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THE ROLLER

CONCERNING ITS HEALTH, HABITS
AND HAPPINESS; ITS FEEDING,
BREEDING AND TRAINING

BY

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New York, N. Y.
March, 1921.



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DEDICATION

This book is respectfully dedicated to

Captain Joseph Hamlich,

The South African Nimrod,

Who hunted the big game with Theodore Roosevelt,

and to

Alexander Volkommer,

President of the United Canary Breeders

Association of America,

who probably has accomplished more for the

Roller, than any single individual,

and to the

United Canary Breeders Association of America,

with whom rests the welfare and destiny of the

Roller in the United States,

and to

the hundreds of breeders,

who seek to improve the quality rather than

the quantity of this bird.





PREFACE

Strange to say, the American public has not been educated up to the high standard of the roller. There are hundreds of thousands of common canaries or "chappers" in the homes of our most wealthy families; their numbers exceed the roller on an average of about fifty to one. This excess of recognition for the "chapper" could not be possible, if the superior melody of the roller were known; no other bird would be acceptable. This apparent popularity of the "chapper" is neither due to the inferiority of quality or price of the roller; but to the supine indifference, modesty and inactivity of the American breeder.

Every American home needs the cheerful disposition and charming melody of the roller. Yet to the average millionaire, clubman, broker, banker and public man, the roller is unknown; his merits as a song bird, have never been considered. Who could doubt the result of a contest between the "chapper" and the roller, if the two were ever to be compared? No one, hearing a first class prima roller sing, would ever after have any other bird.

However, the future of the roller, since the world war is very promising; the flattering prospects of the breeding industry is well assured. The market must be regulated in proportion to the interest aroused and demand created. This must be controlled by instructive publicity; by some form of authentic reference and reliable information; in the nature of a standard text book.

No breeder can hope to succeed without a market. The law of supply is regulated by demand. Demand for any luxury depends upon the available information and instruction with which any commodity may be created and advertised. Every industry, trade or profession needs a mouth piece or organ. Without publicity, any commodity may be extinguished with the suddenness of one being deprived of air by illuminating gas.

This book is humbly designed to supply a long felt want; since there has been no satisfactorily thorough treatise in the English language, on the roller. It is sincerely hoped, that the corrective influence of this book, will enlighten the novice and improve the veteran; arouse the American public to a full and just appreciation of the merits of this bird; prevent inexperienced and incompetent breeders from producing inferior stock; stimulate a genuine public interest in the marvelous possibility of the roller's incomparable melody.

In the forum of public discussion, the novice who reads, will be enabled without failure or disappointment, in a brief period, to acquire what it cost the veteran breeder years of actual experience to accomplish. The speediest way to invoke a principle or kill a falacy, is by intelligent discussion. Readers will have an opportunity to compare, accept or discard the many theories, suggestions and opinions offered by the most astute and experienced breeders in this country. Publicity will arouse interest; stimulate desire; will create fresh enthusiasm and foster new hope for this growing industry. Publicity, through the medium of a standard text book, establishing fixed principles, is as essential to the bird industry, as a compass to the ship. Information and instruction as to the most improved methods to correct old errors and falacies; to accept new systems and principles; is as important to the breeder, as the northern star by which the compass is directed.

This book is further designed, to be the economy of information between producer and purchaser; supplying the desired data; bridging the channel between supply and demand.

Breeding rollers has become an American industry. The man who reads thoroughly any subject, must meet with more success, than the fellow who plods along; without some artificial stimulus;

without some authentic medium to aid him. The most experienced are at times in doubt; hence in need of some hint or source of reliable information. Incompetent novices and inexperienced breeders are often hampered by inability to cope with those who improve by research, inquiry and information.

The novice who subscribes for this book will have the advantage, at a small cost, of learning the best methods or systems from the oldest and most experienced master hands; he may take a short cut in the science of bird breeding; since the veteran breeder, had neither the opportunity nor inclination, formerly, to acquire his knowledge in this manner; as no satisfactory standard in English had been compiled; sufficiently adequate to supply the needs of the breeding industry. By the process of observation, deduction and comparison, we speedily arrive at the very best methods in the breeding industry; also, by reading and digesting the views and opinions of those who have spent a life time in perfecting their various systems.

Big questions and big business owe their life or death to publicity; industry must thrive upon intelligent systemization and enlightened methods. Thousands of birds die annually from inadequate care, improper food and the inability of owners to help them in distress or sickness.

In the breeding industry, intelligent discussion, authentic information, maintenance of established principles are absolutely requisite to explain and emphasize the good points of breeding; to eliminate and destroy the bad; to compare methods; to suggest improvements; to describe cures; to prevent disease. In book form, collective experience may be nourishingly fed and quickly digested.

This book was not written from a mercenary motive, but with the humane desire to assist the thousands of breeders and admirers of this song bird; to promote it's health, comfort and welfare; to stimulate this growing industry; to instruct the novice and assist the experienced; to advertise methods and principles absolutely indispensable to the success of canary breeding; to prevent the untimely deaths of thousands of birds, due to the ignorance and negligence of their owners.

It is hoped, however, that each breeder of the roller therefore, if satisfied with this effort, would make it his individual duty to recommend this book; realizing, that with the increased publicity given this industry by a standard text book, it will improve the quality and breed of the bird; awaken the resultant opportunity for traffic; achieve the popularizing of our most interesting, cheerful and melodious songster.



The Little Green Bird

CHAPTER I.

HISTORY.

There is very little authentic history of the canary bird. Conrad Gesner, in the last half of the sixteenth century wrote a book entitled "De Avium Natura". Strange to relate, he wrote this

history, without ever having seen the bird. He based his description and data upon the information furnished by a friend. He called this little bird, "Canarium Aviculam", which finally became known as the "Little Sugar Bird"; since it was claimed the canary was fond of sugar cane.

Olina, in the year of 1622, wrote "Uccelliera", in Rome. Thereafter several other books followed, but these writers only knew the green bird imported from the Canary Islands.

The original canary was a native of the Canaries, Azores and Madiera. This bird was introduced into Europe early in the Sixteenth Century. In its wild state, the canary was an olive or apple green above head and rump, finely striped with blackish brown and golden yellow below, fading to a whitish color on lower abdomen; the flanks being marked with a brownish hue. In a state of nature, the canary associated in flocks; it frequented wooded districts, especially pine woods, vineyards and gardens. These flocks changed from higher altitudes, where they spent the summer in the Canary Islands, to lower and milder points near the coast during the winter.

The wild canary usually began nidification in the month of March near the coast. Three or four successive broods were reared, at higher and higher

altitudes as the summer season progressed; until the last of July or August, when they finished their brood season in the mountainous part of the islands.

Their nests were neatly constructed of dry grasses, plant down and moss. They were built in well chosen places of quiet and concealment in a shrub or low tree, quite often an evergreen; they usually built at a height of eight or ten feet from the ground. In their native home the climate was mild and admirably adapted to breeding; being between 27*, 40' and 29*, 30' Northern Latitude and between 13*, 10' and 18*, 10' Western Longitude; the nearest Eastern islands being situated about sixty miles from the Western coast of Africa. Canary Islands used to be called "Lucky Islands", because of the wonderful climate, fruitfulness and song of it's birds.

The natural song of the canary was loud and clear. In their native groves, the males, especially during the mating season, were said to have poured forth their love song, with such fervent ardor, at times, as to burst the delicate vessels of the throat.

According to Johann Matthus Bechstein (1757—1822), an eminent German naturalist, the males appear to compete with one another in the brilliancy of their melody, in order to attract the females; the females invariably selecting the best singers.

When Spaniards took possession of the Canary Islands, in 1478, they found the wild canary; a singing bird of great sweetness of song. The Spaniards captured large numbers of Canaries and took them to Spain. These birds soon became quite a commodity. Because of the very high prices they brought, they were found only in the homes of the very rich. In the palaces of Spanish grandees, the canary received every care and attention; they became the pets of the women folk. The bird was considered a jewel. It was customary for a hostess, on Sundays and fete days, to be seated in the reception room with "canari", as they were called, perched on the fore finger of the right hand. It also became the fashion, to have one's portrait painted with this jewel displayed upon the forefinger. Even to this day, it is possible, to see portraits of this custom, painted by some of the famous portrait painters of that epoch.

The Spaniards knew how to keep the secret of breeding canaries exclusively to themselves for over a hundred years. They maintained this monopoly by selling the male birds only. The females were carefully and zealously guarded and kept within their own country. By a stroke of destiny, the canary became the property of the world. In the middle of the sixteenth century, this rule was broken. Olina tells us that a Spanish ship bound for Livorno, which carried on board, among other

cargoes, a large number of canaries, was wrecked near the coast of Italy. The door of the hatch which confined these birds was opened by the merciful hand of some sympathetic sailor. Thus liberated, they were blown West by an East wind; they settled on the Island of Elba. Upon this Island, they found a very suitable climate; they multiplied rapidly.

The Italians, attracted by their sweet melody, began to take notice of these feathered strangers. It was soon discovered that the canary was not only endowed with marvelous harmony of it's own, but readily imitated the melody of other birds. The Italians captured and sold them in large numbers; to the great detriment of the birds. It then became necessary, in order to prevent their utter extinction and annihilation to start breeding them. From Italy the Italians commenced to send their birds to northern lands; especially to Tyrol and other parts of Germany. There, then started to flourish a great industry in breeding and selling canaries.

In the last quarter of the eighteenth Century, in the City of Imst, a society was organized to control and manage this industry. Each year, after the breeding season, this organization sent around to all canary breeders, in Germany and Switzerland, and bought up all the young birds. This is

still the present custom. The birds collected in this manner, are resold throughout Germany; then sent to England, Russia, Belgium and even to Constantinople and Egypt. About that time, England obtained a shipment of about sixteen hundred head and sold them at fifteen shillings a piece.

This industry, eventually became firmly established in the Tyrol, the Black Forest region of Germany and throughout the Hartz Mountains and other parts of the German Empire. The Germans gave the breeding and improvement of these birds such care and attention, that the breeding and dealing in these song birds have been lifted to the highest plane. It is even now looked upon as big business in those sections.

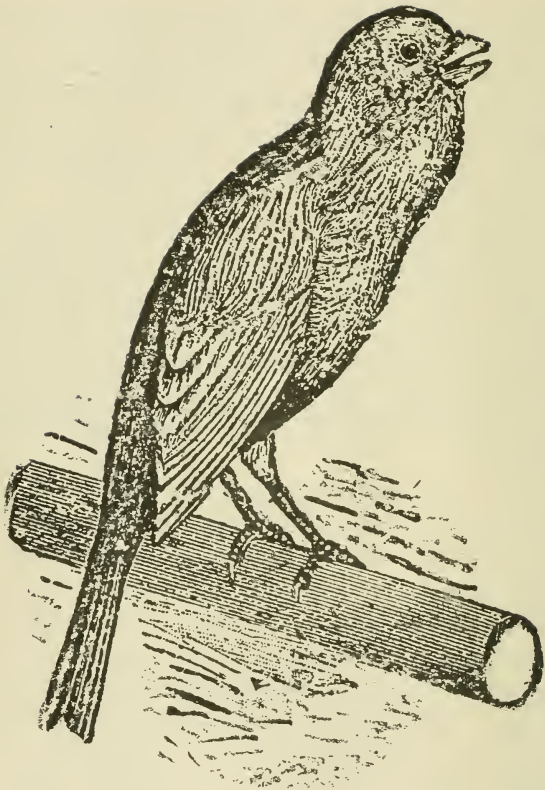
Without a protective tariff, the American breeders have suffered from a cheap importation of birds of an inferior quality. Oftimes, fatally weakened and debilitated from sea voyage, suffering from cholera, consumption, diarrhea and typhoid, these birds have been imported by the hundreds of thousands and sold at a price far below the actual cost to produce a bird of any quality. Again, by a stroke of destiny during the World War, the cessation of a ruinous importation, has materially assisted the American breeder, to supply the demand for birds of health and quality.

in health, the most happy, bright and cheerful.

The scientific name for the Canary is *Tringella Canaria*. This Latin classification now covers a large canary family known to the various localities and fanciers as the Belgian Fancy, Crested Norwich, London Fancy, Lizards, Cinnamons, clear and variegated Norwich Fancy, Glasgow Dons, Scotch Fancy, Manchester Coppies and Yorkshire Fancy. The birds above mentioned are bred with the desire to improve the color, conformation, size and plumage; in other words, developed for show and exhibition purposes only. It would be of small concern, whether any of the above designated varieties could produce a note. An appropriate name for the roller, in Latin phraseology, would be *Tringella Harmonia*.

The roller has been bred and developed with the sole and premeditated intent to create and improve melody. Notwithstanding that fact, the roller compares favorably in appearance with the other varieties. His every curve and outline is symetry and perfection; every move graceful; his eye sparkles with love, welcome and affection; then combined with this, the most harmonious melody.

Carlyle must have pictured in his mind's eye, a typical roller, bursting in to harmony, when he wrote those immortal lines, "Little drops of celestial melody." The most popular song bird to those who know; the most contented with cage life; when



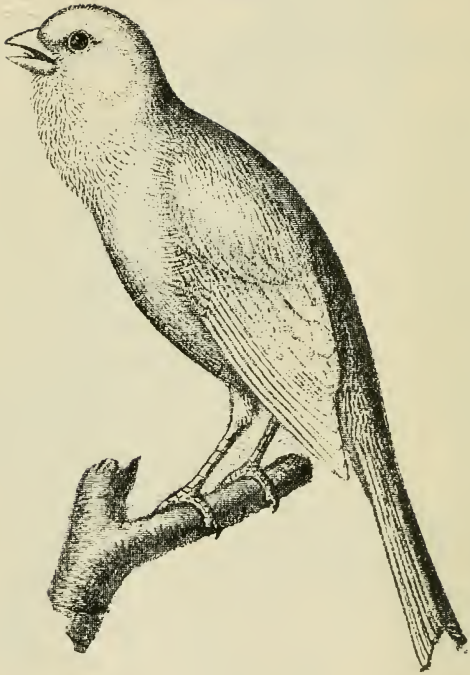
The Roller

CHAPTER II.

WHY A ROLLER SHOULD BE IN EVERY HOME

“There is no accounting for tastes”, said the old woman when she kissed the cow. This old adage truthfully expresses the infinite and unlimited variety of tastes to which the human mind is heir, in the selection of its choice in music, art, food, dress, love or literature. As a visiting stranger, we are not as favorably impressed with the owner of a parrot as with him who owns a roller. Impressions of one’s individuality at first sight, are conclusions from observation, comparison and deduction.

There are those who are more thrilled with the wild music of the bagpipe, than the most classical virtuoso by Heifitz upon the violin; more aroused by the weird melody of the banjo, than Beethoven’s Sonata, rendered by the great master Paderewsky upon the piano. This identity of distinctive personality is especially marked in the selection of one’s favorite pets. Animals have been selected for either entertainment or usefulness. For the latter purpose, the falcon was taught to ensnare the birds of the air; the otter to capture the fish of the water;



The Natural Roller Poise.

the hound to trail the wild game of the forest; the carrier pigeon to hasten the message upon the field of battle. For pleasure and pastime, the game chicken and dog were bred and trained to fight to the death; the little song bird to enliven the quiet and repose of the home. Individuality of taste and judgement is interpreted in one's furniture, in the selection of pictures and style of dress.

The evolution of specie from the original canary to the present cultured roller, has made it's choice paramount to other song birds. This is the effect of cause from experience. By the gradual process of elimination, the roller has been victor in the bird competition of **harmony**. The jerky, wild notes of the nightingale, the untutored twitter of the thrush, the monotonous call of the robin and the shrill tones of the untrained canary, might fully satiate the taste for bird song in the choice of harmony, or the euphony of sound in some persons, more than the infinite repertoire of the inimitable mocking bird. But the sense of musical distinction in such persons must be sadly deficient.

The roller's soft music, cultured to the highest degree, adds to the tone of refinement, dignity and contentment of the home; it lends a charm to the surroundings. This bird has acquired an infinite variety of it's own. Each individual roller selects, adds to, or qualifies it's own repertoire.

