

## PRESIDENT'S ADDRESS.

INDIANA: A CENTURY OF CHANGES IN THE ASPECTS OF NATURE. BY A. W. BUTLER.

Out of the wilderness of the past has come our present civilization. From the fauna and flora of the wilderness-time proceeded the forms of life about us. The progress of this century is the marvel of history. Co-extensive with this progress are the changes in nature wrought by human agency. The story told by the witnesses of these things is incomprehensible. To the earliest pioneer a day spent in the present time would paralyze his faculties. To the student of to-day placed in the wilds of a century past would his wonder be any less? We can not comprehend what man hath wrought. Within our memories, a few there have been—here and there one—whose lives included the beginning of the white man's activity and who, much out of place in every feeling have seen the progress of the ages move by. We listen to their tales of the past, but who is there who can picture in his mind the natural conditions of those early days and the subsequent changings? Vague and imperfect are our impressions if, indeed, we have any conception of them.

It is probable that the first white man within the boundaries of Indiana was the explorer LaSalle. His voyage was made about 1669. The earliest settlements were established within the first quarter of the last century at Cuatanon and Vincennes. Authorities do not agree as to which was settled first or the date of settlement. These were only trading posts. Their effect upon existing conditions was but small. Nor was it until the Americans began to occupy this region at the opening of this century that the old began to fade before the new.

Over the greater part of this State were spread dense forests of tall trees—heavy timber—whose limbs met and branches were so interwoven that but occasionally could the sunlight find entrance. There was little or no undergrowth in the heaviest woods, and the gloom of those dense shades and its accompanying silence were terribly oppressive. Mile upon mile, day's journey upon day's journey stretched those gloomy shades amid giant columns and green arches reared by nature through centuries of time. The only interruptions were the beds of water-courses; the poorer hillsides covered with underbrush; the smaller growth of the less productive uplands; the site of an extensive windfall—the record of a tornado's passage; the small area of second growth timber marking the former clearing for some Indian camp; the more or less extensive patches of meadow,

occupying ground on which the forest had been destroyed by Indian fires. To the west, in the valley of the Wabash, were wide meadows covered with long grass. In the northern third of our territory were prairies and sloughs alternating with wooded sand hills and reedy swamps, imperfectly drained by a network of sluggish streams, which in turn gave place to extensive marshes toward Lake Michigan.

The southern portion of the State was more heavily timbered. Perhaps nowhere could America show more magnificent forests of deciduous trees, or more noble specimens of the characteristic forms than existed in the valleys of the Wabash and Whitewater. The trees decreased in size to the northward, those along the great lakes being noticeably inferior. The number of coniferous trees was small and was confined to restricted areas. Those found were poor representatives of their species.

The forests were made up of many kinds of trees growing together indiscriminately. Here and there certain groups and occasionally a species were found predominating. In various localities the character of the forest was different. Oak, ash, hickory, maple, beech and elm were prevailing trees, varying much in number and proportion. In some places the Tulip Poplar (*Liriodendron tulipifera* L.) was very numerous, often attaining great size—the largest tree of the primitive forests.

Forty-two kinds of trees in the Wabash valley attained a height above 100 feet.<sup>1</sup> The tallest recorded being a Tulip Poplar, 190 feet in height. It was twenty-five feet in circumference and ninety-one feet to the first limb.<sup>2</sup> Many thousands grew over the State measuring from three feet six inches to ten feet in diameter. Numbers of Sweet Gum (*Liquidambar styraciflua* L.) in the more fertile ground in the southern part of the State, contended with the tulip poplar in height, and in beauty and symmetry exceeded it. They attained a height of 130 to 150 feet and were three to four feet in diameter at the base, often preserving almost the same size to the first limb.<sup>3</sup> In the oak woods there were giants too. The Red Oak (*Quercus rubra* L.), Scarlet Oak (*Quercus coccinea* Wangheim), Burr Oak (*Quercus microcarpa* Michaux), and White Oak (*Quercus alba* L.) reaching a girth of ten to twenty feet, and often a height of 125 to 150 feet. One instance is reported of a Scarlet Oak 181 feet high.<sup>4</sup>

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1. Prof. Stanley Coulter: The Forest Trees of Indiana, Trans. Ind. Hort. Soc., 1891, p. 8.

