which, without any show or pretension, she generously reciprocates by consenting to become his companion and helpmeet. Consequently, the season of courtship is comparatively brief.

Mating being accomplished, the newly-made couple, without much ado, and with but little waste of time, start off in quest of a suitable spot for a nest. This appears to be a difficult matter to settle. The pasture-grounds and waste places for which they have all along manifested a strong predilection, are deserted for the more congenial situations to be found about the home of man. Orchards of pear- and apple-trees, or an isolated pear-tree in close proximity to a human dwelling, are now visited. When the former, tree after tree is examined, and the particular advantages of each discussed, before one is found which answers all the requirements. These examinations often continue for a fortnight. The female seems to be the controlling spirit in these transactions.

The nest is generally placed between the forked branches of a pear-tree, although the apple, cherry, osage orange, oak, cottonwood and tulip-tree are sometimes employed for this purpose. Why the pear should be preferred in certain localities above all other trees, it is difficult to divine, unless the density of its foliage, and the short spine-like twigs with which it is armed, afford security from the attacks of rapacious birds and mischief-loving boys. Mostly the birds select for building purposes the topmost boughs where the densest foliage abounds, although instances are known to us, through actual observation, where such structures have been found but five feet from the ground. Again, nests have been met with on the borders of deep forests, in situations remote from man, which fact seems

to point to the conclusion that the habit of building in orchards has been acquired since the peopling of this country by human beings. The fondness of the Kingbird for the little honey-bee, whose hives are generally placed contiguous to human dwellings, has, doubtless, through the desire to be near such articles of luxury, prompted the change of habitat. This species, like one of its near congeners, occasionally builds upon the timbers of a bridge. Dr. Brewer mentions a case which came under his observation in the summer of 1851. While the doctor was passing over a bridge near the village of Aylesford, N. S., he was startled to see an individual of this species fly from a nest which was built on the projecting end of one of the planks of which the bridge was composed. "So remarkably exposed a position, open to view and on a level with and within a few feet of the highway," says he, "must be quite unusual." One fact which the same distinguished writer mentions, showing that the Kingbird, during the breeding-season, is not always the same ugly, pugnacious little creature which is claimed for him, must not be omitted in this connection. The circumstance to which we refer, occurred in the summer of 1871. A pair of these birds had built a nest in an apple-tree, near the doctor's residence and within four feet of the nest of the Baltimore Oriole, and not more than eight or ten feet from the abode of a couple of Robins, all in the same tree. These three pairs were on evident terms of friendship and good-will. The male Kingbird, from the topmost bough, kept a vigilant lookout for danger, and seemed to have all under his special care, but manifested not the slightest disposition to molest or annoy.

Few species are more careless in the selection of nesting materials. Almost anything of the proper length and requisite degree of flexibility is utilized. Herbaceous stems, leaves of deciduous trees, strips of the inner bark of the flax, lichens, weeds, wrapping string, carpet rags, patches of cotton or wool, are a few of the many articles which are found on the outside; while slender grasses, fibres of bark, fine rootlets and horse-hairs constitute the inner arrangement.

A typical structure before us is rather loosely built exteriorly, but increases in compactness towards the interior, where the materials are more closely intermingled. The frame-work of this nest is composed of herbaceous stems, chiefly of the wheat and pigweed, large quantities of fibrous bark of a white, satiny lustre, and leaves of the oak, apple, pear, etc. The inside is formed of fine grasses, quite artistically and intricately laid in position. The cavity is beautifully symmetrical, and measures three inches in width, and two and a half in depth. The outside is five inches at the base, but contracts to four and a half at the mouth. The height is about four inches. This nest was obtained in the neighborhood of Chestnut Hill, Pa., June 15th, 1872.

Another structure which the writer obtained in the same locality, only a few yards distant from the foregoing, differs slightly from it in form, but largely in composition. It is built of compressed stems of wheat, numerous and rather large scraps of printed paper, a few herbaceous plants, all closely compacted and curiously intermingled. Within, there is an inner fabric, secured to the former in a neat and substantial manner, and composed of dark stems and leaves of various species of grass, besides a small quantity of fine roots. The cavity is less regular than that of the other, and conspicuously shallow. It measures three inches in diameter and two in depth. The basal diameter is five inches, which is nearly the width at the mouth. The vertical thickness is three and a half inches.

The Plate represents a very beautiful nest which was obtained in Southern New Jersey, in the summer of 1879. It was placed upon a cherry-branch, as shown in the drawing, at an elevation of fifteen feet from the ground. The outside consists of fine lichens, stems of grasses, wrapping string, roots, tassels of the oak and chestnut, and some mosses; the inside, of fine lichens, dried catkins of the oak, but largely of slender stems and rootlets. The external diameter is four and a half inches, and the thickness about one and three-fourths. The cavity is three inches wide, and one and a half inches deep. In the engraving it is shown the natural size.

Before drawing this part of our subject to a close, we cannot permit the occasion to pass without giving a brief description of one more nest which was obtained in June, 1880. It was placed upon the horizontal limb of an apple-tree, at an elevation of about ten feet from the ground. The peculiarity of

this structure is the large number of carpet rags which depend therefrom. In most cases they extend from ten to fourteen inches beyond its lower border, thus contrasting very markedly with the dark stems and rootlets that make up the bulk of the exterior. Was this arrangement the result of blind chance, or were the rags placed there for some special purpose?

The building of a home occupies the birds from four to five days. Did the builders work continuously at it from sunrise to sunset, the period of nidification would be considerably shortened. But such is not the ease. They seem to have no regular hours for labor, but only work as it suits their convenience. The duty of the male is to collect the materials; that of the female, to arrange them in suitable places. The nest being completed, scarcely a day passes before the first deposit is made. Subsequent deposits are made on consecutive days until the full complement is reached, when the female on the day following the last extrusion, takes the nest, and continues thereon, with brief intervals of intermission, for a period of thirteen or fourteen days, when her labors are repaid by the appearance of a nest-full of tiny fledglings. While she is thus occupied, the male acts the part of a dutiful and faithful husband, guarding her from danger, and supplying her with the choicest and most savory articles of food. When not foraging, he may be seen upon the topmost bough of the tree upon which the nest is placed, directly above his mate, on the constant lookout for danger. Should an enemy approach, he immediately gives vent to his displeasure by a few shrill twitterings, elevates his crest, and then gives chase to the intruder, whom he pursues for a considerable distance, all the while darting at him from different positions, and inflicting the severest punishment, in order to teach him the folly of trespassing. Owls, Eagles, Crows, Grakles, Jays, and even the common barnyard Hen, are made to feel the force of his vengeance; but his most implacable enemy is the Purple Martin.

The young are objects of more than ordinary parental solicitude. The most endearing attentions are lavished upon them, and no efforts are spared to render them comfortable and happy. Caterpillars, flies, and other equally tender insects, are brought in great quantities, during the first few days of their existence, to satisfy the demands of their greedy appetites; but as they become larger, beetles and grasshoppers are added to their dietary. When fourteen days old, they quit the nest, but still remain under home influences for a fortnight later, when they are allowed to shift for themselves.

In many particulars the eggs of this species resemble those of the Arkansas Flycatcher, but differ mainly in their somewhat larger size, and more pointed form. They are oval in shape, white in ground-color – except when fresh, when they show a roseate tinge – and beautifully spotted with brown and reddish-brown blotches and markings, which are confluent about the larger extremity in some, and irregularly scattered over the surface in others. They measure from 1.02 to .87 of an inch in length, and from .75 to .72 in width. Specimens from different parts of the country have been examined, and all, without exception, bear a very close resemblance to each other, scarcely differing more than do eggs of the same clutch.

Plate VI. – AGELAIUS PHOENICEUS, Vieillot. – Redwing Blackbird

The Redwing Blackbird is found throughout North America, from ocean to ocean, and westward to the 57th parallel. From Texas and Florida to the plains of the Saskatchewan, wherever found, it breeds more or less abundantly.

During the winter they congregate in large parties in Southern Virginia, the Carolinas, and all the Gulf States, especially near the sea-coast and among old fields of rice and grain. Occasionally, small flocks are found during the same season about stables and hay-stacks, in the vicinity of Vancouver. But in the Eastern, Middle, Western and Central sections, they are chiefly migrants.

Early in March these large assemblies break up, a part separating in pairs and remaining among the Southern swamps, while the greater portion, the males leading the way, direct their movements northward. Later in April they have re-established themselves in their favorite and accustomed haunts.

On their arrival, the males consort together in high open fields, where their songs may be heard, at regular intervals, from morning until night. At this time they are rather suspicious, and can be approached only by the exercise of great caution. But when the females make their appearance, their attention becomes so absorbed, that they are apparently oblivious of events transpiring around them. The presence of the latter is the signal for redoubled vigor in the line of music. From bush and tree, from ground and fence-rail, and from almost every available place, in loud, clear and resonant notes, is heard their strange, unmistakable melody, each bird striving to outsing his companions. Ever and anon a half-dozen voices may be heard at the same time, producing a perfect medley of sounds, enough to "split the ears of the very groundlings." The males seem never to weary of singing. It is a remarkable and well-authenticated fact, that during the breeding-period, and even late in September when preparing to migrate, the same sweet but pensive strains are heard.

Nearly three weeks have expired since the advent of the Redwing, and still the sexes remain unmated. This cannot long continue. Already a change is manifest. The males are more musical, while, on the other hand, a spirit of restlessness pervades the females. The latter are now no longer given to feeding as before, but cease from their labors, and bend listening ears to the gushing notes of love which swell around. Enraptured, impressed, they eventually emerge from their hiding-places, select their partners, and hie away to more congenial scenes.

The period of mating is unusually short, and unmarked by any special peculiarities. It generally occurs about the 20th of April, but seldom later than the beginning of May. The chief concern of the newly-wedded pair now seems to be the selection of a building-spot. This is a matter of importance, and, with most species, is attended with considerable difficulty. Not so in the present instance. The birds repair to accustomed sites, and there, amid the small bushes and tussocks which abound, prepare their houses.