The untrained canary or "chapper", as well as the other song birds, produce the same monotonous bars of song. It is merely the reiteration of whatever their untutored forefathers taught them; without improvement or change. Neither the association with melody or outside influence affects them; the range of their musical repertoire is as fixed and immutable as the stars. The melody of the roller becomes infectious; it enlivens the home; it infuses a feeling of domestic satisfaction; it has an elevating effect. The cultured tones of the roller portray the same sense of good taste, in an owner, relatively, as the possession and display of pictures by Rembrandt, Rubens, or Sir Joshua Reynolds; it indicates as refined a conception of bird harmony, as the choice of music by Beethoven or Bach. The roller is as superior in the cultivation and execution of his song, to the ordinary song bird, as a five-cent chromo compared to paintings by the great masters.

The tones of this little bird, singing as a rule with his bill closed, displays the results of generations of careful cultivation, scientific breeding and natural selection. The vocal culture of this bird, has successfully responded to the great law of evolution. The principle of heredity and transmission of specie in bird music has been thoroughly accomplished in the production of the roller. It's

music signifies the same wide margin of artificial improvement, as is the difference between an educated and ignorant mind. Compared to any of the wild birds of the forest or those domesticated for the sweetness of song, there is the same analogous difference between these birds and the roller, as between the intelligence of mankind during the stone age and cave dwelling epoch, as the man of to-day.

The soft, well modulated tones of the roller, rising and falling in rhythmic cadence, in a riot of melody, has a soothing effect upon the mind; drives dull care from the troubled soul. The cadence of his music rises and drops in regular, modulated, cultured tones. The eloquent symmetry of his song, rolls on in octaves by regular, tuneful stages; without sudden or harsh breaks; the entire repertoire being enlivened by a sweet modulated variety; displaying rare taste for sound and melody. The effect, as compared to a "chapper", is about the relative difference, that might distinguish the song of an intoxicated bartender from the refined and tuneful tenor of a Caruso.

The strident notes of the "chapper", shrilly singing with mouth fully distended, strikes the refined sense of sound too harshly. There is a palpable discord in a well appointed home, when the loud shrieking of a "chapper" is heard. It's harsh,

untrained voice destroys the total effect of discrimination and culture. It's wild and boisterous melody is inclined to shock the nerves. Even those who have not given much attention to the distinguishing vocal features of the two birds, notice there is in the "chapper", the descendant from the roller's untutored ancestors, an indescribable note of harsh, boisterous, hysterical vulgarity. The "chapper" sacrifices melody for noise. Most other song birds are either too boisterous or monotonous. They neither inherit nor acquire the art of imitation nor vocal improvement.

The roller demonstrates the difference between many generations of culture and the wild song of his untutored ancestors, the canary. Voice culture has taught the roller how to use and modulate his voice with the least effort. This training has performed for the roller the same service, that cultivation and voice training have accomplished for the human tenor. That is why the roller sings with his mouth closed. His sweet melody, regular and tuneful, is formed in the throat; the transitions from one octave to another are soft and harmonious. There is no straining and harsh, throaty notes, as if it either gave him pain or effort. It is the soft, tuneful, rolling melody of a gentleman, who sings at ease; as if it gave him pleasure; the thorough satisfaction of an enjoyable pastime, as he gracefully swings from side to side upon his perch. The

sliding cadence, as he easily reaches one octave after another, clearly demonstrates the substantial effect of systematic training.

The singing of the human being, without cultivation, even if gifted with ever so beautiful a natural voice, will be punctuated with nasal, harsh and throaty defects. His singing is more labored and difficult; simply because he has not learned to save his vocal strength; to economize and modulate his tone. Subtract, if possible, the musical cultivation from the total effect of John McCormick's wonderful tenor and what would be left? The notes of the untutored, natural voice are neither as soft, pure and tuneful as the cultured singer. By cultivation, one with an inherently poor, natural voice, in time will surpass the singer with a natural musical voice, without cultivation. Culture will speedily and surely supersede inherent gift. Upon this theory the early breeders of the roller proceeded; their efforts were crowned with unqualified success.

The roller is strictly the product of environment and cultivation. It's music represents a long and tedious journey from the Canary Islands, and Hartz Mountains, to it's present state of tuneful melody. By the same process of evolution and natural selection which has produced a speed marvel like Man O' War, from the original specie of horse, with three toes and the size of a deer, has the

roller been finally evolved from the original untutored ancestors of the Canary Islands. Years of cultivation have produced a complete repertoire of music.

Just as the music of human beings has developed into individual and classified cults, known as Italian, French, German and English schools of harmony, so has the roller developed a distinct type of musical interpretation and perfection. His harmony has been distinctly perfected and classified. He has arrived at a stage of musical culture, in which his song may be identified and even credited with varying degrees of harmonious perfection. In competition, he may receive nine points for a perfect rendition of the "Hohlrolle"; if sung with proper modulation and sweetness, when rated by competent judges; nine points each for "Knorre" and "Koller"; six points each for the "Shockle" and "Flute". But on the contrary, the roller will be penalized nine points in a contest, for emitting such false notes as the "Schnatter" and "Schnetter". In other words, the repertoire of the roller may be set to music. He may be known as an excellent, good, ordinary or defective bird; in accordance with the quality and variety of his harmony. Such is the high ideal of musical perfection to which the roller has arrived, it is often said, "there is no perfect bird."

By this consistent improvement, under long and patient tutelage, by artificial musical instruments, and the influence of other bird music from the thrush and nightingale, his operative repertoire, copied but individualized, consists of a great variety of distinct bars of strains of music. His rating in a contest, will depend upon the softness and harmony of interpretation which he may give in his song, and the musical cadence by which he may combine in his repertoire the "Glucken", "Hohlklingel", the "Pfeifen", "Klingel", "Klingelrolle", the "Wasserrolle", the "Kollernde Wasserrolle", and the many other bars of music he has developed.

In course of time, by this steady and constant vocal improvement, he must necessarily become a greater singer, by still enlarging his repertoire and perfecting his melody; physical evolution, encouraged by proper nourishment and environment, will also produce a larger and stronger bird. This inevitable improvement will eventually be consummated by the same process of physical development, which causes the tame duck to have weak wings and large limbs; as contrasted with the wild duck, which is especially developed by large, powerful wings. The domesticated duck has lost practically the use of its wings, because of non-use and inactivity; the other, the wild duck is almost continually on the wing; hence their strength and vitality. Continuous use of physical members of

the body of any animal, combined with natural selection and the transmission of species, will finally produce a distinct type in the perfection of any particular member of the body, whether of vocal or physical design.

Other song birds are known by only a few musical bars which they continually re-iterate. This constant repetition becomes monotonous. There are no constantly recurring monotonous bars sung by the roller. The blending of musical strains, the joining of harmony, the soulful interpretation of it's melody, classify the status, quality and value of each bird. The imitation or influence of other bird music may be assimilated, but each individual roller will so translate, qualify, blend and interpret this borrowed melody as to make it his own; this continues until he has fully and completely composed his own repertoire. From time to time, he discards or increases this repertoire, either for improvement or deterioration, which will depend upon his environment, health or breeding. If he is associated with good birds, his improvement will be assured; but if his contact is with "chappers", loud singing birds, or birds of inferior quality, his melody will deteriorate. Therefore, owing to the variety of it's notes, it's well toned modulation, the rhythmic changes from one tuneful cadence to another, the tasteful rendition of his magnetic melody, the con-

sensus of opinion, has universally chosen the roller as the ideal song bird; the golden medium of bird popularity.

The association of ideas controls many persons in the choice of song birds; reviving pleasant memories of by-gone days; reminiscences of far away home; the locality and environment of youth. But the same judgement should be used in the selection of a song bird as in the choice of one's furniture. The individuality of taste and judgment are interpreted in the selection of one's books, pictures, speech and style of dress. The total effect of one's home is regulated by the relative intelligence and individuality of the owner. You can identify the personality and classify the individual by the company he keeps, no more than by the environments of his home and favorite pets.

The home is one's castle. It reflects either the taste, intelligence and class, or the ignorance, poverty or sloth of the individual; it is either neat or sloven, tidy or unkempt. To catch the eye, pictures of art adorn the wall; antiques and bric-a-brac are selected with rare taste; to satisfy the ear, tuneful music is chosen; for intellectual food, good books are selected; to even please the nose, sweet scented flowers decorate the boudoir. To complete this domestic effect, a sweet singing songster exalts the entire environment. The music of a Roller lifts

one far above the surroundings of art and literature, because it consists of real life; it puts a soul into the inanimate gewgaws of science and the symbols of intellectual representation; it exerts a softening, exhilarating, refining influence.

The entire environments of the home represent the mirror of the soul. They reflect the composite pictures of the man within. They may be radical or conservative, modern or antique. "Show me your home", exclaimed an instructor in pedagogics, "be it ever so humble, and I can tell you who you are". The contents of the household, like one's friends, should be well chosen. This total effect, unconsciously, appeals to the visitor's estimate of the master of the house. The possession of a roller, indicates an owner of good taste, sound judgement; that the owner is particular in his choice of a song bird; that he is of conservative, modern instincts; an admirer of tuneful harmony.

The personal attributes of the roller, consisting of a strong individuality and certain amount of magnetism, are especially attractive. He is the personification of innocence, appreciation and dependence in his small cage. He is loyal, devoted and attentive; he welcomes his master by bursting into song at sight in the morning; he shows a cordial appreciation when his master returns at night.

The prejudice against caging a bird, cannot exist against the roller, for he is the unique exponent of domestic cultivation. If liberated, the roller would perish. The roller cannot be said to inhabit any special locality.

The analogy of its incarceration is not similar to, nor parallel to the mocking bird, the thrush, nor the nightingale. No particular locality can claim the roller. He has ceased to be indigenous to any soil; nor can it be said, that this bird can be the medium of any particular service or usefulness, other than the entertainment of its song. Most wild birds perform an important mission; they protect the farmer from countless millions of pestivorous insects, consisting of larvae, plant lice, ants, grasshoppers, canker worms, leafhoppers and caterpillars; hence they protect the food supply. These birds do not usually thrive in captivity, because they cannot get proper food to feed their offspring. The roller cannot be claimed, by the people of any special territory. He has now become the domestic soldier of fortune; the feathered troubadour of civilization; which depends upon the kindness, care and appreciation of the human family.

There is something socially substantial to be learned from that small cage, inhabited by the roller. It teaches magnanimity; that the weak should be protected from the strong; that usefulness cannot be measured by avoirdupois or size; that

contentment is not the essence of roaming at will; that environments do not necessarily decide the measurement of happiness; that satisfaction can come to the smallest and most humble homes. The sweetness and harmony of this bird's song and the gentility of his personality soften the innate cruelty of children. From this small cage, much practical philosophy may also be obtained. We may extract from his humble perch, the comforting thought, that what one never knows, he never misses; that "ignorance is bliss where it is folly to be wise"; that "he who is robbed, not knowing it, is not robbed at all". The care for this bird removes bigotry, cruelty, and narrow mindedness; it arouses sympathy, interest and kindness to dumb animals; since "one touch of nature makes all the world akin."

In the repertoire of the roller, there is combined a composite harmony of our most musical instruments. Improvements in the type of this bird here in America, have been so strong, that the original Hartz Mountain type has almost been obliterated. We may justly claim to have originated a distinct, individual type of our own. This has been fully established in the tone and quality of this bird's song; no less than by the health and strength of its body. Although adopted, with full respect, gratitude and appreciation to those who developed the roller, it has become an American product.

The imported birds do not favorably compare to the domestic product. This adaptation has been just as emphatic and distinct, in the evolution of an American type, as we have improved over the original imported Pekingese and Chow dogs of China or the French bull dog of France. The future promises improvement in the type of this bird, vocally and physically, by certain reliable stages of evolution; a larger and stronger bird; with sweeter music and a more robust stomach. This last improvement, is the most essential, for the stomach is the seat of all animal life. Like a boiler to machinery, upon whose strength and power depend the augmentation of force, must the stomach of the roller be the source of this little bird's vitality and health.



CHAPTER III.

FEEDING; IT'S USES AND ABUSES

The canary is a highly domesticated bird. The influence of long years of artificial breeding has caused it's stomach to be the most delicate portion of it's organism. With many centuries of close confinement and in breeding, deprived for generations of the very essential opportunity of selecting from nature's storehouse, those herbacious nourishments and medicinal tonics, best adapted to promote health and digestion, without any outcrossing from native stock, the diet of this bird must be watched with great care. The roller has been for so long a period the object of domestication, that he is purely artificial. To give him robust health and genuine vitality, is the most important problem which confronts the breeder. This may be easily solved, with due regard to the kind and quality of food with which the roller may be nourished.

The principal food consists of the following kinds; rape, canary, millet, crushed oats, lettuce seed, linseed, thistle seed, flaxseed, hemp and poppy seed; also, the following salads: lettuce, spinach, watercress, dandelion and the sprouts from rape

seed. Rape seed takes root very readily even if thrown into a flower pot; the sprouts from this seed are not only appetizing but nourishing. Occasionally, a piece of apple may be given; but care should be used to see that the apple remains fresh; otherwise, the combination of stale apple, decomposed with the brass or metal of the cage, forms a poison. This same condition may arise with both lettuce and spinach salad. Care must also be observed, that the spinach and lettuce salad be placed into the cage in an absolutely dry condition, as too much wet green food will produce diarrhea; the same condition might arise from feeding too much apple. Each of the above mentioned seed, has a different influence upon the health, body and organs of the bird; supplying different chemical and gastric properties after digesting; if properly fed, producing nourishments especially adapted for the health and vitality of the bird.

Rape seed is the sheet anchor of a roller's vitality. Rape seed is to the roller, what roast beef is to man. It is his most substantial and nourishing diet. This seed contains a high percentage of oil. It is easily digested and produces genuine vitality. Good rape seed may be ascertained by the taste. It should not bite the tongue; it is a bitter sweet taste, similar to that of walnut; otherwise, it is not good. This seed must be kept dry, since damp or mouldy

rape seed is sickening to the bird. Canary seed is far preferable in taste to the bird; it has not the bitterness caused by the shell of rape seed, hence is more palatable. Canary seed contains a large amount of starch; if fed too liberally it is fattening; too much canary seed produces loud singing, which the breeder seeks to avoid. Fat birds are neither good for singing nor breeding.

The mixture of rape and canary seed is the happy medium of a normal, health giving, daily diet; about one-third canary and two-thirds rape. The very best rape seed is the German summer quality rape seed; Spanish canary seed is the best. These two seed, rape and canary, probably contain all the necessary ingredients a roller needs to healthily thrive upon. A change of diet given in moderation and at proper intervals, has the same effect upon the roller as other animals. The seed of a bird should be sifted carefully before being placed into the food cup to discard the dust and dirt. Especial care should be given to remove any mouse excrement, since it produces nausea and sickens the bird.

Hemp seed is also fattening and should be cracked before feeding. It has been contended, that because this seed must be prepared in this manner, it is not the natural food of the bird. The substance of hemp seed is very strengthening and

nutritious when fed with care. It may be cracked by placing the seed between the folds of a cloth and pounding it with some hard object; it may be also crushed by placing it in a coffee grinder.

Lettuce and thistle seed are delicacies and might be compared to the dessert of the human being after the more substantial meal. Linseed is also a health producing food, but because of its bitterness, is not well liked by the birds. Poppy seed also contains a large percentage of oil, but the percentage of opium is so large, that if fed too frequently, it produces a lazy, sleepy effect upon the bird. It has a tendency to cause constipation; it may be fed to birds with diarrhea with good results; this may be done until the excrement of the bird becomes normal again; also, green food and apple is good for constipation. Hulled oats produce the contrary effect to poppy seed upon the digestion of the bird and offers speedy relief to birds suffering from constipation. Salt pork and bacon rind are beneficial for birds suffering with hoarseness or cold.

To build bone and sinew oyster shells or old plaster material from torn down buildings and pieces of limestone are very helpful to both young and old birds. Flax seed is very fattening. Small quantities of this seed might be used occasionally to build up the waste tissues of brood hens after the breeding season. But if from the constant use of

egg food to feed young ones, the hens are very fat and have not lost much weight, then hemp and flax seed should be discarded and plain rape seed used.

The roller is a great glutton; it eats daily, half it's weight in food; care must be exercised that birds do not over feed. Egg shells should be thoroughly dried, crushed and given to both old and young birds; since it makes bone, produces lime and strengthening material necessary to the digestion and vitality of both old and young birds. Cuttle bone and fresh sand also assist in producing the same kind of necessary upbuilding; and also aids to digestion; they are especially beneficial to brood hens both for the necessary formation of healthy and normal eggs and in the transmission of bone material to young birds.

Birds have no teeth and cuttle bone is very essential, to sharpen the bill and keep it in good condition to crack seed, which is more easily prepared for digestion; the real digestion of the roller takes place in the gizzard.