2. Dr. J. Schneck: Rept. Ind. Geological Survey, 1875, p. 512.

3. R. Ridgway: Proc. U. S. National Museum, Vol. V, 1882, p. 67.

4. R. Ridgway: *Ibid.*, p. 80.

In the southern part of the State, too, the Sweet Buckeye (*Esculus glabra* Willdenow) attained great size, often being three feet six inches and four feet in diameter with trunks as straight as columns, the trees reaching a total height of over 100 feet. One example of this species is unique. It is the tree from which was made the celebrated buckeye canoe of the Harrison presidential campaign of 1840. The tree grew in the southeast corner of Rush county and is said to have been, when standing, twenty-seven feet nine inches in circumference and ninety feet from the ground to the first limb.<sup>1</sup> Here and there, quite thickly scattered, would be found groves of the finest Black Walnut (*Juglans nigra* L.) trees the world has ever known. Some of these groves were quite extensive, containing hundreds of trees, individuals of which were four to six feet in diameter and 100 to 150 feet high.<sup>2</sup>

In the river valleys, along the streams, the great size of the Sycamore (*Platanus occidentalis* L) was noticeable. This was the largest of the hardwood trees, reaching a maximum height of 140 to 165 feet and often measuring five to ten feet in diameter.<sup>3</sup> Keeping those company were the Cottonwoods (*Populus monilifera* Aiton), the larger of which measured five and even eight feet through and 130 to 165 feet high. The beauty of all the trees of this region was the White Elm (*Ulmus americana* L.). Its diameter sometimes reached five feet, and its height 120 feet or more, the ambitus often spreading over 100 feet.

At the time of its settlement the southeastern third of our territory, including all the Whitewater Valley, contained no Indian towns and was unoccupied by them save as occasionally a hunting or a war party passed through it. In the valley of the Wabash and in the northeastern part of the State were Indian villages, located because of natural advantages. These have been apparent to the whites, who in several instances established upon their sites settlements which have since become prominent as towns or cities. Among these Kekionga (Ft. Wayne), Chip-kaw-kay (Vincennes) and Ouiatanon (on the west side of the Wabash River, four miles below Lafayette<sup>4</sup>) were selected as trading posts by the whites, being centers of the finest game regions occupied by man within the limits of the present State. The peltry from the last-mentioned post, in one year, in those early times amounted to about eight thousand pounds sterling.<sup>5</sup>

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1. W. P. Shannon: Proc. Ind. Acad. Science, 1894, p. 130.

2. R. Ridgway: Proc. U. S. National Museum, Vol. V, 1882, p. 76.

3. R. Ridgway: *Ibid*, p. 73-75.

4. Prof. Oscar J. Craig: Ouiatanon, a Study in Indiana History. Ind. Hist. Soc., publs. Vol. II, No. 8, p. 3.

5. Prof. Oscar J. Craig: *Ibid*., p. 22.

In different localities under different conditions were different forms of life. We have noted this regarding plants. It was so concerning animals.

American Bisons (*Bison americanus* Gmelin), generally known as Buffaloes, ranged in countless numbers over the meadows and prairies at the time we first learn of them. The Whitewater and Miami valleys formed routes to the Ohio River and the Big Bone Lick in Kentucky. The Wabash Valley became another avenue for their journeys, and the old trail from the prairies to the Kentucky barrens crossed the Wabash River below Vincennes. Over this wide, well-marked road, evidences of which still remain, countless thousands of Bisons passed annually. From the Ohio River to Big Bone Lick was a wide road which these animals had beaten "spacious enough for two waggons to go abreast."<sup>1</sup> Evidence of their former abundance is preserved in the swamps about this lick. In places their bones are massed to the depth of two feet or more, as close as the stones of a pavement, and so beaten down by succeeding herds as to make it difficult to lift them from their beds.<sup>2</sup> At the Blue Licks in Kentucky we are told in 1784: "The amazing herds of buffaloes which resort thither, by their size and number, fill the traveler with amazement and terror, especially when he beholds the prodigious roads they have made from all quarters, as if leading to some populous city; the vast space of land around these springs desolated as if by a ravaging enemy, and hills reduced to plains, for the land near these springs is chiefly hilly."<sup>3</sup> In the region that was densely wooded the Bisons were only seen as transients, but in the meadows and prairies they abounded. From the summit of the hill at Oniatanon we are told, in 1718: "Nothing is visible to the eye but prairies full of buffaloes."<sup>4</sup>