Nest-making commences in the Middle Atlantic States between the 25th of April and the 1st of May; in New England, about the 1st of June, but not before the middle of this month, in more northern regions. The nest is usually placed in a cluster of reeds, or in the tops of small bushes alongside of streams of water. Occasionally, small trees and fields of timothy are made the recipients of these marks of attention, and, in rare instances, the bare ground is made subservient to this purpose. Almost every ornithologist who has paid any attention to field-work has observed nests in their ordinary positions upon small hushes, or in bunches of swamp grass, but few, we opine, have met with them elsewhere. Mr. Maynard, as stated by Dr. Brewer, seems to have been the first to notice this change. While exploring an island in the marshes of Essex River, he found a number of nests in trees at an elevation of twenty feet from the ground. One of these structures, which was purse-shaped, was composed entirely of eel grass, and placed upon a sapling, at a height of fourteen feet.

High grounds are seldom chosen for nidificating purposes, for the obvious reason that they offer poor facilities for food-collection; the aquatic larvæ, may-flies, dragon-flies, and mosquitoes, which constitute a conspicuous part of the diet of these birds, being only found in marshy situations. Even here a preference is manifested for certain positions. Small bushes along the borders of streams, from the two-fold advantages which they possess, are almost wholly adopted in some localities. Being convenient to appropriate food-stuffs, they are placed beyond the reach of snakes, particularly water snakes, which have a decided partiality for young birds.

Having selected a building-spot, the pair proceed with all possible dispatch to construct a home. This requires the joint labor of the sexes, during the early mornings and evenings, for a period of about five days. The articles of composition are chiefly collected by the male, while the female performs the more difficult operation of putting them in position. Considerable differences are often noticeable in these structures. Those placed upon bushes are, as a general thing, more symmetrical and compact than those found in clumps of grasses, and differ still further in being-plastered with mud on the outside, which adds to their durability; while, on the other hand, nests enclosed by tall overarching grasses, have a looseness of arrangement that will scarcely bear manipulation. But where the nest is placed in fields of timothy and clover, there is evidence of great pains having been taken in its construction.

Having finished their domicile, generally on the following day, but sometimes not for nearly a week afterwards, as is the case when mud and other damp substances have been used in building, the female begins to deposit her eggs, at the rate of one a day, until the full number of five has been laid. Incubation follows on the day of the last deposit, and continues for fifteen days. This business devolves wholly upon the female. While she is thus engaged, the male is not idle, but stands guard over the nest, or ventures off in quest of food for himself and companion. Should the nest be assailed, both parents seek, by the most piteous cries and remonstrances, to drive, off the offending party. In case of pillage, they keenly feel the injustice, and for several days bewail their misfortune. But they soon recover their usual spirits, and prepare to remedy the disaster. So tenacious are they of a chosen locality, that the same pair has been known to build as many as three nests in the same bush, after having been robbed twice.

The parents show the most intense affection for their progeny. Day after day they watch over their helpless infancy with a devotion somewhat akin to that which a human mother manifests toward her child. Their slightest desire is a law, which is obeyed with cheerfulness and alacrity. When food is in demand, they prove themselves to be willing providers, each parent vying with the other in patience and fidelity. While one is absent in quest of food, the other remains at home to protect them from danger, the labor being accomplished by turns. Earthworms, caterpillars, fresh-water larvæ, flies and mosquitoes constitute their earliest fare. But later, beetles, butterflies, and various kinds of fruits help to swell their hitherto very extensive dietary. When about fourteen days old, the young leave the nest, but are not yet prepared to earn their own living. This requires an additional period of twelve days. Brood-raising being over, both young and old continue in the old haunts, until near the time of departure, when they collect in small flocks, and take up their southward-bound journey.

A typical nest of this species is somewhat irregular in shape, and rather coarsely and rudely built. It is composed of stubble and broad grasses variously intermingled, and lined with soft meadow grass. The dimensions vary according to locality. Several nests before us, from New Jersey, Pennsylvania, and the South and West, have an average external diameter of five inches, and a height of three. The cavities, however, are more uniform, and generally measure three inches in width, and one and a half in depth. But when a nest is built in a bush, the outer basketlike frame is carefully interwoven with, and strongly secured to, adjacent twigs. Though somewhat rudely put together, it is nevertheless firmly and compactly woven. The outer framework is usually made of rushes, strong leaves of the iris, and, in some instances, of an additional article apparently similar to mud. Within is packed a mass of coarse materials, over which is placed a thick lining of grasses and sedges. These nests, in the

matter of size, differ from the former chiefly in the particulars of length and thickness. The internal dimensions offer no very striking exceptions.

The nest represented in the Plate is three-fourths of the natural size, and was obtained by the writer in the summer of 1879, by purchase, from Mr. Alexander M. Reynolds, of Philadelphia. It was built in a field of grass, many of the stalks of which being wrought in its composition. In figure it resembles an inverted cone, and is beautifully, symmetrically and compactly put together. The outside is formed of grasses and rushes, very neatly and intricately interwoven, and shows here and there a head of dried pappus plucked from some species of hawkweed. The inside is lined with sedges and fine blades of grass. As shown in the drawing, the nest occupies a rather conspicuous position. This was not the case in its natural location. Being found in the centre of a large field, it is at once evident that the authors had spared no pains to make the concealment as complete as possible. In height, this fabric measures nine inches. Its external diameters above, below, and in the middle, are, respectively, six, two, and four and a half inches. The width of the cavity is three inches, and the depth three.

The eggs are oval in contour, of a light bluish ground-color, and are marbled, blotched and streaked with light and dark purple, chiefly about the greater extremity. In size, they vary considerably; the average length of a large number of specimens from different regions being 1.01 inches, and breadth .76. In the Middle, New England and Western sections of our country, this species is single-brooded; but further south, three, and even a larger number of broods, are annually raised.

Plate VII. – TROCHILUS COLUBRIS, Linaeus. – Ruby-throated Humming-bird

The Ruby-throated Humming Bird is found throughout Eastern North America as far west as the Missouri Valley, and thence northward to the 57th parallel. It breeds from Florida and Western Texas to the plains of the Saskatchewan and the head-waters of the Elk River.

From its winter-quarters in Guatemala and Mexico, it takes up its line of flight when the season has fairly opened, reaching our southern frontiers late in March. Thence it slowly advances northward in its migration, arriving in Upper Georgia about the 10th of April; in Pennsylvania, from the last of April to the Middle of May, and in its northern habitats, during the last of May, or the beginning of June.

For a brief season subsequent to arrival the sexes remain apart, and seem only intent upon the procurement of food. This is especially the case in the Middle Atlantic States where their habits have been very closely observed. Here they make their appearance with the blossoms of the horse-chestnut and tulip-tree, and may be seen at all hours of the day, in fair weather, delving into flowers for honeyed sweets, or probing their bosoms for the caitiffs within. In feeding, their movements resemble those of the hawk-moths. Gracefully they suspend themselves in mid-air before the opening flowers, ravish their hidden treasures, and, with almost the speed of an arrow let fly from a bended bow by some skilled archer, are off in an instant, possibly to more delectable vineyards, or to some shady nook for rest and contemplation. For agility and fleetness of motion the little Ruby-throat is certainly unsurpassed by any of our smaller feathered species.

But things cannot long remain in this state. Their favorite flowers must soon wither and decay, and with their timely death, must inevitably come the disappearance of an easy and luxurious means of subsistence. The tooth of appetite will then grow dull, and other thoughts and scenes invite their attention. Experience has taught us that the falling of the blossoms of the horse-chestnut and tulip-tree foretell the time of mating.

This important business is performed without the least semblance of show. The sexes tired, as it were, of the riotous and luxurious lives they have been leading, come together by mutual agreement, and enter into matrimonial relations. This being accomplished, they separate for a brief period, and each proceeds to scour the country for miles around in quest of a suitable tree in which to locate. When one is selected by either bird, the other is summoned to the spot to talk over, in true bird-language, the merits thereof. Should the parties differ as to the advantageousness of the site, no quarrelling or bickering is indulged in, but, in the most friendly manner, they separate, and renew the search until one is found which gives satisfaction.

Having decided upon a locality, the birds are now ready to commence building. This takes place between the first and the tenth of June in the Middle States, about the tenth in New England, and as early as the fourth in the Southern Atlantic and Gulf States. The situations chosen vary considerably. Sometimes high, open woods are selected; again, low, dense thickets; but, more frequently, an orchard close-by a human dwelling, or an isolated tree in the midst of a lawn. Occasionally, the birds have been known to build in trees along travel-worn thoroughfares. A case in point came under our notice in the summer of 1872. While returning home one day, we were surprised to see a female fly from her nest in a maple-bough, only a few feet above our head. The nest was immediately examined, and found to contain a pair of young birds. Not wishing to disturb the happiness of the family, we permitted it to remain intact. On visiting the spot a week or ten days afterward, it was found to be empty, the birds either having matured and flown away, or else had been killed by some ruthless invader. For several successive years a nest was to be seen on the same tree and branch, but whether the work of the same pair, we are unable to say.

That this species is not very particular as to the kind of tree in which it builds, has been our experience, and we do not find any recorded instance of disagreement. Dr. Brewer mentions but one kind of tree in which it builds – the apple. In addition to it, we have found nests saddled upon the pear, red-oak, white-oak, willow, red maple, sugar maple, cottonwood, beech, pine, etc. In fine, almost any tree will answer this purpose, as the generality of arboreous growths are more or less favorable to the development of lichens. Several anomalous positions, as on pine-cones and warty excrescences, have frequently been met with in our ornithological rambles.

The nest is the result of the joint labor of both birds, who work with unwearied perseverance and diligence until it is completed; the male furnishing the raw material to be manipulated and adjusted by his zealous partner. Occasionally, the latter assists her "liege lord" in collecting and bringing in his burden.