Egg food is very essential food material in the production of necessary vitality for old and young birds, both male and female; when fed with moderation and judgement. This food is absolutely indispensable in the preparation of male and female birds for mating; feeding the nestlings and strengthening of young birds and keeping them in good

condition. This food seems to supply the necessary material which corresponds to the animal and insect food collected by wild birds. To properly prepare this food, boil an egg twenty minutes, when thoroughly cooled, grate it finely, mix it with ground toasted white bread, zweibach or rolls; four heaping tablespoonfuls to one egg; a little spinach mixed with this finely mashed, with luke warm water to only moisten and properly temper it, will be very nourishing to nestlings when mother hens do not feed their young. When preparing food for nestlings, this preparation should be thinned into a paste, which more readily corresponds to the saliva used by the mother hen.

Meal worms, which are those dark, red worms found in flour are very strenghtening, fattening and nutritious to mother hens, when feeding their offspring. These worms may be kept in a jar and fed upon flour; a piece of an old rag or old leather is useful to provide nesting places for meal worms. The worms turn into bugs by a gradual process of metamorphosis; then these bugs lay thousands of eggs from which the worms are hatched; then the bugs die. It has been claimed by some breeders, that although nutritious, young birds fed upon the meal worms are inclined to produce loud tones. On the other hand, many breeders attribute marvelous success to feeding brood hens upon the meal worms.

In any event, they are very strengthening to young birds; giving them a solid and substantial constitution.

The bills of young birds after leaving the nest are too soft, at first to peel off the hard shell of the rape seed, hence it should be crushed with a coffee grinder; rape and canary seed ground together make a very nutritious and strengthening food for the young birds; containing the essential material which produces bone and sinew.

When lettuce or spinach is fed, it is better to select the more tender and choice portion of the salad leaves. Spinach contains iron sulphate and is a good blood maker; it produces a normal and healthy diet; aiding in the digestion of food and regulating the condition of the bowels. It's medicinal qualities are far superior to lettuce.

Birds should be given early every day fresh food and water. In the hot summer months, they should receive fresh water twice a day; never too cold. Drinking water in a breeding room, may be arranged by a self acting fountain or drinking cup. To make one capable of furnishing healthy and refreshing water, take a small sized stone jar, quickly invert the same over a saucer, after the jar has been filled with water; first place a large nail across the bottom of the saucer, to hold the jar up a trifle; this causes the water to slowly percolate from under the

jar. In this manner, the water keeps cooler and fresher than in an open receptacle; prevents the birds from using the drinking water for bathing purposes; keeps the water clean.

If preparing a hen for the breeding season, she should receive her second portion of egg food about noon; about 3 o'clock in the afternoon she should receive her third portion, providing her condition warrants it. She should never be given more egg food at one time than she will eat in about three hours; since it might sour, rendering it useless and harmful.

The hen during the breeding season, should feed the young ones some digested seed to make them healthy; all egg food is too heavy and difficult to digest without a portion of soaked, crushed rape seed and salad. The feeding hen should have a variety of seed, so that she can select that which is most beneficial and useful.



Hen Feeding Her Young Ones.

After the breeding season, the female should be given a little pork fat occasionally, also, salted food, hulled oats and hemp. While it is contended by some breeders that salt is not essential to the physical organism of a bird, this is without foundation. A small portion of salt is as necessary to the organism of a bird as it is to man.

Some birds are afflicted with the evil habit of egg eating. This destructive malady is sometimes due to the eating of an egg accidentally broken; hence the remains of an egg found in a cage should be speedily cleaned up to remove all temptation and prevent the possibility of this habit.

Whenever a bird seems depressed or dispirited, use a piece of fat pork, sometimes salt and sometimes fresh, which has been soaked to remove surplus salt or camilla tea, which is a tonic; also, a piece of bacon rind, sprinkled with red pepper, may be placed between the bars of the cage to accomplish the same result. Physical decline is usually a fore runner to some malady. So this condition may be treated by building the bird up; hence food must be given which will tone up the system. If taken in time, it is easier to improve this condition than curing some disease which threatens to follow; for the old adage of "a stitch in time, saves nine", applies with treble force when adopted to the roller.

If birds should lose their appetites and seem to not relish their food, any breeder might prepare a tasteful and appetizing composition sometimes called "restorer". A combination of seed judiciously blended to contain a variety of substances will soon revive the lost appetite. This bird succotash might consist of a quantity of mixed rape, canary, lettuce, millet, Irish oat meal, poppy and hemp seed, seasoned with a small portion of salt and red pepper.

A good bill of fare for a bird in the moping stage, is egg food every other day; a quantity of boiled carrot; a piece of ripe apple or a couple of dandeloin leaves or a spray of watercress; a good tonic is also sometimes used of ten drops of sherry and five drops of the tincture of quinine, to two tablespoonfuls of drinking water daily.

Very little green food should be given during the cold weather, as it tends to thin the blood; during the winter, a piece of ripe apple or boiled carrot will be beneficial, if alternately given every other day, unless the excrement becomes thin and watery.

At least every few days, seed should be thoroughly sifted; all seed must be kept absolutely dry. Too much hemp seed not only is very fattening, but causes feather rot. Some hens feed their young better without a male; others require the assistance of a male; the breeder must use judgement in each

individual case; watercress, thistle seed and an apple occasionally, is very invigorating and nourishing to a brood hen while feeding offspring.

Dandeloin should be given when birds are backward in their preparation for breeding; stop it's use when they lay; give very sparingly the rest of the season. When brood hens become overheated or advance too early, egg food should be discontinued and canary and rape seed used only; also a little boiled rape seed; a small quantity of magnesia placed in the drinking water, is a good cooling remedy. Some breeders use Epsom Salts for this purpose, once in ten days. This is a very cooling medicine and must be used with care, otherwise, birds are liable to take cold. It may be prepared and administered as follows: One dessertspoonful of salts put into a quart of boiling water and let stand till it gets cold; this is sufficient for about fifty birds. Divide this equally and fill up with ordinary water; this remedy might also prevent egg bound hens.



CHAPTER IV.

FEEDING; IT'S USES AND ABUSES

In the language of an eminent authority, Henry Thomas Buckle, "Food consumed by man produces two effects necessary to existence: First, to supply him with animal heat to continue the functions of life; second, to supply the waste material. For each of these separate purposes, there is a separate food. The temperature of the body is kept up by substances which contain no nitrogen and are called non-azotized. The incessant decay in our organism is repaired by what is known as azotized substances, in which nitrogen is always found.

"The colder a country is in which a people live, the more highly carbonized will be their food; hence, whale oil and blubber, which would end life in the tropics. In the polar food there is an excess of carbon; in tropical food, an excess of oxygen; the oils contain six times as much carbon as the fruits and have very little oxygen; while starch is nearly half oxygen. Oxygen is abundant and cheap such as fruit and vegetables; carbon is hard to get and dear; it consists of fat, blubber and oil of ferocious animals."

The feeding of birds is analogous to the human family. Temperature should moderately determine a bird's diet. Maw, mustard and hemp are heat producing seed and are more beneficial in the winter months; while green food, canary and lettuce seed can be fed with better results in the summer.

Birds in preparation for the heck must be fed with suitable food to produce sexual ambition; hens must also be fed with such nourishing food as to produce certain chemical elements which represent life; it is this composition which creates the bird.

Birds, like people, to a limited extent, differ in tastes, dispositions and appetites. Overfeeding and food too rich, will produce in man, indigestion, dyspepsia and gout. There are certain individual abdominal peculiarities and idiosyncrasies often discerned in the human family; the same conditions exist with birds. Some people cannot eat fried food of any kind; others cannot eat fruits containing acids. Diet is better than medicine for most vital organic troubles. Diabetes and Brights Disease have been cured by a strict adherence to diet. Some foods are individually nourishing for certain organs such as asparagus for the bladder and kidneys; oysters, fish and sea food create vitality for the nervous system. Observation will quickly inform the breeder as to the individual food requirements of his feathered charges.

There are several nourishing foods, for both mature and young birds the recipes of which follow: The first is known as saffron cake: Take a half pound of flour; three ounces of sugar; two ounces of butter and yolk of two fresh laid eggs; procure a few cents worth of meadow saffron and pour a tea-cupful of boiling water over it; beat eggs and butter together in a separate basin; next add sugar and flour and form the whole into a mass with the solution; after it has been strained through a muslin, place the preparation in an oven and bake. When cold it is ready for use.

Another preparation is German Paste: Mash and bruise one pound of rape seed; blowing away husks; then add a piece of white bread, about two days old; roll these well together; reduce the mash to a powder. Place this preparation into a tin canister or glass bottle; keep it tightly corked to keep out the air; a little of this mixed with hard boiled egg and a slight sprinkling of cayenne pepper, makes nutritious food for old or young birds. It should be made fresh every twelve or fourteen days. It may be moistened with water for use of young or delicate birds.

The following food is very health giving and nourishing: Take one pound of fine oatmeal (Irish oatmeal preferred), one pound of good wheat flour; cook in slow oven, until golden brown in color; keep

constantly stirring to prevent burning and when cold add one quarter pound of ground rice, six ounces ground Indian corn, six ounces moist or powdered loaf sugar, four ounces hempseed, freed from husks, three ounces crushed maw seed; mix well together and keep in tin canister in dry place. This will keep for many months. When required, moisten with warm water and make into a stiffish, crumbly paste, as much as needed in one day. This must be prepared every morning.

The following is also a good mixture: Take about eight ounces of rolls or biscuits; two ounces ground linseed; three ounces finely ground oatmeal; three ounces ground rice; two ounces crushed hempseed, freed from husks; four ounces powdered loaf sugar; about one half ounce salt; two ounces maw seed. This should be reduced to a fine powder, except the maw seed, which may be added whole; the preparation should be well rubbed together in a mortar; then kept in a tin canister, in a dry place. This should be mixed with hot water.

The following is an economical and nourishing food for young birds: Take one pound of finest oat meal and roast in an oven until it becomes a pale brown color; keep stirring it repeatedly to prevent burning; when cold, add one quarter pound of best Indian meal and one pound of sweet biscuit, finely

powdered, one tablespoonful of moist or crushed loaf sugar and a teaspoonful of salt; mix well together in a mortar; preserve for use in a covered tin canister in a dry place. When required, mix with the above a small quantity of genuine German rape seed, first scalded and washed clean; then mix with sufficient water to make mass crumbly moist; it is then ready for use.

Many breeders realizing the utmost importance of nutritious food for birds, prepare their own biscuits, which they have tried, improved upon and perfected from experience. They guard these private recipes with zealous care; some breeders are anxiously ambitious to obtain patent rights for these foods and offer them to the public for sale; others prize these preparations too highly to share them even for money.

One of the great recipes is known as the "Brandner Corn Meal Biscuits". It is very nutritious and is prepared as follows:

Take eleven eggs; beat whites very stiff; then under continued beating, add the yolks with the same; then, add a little over two and one half ounces of sugar; to this, add a little less than five ounces of fine corn meal; grease the pan and sprinkle lightly with cracker crumbs; then pour this mixture into the pan and bake in a hot oven from three quarters to one hour.

COLOR FEEDING

The color of feathers may be materially improved and changed to practically every shade of yellow, orange and red. This is accomplished by a system of color feeding. It must be done while the feathers are in the process of formation. This is easiest with the early hatched young birds. Color feeding ought to be started about three weeks in advance of the moult; it is usually started in June; so that the blood may be thoroughly impregnated with the coloring matter. The greater the proportion of color food employed, the nearer one approaches to a deep red tone. It is advisable, if one is so inclined, to start with one third quantity and raise to two thirds, then the full quantity.

Color feeding is produced by various shades of sweet or tastless peppers; some are bright and light, others medium and some are dark; the blending of the richest colors, usually brings good results. One of the sweet peppers is commonly known as paprika; it produces a very dark, rich color with little heat; this color is good to blend with.

There are also various shades of hot cayenne peppers; the best is the rich, bright red "natal" pepper. The ingredients of color food should be thoroughly mixed and blended together and kept ready for use in a glass or earthen ware jug tightly closed. Some use a small quantity of olive oil in the preparation, while others do not believe in the use of oil.

To give color food, prepare egg food in the usual way. To each small tea cupful of egg food, add two heaping teaspoonfuls of the color food and blend all together, until the whole is one even mass of color; then serve the same as egg food, about the same quantity.

Color food should be started as soon as birds begin to lose feathers, then gradually increase color food from one, to two, three and four teaspoonfuls to each cupful of egg food; then increase in the middle of the moult, until well past the moult, then decrease. The object of this, is to preserve an even color. As the moult increases, four and even six teaspoonfuls of color food to the egg food may be given; then decreased to three. This must be kept up regularly every day or the feathers will appear patchy in color. To fix color and make it more lasting, a crystal of sulphur of iron, the size of a hemp seed, should be dissolved in drinking water, two or three times a week, the latter part of the

moult. The following day after giving sulphur of iron, add several drops of glycerine to drinking water to counteract the constipation which is apt to follow the use of iron.

The various shades of colors may be produced by the following recipes and directions:

To produce a deep yellow, take one pound of sweet pepper, two ounces of natal pepper, four ounces of turmeric, one half pound of soft sugar, three ounces of best olive oil. This quantity to commence with a half teaspoonful, to one egg and four biscuits. Increase color food by degrees, say in course of a fortnight, to one teaspoonful, and continue with this quantity until the bird has moulted, all but finishing the head feathers, which are last, when the quantity of color food should be reduced to one half.

To produce an orange color: Increase strength of color food to two teaspoonfuls to one egg and four biscuits.

To produce a red color: Take one pound of sweet pepper, four ounces of natal pepper, one half pound of soft sugar, four ounces salad oil, all well blended together; the quantity to commence with one half teaspoonful to one egg and four biscuits and increase by degrees up to two teaspoonfuls in course of seven to ten days. Spanish canary seed and lin-

seed should be used while giving color food. Formerly, color food was found in the use of beet root, marigold flowers, carrots, cochineal, saffron and madder.

It is certainly not deemed advisable to artificially change the roller's color. His worth and exhibition qualities do not depend upon his color, conformation, size or plumage—, but his melody. The roller is more useful than ornamental. There is enough natural color to the roller to obtain, by proper crossing, any attractive shade desired, without vitally endangering the larynx, throat, vocal organs, stomach and liver of the bird, by the use of color food.



The Color of Genuine Roller — Good Enough.

CHAPTER V.

BREEDING

Breeding rollers is one of the most interesting and fascinating of indoor sports, for young or old, male or female persons. This pastime not only brings us close to nature and her wonderful laws of reproduction, but rewards us with many happy, entertaining and instructive hours.

There is absolutely some necessary and preliminary, physical preparation to properly equip both male and female birds for the breeding season. Both should have had several months flying in a large cage or room adapted for breeding; since they acquire as much strength and vitality by flying as from wholesome food. Both must be fed upon egg food in the morning and evening, at least two weeks before mating; sometimes, a little egg food three times a day; to produce the necessary vitality and sexual desires. The amount of egg food must depend upon the physical condition of the birds. For egg food is the indispensable material to the successful breeding of rollers.

First class stock must be chosen; success depends upon the quality of one's stock. Both male

and female must be selected with due regard for health and robust vitality; weak or sickly parents do not produce healthy offspring. Unsound birds will produce young ones with pulmonary defects; they usually transmit sickness or weakness. The male bird must be in good song; he must be alert and show sexual desire. As soon as placed into the cage, if in proper condition, he should commence his love song and chase the female; he must be the boss. If he is whipped or afraid, he is not fit for mating. The female should not act droopy or mopish, but also show ambition. Her toe nails should be pared to proper length, to prevent her from dragging nestlings from the nest.

For the best results, one must select choice females; they are the main reliance in breeding; upon the mother hen, rests the success or failure of the young birds, not only in the production and raising of strong, superior stock, but in caring for the young fledglings; any good nest of youngsters may be worth One Hundred Dollars. It is better to purchase the best; about the months of September or October from some reliable breeder; so that they might have time to get used to the place. Some females cost almost as much as a trained singer; good ones are worth it; they are cheap at any price.

With the best of care, after each breeding season, fed up and allowed a long fly, good females will

continue to breed on four or five years. Some breeders prefer to use a female for only one season; they get rid of old hens. A good feeder is a valuable asset and can be kept in good breeding shape, with proper care for the period mentioned.