Elk (*Cervus canadensis* Erxleben) were common, and Deer (*Cariacus virginianus* Gray) still more so. Bear and wolves were quite abundant. In one favorite locality, it is reported, a good hunter, without much fatigue to himself, could supply daily one hundred men with meat. Beaver (*Castor fiber* L.) were found in many localities. Especially favorable to them were the more level regions to the northward. Otter (*Lutra canadensis* Sabine) were quite common, while the Wild Cat (*Lynx rufus* Raf.), Canada Porcupine (*Erethizon dorsatus* F. Cuvier) and Panther (*Felis concolor* L.) were numerous.

1. Journal of Colonel Croghan: Butler's History of Kentucky, 1834, p. 368.

2. Dr. A. W. Braxton: Rept. of Geological Survey of Ohio, Vol. IV, Pt. I, Mammals, pp. 75-77.

3. W. T. Hornaday: Rept. U. S. National Museum, 1887, pp. 387, 388.

4. Paris Documents, 1718: Colonial Hist. N. Y., Vol. IX, p. 891.

Of snakes especially noticeable for their abundance were Rattlesnakes (*Crotalus harridus* L., and *Sistrurus catenatus* Raf.) and Copperheads (*Agkistrodon contortrix* L.).

The ponds, sloughs and deeper swamps were the homes of many species of fishes, mollusks and crustaceans. The creeks, shaded by the closely crowding trees, contained water all the year round and in them smaller fishes reared their young. The rivers were clogged and dammed with fallen trees and driftwood and the water, when the streams were swollen by heavy rains, pouring over these obstructions, cut deep holes, which became the homes of great numbers of the larger fishes.

Wild Turkeys (*Meleagris gallopavo* L.) were found in large flocks. Bobwhites (*Colinus virginianus* L.) were so numerous that when they collected in the fall as many as a hundred were taken in a day with a single net. Ruffed Grouse (*Bonasa umbellus* L.) were abundant. Ducks and geese, snipe and plover were found in inestimable numbers where favorable conditions existed. Paroquets (*Conurus carolinensis* L.) were more or less numerous over the entire region and in the lower Wabash and Whitewater valleys were as abundant as blackbirds now are in spring and fall. Passenger Pigeons (*Ectopistes migratorius* L.) bred and roosted in many localities. During the migrations they appeared in such numbers that they obscured the sun and hid the sky for hours; sometimes for days in succession. The strange appearance was made more wonderful by the continuous rumble of the thunders of the oncoming clouds—the noise of the strokes of millions upon millions of wings.

Besides these, more rarely, Swallow-tailed Kites (*Elanoides forficatus* L.) and Ivory-billed Woodpeckers (*Campephilus principalis* L.) added their characteristic forms to the wild scenery. The Osprey (*Pandion haliaëtus carolinensis* Gmel.) and the Bald Eagle (*Haliaëtus leucocephalus* L.) built their nests beside the streams and while one fished the other plundered the fisher.

Within the dense shades of the deeper woodland there was but a small number of birds. There quiet reigned. Twilight by day and densest darkness by night. How oppressive the awful quiet amid those gloomy solitudes! Everywhere the smaller birds were few compared with their present numbers.

But men of our race came upon the scene. Indians there had been there before. As it always has been, and so will continue to be, when two races, one superior, the other inferior, come into competition, the superior will overcome. The contest was unequal. The barbarism of the Ohio Valley could not hold its own against the alert and thoroughly equipped pioneer. Soon the native began to part with his land. It was not long until many sought other homes. Others

attempted to become permanent residents and to adopt, in some measure, the habits of the conquerors. The result is too well known. An ancestor of theirs gifted with the powers of a seer may have been the subject of these lines:

“ There was once a neolithic man, an enterprising wight,  
 Who kept his simple instruments unusually bright ;  
 Unusually clean he was, unusually brave,  
 And he sketched delightful mammoths on the borders of his cave.  
 To his neolithic neighbors, who were startled and surprised,  
 Said he, “ My friends, in course of time we shall be civilized !  
 We are going to live in cities and build churches and make laws ;  
 We are going to eat three times a day without the natural cause ;  
 We are going to turn life upside down about a thing called gold ;  
 We’re going to want the earth and take as much as we can hold ;  
 We’re going to wear a pile of stuff outside our proper skins ;  
 We’re going to have diseases! and accomplishments!! and sins!!! ”

One can not but be impressed with the significance of the design of “The Seal of the Territory of the U. S., N. W. of the River Ohio.” Impressions of it are preserved in the Department of State, Washington, D. C. In the light of the development of the past century, of the changes that have been witnessed, it would be impossible standing here, at the other end of the century, to conceive a device more expressive or truer to facts. I quote from a work that has just appeared:

“A study of this historic seal will show that it is far from being destitute of appropriate and expressive meaning. The coiled snake in the foreground and the boats in the middle distance ; the rising sun ; the forest tree felled by the ax and cut into logs, succeeded by, apparently, an apple tree laden with fruit ; the Latin inscription ‘*Meliorem lapsa locavit*,’ all combine to forcibly express the idea that a wild and savage condition is to be superseded by a higher and better civilization. The wilderness and its dangerous denizens of reptiles, Indians and wild beasts, are to disappear before the ax and rifle of the ever-advancing western pioneer, with his fruits, his harvests, his boats, his commerce, and his restless and aggressive civilization.” “*Meliorem lapsa locavit!*” “He has planted a better than the fallen!”<sup>1</sup>

The white man made the navigable water ways his routes and settled along them. At once, under his influence, the aspects of nature began to change. As in every other land the effects of man’s settlement began to be seen. The need for food and clothing and the desire for tillable land were the great causes which impelled him to action. In every land, on every sea, the story has been the same. Before his aggression disappeared the most noticeable forms of life. The large or conspicuous species were those most easily affected—the ones which were

1. William Hayden English: Conquest of the Country Northwest of the River Ohio, Vol. II, 1896, p. 774.

first destroyed. The story of the disappearance of the great animals of Europe; of the Bison and the Urus; of the extinction of the giant birds of New Zealand; of Steller's Sea Cow and the Great Auk, one each upon our eastern and western coast; the most wonderful destruction of the great herds of the American Bison, and the threatened extinction of the Fur Seal in the North Pacific, and of the Zebra, Camelopard and other large animals in Africa, are notable illustrations of the greater changes that have been wrought. But there are smaller ones not so conspicuous but more potent in their influences upon human welfare.

The Bison, the most characteristic of all the animals of America, was the first to disappear from the region under consideration. Formerly it had ranged east, at least as far as western New York and Pennsylvania and in States farther south almost to tide water, but about 1808 it was exterminated east of the Wabash River. The Elk followed it closely, disappearing from the White-water Valley about 1810 and from the State in 1830. The Panther followed soon after. Virginia Deer, Bear, Otter, Beaver, Wolves and other forms were almost exterminated. Though of some, if not all, of these latter forms a remnant yet remains in some favored localities.

Turkeys and Bobwhites; Ivory-billed Woodpeckers and Wood Ibises (*Tan-talus loculator* L.); Black Vultures (*Catharista atrata* Bartram) and Carolina Paroquets have been almost, or in a great measure, exterminated. The Paroquets which ranged to the great lakes and were so common a feature in the landscape of the pioneer times, have not only disappeared from Indiana, but from almost all the great range from Texas to New York over which they spread at the beginning of this century, and are, perhaps, now only found in a restricted area in Florida. The day of their extirpation is near at hand.