In the matter of composition, there is but little difference in fabrics from the most distant regions. Nests from Texas are exact counterparts of those from Georgia; and these, again, resemble others from Pennsylvania and Michigan. All we have seen are composed mainly of a woolly substance of vegetable origin, plucked from the leaves of the common mullein, or from the young and unexpanded leaves of the various species of oak, immediately before their full development. This substance, after being wrought into form and symmetry, is strengthened on the outside by small woody fibres, or the webs of spiders. Over all is placed a close and compact thatching of small lichens, a species of Parmelia, glued thereon by the viscid saliva of the builders. On the inside may be frequently observed a thin lining of white feathers; and, on the outside, a few dried catkins. In dimensions, these nests usually measure one and a half inches in external diameter, and nearly one and three-fourths in height. The cavity is generally three-fourths of an inch wide at the rim, and the same in depth. Specimens have been met with which were but half an inch deep, and others which showed a much greater depth, as well as external height.

The nest in the Plate is from Comal County, Texas, and was found upon a beech-tree. It is composed almost entirely of vegetable wool from the poplar and oak, and is lined with a few small white feathers. Externally, there is a dense covering of bluish crustaceous lichens and brownish oak-tassels, which are held in position by saliva and strands of spider's silk. It was placed upon a branch at an elevation of twenty feet above the ground. In height it measures one and three-fourth inches; in external diameter, one and a half. The width of the cavity is three-fourths of an inch, and the depth about a half.

A nest obtained in Lynn, Mass., in June, 1860, was saddled on a horizontal branch of an apple-tree. It is woven of a soft woolly material, fine in texture, silky in appearance, and of the purest white color. Basally, it is strengthened with pieces of bark; and laterally, with fine vegetable fibres. The whole exterior is beautifully covered with a compact coating of lichens. It measures one and a half inches in height, and two and one-fourth in external diameter. The cavity is shallow, and is seven-tenths of an inch in depth, and one in width.

A very beautiful nest, as well as a marked deviation from the normal form, as far as materials of composition are concerned, was discovered in June, 1870, upon a branch of a red-oak which overhung a by-road, and within a few feet of a woollen factory. Scattered in the neighborhood was a lot of reddish shoddy, which had been discarded by the mill hands. The birds, it is evident, were not slow in perceiving the use to which this "waste" could be put. Accordingly they set to work, and, in a few days, had constructed a beautiful nest, at a saving of much labor and time. It might be thought there was a dearth of the usual materials, but this was not so, as a careful survey of the grounds soon satisfied us. Interiorly, this nest was entirely composed of this shoddy, while the exterior was covered with the ordinary lichens fastened to the nest proper by a few cobwebs and a secretion from the builders. In external diameter, it measured one and three-fourths inches; in height, two inches; in internal diameter, three-fourths of an inch, and nearly as much in depth of cavity.

The nest being finished, which is the work of five or six days, but a day or two elapse, and the female is ready to deposit her eggs. The latter, to the number of two, are laid in as many consecutive days. Incubation immediately ensues, and continues for a period of eight days. Its duties devolve upon the female, who sits with commendable patience until her task is accomplished. While thus employed, her mate stands guard, or is abroad in quest of food. If any attempt is made to interfere with the nest while he is on duty, the most menacing gestures and loudest remonstrances are indulged in. Should these not have the desired effect of frightening away the intruder, he darts at his foe with wide, open bill, and endeavors to inflict summary punishment. He is so persistent in these attacks that it is often very hard to beat him off. The female, on the contrary, is of a more passive nature, quietly keeping the nest, although not unmindful of the proceedings being enacted, and only venturing therefrom when danger is imminent. These assaults continue while the nest is endangered, and even for a short time afterwards, when the birds retire to a neighboring tree to brood over their mishaps, and consider what is best to be done.

The young are objects of special interest to the parents, who render them every needed attention. When one is absent for food, the other stays at home to protect them from danger. Their food consists of a prepared mixture of nectar and soft insects, which they procure by thrusting their bills into the mouths of their parents. It was formerly supposed that this diet consisted entirely of the honey of flowers, but this opinion of the ancients was not wholly a fallacy, since a portion of nectar is taken with the insects, and supplies to the Humming-bird that kind of nourishment which the larger insectivorous birds derive from fruit. When eleven days old, these tiny creatures, in their beautiful robes of green, quit the nest, but necessarily remain under parental control a week longer, before they are able to support themselves. By some inexplicable circumstance, the young do not leave for their winter-homes until some time after their parents have departed.

The eggs are beautifully elliptical in outline, and of a pure dull white color. They measure .50 by .34 of an inch. Never more than a single brood is raised annually. Nests with eggs have been taken as late as the 20th of July, but these were doubtless laid by females whose early efforts had been interfered with.

Plate VIII. – PIPILO ERYTHROPHTIIALMUS, Vieillot. – Towhee Bunting

The Towhee Bunting, or Ciieavink, has an extended distribution throughout the eastern portions of the United States, ranging from Florida and Georgia on the south-east to the Selkirk settlements on the northwest, and westward to the border of the Great Plains, where it is replaced by closely allied races. It breeds wherever found, certainly in Georgia, and, doubtless, in Florida, although sparingly.

According to Wilson, it is found in the middle districts of Virginia, and thence south to Florida, during the months of January, February and March; but as the weather grows mild, and Nature begins to don her livery of green, many forsake these haunts, and wing their flight to distant localities; reaching the Middle Atlantic States about the fifteenth of April, Massachusetts and Connecticut towards the last of the month, Maine and New Hampshire early in May, and the North-western States a little later.

In some regions the birds arrive singly, but retire in small flocks. This is the case in the vicinity of Washington; whereas in Eastern Pennsylvania, they are somewhat gregarious for a week or ten days after their arrival, when they separate, and lead solitary lives. Their sole object now is the acquirement of food. For this purpose they repair to waste fields and damp thickets, or to small patches of underbrush along frequented roads. Here their simple song may be heard during the intervals of feeding, with scarce an intermission, from five o'clock in the morning until eight in the evening, by the early or belated pedestrian. In rain or in sunshine, or at noonday in the hottest weather of the season, the woods resound therewith, or with that peculiar note of complaint from which the species has received the name Chewink.

There is an expression of cheerfulness in these notes, though they are not delivered with that enthusiasm which characterizes the songs of many of our species. But music, like poetry, must be of a somewhat plaintive nature, if it would take firm hold of the feelings.

After a period of three or four weeks mostly spent in feeding, the males seem to tire of such a life, and seek to attract the attention of the females. Perched on the lower branch of a tree, near the edge of a wood, or 011 the summit of a small tree or tall bush in the midst of a thicket, or hid from view by clusters of bushes, they may be heard pouring forth, with all the fervor of their being, their strange madrigals. At first, their efforts to captivate are unheeded. But patiently and persistently the singing is kept up in a quiet, simple manner, until their auditors become impressed, and modestly quit their shady retreats to encourage the musicians by their presence. Having gained this advantage, they follow it up, and in less than a week from the time the first note was uttered, have mastered the situation. The females wholly entranced, yield to the persuasions of their would-be lords, and conjugal relations are entered into. This generally occurs not later than the fifteenth of May. But the happy couple are not yet ready to begin nest-building. They must needs celebrate the occasion of their marriage. Accordingly, they set out on a wedding-trip, so to speak, visiting adjoining lots and thickets, and enjoying the delights and scenes around them. This continues for four or five days, when the lovers, thoroughly surfeited, return and quietly settle down to prosy life.

The erection of a home is now the absorbing topic of interest and conversation. Where to build, and how, are matters that are agitating their minds, and which seem, judging from the actions of the parties interested, very difficult questions to adjust. After no inconsiderable portion of time thus spent, and with little possibility of coming to any decision, a separation ensues, and the country scoured for miles around.

Should a situation which seems eligible be discovered by either party, the other, by a peculiar signal, is called to the spot, and the advantages thereof carefully discussed. If satisfactory, it is accepted, and building operations commenced. Otherwise, the search is commenced anew, and

continued until one is obtained which is mutually pleasing. But where the birds are unmolested, the same localities are probably selected on each return of the breeding-season. The situation generally chosen is a small thicket with a dense growth of underbrush, or a high piece of ground overrun by brambles, and dotted by patches of fern. Latterly, nests have been frequently found in clumps of tall grass, in fields once swampy in character.

In New England, the locality usually chosen is a low, dense woods, thickets of briers and bushes near streams of water, or the "scrub," which is a low or bushy "growth" of trees, chiefly of oaks and birches, occurring in dry, hilly lands once occupied by pines. In the extreme northern limits of its range, dry uplands, near the edges of woods, or high tracts covered with a. low brushwood, are used, rather than low or moist grounds, as was the case in some sections at the time when Wilson wrote. The love for such situations doubtless gave rise to the appellation of "Swamp Robin," which is generally applied to this species in Pennsylvania.

When placed within a thicket, or in the borders thereof, the nest is either built in a depression of the ground, usually beneath a bunch of grass, in a pile of old brush or fagots, or on a slight prominence surrounded by tall, graceful ferns. Within a concavity, the structure is made to project slightly above the margin thereof, and is artfully concealed from the gaze of intruders by dry leaves. So completely is it hidden, that all efforts to find it frequently prove unavailing.

The work of building is entered into with diligence and alacrity, each bird collecting and adjusting the materials as it thinks best. While thus engaged – which is usually from sunrise to sunset, allowing the necessary time for foraging and rest – the architects seldom, if ever, get at outs, but labor with a purpose, and in the best of spirits. The time thus spent has never been known to exceed three days.

So little variation is manifested in these structures, that specimens from the Southern States resemble those from the Eastern, Middle and Western sections so closely, as to be readily identified by persons of the least experience in such matters.

A typical nest is mainly composed of the leaves of deciduous trees, twigs, grass and roots, 011 the outside, and is lined with the inner fibres of the wild grape-vine, or with fine stems of grasses. The drawing represents it as being constituted of the stems of grasses, with a slight intermixture of leaves and roots, and as having a lining of reddish-brown stems of the same. It measures four and a half inches in extreme diameter, and two and a half in height. The internal diameter is two and three-fourths inches, and the depth of cavity one and a half.