As in all animal breeding, inbreeding is undesirable; it tends to weaken and produce inferior stock. This can be avoided, by occasionally, purchasing new stock or exchanging stock, if of equal good quality, with other reliable breeders. The outcrossing with new breeding material must prove beneficial, by strengthening and preserving one's stock.

Usually, a light hen is mated with a dark male and vice versa; following the old Latin proverb of "Similis a disimilis curantur". They seem to prefer each other. They must be happily mated; for when green birds are mated with yellow ones, they produce mottled or check birds; this color seems to be preferable with breeders; the color markings and results of muff and yellow crossings, according to the standards, produce the most satisfactory results.

It is sometimes difficult to find the proper mate to suit a hen; this must be met by changing the male until she becomes satisfied. When mated, they usually fight a little in the beginning, but if they

continue to fight too hard, the female probably will not accept the male; then another male must be tried, until the female is suited. Sometimes, it is advisable to place the male near the female for two or three days, so that they can become used to each other; fighting does not always mean refusal; absolute rejection depends upon the period and degree of the combat; it may be merely the shy coyness taught by Mother Eve to entice the male.

May and June are the ideal months for roller breeding. The temperature is higher, the days are longer; the females show much more ambition than in February or March; in those two months, May and June the weather is far more propitious.

To begin with, the temperature of the breeding room should be between 65 and 70 degrees; this should be uniform at all times. This room should be sunny and if possible, facing the East, where the early morning sunshine may strike it. The sun is the magnet around which all animal life revolves; if it should cease to shine, all animal life would be quickly extinguished; it would be equivalent to turning on illuminating gas in a sleeping apartment. In the early morning, the hens are more eager to feed and care for the young.

A nice warm atmosphere with sufficient moisture, is the ideal temperature of a breeding room. The more oxygen the air contains, the healthier for man and beast. If the air is too dry, the eggs dry up and the birds remain and die in the shells. By keeping a pot full of water on the stove and airing the room daily, without any draft permitted to enter, the temperature may become fine and healthy. Gas heat is dangerous; also, it may cause a dry atmosphere; it may use up too much oxygen. Therefore, it must be carefully observed, that gas tubes do not leak; that artificially, oxygen should be produced by moistened air. A window should be kept slightly open; providing it does not operate against the proper temperature of between 65 and 70 degrees. The oil stove must also be carefully watched to prevent smoking; the fumes might destroy the birds. The best heater for breeding is a small coal stove, It does not need much coal and burns steadily, if properly managed. The coal stove does not use up too much oxygen, if a small pail of water is placed on top of it. By far, the most preferable medium of heating the breeding room is steam heat.

The breeding cage should be about eighteen inches long, in the single hatch; about twelve inches high and about ten feet deep. There should be two nest boxes placed on the outside of the cage; but

accessible to the bird, through a little opening door. An arrangement of this kind, gives free access to the cage, without disturbing the brooding hen.

At breeding time the hen should be placed into this cage first before the male. The proof of her readiness to breed and accept a male, may be observed by her continually calling for a male; flying around, with small bits and fibres in her mouth, looking for some spot to build her nest; her nervous anxiety and action is proof positive, that she is ready. If she is ripe and in good condition, her stomach is a pale, light pink, lean and bare; her breathing apparatus is agitated.

Nesting material should be placed into the cage. This should be composed of some soft material, usually, the fibre of hemp rope, cut into inch pieces, boiled in hot water to destroy vermin; thoroughly unravelled and pulled apart and dried. Some breeders prefer deer hair or moss and charpie nesting material. Felt or cotton flannel prevent ventilation and cause the hen to sweat. White goat hair is used by some breeders as being insect proof; others use pigs' hair after it being thoroughly boiled. Paper, thread or wool should never be used.

As soon as the female begins the building of her nest, the male should be placed into the cage; since she is soon ready to lay, providing she is ripe and in season. It is from seven to ten days before

the female lays the first egg. The male must have been with her at least three or four days before the eggs can be fertile; some contend that it requires five days.

There are four materials necessary to produce fertile eggs; one to enrich the blood; the other to give vitality; another to repair wasted nerve tissues and supply heat and energy; another to keep the intestines normal and free from poisonous germs. Iron sulphate is the bone builder, which hens lack when apparently tired or lazy. Precipitated calcium phosphate is the shell maker. When they fail to lay, they are often unable to produce shell forming material fast enough; then egg material is absorbed into the hen's system; that is why they fatten and do not lay. As a general tonic, a very small portion of ginger is unsurpassed; it supplies heat and energy; sharpens the appetite and arouses sexual desires. Carrots, spinach and hulled oats are gentle but effective laxatives. Her digestive organs must be kept in order or else she does not get the benefit of food. Spinach keeps the bowels clean; also, it is an intestinal purifier; preventing many diseases, which might arise through improper food.

In order to keep an accurate account of the history of each hatch, a system, similar to the diagram shown on the following page is suggested.

Sometimes, the hen only imagines she wishes to lay; then she is not yet ripe; sometimes, she will lay what is known as a "heat egg", which is not fertile; if so, she usually lays if mated, a fertile egg about ten days after this. If the hen does not lay after beginning, for two successive days, she has finished laying.

Some hens are very fastidious and hard to please in the choice and color of their mates; some hens prefer a light and others a dark male; they must be suited. If she fights or resists the male an unreasonable length of time, she will not accept this male; this might continue indefinitely or for only a few hours. If she does not accept the male, the eggs are liable to be clear or barren. When the female accepts the male, the pair begins to show signs of admiration and love, by billing and cooing; often, the male feeding the female and carrying into the nest material for her to use. She is then about ready very soon, after the nest is completed; she usually sleeps upon the nest a night or two before the first egg is laid.

As a rule, a good fertile egg, shows a bluish color, with brown spots; but occasionally a pure, blue egg, without the brown dots will prove fertile. Generally, eggs of a gray color, without brown spots, are clear or barren. While laying, hens should be fed up in the early morning, to strengthen them;

the room should be nice and warm by laying time; which is usually about 8 o'clock. In June, when the nights are long and temperature warm, laying trouble is almost unknown.

Some hens are of peculiar temperament, in keeping with the uncertainty of the fairer sex; they dislike too much light near the nest; the nest box must then be darkened by covering it with paper pasted around the sides.

The breeder should start the foundation for nest building, when the nest is placed into the cage or outside of the cage, by hollowing it out nest shape with his hands and making a fine, soft bed. The female will complete this by putting the finishing touches upon it, to suit her taste; lining it with the very softest material. She will deposit her egg every day or every other day, before nine o'clock, the usual time; if she does not lay before nine o'clock, she probably will not lay that day.

If by accident, due to the carelessness of the breeder or birds, the shell of an egg is cracked, the inner soft skin will not exclude the air; therefore, the life of the unhatched bird will be extinguished.

If by chance, the male bird should lose his tail feathers, he cannot successfully mate, until the tail has at least half grown in again, as the tail feathers of a male bird are absolutely necessary in mating.

Some hens and males too, eat their eggs. Such birds are useless for breeding purposes. It has been suggested by some breeders, that filling the empty shell of a clear egg with soap and water and placing it under the egg eater, is a good remedy to break her from this habit. It may be worth the experiment. But why waste time and patience with a hen of such habits, when there are many useful hens? This weakness for egg eating, has been attributed to the lack of nourishing food; especially egg food.

Some birds do not begin the process of incubation until they have finished laying. The roller hen commences to brood after laying the first egg. The best plan, is to remove the fresh egg each day and substitute a nest egg; which should be a clear egg previously laid by some hen and discarded. The eggs will remain fertile four or five days after laying; but must be kept in a cool place and removed from the nest as soon as laid. These eggs are removed every day then, until she has finished laying from two to three, four, five or even six eggs; so that she may begin to set upon the entire lot on the same day; thereby, hatching her brood on the same day; about the same time. By this method, it will avoid her bringing out a bird per day, if the eggs are left in the nest; as each bird would be hatched according to the time the egg

was previously laid. Otherwise, she will continue from the beginning, after the first egg, to set upon it; she will set steadily until the entire brood is hatched, one by one; thereby neglecting to feed the first born; which may starve from inattention and neglect; since her whole energy is usually concentrated upon the unhatched eggs.

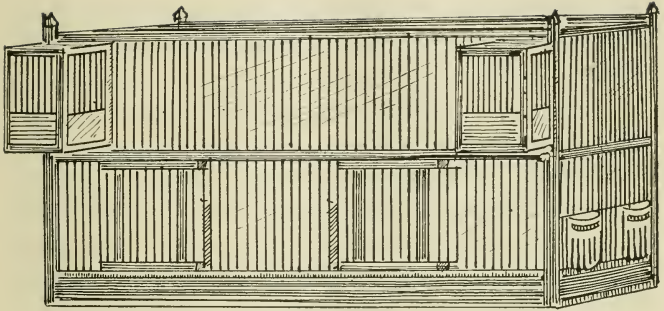
Removing the eggs daily is a good system, because if she should not prove to be a good brood hen, these eggs may be given to another hen. This plan of removing eggs is also recommended, because of the fact, that birds hatched at the same time, have an even chance of being fed, as they are of uniform strength and size. In cases of hens being allowed to set upon each egg as it is laid, she is liable to feed, as a rule, those birds which are first born and most insistent to be fed; being the older and stronger birds; to the neglect of younger and weaker nestlings.

The hen should normally hatch her brood in thirteen days; however, owing to weak parents or unduly thick and tough shells, birds may not be hatched until the fourteenth or fifteenth day. If on the sixteenth day, she has failed to bring out her young from the shells, the water test may be used, which consists of placing the eggs into luke warm water. If there are young birds in the shells the eggs will move about feebly; if not, the eggs will lie perfectly motionless in the water.

After the hen has been brooding five days, by holding the eggs up to the light, it can be ascertained if they are fertile or not. If they are fertile, the eggs will show a dark and heavy appearance; if clear, they will show light through the shells. The eggs should be handled with great care, since the shells are so thin and delicate, the breeder is liable to crush them between thumb and forefinger; hence, it is better and safer to use a teaspoon in removing eggs from a nest; except when making the water test or examining them as to fertility.

The male should be removed from the breeding cage, after the hen has laid the third egg; providing this male is to be used with other females. If not, and there are enough males for each female, it is better to leave the male in the breeding cage with the female and let them become permanently mated.

Better results will usually be obtained, by permanent mating; unless the male is a mean bird with nestlings; a bird which either eats or breaks eggs or kills young ones. Even such a bird is not entirely beyond redemption, if well bred and worth while, in other respects; either to be used as a teacher, or, if mated, carefully watched, by removing eggs the first thing after laying. If the male is to be used for more than one hatch or for more than one hen, two hours a day with each hen is sufficient, until the hen has laid the third egg.



A Breeding Cage with Nests

CHAPTER VI.

BREEDING

Some males have a habit of chasing the hen from the nest or continually tearing up the nest as fast as the hen makes it. Such a bird is either not ripe or ready or is unfit for breeding. The male which feeds and proves a good father is very helpful in a breeding cage; such birds do most of the feeding of young ones; they take care of the young birds, while the hen is brooding the second or third hatch. If the male is left in the cage after the third egg, the pair becomes permanently mated; to remove the male, after that period, might cause

the hen to leave her nest. If she should continue to call the male after his removal or answer his call, it is advisable to replace the male.

After the birds are hatched, the female should have a fresh, clean nest to avoid the vermin, which has usually collected during the brooding period. Sometimes, tar rope is placed in the bottom of the nesting material, to keep the vermin from breeding to excess in the nest or hiding in it; this method usually proves very advantageous. Some breeders dust the nest with insect powder, but great care must be observed in the use of powder, since it will nauseate some hens and cause them to leave their nests.

Sometimes, the hen will have egg trouble; which is commonly designated as "egg bound". She appears puffed up and sad looking; she will shiver as if pained with cramps. The stomach is swollen and inflamed; she does not eat much. This trouble is often due to eggs being too large or without a shell. The egg gut may not be in a healthy condition; the temperature in the breeding room may be too low; the female may be too weak, from lack of nourishing food, or from not having had a proper chance to eat for a long period before laying. All these are the most potent causes for this trouble.

Sometimes, eggs which appear occasionally too large for passage or with a double yolk or without

the outside shell, are due to lack of lime producing material, such as cuttle bone or egg shells, or lime substances from the walls of old buildings; or the hen did not properly digest them. Fat hens have this trouble often because their bowels cannot dissolve the lime material on account of too much uric acid. These hens either lay without any or too thin a shell. This may also happen if the egg gut is inflamed, and the discharge of the glands is abnormal. An egg without a shell, may cause the inflammation of the egg duct. These troubles are mostly due to lack of sufficient, well selected and proper nourishment; as well as the improper temperature of the breeding room; also, colds from draughts and indigestion. With due care in the preparation of hens for breeding season, these troubles may be avoided.

To assist a hen in such a condition, she may be taken in the left hand, laying her upon her back; then try carefully with the thumb and two fingers of the right hand, to push the egg out. Great care must be used. If the egg should be broken, the hen may die. At least, she will be of no further use, for that season, as the broken egg shell will rupture part of the egg gut. A mild injection of linseed into the laying duct, will give great relief. During the laying period, much of this trouble may be prevented by giving the hen sufficient laxative food.

Another method to relieve a hen in this condition, is to take her in a piece of red flannel and hold her over the steam of a kettle; using due care not to burn or scald her. This is probably the most effective treatment of all. Still another remedy is to permit drops of cold water to fall upon the abdomen. In some cases it may prove very effective; but the treatment is most too drastic. To alleviate a hen in this predicament, many breeders place the hen in a warm bed after she has strengthened herself by eating food.

Sometimes, a female presses out the egg duct by straining. This part swells up quickly and is sensitive and inflamed. It should be cooled and cleansed with cold water and gently pressed back with the point of the finger, dipped in lard. For a few days, she must have a short, but laxative ration. The hanging gut may also be bathed with a weak solution of warm oak bark and vinegar; then rinsed off with luke warm water, then dried, by patting it gently with soft material; the gut should then be powdered with rosin and gently manipulated back again. If properly rendered, it will probably not come out again.

One of the most troublesome maladies with which a brood hen may be afflicted is the sweat disease. It is sometimes due to a cold, or to indigestion; it may arise from a poorly ventilated nest. If a finger

is inserted under the feathers of the setting hen it will become wet. The nestlings whose feathers have also become wet and stick to their bodies as a result of this condition, invariably die; the old bird, usually dies from her suffering. It seldom develops however, to such an extent in a canary hatchery, that it cannot be cured or prevented. If a nest is thoroughly ventilated, there is small chance of sweating.

Birds have no sweat pores and should not perspire. This sickness is a disease combined with watery evacuations and retarded digestion; which may be the effect of a draft or feeding with heavy indigestible foods; sometimes, due also to heavy, coarse nesting material.

The watery droppings are such that the female cannot throw or carry them out; hence the nest becomes filthy and damp, not only do the belly feathers of the old bird, but the down on the nestlings also become wet. In consequence, the young birds freeze; usually stop opening their mouths and die; it would seem to be a form of pneumonia.

If this sickness is noticed in time, remove the egg food; give a mixture of canary, blue poppy and hemp seed; there should be ample warmth and fresh air. It is absolutely necessary, during the process of this malady, to completely change the nesting material; no soft food should be given.

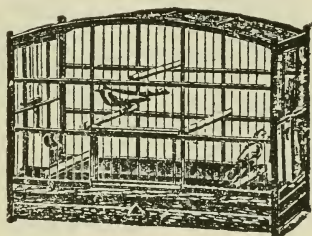
It is advisable to remove the male and place him in a separate compartment, near the hen. He will call and she will leave her nest to go to him; thereby giving her a chance to cool the nest and her feathers. It is essential, that the hen should leave her nest during this crisis to feed herself, instead of the male carrying food to her.

If ample lime and egg shells or the mortar material from old, torn down buildings, and a quantity of raw, fat bacon, or a piece of suet had been fastened between the bars of the cage about a fortnight before laying time, this disease might have been avoided.

The mother bird will begin to build a new nest after the young birds are about three weeks old. Another fresh nest should be given or the old one thoroughly cleansed and new nesting material put in. Then after she begins to build, the male must be put in, just as before. After twenty-eight days, the young ones are ready to be placed in a flying cage. Do not hurry this change until the young birds can feed themselves. It is a good sign to be guided by as to the fitness of young birds to care for themselves, when the tail begins to gavel.

While the female is brooding, she should not be given any egg food. Rape and canary seed mixed is the best, the safest and most satisfactory for a female while brooding.