The Passenger Pigeon survived the beautiful little parrot until a later day. But nets and guns, a short-sighted people and inefficient laws have all but swept out of existence this graceful bird. It is now on the verge of extinction. We can no more appreciate the accounts given of the innumerable hosts of these birds of passage than we can of the incalculable multitudes of the Bisons three score years ago. The words of those who saw them, we are assured, do not in any way convey an adequate idea of the wonderful sights and sounds during a flight of Pigeons. Some of their roosts covered many miles of forest. There, as they settled at evening, the gunners from near and far began to collect for the slaughter. The loaded trees upon the borders of the wood were first fired upon. Then the shooters passed into the denser forest. Three or four guns fired among the branches of a tree would bring down as many two-bushel sacks of dead birds, while numbers of cripples fluttered beyond reach. After a number of shots over a considerable area—several acres perhaps—the whole roost would rise with a

deafening thundering which no one has attempted to describe and soar out of sight in the dusk of the early evening, while from the rising cloud came a noise as of a mighty tornado. As the darkness settled the birds descended and alighted many deep upon the branches of the trees, the weight being sufficient to break off many of the large limbs. Then the scene changed. The slaughter began in earnest. The rapid firing of guns; the squawking of the Pigeons; the breaking of the limbs of giant trees beneath the living weight; the continuous rumble arising from the whirr of countless wings; all illumined by the lurid lights of numerous torches and many fires produced an effect of which no words can convey a conception to one who has not experienced a night at a pigeon roost. Each year such scenes were re-enacted. Each year the slaughter went on. Less and less the numbers grew. Trapping and netting, supplemented by repeating guns, added to the power of destruction, and the Pigeons, whose numbers were once so great that no one could conceive the thought of their extinction, have dwindled until they are rarely found. One Pigeon in a year! Soon they will be but a memory.

The pioneers' first work was to cut away the trees and build a cabin. As each cabin was built, it foreshadowed a clearing extending more and more each year. The line of the Ohio and of the Wabash formed the basis for the advance of settlement. The ax and fire performed their work. Great deadenings gave promise of a lively time log-rolling next season. Giant Tulip Poplars; monster Black Walnuts; and Oaks, Ash, Wild Cherry (*Prunus serotina* Ehrhart) and Sweet Gums, the largest of their fellows, were rolled into heaps and burned. To this, in time, was added the necessity for fuel, for lumber and for timber to supply all the demands which human minds could make upon the forest, not only for our own population, but also for other States and other lands. Thus were our forests destroyed. Now, except in a few localities, there remains no virgin forest.

The destruction of the primitive woods cost much besides the trees that were sacrificed. Each tree was the host or resting place of other forms of life. Of the blight upon its leaves; of the fungus upon its limbs; of the lichen and moss upon its bark; of the birds among its branches; the insects on its foliage and about its blossoms; the borers within its body. And it sheltered other lowly, ground-inhabiting forms beneath its spreading shades. Who can tell what the destruction of a tree signifies? How far-reaching are its effects! After the axe came fire, carrying destruction to the more inconspicuous animals and plants. Fire, too, swept the standing woods and in its blighting effects extended far beyond the immediate necessities of the pioneer. With the cutting away of the larger trees, in many localities, sprang up thickets and therewith came thicket-inhabiting animals. As the clearings were extended, meadow lands and pasture lands were reserved.

To the meadows came such forms as the Bay-winged Sparrow (*Poocotes gramineus* Gmelin), Field Sparrow (*Spizella pusilla* Wilson), Grasshopper Sparrow (*Ammodramus sarranarum passerinus* Wilson), Meadow Lark (*Sturnella magna* L.), meadow mice, garter snakes, green snakes, bumble bees and grasshoppers—species peculiar to such surroundings. Some parts of this land were wet and where the drainage was poorest, became swamps and sloughs. There, forms which love such places, came. Among them Marsh Wrens, Swamp Sparrows (*Melospiza georgiana* Lath.), and Red-winged Blackbirds (*Agelaius phoeniceus* L.), salamanders, frogs, water snakes, aquatic insects and marsh plants. As the orchard and garden developed, birds well known to us and greatly beloved for their cheery social ways, there made their home and lived upon food brought to the locality by the changing conditions. The number of settlers increased, causing a steady diminution in the numbers of all the larger mammals, especially those used for food or valuable for fur; of geese, ducks and other water loving birds. The early settlers had brought with them the Black Rat (*Mus rattus* L.). Later another form, the Brown Rat (*Mus decumanus* Pallas), which, like the first, was a native of the old world, appeared, following the routes of civilization. It drove out the other rat and has since occupied its place. The shy Gray Fox (*Urocyon cinereo-argentatus* Schreber), disappeared in advance of the incoming pioneer and the Red Fox (*Vulpes vulpes* L.) occupied the field left vacant. The hog, a most valuable factor in the development of the West, proved equally valuable as an ally in the warfare against snakes. Largely through its efforts were the rattlesnakes and copperheads destroyed.