Oviposition commences on the day succeeding the completion of the nest, and proceeds at the rate of one egg daily, until the entire complement is deposited. Incubation closely, follows, usually a day or two after the last egg is laid. This is undoubtedly the exclusive task of the female for a period of thirteen days. Diligent and close watching has failed to show that the male takes any direct part in this important business. Although seemingly averse, or unaccustomed to this kind of work, he does not fail to contribute his share to the success of the undertaking. While his wife is engaged in sitting, he is an ever watchful and cautious husband. Unlike many other species, he does not make himself too conspicuous, but stations himself some distance from the nest, for fear of revealing its whereabouts, and only ventures into the neighborhood at certain regular periods, to receive the commands of his patient little house-wife, or to administer to her bodily wants. Though shy, these birds often seem saucy; and, while one person complains of their chirruping to and starting his horse, another claims that, 011 the discovery of their nest, they express their grief so impudently as to arouse his indignation. But when the nest lias been stumbled upon by some cruel oologist, and the female is compelled to abandon it and seek safety in flight, the male does not even then desert his hiding-place to come to her rescue. Everything is left to her judgment, and well does she play her *role* in the drama. By various strategic movements, such as imitating the actions and cries of a crippled bird, she decoys the inexperienced intruder to a remote distance, when she flings off' the veil of hypocrisy, and quickly disappears in the bushes. With the trained collector this *ruse* hardly succeeds, and the disappointed

parent often beholds with profound sorrow the discovery of her nest, and its destruction by ruthless hands.

When the young are hatched, they are watched over with jealous care, and receive more than ordinary attention. Grubs, earthworms, plant-lice and larvæ of butterflies, in immense numbers, are daily gleaned, and fed to their hungry appetites. Such are their demands for food, during the first week or ten days of existence, that the parents are kept extremely busy in catering thereto. Occasionally, both are absent from home 011 this important business, but the rule seems to be for one parent to keep a watch over it and its helpless inmates, while the other is thus occupied.

At the age of thirteen or fourteen days, the young quit the nest, and receive their first lessons in the mysteries of bird life; and, in ten days more, are forced to shift for themselves, but are permitted, however, to remain with the parents until the time of the autumnal migration, when they help to form the small flocks which are seen flying southward about the middle of October.

The eggs of this species are four in number, rounded-oval in shape, and are covered over the entire surface with dots and blotches of reddish-brown upon an obscure grayish, or reddish-white background. In some specimens, these dots run into each other; and, in others, they are distinct, being more profusely collected about the larger extremity. The average measurement of a score of specimens from widely-separated localities is .97 by .80 of an inch. Such is the resemblance which obtains between these eggs and those of the Brown Thrush, that when sets of both are placed together in a tray, the difference between them would scarcely be apparent to a novice in such matters. It remains for the keen and critical eye of the more advanced student to point out the distinction, which consists in the paler and more roseate tint of the Chewink's eggs, and the larger size of those of the Thrasher. Wherever observed, these birds seem to be single-brooded, although nests are sometimes found with young, in June and August, which fact would seem to argue that occasionally more than one brood is reared; but, generally, the first brood leaves the nest too late for another to be brought out before the appearance of the early frosts.

Plate IX. – PICUS PUBESCENS, Linaeus. – Downy Woodpecker

The Downy Woodpecker, or Lessee Sapsucker as it is called byway of distinction, is a resident rather than a migratory species, and is known to breed wherever it is found. Its area of distribution extends from Lower Louisiana to Labrador, and from Texas northward through New Mexico and the Indian Territory to the 58° of latitude. It is also quite common in the maritime parts of Alaska, the Aleutian Islands excepted. Although abundant east of the Rocky Mountains, and rather more numerous than its nearest kin, the Larger Sapsucker, yet, owing to the smallness of its size, it is not so well known outside of cultivated districts.

In the autumnal and winter months, these birds lead solitary lives. Go where we will, then, we may here and there behold isolated individuals busily probing the fissured bark of trees for the eggs and pupa of insects. Even the mature forms meet with the same cruel treatment.

Though rarely observed in cultivated districts during these times, yet a visit to the woods will reveal many a little fellow in dappled dress arrayed, with or without a crown of red, wending his slow and labored flight from tree to tree, or waking the clear echoes of rock and shady glen with his shrill music and weird drumming.

But when balmy Spring returns, and releases the earth from the icy fetters of the winter-god, and peoples our shade and fruit trees with countless insect existences, then quits he the wild forest scenery, in a measure, and betakes himself to our lawns and orchards. This is not always the case. For in those lands where civilization has not planted, but where Nature still reigns in her pristine glory, lie is the same changeless creature as when first he greeted the vision of man.

'Tis now the social forces, freed from the frozen bonds of winter, rejoice in new vitality. The sexes no longer shun each other as before, but mingle in the most friendly manner. The male is the first to show symptoms of change. He pursues his predatory exploits with less of his characteristic zeal, and seeks to attract the attention of the gentler sex. With this object in view, he arranges his toilet with scrupulous nicety, and then goes forth to parade his beauties and grace before a bevy of idle, listless females. Ever and anon, he varies his occupation, by the rendition of a song. But his auditors seem either incapable of appreciating his efforts to please, or else are too much concerned with other matters to pay any real attention thereto.

Our little hero, not to be baffled, keeps up his courage, and with a patience truly praiseworthy, continues his suit, till at last he reaches the ear of some simple-minded female, when he pours forth, with all the resistless eloquence of his being, the short but pleasing narrative of his love.

Should his affection be requited as it deserves, the happy lovers, without further ado, hie themselves away to sunny field or shady grove, to enjoy a brief honey-moon, preparatory to entering upon the trying and responsible duties of wedded life.

The getting of a wife is not always so easily accomplished. It is generally attended with many trials and vicissitudes of fortune. Sometimes when success seems ready to crown the efforts of an actor in this part of life's drama, a rival comes upon the scene, and claims the attention of the wooed. The most ridiculous antics now ensue, and continue for hours together. The female becomes the most whimsical of creatures, lavishing her caresses first upon one, and then upon the other of her suitors. The jealousy of the contesting males now knows no bounds, and only vents itself in long and fierce encounters. The female, at last, comes to the rescue, desists from her meaningless flirtation, and bestows the jewel of her affections upon her first lover. The combat ceases, and the participants separate.

Occasionally, several pairs will meet by chance upon the same tree, when similar scenes will be enacted by the jolly females, much to the vexation of their respective suitors. These farces have been known to last for nearly a week, but they seldom continue for a longer period than two days.

Mating having taken place, which is usually the case during the first week of May, never earlier except when the season is remarkably advanced, the birds make ample amends for the time thus seemingly frittered away, by the perseverance and diligence with which they ransack the orchards and groves for a suitable tree in which to excavate a nest.

The selection of a site is a matter of no little importance, the greater part of a week being consumed in making the necessary reconnoissances. These explorations commence early in the morning, and continue with but few interruptions until the close of the day. They are never performed singly, but always in pairs. One feature thereof strikes us as peculiarly interesting, and as deserving of mention. It is the perfect harmony and good-will which then prevail.

If a situation is discovered by one of the parties which is apparently suitable, a conference is called, and the various advantages thereof discussed. If mutually agreeable, further examinations cease, and building operations are begun. In cultivated grounds, a decayed branch of the apple or cherry is chosen for this purpose; but in more retired situations, the maple, ash, elm or tulip-tree is given the preference.

In the Southern States, nest-building commences about the middle of April; in the Middle Atlantic, seldom later than the fifteenth of May; in New England, from the fifteenth of May to the tenth of June; and in the extreme northerly portions of its habitat, about the fifteenth of the latter month.

All things being in readiness, the male is the first to commence operations. Stationing himself upon the spot which is to constitute the doorway to his home, with claws imbedded in the wood to prevent from falling, he digs the bark away in the form of a semi-circle. Then reversing his position, he goes through the same difficult but trying task, his little bill his only implement of execution, until he has wrought a perfect circle. Continuing the labor, he delves away into the soft or hardened interior, like a veritable Trojan, until an inch or more of the wood has yielded to the blows of his small but powerful chisel. Tired, at last, he resigns the work to his companion, and settles himself upon a branch close-by to rest. Having recuperated his exhausted energies, he starts off in quest of food, but to return in the course of a half-hour to the relief of the female. Thus the work goes on, day after day, with an industry and patience truly commendable, until success crowns the undertaking.

The opening to the chamber is perfectly circular, and quite as accurate as a skilful mechanic could make it with compasses. The cavity is first directed downwards at an angle of forty degrees, for the space of five inches, when it takes a perdendicular course for nearly ten inches further, widening perceptibly at the bottom. Such is the capacity of the latter that the sitting-bird is able to turn around therein with considerable ease, but the external orifice is just large enough to admit the bodies of herself and partner.

Few species are more careful to direct attention from the scene of their labors than the subjects of our sketch. The chips produced during the work of excavation are usually carried to some distance, so as to remove all traces that might lead to detection. But howsoever clandestinely they may act, and whatever precaution they may exercise, their home does not always escape the keen eye of the experienced oologist, or the sharpness and sagacity of the mischievous and insinuating little House Wren – one of the most annoying enemies with which it has to contend.

Wilson gives an interesting account of the impudent coolness of this bird, who coveting the neatly built home of this Woodpecker, and powerless to construct such an apartment for herself, waits until the Wookpeckers have finished their work, when she attacks them with violence, and expels them from the nest which they have prepared with so much pains. Another example is mentioned by the same distinguished authority. In this instance, the Woodpeckers had commenced the work of excavation in a cherry-tree, within a few yards of the house in which he lived, and had made

considerable progress, when they were assailed by the Wrens, and compelled to withdraw. They then began a second nest in a pear-tree, a few yards off' when after digging out a most complete chamber, and laying one egg, they were once more attacked by the same impertinent intruder, and finally forced to desert the place.