The best time for breeding is about the first of May. It may be commenced in March, if the temperature of the breeding room is normal. Sexual desires begin in January and February. Males fly back and forth; they sing louder and sharper than usual; they call to the females in the midst of the song. Females pick up bits of thread and feathers and carry them around in their mouths looking for a place to build their nest. By the



Breeding Cage Without Nests.

plan of commencing to breed in May, the season may be continued up to the first of July; the months of July and August are too hot for breeding. It is not only a trying ordeal for the hen, during such hot weather, but it is the season of the year when the attacks of vermin are the most severe.

Breeding is conducted in four distinct ways; with their various advantages and obstacles; each dependent upon the taste, inclinations and environ-

ments of the breeder. These systems of breeding consist of the single hatch, changing hatch, company and flying hatch.

In the single hatch, one male and one female may be put into a breeding cage. The changing



Male Singing to Brooding Hen.

hatch means that one male is given to from three or four, or even five females; according to his strength and vitality. Under this system, the male only remains with a female about two hours daily; until the female has finally laid her third egg. By this plan the male always remains in full song; while the single hatch may weaken the males considerably; but his offspring is strong and healthy. In the changing hatch, males should be given three or four days rest to recuperate and preserve their

vitality, before being mated with another female; otherwise the eggs of the last hen mated with him may be clear or infertile.

For the flying hatch, no cages are needed. The breeding stock is left at liberty in a suitable room without any restraint. The nest boxes are hung up on the wall; long perches are arranged from side to side. The number of birds in the flying hatch depends upon the size of the room. For about thirty females ten males are necessary. Every female will pick out her nest box and keep it during the breeding season. The flying hatch is the simplest; it requires the least work; but the results are not always flattering. Birds fight too much; thereby injuring young ones and spoiling eggs. There is no chance in a flying hatch to keep pedigrees and necessarily inbreeding is the result.

For the company hatch large breeding cages are used; large enough for about three females and one male. The cage must be constructed in such a manner that partitions may be used. As one female lays her eggs she should be partitioned off from the others. As soon as the other females lay their eggs the male is taken out. This is not a very successful plan; since more than one female may wish to use the same nest; then a fight ensues; in consequence, the eggs are usually destroyed.

By far, the most successful and satisfactory is the single hatch; it always shows the best results. This system enables the breeder to accurately keep a pedigree of his birds and avoid inbreeding. If a pair does not mate happily, it is easy to change the male and try another. The breeding females under this plan, are not molested by one another.

The flying and company hatches are designed more for quantity; while the single and changing hatches are preferred more for quality breeding. The flying and company hatches are systems used more by professional breeders, who are more concerned with numbers than class; the single and changing hatches are the methods used mostly by genuine bird fanciers; those who take pride in the quality of their birds. The flying and company hatches are strictly of German origin; the single and changing, although imported, have been adopted more by the American breeders. These two hatches, have been chosen here to protect the pedigree and select crossing of stock to improve the breed of the roller.

During the breeding period, the hen should be given a bath occasionally as it freshens her up and softens the thin skin under the shell of her egg; making it easier for young birds to burst through. Many birds die in the shell; simply because they find

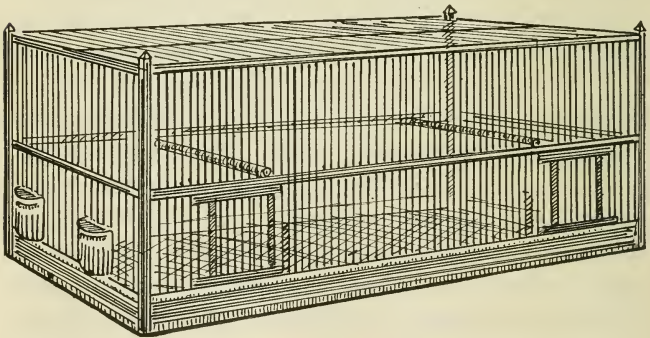
it impossible to burst through the tough dry skin. If the air in the breeding room is too dry, young birds are liable to die. Since the soft white skin, which covers the bird in the shell will shrink and prevent the bird from coming through. If the bird dies before breaking the shell, it is a sure sign, the bird was constitutionally too weak. This may be due to the poor physical condition of the male.

No strangers should be allowed into the breeding room; because the hen will become nervous and fretful. There should be no loud noise of any kind, while the hen is brooding; such as hammering or slamming of doors or the loud chugging of an automobile. This is liable to spoil the eggs. A clap of thunder may render eggs absolutely worthless, by killing the embryo in the shell. No one should approach the brooding hen abruptly or suddenly; the breeder must approach gently; it is better to chirp to the hen, to save unnecessary fright, since she is usually very nervous and susceptible to disturbance of any kind during this period. There should not be more than three hatches for each hen, to preserve the vitality of the stock; some breeders have been known to obtain as high as ten hatches from one hen.

After males have done duty during the breeding season, they should be separated and kept in a darkened room to preserve their good notes; little

egg food should be given them; occasionally, a little about twice a week. Too much egg food produces heat and sexual desire; their song then grows too loud.

After the breeding season, brood hens must be taken especial care of. They must be fed up and brought back from a weakened physical condition to normal strength and vitality. They should be placed in a flying cage with plenty of room; so that they can exercise and strengthen the members of their debilitated bodies. The straining ordeal



Flying Cage.

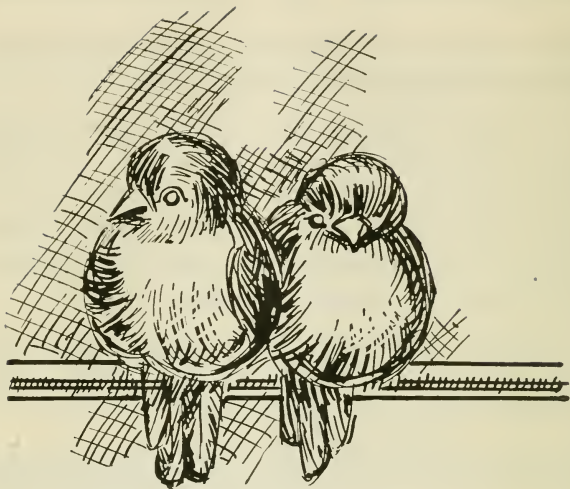
through which they have passed, necessarily, has taken much from their vitality. With proper care, there is no reason why a brood hen should not continue successfully to produce and rear young ones for a period of four or five years. Their success

in this respect, will depend upon the judgment, kindness and appreciation of the breeder.

A well ventilated attic can be made into a splendid flying hatch and breeding room; as there is less noise and disturbance there. The floor of such a room must be tight to prevent the annoyance of mice. It might also be white-washed to minimize and prevent the increase of vermin.

Not too many birds should be placed into a flying cage, since they cannot acquire the necessary room and vitality through flying.





Nestlings.

CHAPTER VII

NESTLINGS

On the first day, after young birds come from the shell, the hen does not necessarily have to feed them. There was enough substance in the yolk in the shell, to keep the young ones alive twenty-four hours. However, it is necessary, that the mother should feed them on the second day. The breeder should watch the crop of the nestlings to see if it is

full; to determine whether the hen is feeding or not. If she does not, the breeder must help her feed them. This food must consist of egg food. Sometimes, after help, in a few days, the mother will start to feed.

To help her, take the egg food as described in the previous chapter and make a thin paste; this should be mixed with the substance from the leaves of spinach mashed fine; this may be prepared to a proper temperature and thinness by adding lukewarm water. The feeding may be accomplished by using a wooden stick, dull at the end, made pliable by chewing it or a fine hair brush may be used. Feed the young birds in this manner, until the crops are full. Repeat this process every two hours.

The stomach of young birds is a thin, delicate, membranous sack; it could not assimilate or digest anything but the softest and most readily digested food. Therefore, this paste must not only contain proper chemical ingredients, but must be made with a view to easy digestion. When the paste is properly made, it may also be injected into the crop with a medicine dropper. One egg is enough, mixed with zwiebach, to feed twenty nestlings for four hours, when it should be changed.

If the mother bird does not feed after the third or fourth day, then place these nestlings into a nest of some good foster mother; a female which is

known to feed. A good father will not only feed the young while the hen is brooding, but will also feed her. It is fortunate, if the breeder has several hens brooding at the same time. In order for the neglected nestlings to receive assistance of this kind, the young birds must be of uniform size and age to nestlings of the foster hen. If the nestlings are three or four days old, when the last ones are hatched, the latter will be overlooked and starve. Some hens are not so particular about feeding the young of other hens as to the exact size or age of adopted young ones, compared to their own.

Sometimes hens do not feed because they are too fat and lazy. Oft times, they have been improperly fed or are not in good healthy condition. Hens will sometimes refuse to feed when not satisfied with their surroundings; when they are not used to the place; when there is too much noise in the houses of neighbors; if too many people pass in and out of the breeding room; or if she is descended from poor stock; also, when she has been frightened by a mouse. If she should be too fat and lazy, she must be chased from the nest to make her feed.

Young birds artificially raised, as a rule, do not mature healthy and strong. It is impossible, with the assistance of any food, to equal or imitate that of the mother hen. After all, the chemical mixture, composed of the digested food and saliva of the hen,

containing the proper chemical material for the stomach of a nestling, cannot be duplicated by man; it is difficult to produce in equal proportions the necessary substance or material to properly nourish the nestling. There are some especially prepared egg foods highly recommended by breeders, which have been fairly successful in raising neglected young birds; most of them contain a portion of spinach.

The young birds, if healthy, will show a pink, fleshy color; the insides of their beaks should be blood red. In a day or two, when normal and healthy, they should be covered with a fine, white down. If properly fed and nourished, they grow rapidly. Otherwise, or if pestered with vermin, they appear pale, bloodless, insipid and weak. If not well fed or bothered with vermin, young birds will always be weaklings; hence poor stock for breeding.

One of the clear eggs, from some previous nest, should be kept under the mother until the nestlings are about seven days old, to keep her from setting too tight on the nestlings and injuring them; also it will give nestlings more room. This system will protect the young ones from being crippled; because when a hen sets too tight she is liable to break the wing or the leg of a young bird; or permanently deform young birds.

Small leg bands are placed upon the legs of rollers, made of light aluminum, sometimes, plain and sometimes of many colors; the plain ones are preferable. They bear the initials of the bird family or ancestors to which the youngsters belong and the breeder; to accurately identify the parentage and producer. These should be placed on the leg, after the young bird is old enough to throw his excrement over the top of the nest; when they are eight or nine days old. If they are placed on before this, the mother, which usually cleans the nest of filth, may pick at the rings on the leg of a nestling thereby crippling it. These rings may be open or closed; the open rings may be placed upon the leg later on but the closed ring is placed on the leg to remain permanently and can only be removed by filing or cutting it off. The closed rings are usually the marks of identification of some experienced breeder or society to which the breeder is a member.

These class bands should be placed upon the leg of a nestling with a great deal of care; by some one who thoroughly understands how it should be done to avoid crippling the young bird. In order to successfully accomplish this feat, place the bird in the left hand; lay him on his back; hold the three front claws together securely, with thumb and forefinger; then slip the band, with your right hand, over the three claws; then gently bend the hind claw

backwards and push the band back until it slips over.

A light should be kept in the breeding room, during the brooding time and after the nestlings are hatched, until about ten o'clock; to enable the hen to see the young ones or get off for food; since they do not feed in the dark.

Later on, the egg food may be mixed with a portion of crushed rape seed; the addition of the substance of finely chopped spinach leaves, is very nourishing. This is not only helpful to the nestling, but is easily digested and quickly turned into feeding. Crushed rape seed, moistened with the yolk of an egg, when given the proper temperature, makes nourishing paste. The mother hen when fed only on seed, is compelled to partially digest the grain and disgorge it into the gullet of the offspring; this is rather difficult. Unless, she is therefore properly fed with soft food, the young ones are liable not to have sufficient food to support them. It is necessary however, for young fledglings to also have a portion of grain; since it is essential to produce bone and sinew; although the parent birds prefer the soft food. The partially digested seed is far more strengthening and health giving. It is well then, to remove the soft food at night, so that parent birds will feed

some grain; but early next morning the soft food must be placed into the cage again.

Young birds are often weakened after the feathers begin to sprout, by the hen picking these out to build with; sometimes, the male does this to provide material for a new nest. Through the loss of blood, strength and energy, required to grow new feathers, young birds remain weaklings for the rest of their lives. When this is observed, the breeder should remove the young birds from the breeding cage and place them in a separate compartment, so that the mother can feed them through the bars of the other cage; she is then unable to reach the feathers. Outside nest boxes are useful in such emergencies. If the young ones are placed in a separate cage, she will not let them starve. If the male is a good father, he may be placed in the cage with the nestlings; if a good bird, this is the better plan.

After about twelve days, when the mother ceases to set steadily on the young ones, the temperature is very important. Care should be taken that the nestlings are not too cold.

After the young birds are about twenty-two days old, they should be given first rape seed mixed with egg food, because they will now commence to feed themselves; their bills are too weak to peel the

shell from the rape seed. After twenty-eight days, they will eat alone. After this, they should be put into a large flying cage to enable them to fly around and grow strong. They should not be removed however, until the tail feathers have grown long enough to gavel at the ends. The opportunity to fly, for either young or old birds, is almost as beneficial as nourishing food. Many failures in breeding are due to the need of sufficient facilities for breeding birds.

There should not be more than ten or twelve young birds placed in a cage thirty six inches long, fourteen inches wide and twelve inches high. They should have ample room to fly in. When too many youngsters are placed in one cage, they usually fight and pick feathers from one another; also, some epidemic or contagious disease might break out, if they are too thickly crowded together. When young birds have insufficient room for health and strength, it deprives them of the necessary vitality and nourishment for either song or breeding. To prevent young birds from picking feathers from one another, pieces of rope or string may be arranged to attract their attention, by tying the same to the bars of the cage; this method has proved successful, as it offers something to play with. If there are any birds with bare spots, they also seem to offer a target for the others to pick at. Frequently, there is some spe-

cial offender which delights in picking feathers from other birds. Both the bird with the bare spot and the one which continually attacks his associates ought to be removed and placed in a separate cage; the one, to recover his feathers and the other to outgrow his habit. Otherwise, the blood taken from the shafts of feathers of young birds being sweet, offers an inducement to continue the habit of the bird which is a feather picker; it is also very weakening to the victim.

When about six weeks old, the young birds begin to moult; they lose the small feathers only at this period. When they have finished this moult, the young males should then be placed in small roller cages, about nine inches long, seven inches deep and six inches high, to begin their song training.

It sometimes requires an experienced eye to determine the sex of a young bird. Yellow or checked males are easily distinguished; they are brighter and of higher color than females. Green males are not so quickly distinguished, as they resemble the female in color and markings closely. As a rule, male canaries have a far richer, yellow color, encircling the eyes and beak; the head, back and breast are more than apt to contain patches of straw yellow; females are of a much lighter hue. The head of the male bird is broader and flatter on

the crown than the female; the body is more slender, although the head has a larger, squarer and altogether harder look about it; the eyes are also brighter and more bold looking. The crown of the head of a female is usually high and rounded; the color is usually dull or "mealy". However, when the young birds commence to study and attempt to sing, all males may be easily identified by their swelling throats. If it's throat swells while singing, it is a male without doubt. Some females also sing; as a rule at the end of the breeding season; their song is short, usually disconnected and more of a twitter.

If the male bird fights the young ones, the young birds should be removed, until the male has a chance to perform his service with the hen for about two hours, then the male should be removed and the young birds put back again. Continue this method every day until the female has laid three eggs. During this process she will feed her offspring steadily; but when she starts breeding again, she will not feed any more. The young birds by this time can eat alone, being about four weeks old. Egg food is given once a day, for a week; after that, only once every other day; after two weeks, only twice a week; they get over the first moult in about three weeks; they should remain in a flying cage about three months.

The nesting material should be changed quite often; then the old nest box should be placed in boiling water; colored with black carbolic; entire new nesting material should be given; which should correspond, as nearly as possible to the old, as the hen sometimes, is very fastidious about its arrangement. This plan will insure against the annoyance and destruction of vermin. Whenever this change is made, the new nest should be ready; no time should be lost or the hen inconvenienced or annoyed or unnecessarily disturbed.