Removing the timber and breaking the ground began to show its effect upon springs and water courses. Many became dry during the warm season. All life, be it salamanders, fishes, mollusks, insects or plants, that found therein a home, died. As time went on drainage became a feature introduced into the new country. With the draining of our sloughs and swamps other changes came. The birds that lived among their reeds and flags, mingling their voices with those of the frogs, disappeared, and the land reclaimed tells, in its luxuriant growth of corn, no story to the casual passer-by of the former population which occupied it.

And so it was. Change succeeded change. Little by little, but still each cleared field, each drained swamp, each rotation of crops, each one of a thousand variations in cause had its effect upon the numbers and life histories of our plants and animals.

When the Indians left, the prairies were no longer annually burned over. Forest vegetation began to seize upon this open land, and in time much of it became reforested. Into it was brought life from the surrounding woods, and the former occupants were driven out.

With the thinning of the trees appeared an undergrowth. Where the undergrowth came, and where the second growth appeared in neglected clearings, the vegetation was often different from that of the original forest. This, too, was destined to go the way of passing things.

The Ginseng (*Panax quinquefolium* L.), Spikenard (*Aralia racemosa* L.), Bloodroot (*Sanguinaria canadensis* L.), and Yellowroot (*Hydrastis canadensis* L.), and many ferns are following the woody plants to extermination.

Milksickness, once so prevalent among the early settlers, with the peculiar fevers of the new country, are of the past. Staggers has disappeared from many places, yet the Wild Larkspur (*Delphinium tricorne* Michaux), which, traditionally, is its cause, has become more abundant in some congenial localities, and in such neighborhoods the disease is quite serious.

But there are other results of the introduction of civilization which have made themselves felt. The streams were dammed and the migratory fishes prevented from ascending them. The driftwood disappeared from the streams. In time the dams, too, were gone. The deep holes, where the fishes loved to hide, filled up. The streams carried less water through the summer. Dynamiting, netting, and other illegal means of fishing became prevalent. All these have combined to wage a war of extermination against the inhabitants of our streams and lakes which might, if properly protected, prove an exceedingly valuable factor alike in the enjoyment and in the food supply of our people.

The telegraph wire is very destructive to birds. Birds and insects have found a new instrument of destruction in the electric light. Railroad tracks have proved very deadly to many living things besides man. They, in turn, are highways along which the cars introduce new forms of plants and animals. The self-binder and the mower play havoc with the lives of many inhabitants of the meadows and grain fields.

Following in the civilizer's footsteps have come other changes. Man has not only made the wilderness to blossom as the rose and gathered fruits and grain from all lands for the necessity and enjoyment of our people, but with the grain has been sown tares and with the fruit has been planted blight. Teasles (*Dipsacus sylvestris* Hud.), Canada Thistles (*Cnicus arvensis* Hoffm.), Wiregrass, Platains and Prickly Lettuce (*Lactuca scariola* L.) are contending for the soil. Pear blight, smuts, rusts and Black-knot affect fruits and flowers. Chinchbugs (*Blissus leucopterus* Say), Hessian Flies (*Ceratomyia destructor* Say), Colorado Potato Beetles (*Doryphora decem-lineata* Say), Clover-root Borers (*Hylesinus trifolii* Mull.), Scale Insects and Cabbage Worms dispute with the farmer his right to the crops he has planted.