Having constructed their home, which is usually the work of a week, the female, after a day of recreation and rest, begins the labor of oviposition.

This continues for four or six days, the time being regulated by the number of eggs which is to constitute a setting, but a single egg being deposited daily. Incubation now follows, and is the exclusive task of the female for nearly twelve days. The male, although he takes no direct part in this business, is an important factor in the successful accomplishment of the undertaking, as he, like an affectionate and dutiful husband, supplies her with the necessary food. When not thus occupied, he may be seen foraging the fields and woods, or perched upon a twig in the calm enjoyment of ease and sober thought, He is seldom to be observed in the immediate vicinity of the nest, save when carrying food to his mate, or in times of great calamity. It has been affirmed by Mr. Paine, of Randolph, Vermont, that the male occasionally constructs a hole for himself close-by that of his mate, as he has taken males in such apartments which were always unoccupied by eggs. He thinks that they repair thither for shelter. Careful explorations for several years have failed to show us that any such protection is practised in the Middle States, nor do we find any record to substantiate this statement.

The young, when first hatched, are very helpless creatures, and require the greatest care and attention from parental hands, so to speak. Caterpillars, small moths, aphides and beetles constitute the bulk of their fare, from the time they leave the egg until they are four weeks old, when they quit the nest, to be instructed in the ways of the outside world. For a fortnight the young birds rove in company, but finally separate, each bird leading the life of a recluse.

The eggs of this species are nearly spherical, of a crystalline whiteness, and measure .82 of an inch in length, and .71 in width. Specimens from Eastern Texas and Southern Michigan differ but little, if any, from others obtainable in New England and the Middle sections of our country. In the Plate the eggs are shown in position, the wood being cut away over the bottom of the chamber, to produce this result. The egg in front, as well as the birds upon the branch, are three-fourths of the natural size. The remaining eggs are in part concealed, and do not show so fully. In the southern and middle portions of the range of this Woodpecker, two broods are annually raised, one in June, and the other in August, but further north seldom more than one.

Plate X. – VIREOSYLVIA OLIVACEUS, Bonaparte. – Red-eyed Vireo

The Red-eyed Vireo is quite an abundant species throughout Eastern North America, ranging from Florida in a northeasterly direction to Nova Scotia, thence northwesterly to Lake Winnipeg and Washington Territory, and westerly to Ogden, Utah. Accidental specimens have been procured in Greenland and England, but never more than a single individual in each locality.

Many of these birds winter in Florida, and as specimens have been met with in Central America, Cuba, Trinidad, and on the Isthmus of Panama, it is highly probable that many betake themselves thither when the period of breeding is over in their northern homes.

Early in March the latter enter the United States, possibly by way of Texas and Florida, and wend their movements northward, reaching the Middle States late in April; the New England, about the middle of May; and the extreme northwest, a fortnight later.

Like all of its peculiar and characteristic genus, this species affects a fondness for forests, or the summits of tall trees, but seldom ventures upon the ground. It is, however, not wholly sylvan. At times it may be found around dwellings, or along the shaded streets of rural towns, in quest of the various insects which contribute to its sustenance.

As it gleans among the tree-tops, the simple, pleasing and musical notes of the male may be heard at somewhat regular intervals. So unsuspicious and familiar is he then, that passers-by may come and go, and their presence be unheeded.

During the hot and sultry hours of noon when other songsters have ceased their warblings and foraging, and have slunk to the refreshing shades for comfort and security, our little friend continues to pour forth in loud, sonorous notes his peculiar *te-te-tu'eah-we-ah-tweah-tweah-tweet*. Being the earliest of our vernal choristers, he is also the most constant and untiring, and continues to sing throughout the entire season. Even when about to depart for the smiling scenes of his southern home, he thrills the air of woodland and valley with impassioned song.

His tender and pathetic utterances, which resemble the melodious notes of the Robin, but lacking their volume and power, are produced with so much apparent animation, judging from their sound, as to be in striking; contrast to the seeming indifference or unconsciousness of the plain little vocalist who, while regaling the listener, appears all the while to be bent upon the procurement of his daily food, which he pursues with great ardor. But with the female the case is different. Although quite as active a feeder as the male, yet there is apparent none of that bustle and noise which characterize his movements. Her chief concern seems to be the satisfaction of hunger, and a studious avoidance of the male.

But as the days multiply, and insect life becomes more common, which is generally the case about two weeks after their arrival, less anxiety is felt on account of food; consequently, more time is left for the development and play of the social forces. The sexes now begin to manifest less reserve and coolness, and instead of shunning each other, as was their wont, are brought more and more into friendly intercourse. A week or ten days later, and the way is paved for the assumption of matrimonial relations. In this movement, the male takes the lead. The female, somewhat coy, at first listens to the wooings of her suitor at a wary distance, but as time progresses, soon learns to regard him in the light of a lover, throws off her restraint, and confidently advances to receive his caresses. And thus events follow each other in rapid succession until a union is effected.

Having mated, the happy pair, with no more delay than is absolutely necessary, start off together in search of a nesting-place. This is a matter that is easily accomplished, as almost any forest-tree of small or medium height, answers the purpose. In some situations, the beech, maple, sassafras and common laurel are in special demand. Why this is so, it is impossible to divine.

High woods, with an abundance of small trees, are generally chosen. Here, the nests are not often placed higher than five or six feet above the ground. Sometimes, though rarely, they are found swinging from a pendent bough, more than fifty feet high. Nidification seldom occurs in compactly-built cities. Never more than a single instance has ever been observed by us. This happened in the summer of 1876.

A site being chosen, building at once commences. This occurs in the Middle States between the twelfth of May and the fifteenth of June; in New England, about the first of the latter month; in Texas and Louisiana, somewhat earlier; and in Nova Scotia, a trifle later. At Fort Resolution, at the Cumberland House, and at Fort Simpson, nests and eggs have been taken, but we are left in ignorance as to the time.

The construction of a home is the result of the united labors of both birds, each collecting and adjusting its own materials. The time devoted thereto varies from six to seven days, and is regulated by the industry of the builders and the *condition* of the weather. For this purpose a bifurcated branch is first chosen. To this is attached, by means of cobwebs, strips of bark, threads of moss, and the silk of caterpillars, a delicate framework. This is mainly composed of bark, decayed pine-wood, vegetable fibres, etc., held together by silk, and, possibly, in a slight degree, by a gummy secretion supplied by the builders. This structure is long, tenuous, open and narrow, presents a somewhat collapsed appearance, and resembles, though remotely, the perfect fabric. But it lacks shape and symmetry. To give it these essentials, the birds construct an inner nest out of bits of paper, fragments of hornets' nests, and strips of oak bark, which are so arranged as to protrude through the interstices of the outer. It is now the duty of the female, by a few bodily evolutions, to reduce the whole to form. This accomplished, the labor of building is resumed, and a cozy lining, composed of narrow strips of the inner bark of the wild grape-vine, is added. Often white and black horse-hairs take the place of these articles. That this species builds after the fashion described, is proved by actual observation, and also by the finding of abandoned nests which showed the outer, but not the inner arrangement.

The nest represented in the Plate came from Atlantic Co., N. J. It was built between a forked branch of the common laurel. Externally, it is composed of decayed wood, inner bark of plants, silk of caterpillars, fragments of hornets' nests, cocoons of spiders, etc. Internally, there is a thick lining of the inner bark of the wild grape-vine. The external diameter is three and a half inches; internal, two and a half inches; outside depth, two and a quarter, and inside, one and three-fourths inches. A comparison with specimens from Texas, Michigan, Pennsylvania and Massachusetts, shows marked similarities in structure and details of composition.

In the collection of the Smithsonian Institution there is to be seen a nest which was obtained by Mr. Kennicott at the Cumberland House, on the Saskatchewan River. It is pensile, like all others, but is almost exclusively built of pine-needles – a dry and hard material, difficult of management in the construction of such a domicile. With these are intermingled flax-like vegetable fibres, fine strips of bark, and fragments of moss. Within is placed an inner nest composed of strips of bark, pine leaves and fine, dry grasses. The external fabric is rather loosely put together – an unusual feature – but the inner portion, in the compactness and strength with which it was made, is in striking contrast.

After the nest is finished, the female, on the ensuing day, and occasionally not until the expiration of the third or fourth, commences to lay her eggs, at the rate of one daily, until the entire complement of three or four has been laid. Incubation follows closely, usually on the day succeeding the last deposit, and continues for nearly eleven days. This is not the exclusive task of the female, as the male sometimes assists her. When the latter is not thus occupied, it is seldom that he may be found in the vicinity, being absent either designedly, or in search of food. Should the nest be approached at this time, the female sits close, and seems to manifest neither timidity nor alarm. We have often surprised her on the nest, and reached out our hand to take her, when she would watch our actions very narrowly, as if seeking to study our motives, but remaining perfectly motionless all the while. A nearer approach was invariably followed by her sudden departure therefrom. The bird would not

wholly desert the nest, but demurely station herself upon an adjoining twig, in order to watch our actions. But with the male it is quite different.

Any attempt at disturbance or pillage is resented with spirit and courage, especially when the nest contains young birds.

The home of this Vireo is often chosen by the Cowbird as a place of deposit for her eggs. So singularly devoted to their alien guests do these foster-parents become, that they nurture them very tenderly, even to the neglect of their own offspring. A case is mentioned where three of these parasitic eggs had been deposited in the nest of the Vireo before any of her own. Without laying any, the female Vireo proceeded to set upon and hatch the intruders. Another case is cited where two Cowbird's eggs were laid alongside of two of the Vireo's. The latter immediately stopped laying and proceeded to incubate. In each of these cases it is evident that the female Vireo forewent her own maternal instincts, and at once conformed to the new situation.