As soon as the young birds are out of the shell, not only should egg food be plentifully supplied, but fresh nesting material given. Thistle seed and apple are also helpful to cause the hen to feed. The egg food should be changed often and the egg cup thoroughly cleansed; especially, in hot weather, to prevent the egg from becoming sour and fermenting; otherwise, this might cause the death of an entire nest.

Mixed seed should at all times be plentifully supplied, so that the mother may select from a variety. This will stimulate and encourage feeding during the breeding season.

The nestlings must be watched often to see that they do not fall to the bottom of the cage or get there too soon before they are able to fly or that the old bird does not accidentally throw them out.

If that should happen, they must be put back as soon as possible. If they should lie too long on the bottom of the cold cage, they might have a small chance of recovery. Even if put back sometimes, this undue exposure may impair their growth and health; this may continue until and even after maturity. The female has neither the strength nor intelligence to replace them.

The longer young birds remain in the nest, subject to the care of the mother hen, the healthier and stronger they become. If removed too soon, they often die. The majority of young birds leave the nest when about eighteen days old; but it is preferable if they remain there until they are twenty one days old; those which remain, as a rule, develop faster and healthier.

If the female wishes to build a new nest, before the young birds have left the nest, if not prepared before, another nest box should be attached to the cage on the other side; she must then receive plenty of nest building material to prevent her from preying upon the feathers of her young ones. Sometimes, she will, for this purpose, if not plentifully supplied with nesting material, snatch feathers from the male bird, if with her, or even from her own feathers.

One of the most dangerous maladies which confronts a breeder, is the contagious inflammation of

the bowels of nestlings. In this condition, the abdomen appears brown up, the breast caves in, the intestines are swollen and appear black, knotted and twisted. In the beginning, nestlings appear to thrive and get along nicely; they have full crops and start to feather up. Suddenly, one nestling after another, loses it's feathers, breathes slower, is afflicted with cramps and in a few days, the whole nest is lost. During the process of this fatal malady, the stool of the young bird is greenish black in color; the dead very soon decay. This sickness is of an epidemic character.

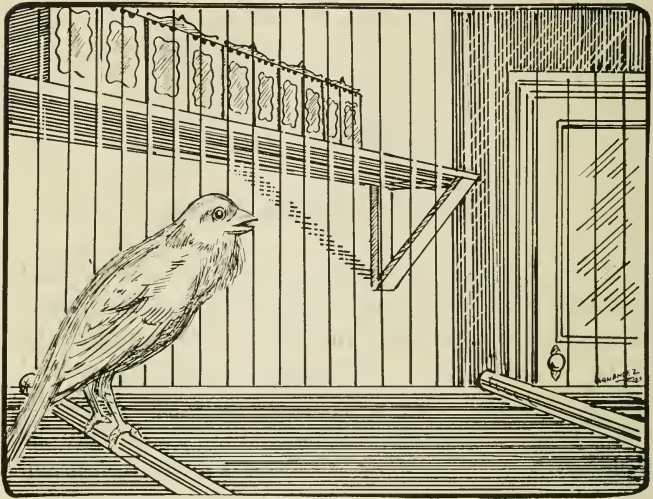
The causes are the putting into the heck, birds afflicted with liver disease; too much crowding in the breeding room; too low a temperature in the room; sometimes, loose fastenings on the windows, which permit sharp drafts to enter; also giving too much soaked food. There is hardly any reliable cure for this malady. However, the breeder can readily avoid the origin, source and conditions which produce such fatal results; by preventing the above mentioned causes; being forewarned is to be forearmed.



CHAPTER VIII.

TRAINING YOUNG BIRDS

The song of young birds will principally depend upon their breeding; they usually inherit the talent essential to fine melody; in proportion to the quality of their ancestors. But this is only a potential possibility; their success or greatness as songsters, must depend upon their musical tuition; it must be received from a competent teacher; which is known as a vorsinger. A vorsinger is the college education of young birds. Their powers of inherited imitation, are very acute. They are just as liable to imitate and acquire the call of mating males and females, the chirp of a sparrow, or the cry of the cricket, as the melody of the most gifted vorsinger; hence the absolute necessity of placing the young males in a segregated position, where they can hear only their teacher. This teacher should be an excellently chosen, fine singing bird; with few, if any loud or false notes. The vorsinger should be of the same or similar stock as the young male, if possible. If such a bird can be secured, better results may be obtained.



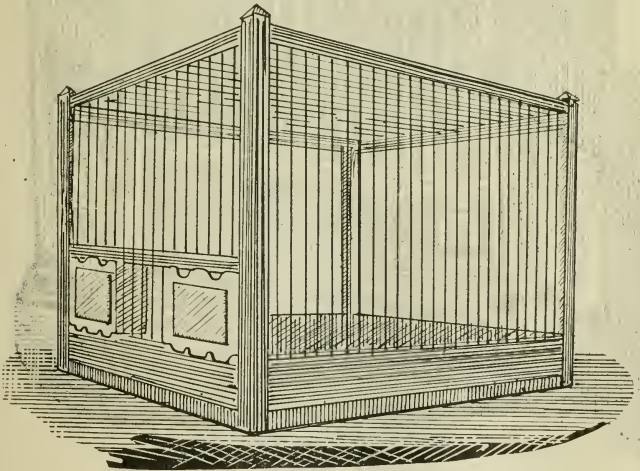
A Vorsinger; the real teacher.

The young birds should be placed on a shelf, near this teacher or vorsinger. The better and higher quality the vorsinger is, the better singing results will be obtained from the young birds. They will pretty accurately reflect the shadow of their teacher; especially, if he is of the same strain; since the apple never falls far from the tree. It is far better, that the young rollers and their teacher should be in a separate room; beyond hearing distance of calling males and females. Hearing the call of mating males and females, which usually are in a loud and

boisterous tone, exerts an evil influence. Such sounds not only distract the attention of studying males, but usually are more easily acquired and copied than the pure tones of the vorsinger.

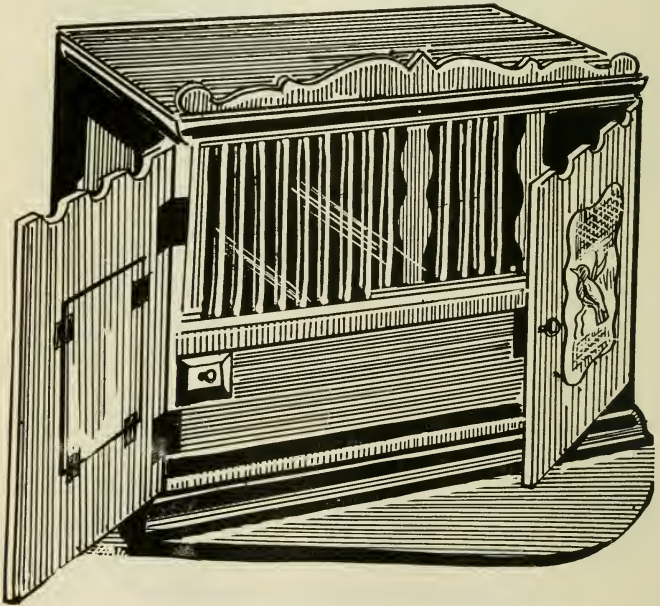
The teacher should be selected from the very best attainable; even if he should command a high price. For the wonderful effect and influence of a good vorsinger upon the young males, price should be of small consideration; even if he is expensive, it will be cheaper in the end. After all, the highest is the cheapest, if the quality is the best.

In the month of September, after flying for a period of three months, breeders usually remove



Training Cage.

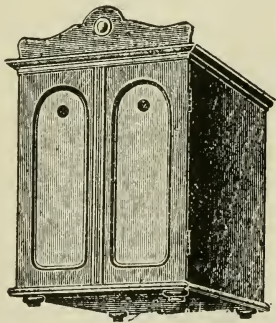
young birds from the large flying cage to the roller boxes; a small cage about nine inches long, seven inches wide and six inches high. The young males will soon get used to this cage. The object of the small cage is to compel young males to confine their talents to learning to sing; to cease their trifling and play. Breeders gradually commence to darken this small cage an hour or so at a time. This may be done,



Study Cabinet (open)

by placing a number of young birds upon a shelf, in a row; then covering them with a dark green cloth; or the small cage may be placed in a roller cabinet; this is a dark outer covering for the cage; with holes cut in the front, to admit some air and light. This box is so constructed to about fit the small cage. A cabinet holding six or eight roller cages may be built from an oblong box, upright, with doors made at each side, to close even, then placing the two halves upon hinges; in such a manner, that the two doors close in front like a wardrobe; with holes cut out for light and air. It is a simple contrivance and can be made by any one. A cabinet of this construction can be easily cleansed with soap and hot water to remove vermin.

This darkening process is an absolute necessity; to give the young birds an opportunity to study.



Study Cabinet (closed)

Even with the most select stock, no bird will correctly learn his tours or become a great singer without both the darkening process and the assistance of a good vorsinger. The vorsinger is the master mind of the young bird; he teaches him his choicest melodies. He must be chosen because of the superiority of his tours; the more perfect he is, the better his pupils must be. Neither can a roller become a show bird if exposed at all times to the light or without complete darkness. If permitted to remain too much in the open light, an excellent bird chosen from the most select stock must eventually become a common singer. During the training season, birds with sharp or improper notes must also be removed beyond hearing of young birds.

The vorsinger should possess deep, clear, soft, full notes; he should be a constant singer and placed in such a position, where he can neither see or be seen by the young males. His song should be composed, if possible, principally, of the Knorre, Hohlrolle, the Wasserrolle, the Schockel, the Flute, and the Bell Rolle. With such an instructor, the success of the young males, if their breeding is of good stock, is well assured. There are birds, which may have some of the above good tours, that should be declined as vorsingers, because they produce the "di pfeifen" or "di pipes" and a loud klingel. With all things considered, the vorsinger, which brings his melody, in soft, low, changing tours. usually with

bill closed, is the one to be most desired. For well assured success, such a bird is indispensable to the man who trains young rollers; but a bird of this calibre is not only rare but difficult to procure.

To preserve a vorsinger and obtain from him the choicest melody he should not be mated; but kept for that purpose alone; mating him is liable to produce loud music. He should be kept apart until needed, where he will not be unduly excited by hearing the call of females in season. Once a good singer is spoiled, he hardly ever regains his good harmony. Therefore, the breeder should see to it that one or two good vorsingers should be kept in reserve; that their moulting period does not conflict with their readiness and condition to teach young birds at the proper time.

The months of October and November are the most important of the roller breeders' seasons for training young males, and for bird contests, as this is the time they come into full song. This is the period, to prepare young birds to receive proper tuition, with the utmost care. They are prepared at this time for the annual bird shows, which are usually held during the month of December.

Many of the breeders are members of bird organizations which hold these exhibitions; in which birds are rated according to the merits of their tours. They are judged in sets of four. Each contestant

brings a quartette representing four of his best birds; each bird gets his rating according to the number and quality of tours he sings. The highest rating, is thirty-two points. If a contestant secures between twenty-three and thirty-two points, he receives a blue ribbon; if under that, between fourteen and twenty-two points, a red ribbon. Some breeders succeed occasionally, in having a blue ribbon attached to each of the cages of their four birds. If a bird receives between six and thirteen points, he earns a third prize; but nothing between one and five points.

These annual exhibitions, with song contests, are designed to give members only, an opportunity to compare the merits of their birds with those of other breeders. These trials are keenly contested; the rivalry is very strong. The birds are usually well prepared; perchance, they have received a thorough preparation.

Judges, who are experts, are chosen to decide the various tours of the contestants. As a rule, they are men of long experience, whose hearing is very acute in identifying and distinguishing both genuine and defective tours. The birds to be judged are taken to a separate room; no one is allowed to enter, except the judges, during the judging, not even the exhibitors. Each bird is rated so many points in proportion to the class, number and quality of the tours, and the manner in which he brings them. He

may also be penalized with demerits for faulty tours. Birds are disqualified which bring false notes; also, those which stop short, but begin again, without carrying the tour to an end. Birds which have fine repertoires, but whose connections or blending of different tours are not well made; those which sing with too much exertion or make call notes during their tours; or if hoarse or indistinct; or if the bill is open too widely in delivering tours; or if he shakes or quivers to an unusual extent, he is either disqualified or penalized according to the nature and extent of his failure.

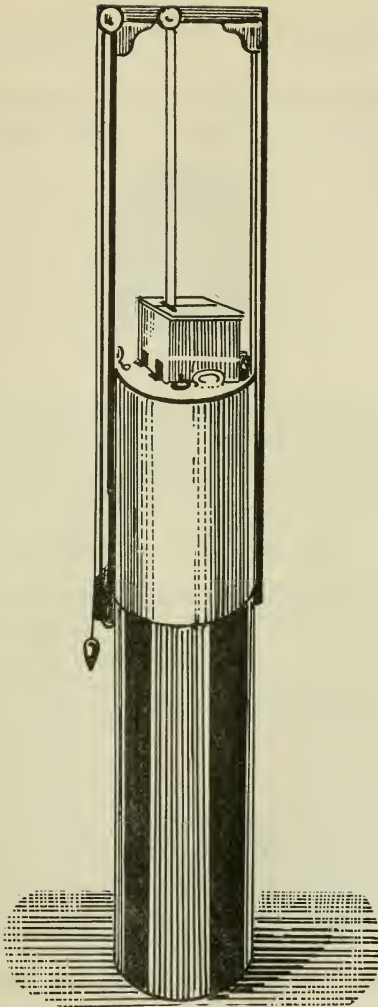
The tours known as the Hohlrolle, Koller and Knorre receive the highest marks; each one of which receives nine points. A bird may be penalized nine points which brings the Schnetter and Schnatter and six points for the Schnarr and Nose Tours. A bird of the thirty-two point class must be considered perfect. Not many birds are capable of earning this full award. Gold and silver medals, silver cups and lithographed diplomas embossed in fancy colors, are given the winners of the different classes.

Birds in preparation for this contest must be kept well darkened, quite a period before the contests; except for an hour or so at a time. The inexperienced bird fancier might remark that this is cruel treatment. However, the roller thrives in semi-darkness and seems to accept his training ordeal as a mere matter of experience. In their

training, the bird candidates are changed occasionally, to different parts of the house, to accustom them to new and strange surroundings. They are also permitted to see strangers to prevent them from being afraid, nervous and uneasy, when stared at by spectators or taken to their contest in the judges' room. They are fed during this preparation upon select rape seed and a small quantity of canary seed; once a week, a few corns of hemp and every day a small quantity of egg and zweibach mixed. The day before the exhibition, they must be kept as quiet and dark as possible. By this method, when they are uncovered for judging, they immediately begin to sing.

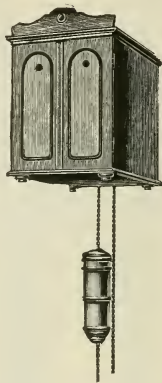
Young male birds commence to study even before the first moult at about six weeks of age. Their training, prior to this, is not considered of the utmost importance; as they are liable to forget a part of what was acquired before that period. But the real training begins as the first moult terminates.

In Germany, several bird organs have been invented for the teaching of young birds. The principal organ is made with two round, sheet iron cylinders, one inside the other; in the lower compartment, there is a quantity of water. This organ is adjusted in such manner, by pulleys and weights, so as to cause the upper portion to gradually settle downwards; the air being slowly expelled through a whistle; which produces numerous variations of



Bird Organ.

tone and melody. The whistle is so constructed, that it produces a great variety of notes.

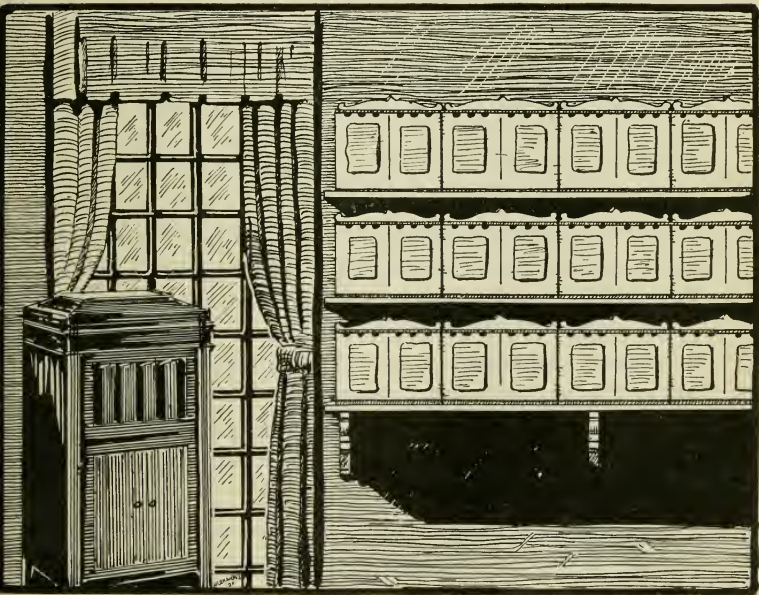


Latest German Bird Organ.