Some of the native forms of life have, in some respects, changed their habits. This is evidenced by the Rose-breasted Grosbeak (*Habia ludoviciana* L.) feeding upon the Colorado Potato Beetle. The destruction in the rice fields of South Carolina caused by the Rice birds—our Bobolink (*Dolichonyx oryzivorus* L.). The loss inflicted in the rice swamps of Louisiana by the Red-winged Blackbird. The damage done to the western corn grower by the Bronzed Grackle (*Quiscalus quiscula virens* Ridg.)—our common Blackbird. By man's agency the European House Sparrow, or "English Sparrow" (*Passer domesticus* L.), was introduced, and, as its numbers increased, it began to assert itself in the struggle for existence. The Bluebird (*Sialia sialis* L.), which had come from the hole in the snag, was driven from her box. The Martin (*Progne subis* L.), which, like the Chimney Swift (*Chattura pelagica* L.), formerly nested in hollow trees, left its nesting sites about the house, and even the Eave Swallow (*Petrochelidon lunifrons* Say.), which, in olden times, fastened its nest to the cliffs, was, in some cases, driven away. The warfare with this aggressive little foreigner still continues, worse some places than others. But it has such surprising powers of reproduction and such unheard of audacity it seems they must soon cover our entire continent. The history of the German Carp (*Cyprinus carpio* L.) in this country illustrates the same persistent and successful struggle for the mastery in our water ways that has been noted of the House Sparrow on the land.

In time fashion demanded of that which neither man's appetite nor his need for protection had impelled him to take. Her altars were erected and upon them sacrifices of animals—a host innumerable—were offered. Fur bearing animals and bright plumaged birds were most earnestly desired, but even the shells of turtles, the skins of snakes, the teeth of alligators and the pearls of fresh water muscels were acceptable offerings. The extent of the destruction of innocent bird lives alone is appalling. A few facts may convey some idea of this. Among the items of one auction sale in London were 6,000 Birds of Paradise; 5,000 Impyan Pheasants; 360,000 assorted skins from India; 400,000 Humming birds. One dealer in 1887 sold no less than 2,000,000 bird skins.<sup>1</sup> It is probable not less than 5,000,000 birds were required a year to supply the demand in this country alone when the bird-wearing "craze" was at its height. From information obtainable it is certain that hundreds of thousands of birds must have been slain in the United States for the glory of fashion's devotees. To this great number of victims our own State has been, to a greater or less extent, a contributor. Many counties in Indiana were visited by bird hunters. It is said from Indianapolis alone 5,000 birds, prepared for millinery purposes, were shipped in one year.<sup>2</sup>

1. Lucas. Report U. S. National Museum, 1889, p. 611.

2. Science. Vol. VII, 1886, p. 240.

Under our present law, which seems to be well enforced, it is a pleasure to say our birds are apparently free from that danger.

Changes still continue. The future will record them as has the past. Those to come promise to be more fruitful of results, to be of greater moment to mankind, to bring more earnest messages for human weal or woe. But no time in the future will the changes in the aspects of nature here be so noticeable, so incomprehensible, because of their vastness, as have those of the century just closing.

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UNCONSCIOUS MENTAL CEREBRATION. BY C. E. NEWLIN.

If it be true, as Dr. Kay says, that "our mental progress is in the direction of our becoming unconscious, or largely unconscious, of many of our activities," and "the great object of education should be to transfer as much as possible of our actions from the conscious to the unconscious regions of the mind," it seems to me our efforts should be more largely directed to the training of the mind in its *method of acting*, and less to the accomplishing of definite tasks. It seems to me that much of our failure in accomplishing results is caused by the very *effort* to accomplish them. The worry over the effort and the intense desire to succeed incapacitates the mind for clear action. If we could only be oblivious to the effort to think out a problem in any phase of life we would more easily reach the desired end. As in riding on a smoothly moving train, we are unconscious of the motion until we look out on the passing objects, so we should be entirely unconscious of the vehicle of thought and the ends to be attained, and let the mind attend to its *thinking* unhindered.

Dr. Mandsly says: "The interference of consciousness is often an actual hindrance to the association of ideas."

Much of this desired condition is attained through cultivation of the faculties. When an action becomes a habit the reflex action is unconscious. Dr. Kay says: "The more we cultivate and train any faculty or power, the more easily and rapidly does it perform its work; the less consciousness concerned in it the more work does it accomplish and the less does it fatigue."

Dr. Morrell says: "A purely unconscious action is accompanied by no fatigue at all." In my investigation I am convinced he is very nearly, if not entirely, correct. For example, the receiving teller of a bank will run up the long columns of figures in adding with ease, and fatigue only to the extent of his consciousness of his acts.

But I am convinced this is not altogether a matter of practice. It is partly due to the *method* of thought. He reads the figures and their combinations much as one reads words, without thinking consciously of each letter in the words. A