The young are objects of special parental interest. From the time they are hatched, until the period of their leaving the nest to earn a livelihood, they are watched over, and fed with the daintiest fare which Nature affords. Caterpillars, diptera, plant-lice, small spiders and berries, constitute their earliest diet; but as they increase in size and strength, other articles of a coarser nature are added. At the age of twelve days they vacate the nest, but continue under the watchful eyes of their parents a week longer, when they are able to forage for themselves.

The anxieties of brood-raising being over, both young and old, the former in imitation of their parents, seek the tall tree-tops and glean in company. Later, they come down from these lofty retreats to delve among the grasses. Finally, as if disdaining too near an approach to earth, they quickly forsake such groveling pursuits, and seek the viburnum and dogwood bushes, where they find many a rich repast. Here they remain until the last of September, or the beginning of October, when cold weather and scarcity of food compel them to hunt warmer climes.

The eggs of this Vireo vary considerably in size, according to locality; the further south the smaller they are found. Specimens from Northern Alabama have an average measurement of .77 of an inch by .52; from Nova Scotia,94 by .65; from Pennsylvania and Massachusetts, intermediate localities,82 by .56, and .83 by 62. The ground-color of all is a clear crystal-white, and they are marked with spots and fine dots of red-brown, which are chiefly found at the larger extremity. But a single brood is raised, although nests with eggs have been taken early in July, which must be attributed to birds whom accident or design had prevented from obeying their natural instincts earlier.

Plate XI. – TRINGOIDES MACULARIUS, Gray. – Spotted Sandpiper

The Spotted Sandpiper has an extended and varied distribution throughout North America. Unlike most of its allies, it breeds with equal readiness wherever found, and is one of the best known and most abundant of all its tribe.

From its winter-quarters in the Southern States, and also in the West Indies and Central and South America, to Brazil, it takes up the line of migration about the tenth of April, and gradually spreads itself over nearly the whole country as far north as Labrador and Fort Yukon.

According to Mr. Trippe, it is the only species of its family that resorts to the mountains of Colorado. Here, it arrives early in May, and departs in September. All the larger streams, to an altitude of 8,000 or 9,000 feet, are visited, and, even, in some instances, the shores of the lakes near the timber line.

On their first arrival, the banks of large rivers are frequented; but as the season advances, many trace their way into the interior, along the courses of our creeks and rivulets. Their sole object now is the acquirement of food. For this purpose, a life of solitude is preferable to any other. Although three or four individuals may frequently be discovered together upon the same feeding-grounds, yet careful and repeated observations have convinced us that this occurrence is merely accidental, and not dictated by a desire for company. At such times, the birds become so deeply absorbed in the business before them, that the approach of human beings is unobserved, and the actors are only aroused from the stolidity and indifference into which they have fallen, by the crackling of a dead branch, or the dislodgment of a pebble from its mooring. Conscious of impending danger, but never stopping to inquire into the cause of the alarm, they seek safety in instant flight, and repair to other scenes, at no great distance from the former, whore they think to pursue their gastronomic occupation without fear of being molested.

Such are the colors of this species, that the utmost harmony obtains between them and the hues of surrounding objects. The keen eye of the practised sportsman is often eluded thereby. Were it not for its peculiar habit of wagging the tail, it would be a very difficult bird to locate, especially when in a standing attitude; for whether thus occupied, or running on the ground, or along the rails of a fence, or in the water, this motion seems continual. Even the young, as soon as they are released from the shell, are taught by instinct the same remarkable movement.

Usually about the third week from the time of their first appearance, but sometimes later, the sexes, grown corpulent from good feeding, discard in a measure the "joys of the table," and seek each other's society. From stilly bank of inland pond or stream, or where old Neptune lashes in frenzied mood his solid flanks, their strange and simple call, *peet-iveet, peet-weet*, may be heard in quick succession, louder, and more distinct, than was their wont. Nor do the males alone indulge therein; for the gentler sex oft join their lords in wanton rivalry.

Less whimsical than their aristocratic neighbors who affect the tall tree-tops and shady bushes, the lady Sandpipers are more easily wooed and won. Their ardent lovers have but to make their suits with due obsequiousness, to receive the courted promises. A few more avowals of love, and caresses, and the necessary reciprocations on the part of the females, and the happy lovers having sealed their plighted pledges in a bond of union, the respective parties journey off in search of suitable places for establishing their homes. This event generally occurs about the last of May, in some localities, but sometimes not earlier than the second week of June, in others, and, perhaps, later in the extreme northern limits of its habitat.

A period of three or four days being spent in examining the surrounding country, the various parties soon settle upon localities. While some prefer the borders of ponds and streams, or more

retired and secluded situations in the midst of forests, or a corn-field on elevated ground, others, again, have a hankering for low, sandy islands, or marshes by the sea-coast, or even the almost barren beach itself.

This part of the business being attended to, each female begins to construct her nest. For this purpose she scratches a slight hollow in the sandy earth, and proceeds to line it with a few pieces of straw, or moss, or sea-weed, the nature of the materials depending upon the *environment*. When the nest is placed in a corn-field, it is generally built at the root of a hill of Indian corn, and is either lined with straws, or mosses; when upon the seashore, various species of algae are used.

Having finished her rather simple and hastily-constructed home, with as little delay as possible the female commences to deposit her complement of four eggs. This she does at the rate of one egg a day, in as many consecutive days, taking due care to place them with the small ends together in the middle of the nest.

The last egg deposited, the female, on the day thereafter, enters the nest, and commences the duty of incubation. She is not necessarily a very close sitter, especially when her nest is located in a sandy soil, as the heated sand has doubtless much to do with the development of the young. During inclement weather, protection is absolutely essential; consequently, one bird or the other must occupy it, by turns, until the necessity has passed.

While one is incubating, it does not appear that her partner is compelled to play the part of a purveyor of food. Careful examinations have never enabled us to detect the least evidence thereof. When either party is tired, or is severely pressed by hunger, the other is summoned to the spot, to receive the charge of affairs. Thus the business goes on for eighteen weary days, when the happy parents are blessed with a jolly little family.

The young are not the mere helpless creatures such as we have all along been describing, but as active beings, for the age, as it is possible to conceive of. Clad in silken robes of drab, with beautiful stripes of black adown the back, they constitute a merry, rollicking group of birdies. The world to them is a paradise of beauty, and a garden-spot of pleasure. As soon as they leave the shell, they run with remarkable speed, and otherwise exhibit a precocity which seems unnatural at that period of life. Feeding, like running, is instinctive. It cannot be that it is learned by imitation, any more than the exercise of the cursorial powers can be said to be thus acquired.

Although much of the trouble and care which birds generally bestow upon their offspring are thus saved to these fortunate parents, yet the power to discriminate between bad and good food, has to be learned by attention to the commands and actions of wiser heads. The young are not slow to profit from parental suggestions and instruction, for we find them, at the expiration of a fortnight, engaged in foraging with the judgment and adroitness of adults.

Few species exhibit symptoms of greater distress than these Sandpipers when their breeding-grounds are approached by human beings. The parents resort to every conceivable stratagem in order to draw the intruders away. Counterfeiting lameness, and fluttering along the ground with seeming difficulty, are two of the most characteristic devices which they practise for this purpose. But the appearance of a dog considerably heightens the agitation. It is very interesting to watch the actions of the female on such occasions. In order to lead him away from her terrified young, she throws herself before him, flutters away in a contrary direction, but always managing to keep out of the reach of danger. This she continues for some time, until the animal has been drawn to a considerable distance, when she throws off the garb of dissimulation, and takes to flight, leaving her pursuer standing stock-still and gazing with astonishment and disappointment at the remarkable transformation which has just been effected. While all this has been going on, the young have scurried away to places of shelter and security, where they are afterwards joined by their beloved parent, glad to have escaped so fearful a calamity, and grateful for such a happy deliverance.

A more substantial proof of the affection of this female for its young could hardly be imagined than that which Wilson gives on the authority of Mr. William Bartram. The scene of action is

described as being on the river shore, and the occasion, the repeated attempts made by a ground squirrel to capture two young birds which a parent was trying to defend. In order to ward off the assaults of the squirrel, she had thrown her two young behind her. At every attempt of the animal to seize them by a circuitous sweep, she would raise her wings almost perpendicularly, assume the most formidable expression of which she was capable, rush forward upon the squirrel, who, intimidated by the boldness of her manner, would beat a precipitate retreat. The enemy, recovering from his defeat, would presently return, and renew the attack, but to be ingloriously driven back as before. The young, as though sensible of their perilous situation, would crowd together behind their protector, and shift their position as she advanced or retreated. This interesting scene continued for at least ten minutes, when the strength of the poor parent was observed to flag. The squirrel perceiving his advantage, became more daring, increased the frequency of his assaults, and would have gained an easy victory had not Mr. Bartram stepped forward from his hiding-place and drove him back to his hole, and thus rescued the innocent.

The eggs of this species are usually abruptly pyriform, of a yellowish-buff ground-color, and are marked with blotches and spots of umber and sienna, which are collected chiefly about the greater extremity, where they are sometimes confluent. Occasionally, some specimens present a more elongated form, and others have the primary color of a yellowish-drab tint, with the markings of a deeper shade. The dimensions vary somewhat in a large collection from widely-separated localities. The largest measure 1.41 by .99 of an inch, and the smallest 1.25 by .94. Considering the size of the bird, they seem to be out of all proportion.

Plate XII. – SPIZELLA SOCIALIS, Bonaparte. – Chipping Sparrow

The Chipping Sparrow, so familiar to everybody, is not only one of the most abundant, but also one of the most widely diffused of all our species. It is found from the Atlantic to the Pacific in its two races, and breeds from Georgia to Nova Scotia on our eastern seaboard, and from Vera Cruz, Mexico, northward through Arizona, Utah and California. Although obtained at different seasons of the year in all portions of North America to Mexico, it is a strange and remarkable fact that its breeding-grounds are not equally extensive.