German breeders have claimed great credit for the success of their bird organs; many varieties of small mouth whistles, filled with water, have also been constructed by breeders to produce melody; successful in proportion to the inventive genius and mechanism of the breeder. Young birds are easily aroused to enthusiasm by the harmony of the flute, piano and organ. They seem to prefer violin records upon the victrola; the effect of well chosen victrola music, whether a violin or flute is certainly beneficial; it stirs the youngsters to try their choicest melodies.

In former years, the training of young male rollers was greatly influenced by the song of the

lark, nightingale and thrush. Then the best singers of the canaries were selected to breed from; until this wonderful melody of the roller was established. While many devices and inventions of musical instruments, and the songs of other birds have been used to teach the young roller, no system has ever yet equalled the remarkable influence and success of to-day of a thoroughly good vorsinger, the natural melody of his ancestors.



Young Rollers Listening to Low Violin and Flute Records.

CHAPTER IX.

TOURS

The reputation of a breeder depends upon the melody and quality of his singing birds. To be successful, it is necessary for every breeder to thoroughly familiarize himself with the tours of the roller. Unless his ear is educated to the distinction of tours, so that he can separate and distinguish the good from the bad, his breeding for quality birds must be a failure. He must acquire a fine sense of sound discrimination. The ordinary observer, inexperienced and unacquainted with the melody of the roller, is unable to distinguish the counterfeit from the genuine tour; to him all tours sound alike; he hears a whole inseparable song; he knows, that the bird only sings his song in higher and lower tones; some of them sounding very nice, while others do not. But with the breeder, experience must teach him the nicety of distinction between melody and noise

There are certain indispensable principles observed in roller tones, which are as fixed as the planets. A bird, no matter how well he renders a tour, must not hold it too long. This is one of

the first principles a breeder must learn in the preparation of his birds for the exhibition. He must further learn, that a prima bird should begin his tour with a nice, easy roll, ascending and descending with smooth connections; it must be soft and low; most of his harmony being sung with his bill closed. The rendition or process of delivery must depend upon the manner in which he blends his tours together. A show bird may also start his tour with a fine Pfeifen; it may be either deep or high, soft or low; but it must be clear and bell like. The principal part of a prima singer is the Knorre or bass roll. The bird with the deep tones, other things being equal, is the most valuable. After the Knorre and water roll, properly rendered, all other parts of his tour might be called the trimmings.

Birds differ not only in the quality, but in the individual characteristics of their vocal attainments. Personality, in the conception, interpretation, and delivery of a bird's melody, depends upon it's breeding and training. The roller, similar to human beings, may be endowed with a fine medium or bass voice. The difference in compass and register of roller voices, may be a very marked contrast; some birds singing much higher and lower than others: some birds confining their melody to sweet, low music, while others predominate in the depth of a heavy bass roll. You might distinguish the high tenor with the Pfeifen; the soprano with his bell

tours; the contralto with the hollowrolle; the bass, with his Knorre. A good bird may have some tones in all of these registers; such a bird would be extremely rare; but the roller with a deep Knorre, does not usually prefer the high register; nor does the bird with the fine voice favor the deep register. The softer, deeper and sweeter his tones, with a slow deliberate delivery, is the more preferable and valuable bird.

It is necessary for a quality bird to have the Hohlrolle or bass roll. In cases where the Hohlrolle appears in different registers, ascending and descending, or even bent, and the song is soft, without glaring fault—, here then you have a prima songster. A bird could be a first class songster without the Pfeifen, when he has roll tours, but he could hardly be a first class bird, with only the Pfeifen without the Knorre or bass roll.

The voice of the roller is formed in the syrinx and not in the larynx, as is more popularly believed. The back portion of the syrinx of a song bird, resembles a peculiar, hollow chamber, covered with a thin elastic membrane; the air from the lungs, just as in a wind instrument, starts the elastic membranes vibrating; this gives rise to musical notes or harmony. The class or quality of this melody is determined by the tension regulated by the contraction or enlargement of the muscles. In this manner, the

voice is modified with soft or low, loud or shrill, deep or high song. The construction and system of this vocal apparatus, bears a remarkable resemblance to certain wind instruments; the method of procedure in producing harmony upon the cornet, flute and piccolo, is similar to the system used by the song bird. With such delicate organs, in the production of melody, it is absolutely necessary that the entire pulmonary system of the songster must be clear and pure, to obtain it's best efforts. The voices of wild birds, serve to express various emotions, such as distress, fear, anger, triumph or mere happiness; sometimes to excite terror.

The Hohlrolle, soft, as well as full and deep, should be sung with the bill closed. If this tour is started in a deep voice, then gradually ascending higher and higher, then gently descending again, it produces a wonderful effect. The tones should be formed in and emanate from the throat. This method is the very best evidence of the roller's breeding and cultivation; it is the very essence and foundation of good roller singing. But different birds in different parts of the country, influenced, no doubt, by different blood strains, render the same tours differently. It depends upon the breeding and training of young birds, as to the quality and class of melody they produce.

There are many classifications of the number and nomenclature of the tours; but there are pro-

bably eleven main tours. Extra tours have been created in the imagination of different breeders. These classifications have developed often in different localities and designated as separate tours when they are but slight variations from the eleven main tours.

The main tours which now comprise the whole song of the roller, are Hohlrolle, Hohlklinge, Schöckle, Knorre, or bass roll, Klingel, Klingel roll, Koller, Wasserrolle, Glücke, Pfeifen, Schwirrie. The Koller bird, which used to be raised with such care, is practically extinct. All breeders claim it is very rare to hear a bird now sing with this tour; only birds of the highest quality produced it; it is contended by some, that this note is extinct. It is positively asserted, that in America we have no bird which can successfully bring this tour to perfection. Also, birds with the genuine Wasserrolle and Glücke when properly rendered, are seldom met with. In earlier years, the above named tours were greatly added to and even multiplied by breeders who let their fancy run riot. This incessant multiplication of tours, was due to the anxiety of breeders, to achieve renown in producing a new tour. In consequence of which, a great variation of tours was invented. One often heard of the "heue", "lach", "wein", "weiher", "hengst", and the "frog rolle"; they were but slight variations from the basic tours. Now these variations are not recognized or distin-

guished as individual tours. If we seek to make extra classifications one might find excellent opportunity in the observation of the Hohlrolle; such as the bent Hohlrolle, translated Hohlrolle or the one, two, three, four variations of ascending and descending Hohlrolles.

However, without the Hohlrolle, Knorre or Wasserrolle, no good, quality roller song can be sung. It depends on how long a bird sings the Hohlrolle tour. Short Hohlrolle cannot be judged very high; the longer it is delivered, the better it is. The climbing and falling Hohlrolle is far more valuable than the straight; it must be delivered with the bill closed; only the throat must swell up. Its perfect rendition is the very essence of good harmony. The R is the characteristic mark of every roll tour; but it must be neither harsh nor loud; it must be full, clear and soft; the R must be plainly, but softly discerned. If it is delivered too hard or rasping, the Hohlrolle loses in value.

The perfect Hohlklingel which has been met with in late years to some extent, was taken originally from the deep Hohlrolle. Through the straining of birds for deeper Hohlrolle they began eventually to produce a deeper klingel. The Hohlklingel, is not only highly essential, but is one of the prettiest tours of the roller song.

To the famous tours of the roller belongs the Knorre; which furnishes the bass for the roller song. Real good Knorre should start on Knorr or better still on Quorr; without stop, with a full, round voice carried through. But if out of the Knorr or Quorr, it goes into a Knarr or Quarr, the value of the tone is very much lessened.

As sweet and impressive as the Knorre is, it must not become the main tour of the roller song. As a whole tour, it would detract from the general effect of a bird's melody. It must be used only as a connecting tour; to blend the bass, soprano or tenor of his tones; which produces a far better effect. The vowels of this tour are O and U, connected with the R. It may be either a hard, loose, flat or dry Knorre; it is classified in accordance with the number of vowels and consonants used.

Out of the Klingel, comes the most tours of the roller song. In earlier years, much praise was given to a good Klingel bird. To become effective, a genuine Klingel should be sung in a clear, bell like tone; a bent Klingel is impossible. This tour can ascend and may be changed by the bird falling into one tone deeper; then starting to ascend again. The Klingel roll is produced in a quicker tempo; it is quite similar to the Hohlrolle; it can be made to ascend or descend; in fact, it is nearest to the Hohlrolle in relationship.

The Koller was probably the queen of all song tours; it was said to be one of the sweetest and rarest of all the tours. While this tour may be said to be almost extinct, it is possible by select breeding to revive it again.

The Wasserrolle is easily distinguished; it takes the name after the sound of splashing water; no tour is really complete without it; it is almost the foundation tour of the roller.

The Glücke is something on the style of the water roll; but the notes are rendered in a slower tempo.

The Pfeifen is a clear, mellow, bell like tour. If the water roll is the foundation of the house, the Pfeifen is the trimming. It is really the interesting and entertaining part of the song. It is also useful as rest pauses. This tour is usually sung when another tour is ended and a new one about to start; if the bird is not using it to blend or connect with other tours for it's song. The quieter and slower it is sung, the more valuable it is. But the roller must not use the Pfeifen more than three or four times. It is better when sung in low deep tones, dü, du, dau; not so good when higher as ti, tü, tu. The dow, dow flute is the best; the di, di flute is defective; especially when it is sharp. The latter are sometimes referred to as the "di pipes" and will cause any

breeder to shun a bird using them as a teacher; such a vorsinger, with this evil influence, might spoil a room full of studying males.

The prima bird always uses his consonants to blend and modulate his song; but the vowels are the substantial material for his repertoire; the consonants are the wood work of the construction; the vowels are the stone foundation.

The Schwirrie is nothing more nor less than a wrecked Klingel roll in the nature of an accident tour; therefore it is often called "Lispelroll". This tour sounds like si, si. But the name Schwirrie is the right name.

There are many defective and faulty tours which may spoil the best songster. The Schnatter, Schnarre, Schnetter, Aufzug, are defective tours. They are composed of faulty and tangled up notes. They lessen the value of even otherwise good birds to a great extent. If bad enough the above defective tours or bad notes may destroy the usefulness of any bird. The Sharp Bell, Hard and Sharp Bell Roll, Sharp Flutes, Hard Schwirrie are false notes which earn a penalty; such defects not only disqualify a bird from the possibility of exhibition, if bad enough, and detract from his personal value, but render him absolutely unfit, where other young birds may hear him.

It is generally agreed, that a prima bird to have serious consideration, for class and quality, must have at least three main tours. The Knorre or Hohlrolle has the preference. The more good tours a bird sings, as a matter of course, the more valuable he is; the more bad ones he brings, the less valuable. One singer cannot bring all the good tours. It would be impossible to combine them all in one song. The deeper, sweeter and softer he renders his tours, the more valuable; also, the louder and more harsh he delivers his song, the less valuable.

There are also other bad tours, while well meant, are poorly executed. These are as defective and harmful in the estimation of song value as tours which are emphatically forbidden; such as the sharp bell, strong Schwirrie, loud and sharp flute notes; also rasping nasal tones are strictly prohibited. Of course, the more of these the roller sings, the less service he can render either as a teacher or show bird. Entirely faultless singers are very scarce; also, defective songsters are plentiful. When a roller has a deep, clear sounding voice, a few little faults do not matter. He may even sing one or two bad notes, if otherwise endowed with perfect tours. But if a bird with higher vocal tones should bring them, they are more easily detected. Such a bird is of no value to the experienced bird fancier. He not only becomes harmful to studying young males, he may even spoil a season's hatch.

When a good note is missing in the stock of a breeder, he should get a bird from a fellow breeder which produces that tone to improve and increase the variety of tours in his breeding establishment.

The following list of tours, consisting of merit and demerit tours, as accepted and classified by some of the orthodox bird societies, with their percentage of ratings at exhibitions, are given below:

Merit Tours: ...

Hollow Roll (Hohlrolle)	to 9 Points
Hollow Bell (Hohlklingel)	to 6 Points
Shockle (Schockel)	to 6 Points
Flute (Pfeifen)	to 6 Points
Knarrow (Knorre)	to 9 Points
Bell Roll (Klingelrolle)	to 3 Points
Bell (Klingel)	to 3 Points
Soft Shwirr (Weiche Schwirre)	to 1 Point
Water Roll (Wasserrolle)	to 6 Points
Gluck (Glucken)	to 6 Points
Koller (Koller)	to 9 Points
Delivery and Harmony of Songs (Vortrag)	to 3 Points
Total Points for Valuable Notes (Zusammen Bewertungspunkte)	

Demerit Tours:

Sharp Bell (Spitze Klingel)	to 3 Points
Hard and Sharp Bell Roll (Harte und Scharfe Klingelrolle)	to 3 Points
Slurr (Aufzug)	to 3 Points
Sharp Flutes (Scharfe und Spitze Pfeifen)	to 3 Points
Hard Shwirr (Harte Schwirre)	to 3 Points
Nose Tours (Nasenturen)	to 6 Points
Shnarr (Schnarre)	to 6 Points
Shnetter and Shnatter	to 9 Points
Total Points for False Notes (Zusammen Entwerfungspunkte)	
Remaining Valuable Points (Bleibende Wertpunkte)	
Grade (Preis)	

Both the variety and ratings of the above tours are often changed and modified to meet the opinions, tastes and requirements of the different societies. But they are substantially the same.



CHAPTER X.

TOURS

The tours of the roller have become an exact science. They have been carefully classified, differentiated and appraised. Such has been the demonstrated nicety of musical distinction in roller tones, that a school of instruction has been established by The United Canary Breeders of America, which is held every third Saturday of the month. This is presided over by three competent instructors chosen for their expert knowledge by this association; in which acute hearing, accurate rating and long experience in tone interpretation are the main factors. At present this college of instructors consists of Alexander Volkommer, the president, Albert Greisbach and Max Stein.

The object of this school is to fit and prepare less experienced breeders for the important mission of presiding as future judges in bird shows; to thoroughly familiarize the students with the correct valuation of the various merits and demerits of good and bad tours. In this manner a fixed standard of the relative virtues and defects of roller

song may be more accurately studied and determined; both by discussion and comparative ratings of the various tours.

At a meeting of these judges, members bring sets of birds; each judge makes his separate rating of individual tone valuation; to determine by a general average, the number of points a collection of birds may be allotted. The United Canary Breeders of America, came to an agreement, that any collection of birds was limited to three hundred and eighty-four points. It was determined that every judge could not fix his own limit or use his own discretion in the rating of tours; otherwise one thousand points might be the limit unless some fixed standard was definitely established.

The scale in which thirty-two points is the highest limit, is not to be the everlasting standard; changes in this standard are now being considered. Thirty-two points is the limit wherein only one judge presides; if three judges preside the scale would be ninety-six points as the highest standard for one perfect bird; this is arrived at by each individual judge independently marking each one of the birds thirty-two points. When this occurs, the highest limit for a collection of four perfect birds then would be three hundred and eighty-four points. This rule was established by The United Canary

Breeders of America to supersede their former scale and now generally prevails.

Formerly, according to the rule of this association, ninety points were the highest marks for a single bird, where there judges presided, and three hundred and sixty points was the highest limit awarded to a collection of four perfect birds; then a single judge, by this scale, awarded thirty points to each perfect bird.

For example, to show how the points for single and collective rating is arrived at under the new scale, with thirty-two points for a single bird, with one judge presiding and ninety-six points for each single bird with three judges presiding, each judge gives his individual rating, which might be, for instance, thirty points by one judge, twenty-nine points by another, then thirty-two by the third; then the total average for a single bird would be ninety-one points. Now in a collection of four birds, each one of which received the above average, there would be a total of three hundred and sixty-four points for the entire collection of four birds. This system of marking is arrived at by adding together the total single rating of each of the three judges; then finally multiplying that total by four, which represents the collection of the four birds entered for exhibition.