Large numbers of these birds annually winter in the valley of the Colorado, and thence doubtless spread themselves over the whole Pacific region, as far north as Fort Resolution, on Great Slave Lake. In the East they may be seen in companies of a hundred or more from October to April through Northern Georgia and South Carolina, and possibly in the Gulf States.

On the return of mild weather, which generally follows the vernal equinox, these flocks forsake in a measure their winter homes, and journey northward. Those from Northern Mexico pursue a northwesterly course, reaching Arizona about the twenty-fourth of March, where a part remain to breed; but the greater portion pass up the valley of the Colorado, and after receiving fresh accessions to their number, continue their migratory course until they have reached their destination. On the other hand, our Eastern variety tarries longer in the South, and only takes its departure when Nature, awakened from her winter sleep in our Northern States, has begun to put on her charming robe of green. But unlike its Western brother, it arrives in pairs, and never with the show and pomp of a large army. The tardiness of vegetation, and the paucity of insect life incident thereto, have doubtless much to do with the time and manner of its coming. In the Middle States this event happens during the last week of April, and in New England about the fifteenth, but the birds do not seem to become very abundant in the latter section until the beginning of May.

The Field and Song Sparrows, near relatives, are much earlier comers, and are already in full song, making the groves and fields vocal with praises, long before the Chippy has made his appearance. But when the latter does arrive, we must look for his presence in our gardens and orchards, rather than along the borders of thickets, where he commends himself to our favor and esteem by his tameness and sociability. About our doorsides he loves to glean his fare, and when an opportunity offers, will often enter our houses during meal-times. So accustomed to man does the species become, that individuals have been known to present themselves regularly for food, as often as thrice a day, and even to accept the same from human hands.

The male is so absorbed in feeding during the first ten days of his stay that no attempt at singing is made. His only note then is a simple *chip*, indicative of unrest. This is slowly uttered, and at somewhat measured intervals. But later, he essays a song, and throughout the month of roses, his unpretending ditty, which consists of a repetition of the same sound, is kept up for hours together with scarce an intermission. Though poor his reputation as a singer, yet individuals have actually been known to sing, and very sweetly, too, but such cases are wholly exceptional, *et lusus naturae*. Mr. Flagg, in speaking of the male, says, "He seems to be the sentinel whom Nature has appointed to watch for the first glimmerings of dawn, which he always faithfully announces before any other bird is awake. Two or three strains from his octave pipe are the signal for a general awaking of the birds, and one by one they join the song, until the whole air resounds with an harmonious medley of voices." Again, says the same happy writer, "His continued trilling note is to the warbling band of morning musicians which may be heard before sunrise during May and June like the octave flute as heard in a grand concert of artificial instruments."

The singing of the males is the inauguration of a new era in bird-life. The search for food no longer engrosses the attention as of yore, but the all-absorbing passion of love. The sexes cease their solitary wanderings. The females, moved by the touching appeals of the males, leave their native haunts, and join their masculine companions. All is now a scene of bustle and activity. The wooer and the wooed meet and lavish upon each other the most endearing attentions. Happiness reigns supreme. But the acme of felicity has not yet been reached. This is brought about by degrees, and is only perfectly attained when conjugal relationship is assumed.

In some parts of the country this important business is entered into as early as the fifteenth of May, but in others it is necessarily deferred until the succeeding month. The event is unattended by any peculiar demonstrations of joy, and is mostly celebrated in a matter-of-fact, businesslike way; the happy couple proceeding at once to an exploration of the surrounding scenery for a suitable place in which to build a home. This is a matter of little moment, as almost any small tree or low bush is available for the purpose. The nest is never placed on the ground, even in Arctic regions, where so many of our tree-builders vary from this custom to nidificate on the ground. In the vicinity of houses,' small trees, shrubbery and vines are utilized; but in pasture grounds, and on the borders of small thickets, the common red-cedar is chosen. Having selected a suitable site, both birds apply themselves to the task of building for a period of four or five days, when a neat and rather cosy structure is the result. Considerable variation is discernible in the architecture of different individuals. Some nests are rudely constructed, and rather loose and tenuous. Others have much of periphery, but little of thickness and internal depth.

A typical nest is hemispherical, neatly but loosely built, and possesses a cavity very symmetrical in contour. It is usually composed on the outside, except in rare cases, of fine rootlets, and is lined with black and white horse-hairs. In a beautiful domicile before us very few roots are noticeable, the bulk of the fabric being composed of horse-hairs, densely and compactly interwoven, and covered exteriorly with a few fine twigs and lint. Other nests before us are built entirely of fine rootlets. When such structures are found in bushes, and are well secured and protected by enveloping leaves and twigs, a curious anomaly often presents itself. A case of the kind came under our observation in August, 1876. Since that time others have been met with. It is where the nest, instead of occupying a nearly horizontal position, which is the natural one, is placed at an angle of inclination, and bears in the superior third a circular opening. What the object of this aperture can be, it is impossible to say, as the bird could never be surprised while on the nest. Possibly it was designed for the accommodation of the head of the owner while the process of incubation was going on; or, it may have been intended as a mode of ingress and egress, which opinion the position of the nest and its surroundings would seem to warrant.

One of the most curious and exceptional nests which we have ever seen, was obtained in the summer of 1870, in Northumberland Co., Pa. This nest was built upon a small bush, at an elevation of two feet above the ground. Externally, it is composed of dried plants, of an herbaceous character, with seed vessels intact. Internally, there is a slight lining of white horse-hairs. The diameter, on the outside, measures nearly four inches, and the thickness three and a half inches. The diameter of the cavity is three inches, and the depth nearly two. It is a magnificent structure, closely and compactly woven, and exactly hemispherical.

The drawing represents the usual style of nest. The position upon a branch of the red-cedar is one that is frequently chosen. The outside is mainly composed of fine roots of a reddish-brown color, and the inside of an equal mixture of white and black horse-hairs. The dimensions are as follows: External diameter, three inches; internal, two and a quarter inches; depth inside, three-fourths, and outside, one and an eighth inches.

The nest being finished, oviposition commences on the ensuing day, and proceeds at the rate of one egg daily, until the entire number is laid. This varies from three to five, even in the same locality. Incubation commences on the day after the last deposit has been made, and continues for a period

of ten days. It is chiefly the duty of the female, although the male occasionally lends his assistance by taking the nest. When not thus occupied, he either polices the premises to guard against intrusion, or is away in search of food. When with young both birds become devoted parents, and evince the greatest anxiety and consternation when their nest is disturbed.

Their actions at such times bespeak fear rather than courage. We have never known them to assume the threatening attitude which characterizes so many of our small species, nor seek to drive intruders away by sharp scoldings and angry gesticulations. But knowing that resistance would be useless, they quietly submit to circumstances, and repair to other scenes where they think to be secure from molestation and harm in carrying out the chief object of their being.

The young are fed at first on various larvæ, especially those of a lepidopterous character. To these, earth-worms, aphides, beetles and flies are added as condition and age require. When twelve days old they are persuaded to leave the nest, and, under the direction of the paternal sire, receive instruction in bird-lore. A period of eight or nine days more, and they earn their own living. They do not forsake their parents, however, but follow them into their old hunting-grounds, and thus help to constitute the small flocks which are generally observed in the fall of the year in our Eastern and Middle States, previous to migration.

The eggs are oblong-oval in shape, and vary considerably in size. They are of a bluish-green color, and are sparingly spotted with umber and dark brown markings about the larger extremity. In some specimens, the latter are grouped after the fashion of a wreath, but this is the exception rather than the rule. The largest specimen we have ever seen measures .80 by .57 of an inch; the smallest,58 by .47. The average measurement is .72 of an inch in length, and .54 in breadth. The species as far as known is single-brooded.

Plate XIII. – PYRANGA RUBRA, Vieillot. – Scarlet Tanager

The Scarlet Taxager, a species but little known outside of the ornithological world, is more generally distributed than the casual observer is aware. According to various authorities, it ranges from Texas to Maine, and from South Carolina in a northwesterly direction to the southern limits of Lake Huron.

In the Eastern parts of Maine and Massachusetts it is but an occasional migrant; while in the western counties of the latter State, it is somewhat more plentiful, and nests in high, open woods and time-bewasted orchards. But it is in the States of Pennsylvania, New Jersey and Virginia, and throughout the great Valley of the Mississippi, that the birds more especially abound and rear their young.

Few species are more susceptible to cold and sudden atmospheric changes than the subject of our sketch. As a necessary consequence it is by no means a very early comer. However fond it may be of the scenes of last year's labors and pleasures, it does not forsake the genial climate and perennial groves of its tropical American home, until balmy April has yielded her crown and sceptre to the lovely goddess of May.

The male is usually the first to appear, the time of his arrival antedating that of his sombre-colored, less-favored companion by three or four days, although cases are cited where the sexes seemed to have performed the journey together.

For some time subsequent to his advent, the male is shy and suspicious, keeping away from the habitations of man, lest his brilliant suit of scarlet and black should excite the envy of some cruel and conscienceless collector, and he be summarily called upon, at the peril of his life, to part therewith.

The female, on the contrary, less attractive in style and dress, has fewer human admirers, and is permitted to roam *ad libitum*, and with as much freedom and confidence as any of the little feathered creatures that crowd about our doors.

But a change comes over the males after the lapse of a week or ten days. They may now be seen along our thoroughfares, and in our fields and gardens, acting with none of their former timidity, but endeavoring, by their beautiful plumage, agreeable manners, sweet song and useful service, to ingratiate themselves into the favor and esteem of their human brethren.

Thus affairs continue for nearly a month, the sexes crossing and recrossing each other's paths in their many journeyings, and so intent upon the procurement of food, that the object of their mission is either entirely lost sight of, or else is held in check, for the nonce, by some strong impulse of their being.

Events, however, are ripening for a speedy fulfilment of the business that has called them hither. The males exhibit less anxiety about food-questions, and a positive distaste for the unsettled and lonely lives which they have been leading. A similar feeling, but less conspicuously manifested, pervades and animates the gentler sexes, if outward actions afford proper criteria for judging of internal emotions. But exceedingly more coy than their imperial lords, they keep at a respectable distance, preferring to be wooed and won, rather than assume any other *role* in the drama.

The duty of taking the initiative step falls to the lot of the male. In order to accomplish this purpose more effectively, perhaps, as he thinks, he seeks the tall tree-tops, and for many a long and weary hour, thrills the ambient air with his sweetest music. We have seen many a venturesome fellow, seemingly unconscious of his surroundings, and wholly absorbed in his voluntarily-imposed task, take his station upon a lofty tree by the road-side, in full view of passers-by, and pour forth his harmonious utterances with all the animation and pathos of his being. Tired at last, he ceases his efforts, preens his feathers, and is off to try his fortunes elsewhere. Thus he keeps up these movements, with necessary intermissions of rest and recreation, during the livelong day, until his song has arrested the attention of some impressible female. This ditty, which is uttered in a low and pensive manner, and which may be

rather accurately represented by the syllables *chi-chi-chi-char-ee-char-ee-chi*, has been likened to the well-known notes of the Baltimore Oriole, but we are unable to trace the least resemblance thereto.

His efforts being finally crowned with success, the happy lover is profuse in his attentions and caresses, and leads his willing bride to other scenes, where they spend a brief season of enjoyment, before entering into preparations for establishing a home. As they move through the branches and foliage together, they utter their affection in a low whispering warble, and in tones of singular sweetness and tenderness.

Having celebrated their nuptials, they settle down to the duties of nest-building in earnest. The selection of a site is the first thing that commands attention. This is a matter of no little importance, and one that requires the exercise of considerable judgment. Both birds generally go together 011 this essential business, and carefully ransack the fields and thickets until a location is obtained which is wholly eligible. Nothing occurs in these examinations, if we are to judge from the behavior of the participants therein, to give offence, or mar the happiness of the wedded pair.

The places selected vary according to latitude and the fancy of the builders. Orchards, and groves of chestnuts, oaks, and nut-trees are frequented, and often a preference is manifested for swampy woods if not too dense. In places contiguous to human habitations the builders, especially the male, act with less carefulness than in more retired localities. They are here more secure from the depredations of rapacious birds, the latter having a decided aversion to man, their inveterate and merciless foe.

Building operations are usually begun about the fifteenth of May in the latitude of Philadelphia, towards the close of the month in New England, but never later than the first or second week of June. In its southern breeding-quarters, following the examples of its more distant relatives, it doubtless nests earlier.

The nest is placed upon the horizontal branch of a fruit-tree, usually on the edge of a wood, but occasionally in an orchard. Sometimes it is built over a crotch, which constitutes a more stable position. When a nest is located on the outskirts of a thicket, some species of oak, or the tulip-tree, is generally selected as the recipient thereof. In an orchard, the apple claims and receives this honor. Its height above the ground is mostly from fifteen to twenty feet in sequestered situations, but in cultivated districts, a much lower elevation is chosen.

The labor of building is performed mainly by the female, her partner lending but little assistance. The time devoted to the task seldom exceeds a period of four days, and so loosely are the fabrics put together, in the majority of cases, that they scarcely survive the season for which they were intended.

A structure before us is rather symmetrical and neatly built for the species, and quite shallow. Externally, it is composed of dried twigs, weeds and grasses, variously intermingled. Internally, there is a lining of fine roots, grass-stems, and the inner bark of the chestnut and oak. The outside diameter is five and a half inches, height two inches, diameter of cavity three and a half inches, and depth about half an inch.

Mr. Nuttall describes a nest examined by him as composed of rigid stalks of weeds and slender fir-twigs joined together with narrow strips of apocynum and pea-vine runners, and wound around with thin wiry stalks of the helianthemum, the whole so loosely and thinly plaited as to admit the light quite readily through the interstices.

The Plate represents the average structure. On examination it will be found to be nearly circular above, although somewhat irregular towards the lower two-thirds. The hase is rather loosely constructed of strips of bark, fine stems of vegetables with dried flowers attached, and rootlets of woody plants. Upon this as a basis is wrought, with more compactness and finish, a framework, which is beautifully lined with reddish-brown stems of herbaceous plants, and fine strips of inner bark. The external diameter is five inches, and the height, two inches. The diameter of the cavity is three inches, and the depth one-half of an inch. This nest is shown in its natural position over and partly between

a forked branch of one of our common species of oak. The female bird is placed upon the right, as though about to assume the duty of incubation; while her illustrious partner occupies a very dignified position on the left of the picture. All the figures, however, are reduced one-third, so as to bring them within the scope of the page.

Having completed her home, the female almost immediately commences to deposit her complement of four or five eggs, at the rate of one a day, in as many consecutive days. This business being attended to, on the day succeeding the last extrusion, she takes the nest, and for a period of twelve or thirteen days of rather close sitting, supplies the warmth necessary to develop her house-full of children.

It is a remarkable fact, and one that beautifully displays the wonderful wisdom which is taught by Nature, that the brilliantly-colored males studiously avoid the nest, and only approach it, when necessary, with caution and stealth, for fear of betraying its presence; while the females, with their plain coloring in harmony with the surrounding foliage, sit thereon, and care for their helpless offspring without danger of molestation. But if the nest is approached with hostile intention, or is actually invaded, the males emerge from their places of concealment, and assist in carrying its precious treasures away. But how this is accomplished, it is impossible to say. Mr. Minot has known instances where the young have been removed, although many of the cases seemed to be beyond the ability of bird-ingenuity to accomplish.

On one occasion, while our worthy friend was ascending a tree which contained a nest of this species, and that, too, with as much care and quietness as was possible under the circumstances, he was surprised to see the parent birds return several times to the tree upon his arrival at a point which commanded full view of the inside of the domicile. Although the nest was known to contain eggs, which were seen through the interstices from below, his astonishment was undoubtedly heightened, when he discovered it to be empty. He immediately began an examination of the premises, but could find no pieces of broken shells, or traces of yolk on branch, or on the ground beneath. The eggs had certainly been spirited away, but whether they were afterwards returned and successfully hatched or not, he was unable to say.

Notwithstanding the precaution which these birds take in the selection of a building-spot, and the artfulness with which they seek to conceal their home by means of the surrounding leaves, it is a fact, not generally known, but nevertheless true, that much of their prudence and painstaking counts for naught. They may deceive the trained collector, but they cannot elude the sagacity and watchfulness of the female Cowbird, who is ever on the alert and ready to slip into their unoccupied nest and deposit her own egg.

We have known instances where as many as three of these parasitic eggs had been left in the nest alongside of one of the rightful occupant's eggs. A case of the kind came to notice last summer. But whether the owners of the nest would have hatched the intruders or not, we cannot say, as its contents were rifled shortly after the discovery had been made. Owing to its shallowness, it is highly probable that the owners would have thrown them out on becoming cognizant of their presence. With small birds, and also with those which are in the habit of building deep nests, there is considerable difficulty attending such an attempt. The birds are generally obliged to submit to circumstances, and hatch the aliens.

The food of the young is chiefly collected by the mother-bird, and consists of the larvæ of beetles, various species of lepidoptera with mature forms of the same, spiders, plant-lice, diptera and earthworms. These are fed to them for the space of a fortnight subsequent to their leaving the eggs, when they quit for the first time the close precincts of their shallow home, to receive their earliest impressions of the outside world, or to take some lessons in the secrets of bird-lore. Another week more, and they are thrown upon the cold and pitiless world to fight their way as others have done before.

The devotion of the parent to her young is shown not only in the assiduity with which she labors to supply them with the essential articles of diet, but also in the distress which she manifests when they are in perilous situations, and in her efforts to extricate them from the same.

Wilson relates a very touching instance of such devotion. Having taken a very young bird from the nest, he carried it to his friend, Mr. Bartram. The latter gentleman placed it in a cage, which he suspended near a nest containing young Orioles, in hopes that the parents of these birds would be moved to feed it. This they failed to do. Its cries, however, attracted its own parent, who diligently attended it, and supplied it with food for several days. At length she became so solicitous for its liberation, as evidenced by repeated cries of entreaty, that Mr. Bartram could bear it no longer. He immediately mounted to the cage, took out the captive, and restored it to its parents, who accompanied it to the woods with notes of great exultation.

Early in August the male begins to moult, when, after a little, he appears in the greenish livery of the female. In this stage he is not distinguishable from her or his young family. Now is the time for departure, and parents and young forsake with many regrets the land where they have experienced so much real happiness, for the sunny groves of Mexico and Peru, or the breezy forests of their West Indian home.

The eggs of this species vary from an inch to .90 in length, and have an average width of .65. The ground-color passes from a well-marked shade of greenish-blue to a dull white with scarcely the faintest tinge of blue. In some the spots differ in size, are more or less confluent, and chiefly of a reddish-brown color intermingled with a few others of an obscure purple. As a rule, there is a notable resemblance to each other, in the eggs of the same nest-complement, except where, by reason of pillage, or some adventitious circumstance, the female is called upon to deposit, after she has already furnished the necessary number, in order to compensate for those that have been taken or destroyed. It may be the earliest-laid eggs that have escaped the avaricious oologist. In that event, the additional ones must necessarily be lighter in colors, and contrast very strongly with those which remain. Locality has doubtless much to do with color-variations, southern specimens being more sharply defined than those from colder latitudes.

Plate XIV. – HIRUNDO HORREORUM, Barton. – Barn Swallow

The Barn Swallow, the chief of its fellows, is the most widely diffused, most generally abundant, and, wherever found, the best known of all our species. None are more universally or deservedly popular.

It ranges throughout North America from Florida to Greenland, and from the Atlantic to the Pacific Ocean, breeding, strange to say, over nearly the whole of this vast territory.

Such is its attachment to last year's scenes and associations, that it leaves its far-off home in the sunny South rather early, gathering its forces from the plains of Brazil, the spicy isles of the Indies, and the lofty plateau of Mexico, and wends its graceful flight northward.

Конец ознакомительного фрагмента.