In order to become a duly accredited and competent judge, to preside at any bird show given under the auspices of The United Canary Breeders of America, every candidate must not only attend this school of instruction regularly, but pass a severe critical examination in classifying and determining genuine and false notes of roller tones. The test of this examination for judgeship is not alone sufficient; there is another ordeal of qualification. After the certification of the examiners as to the fitness and capacity of the applicant to distinguish and discriminate the entire gamut of roller tones, to competently assume the duties of judgeship, The United Canary Breeders of America, if satisfied as to the candidate's integrity, finally signifies its approval by bestowing a diploma upon the successful applicant; which entitles him to the privilege of qualifying as a judge at bird shows given by this association. Would it not be well for dog and horse shows, race tracks and prize fighting regulations to follow the wise example of this federation? If the same care were exerted in similar animal pastimes and exhibitions, less dissatisfaction would follow the judging of entrants and competitors. The public would have more confidence in adjudicated results; there would be fewer scandals and less form reversals!

There is no rule, as to the sequence of a roller's tours; each bird will begin and end his song to suit his taste, training and inclination; dwelling upon those favorite octaves and registers, which seem to satisfy and amuse him; blending these tours with connecting tones best calculated to lessen the vocal effort or strain and give him sufficient rest pauses. Some birds begin with the high, others with deep notes; some with low soft tones; others with flute notes; those beginning with low tones usually excel in a contest; also, they are far more preferable. Flute notes are not so attractive at the commencement of a song.

It is interesting to consider and examine the various impressions of sound produced by the roller in singing the different tours. The Schockle sounds like "lue, lue, lue, lue,"; also it may deviate into this, "lu, lu, lu, lu"; the tempo is closely allied to the low steady running of a shuttle. The Glucke reminds one of the noise caused by water slowly dripping from the mouth of a well filled bottle; this tone sounds like the noise of, "gluk-gluk-gluk-gluk".

There are three different distinct kinds of Glucks; viz: the Hollow, the Water, and the Knar-row Glucke. In the Hollow Glucke, the vowel U predominates; in the Water Glucke, the main tour is heavily tinged with the sound of splashing water;

the Knarrow Glucke is delivered in an extra deep bass voice; the notes must not lag, but be sung in quick succession.

The Flute notes vary from "di, di", or "do, do, do", or "dow, dow, dow"; which recall the soft tones of the flute or the piccolo. The Knarrow seems to sound like "Orrrorrr", or "Urrurrurr"; if delivered in a deep clear voice, it reminds one of the tuneful notes of the saxaphone. The climbing and falling Hollowroll sounds like "ru, ru, ru," or "rue, rue, rue" or if very deep like "ro, ro, ro"; it may be likened to the eloquent tones of the violoncello. The Bell tour sounds very much like the low, soft jingling of many tiny bells.

The full effect of the roller song is determined by the main tours; the substantial part of his song; but this melody of continuous combination is greatly influenced by the blending or connecting bars throughout the full song. If the connecting links are not smooth and clear, tastefully selected to offset the principal tours, the entire melody will not only lose in value, but appear as an ordinary song.

There is a number of tours very similar in sound and execution; they are so closely allied when delivered with the individual interpretation and peculiarities of some birds, it is quite often difficult to distinguish them. In such instances, the

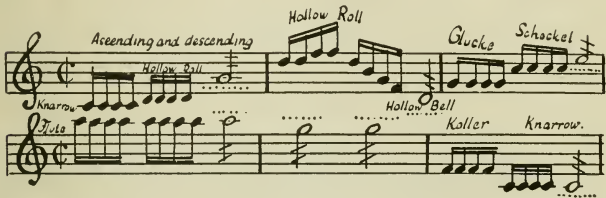
hollow bell when delivered by a bird with deep tones, may be mistaken for the Hollowroll; at other times, this tour may be mistaken for the Schockle; the Knarrow, Hollowrolle, Waterroll and Glucke, might be misjudged for the Koller and vice versa.

Nose tones are produced with a nasal sound; many good tours may be tainted with these nasal tones. If so, they lose in value. Birds with the zitt and chapp cannot be classified as rollers; they are barred altogether from roller exhibitions.

Chirp notes are sure indications of birds not being thoroughly roller bred stock. These bad notes "Like Banquo's ghost will not down"; they are the evil influence through heredity of the wild canary; the momentary return to atavism. But this reproduction of savage ancestry is rapidly becoming extinct. By select breeding, in course of time, it will be entirely obliterated.

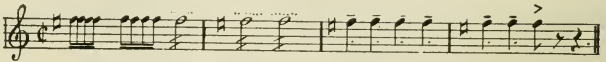
Let us consider an ideal combination of tours; by describing the possibility of chosen melody; the song one would like to hear. It might be as follows: First commencing with a very deep Knarrow, low and soft; this to be followed with a medium Hollowroll, gradually ascending and descending; followed by a deep Hollowroll; then a very deep Hollowbell; then the Glucke; this to be set off with a medium Schockle; this tour followed with clear flute notes;

then the Koller; this followed with a deep Knarrow. Such a song would not only be a perfect combination of beautiful music, but a wonderful combination of the most pleasing tones. Drawing upon the effect produced as to the comparative registers corresponding to the human scale of music, the impression created by the above wonderful combination might be described in music as follows:



One of the most impressive and striking features of the roller's melody is the wonderful judgment of time. Not only the keen observer, but the thorough musical artist is amazed at this marvelous rendition of correct tempo. Neither the trained musician, with the most acute sense of musical discrimination, nor the metronome itself can surpass or even equal the roller in keeping perfect time; nor could anyone detect the slightest variation of time from the theme once commenced. He sings his melody with excellent musical taste; some bars fast and others slow, but the tempo is always rhythmic and regular. Many orchestra lea-

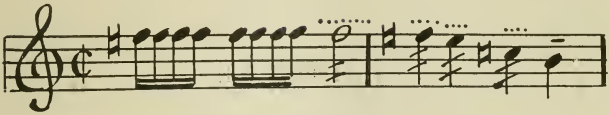
ders might imitate the roller's method of keeping perfect time to great advantage. As an evidence of this marvelous time discrimination, the Bell tour is herein attempted to be described in music set to the human scale:



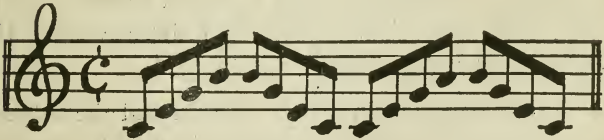
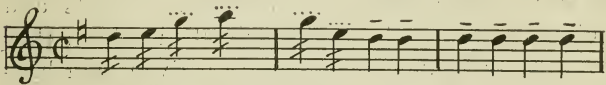
Many times when unjustly accused of not "singing through", the roller would seem to be merely trying the scale or composing his melody, by deciding which combinations are more euphonious or suitable to produce good harmony. It is sometimes his custom, apparently, to slowly run the scale up and down, then suddenly start off with some perfected tour.

From such a small throat, he compares favorably to the violin, in sending forth the wonderful volume and variety of melody; in clearness of tone, he is mindful of the flute; in the eloquent feeling and the depth of expression, his soul stirring tones, in slow time, may be likened to the violoncello.

As a further proof of time discrimination, wherein the Bell tour may be shown in combination with another tour, the Hollowroll, sung in an entirely different tempo to correspond with the construction of another song theme, as follows:



Another apt illustration of good tempo may be observed in a rendition of the Pfeifen and Hollowbell; then suddenly descending into the Knar-row; then ascending into the Glucke; then descending again to the Knar-row:



CHAPTER XI.

VERMIN

Every animal is beset by some mortal enemy. Parasites in some form, prey throughout the animal kingdom. The entire output or foodstuffs in some sections, are destroyed by parasites which devour it; these parasites are in turn destroyed by other animals. This correlative force of parasites, preying in first one form then another, controls and regulates at times, the entire animal kingdom; they determine the numbers of species. Even man himself, with his ingenuity and invention, is put to the test to destroy the vermin and pests with which he is afflicted. Parasites seem to breed faster, require less, have more health and less disease than the useful kind upon Mother Earth.

The Condor lays a couple of eggs and the Ostrich a score, yet in the same country, the Condor may be the more numerous of the two; the Fulmar petrel lays but one egg, yet is believed to be the most numerous bird in the world. The law of the survival of the fittest controls the destiny of all the animal kingdom. Possibly, nature has formulated this law to regulate production. Without the economy

of this destruction, possibly some species would over run the earth. Even man is subject to plague, epidemics and contagious diseases; scourges and wars have kept population within reasonable bounds. In spite of the prediction of Malthus, population, so far, has not increased faster than subsistence.

Darwin makes this correlative force of preying parasites clear by a very concrete demonstration; he shows that the production of honey depends upon the environments surrounding the culture of this delicacy. He says, mice eat bees; cats eat mice. He further explains, that in a country district in England, there are many old maids who own cats; hence, the more old maids, the more cats; the more cats, the less mice; the less mice, the more bees; the more bees, the more honey!

Bird lice are the bane of a roller's existence. There are three kinds; one, the red mite, which sucks the blood from the body of the bird during the night only; then, the small, grey bug and the large grey louse, both of which usually infest the body of the bird during the day; the latter also suck the juice from the shafts of the bird's feathers. The red mite does not remain constantly upon the bird's body; after it's nightly feast, in the early morning, it seeks a place of concealment; hence the difficulty of exterminating the red mite with insect powder or using vermin exterminator in the bath.

The grey lice usually infest the body of the bird; they are especially annoying by their ravenous and pernicious activity during the day, making the bird exceedingly nervous and restless. If the breeder blows up the feathers of the bird, he will see them running around the bird's body. These grey lice are much worse than the red mites, which leave the bird in the day time to settle somewhere in the cage; while the former continually keep moving about under the feathers, to the great loss of peace and vitality of the bird.

During the day, the red lice hide and conceal themselves in the cuts of the ends of perches; in the dark corners of the cage; in the small crevices, where it is dark and very difficult to see them. These places are their favorite hiding spots; especially, in the all wood cages, which make admirable breeding grounds for them. They are very small, minute, black bodies, hardly discernable; at times filled with the blood of birds, to the point of bursting.

The nests are veritable traps for the lice; they distribute themselves throughout the nesting material; mostly at the bottom; they accumulate very rapidly. At night, both the hen, male and young birds are bothered almost beyond endurance. The birds get very little rest. In consequence, birds lose a large portion of their vitality, through the blood sucking hunger of lice; young birds are either de-

stroyed or become weaklings for the rest of their lives, if they survive; because of the incessant attacks of these pests. Nestlings frequently die simply because they are weakened to such an extent, they have not the vitality to open their mouths to be fed; hence they gradually starve to death. The blame is often placed upon the innocent female for not feeding her young.

To ascertain whether birds are troubled with lice, minutely examine the euts on the ends of perches; the corners of cages; the wooden crevices and cracks, where it is dark. Watch at nightfall and early morning to see if the birds scratch themselves frequently; watch the nestlings carefully to see if they have that pale, bloodless color around the bill, to ascertain if they seem weak and half fed. Remove the nestlings to a soft piece of wool or cotton; shake the nest and nest box over a piece of white paper or cloth; also, try the perches the same way. If lice are present, the small, black pests will be seen scurrying around on the paper or cloth; probably, full of blood. The lice much prefer the tender, well fed young birds to the old ones. Their attacks soon prove fatal to young birds, unless speedily checked.

The best plan, if they are discovered, is to make a new clean nest; also change the nest box; making both as near like the old nest as possible;

then, change the nestlings to this new nest. This preparation should be made, of course, before removing the nestlings from the old nest; so that there will be as little time lost as possible, in making this change. If it is found necessary to change the cage, prepare a similar cage in color and construction to the old one; placing the new nest in the exact same position as the other and change the mother and young ones as quickly as possible; taking care, to make neither noise nor disturbance.

At the end of the breeding season, when the young birds have been removed to the flying cage, the brood hens and males treated likewise, the perches, breeding cages and nest boxes, should be thoroughly soaked in boiling water, tinged with a liberal allowance of black carbolic; it is sometimes mixed with kerosene or creosote. All the joints and crevices of the breeding cages, should afterwards be painted with pure black carbolic; then these articles should be placed in the fresh air to dry at least two days. The black carbolic will kill all vermin and their eggs. Then rub thoroughly with a dry cloth to remove all traces of black carbolic inside the cages, as it is a deadly poison. This cleansing process should be thoroughly attended to, before putting the breeding cages away.

Placing a white cloth over cages during the night is often resorted to as a magnet to attract the red vermin. Since they only attack the birds dur-

ing the night and leave them in the early morning, white material seems to act upon vermin as a powerful magnet. Vermin will congregate upon this white cloth in large numbers; thereby enabling the breeder every morning to destroy those which have annoyed the birds during the night, by placing this cloth into a solution of kerosene or black carbolic. This process continued for several nights will collect vast numbers of these pests and give the birds great relief. This experiment with a white cloth may be tried in emergencies, when it is impossible to give the cages a thorough cleaning, owing to the presence of brood hens which are setting.

By actual count, upon information furnished by a reliable breeder, 300 red mites were found upon a white cloth, which had covered a small cage during a single night! This number decreased steadily every morning, in his count, until it reached the sum of only two at the end of the week. The beneficial use of the white cloth, may be estimated on the theory of the geometrical increase of animals. What would probably represent the increase in numbers of one pair of red mites, laying and hatching myriads of eggs, during a period of one week?

Every being on earth, which, during it's natural life, produces several eggs or seeds, must suffer destruction, at some time, from some cause, otherwise, on the principle of geometrical increase, it's

numbers would quickly become so great, no country could support the product. As more individuals are produced than can possibly survive, there must be in every case a struggle for existence.

Charles Darwin clearly illustrates this doctrine by the following narrative: "The elephant is reckoned the slowest breeder and I have taken some pains to estimate it's probable minimum rate of natural increase; it is safest to assume, that it begins breeding when thirty years old, and goes on breeding until ninety years old, bringing forth six young in the interval and surviving till one hundred years old; if this be so, then after a period of 740 to 750 years, there would be nearly 19,000,000 elephants!" If the minimum increase of the elephant, undisturbed by the law of natural selection, would be 19,000,000, what would be the maximum increase of one pair of red mites in one week, unless using some method to retard or check their progress?

Tar rope is often used to cover the bottom of nests, as it is a very strong disinfectant and repugnant to vermin. Insect powder is also used to line the bottom of nesting material to keep vermin from breeding in the nest; this may be also used to sprinkle nesting material. Great caution must be taken to prevent the insect powder from nauseating the hen. If it is too strong she will leave the nest and probably remain off until the eggs

are cold. If the nests show evidence of vermin, they may be dusted with pyrethrum powder, but not the hen; she may be given a bath with infusion of quassia water.

Some breeders use a mixture of lime and salt to paint breeding cages. This preparation not only prevents vermin but is good for the stomach of the bird, when it picks the whitewash and salt from the bars of the cage.

Lard is used by some breeders to rub in joints and crevices of cages to prevent lice, since they cannot travel or readily move in grease.

Where it is possible, white washed or painted walls are preferable to papered, as paper harbors insects; makes good nesting material and is a secure hiding place. Bees wax and turpentine polish is a good composition to keep vermin from nesting in the floor. Placing concentrated infusion of quassia in bathing water, when birds are pestered with body lice, is a splendid mixture to remove them; one teaspoonful to a half pint of water.

If it is possible, either before or at the end of the breeding season, birds should be removed to a safe place and the breeding room should be thoroughly fumigated, by burning sulphur, which not only destroys all vermin and eggs, but any disease germs with which the place might be infected.

Mice are a constant nuisance to the breeder. They are attracted by bird seed only. With all its other faults, the mouse is not a carnivorous animal; hence it is not the blood of the bird that it seeks. The maddening hunger for bird seed causes the mouse to forsake all other haunts, to congregate as near the breeding room as possible. This small pest causes much unconscious damage by tainting the food with its foul excrement, which produces nausea to birds and causes deathly sickness and often death. The constant visit of mice creates a restless and nervous fear, sleepless and restless nights; which necessarily weakens the vitality of the birds. The foraging of mice in breeding cages frighten many hens from their nests, in consequence of which eggs get cold and young birds die in the shell; hens also stop feeding their young when the mouse has disturbed her nest.

Care should be observed in using poison to prevent this pest, for fear the bird might be destroyed instead of the vermin. The safest plan to stop their annoyance and damage, is to use the small steel trap, better known as the "Victor" trap. Some mice are wary of traps and will not enter them; they may be ensnared with the use of a little strategy. Enough of the small traps may be set to cause the mouse to accidentally run into one of these traps while making its hurried escape.

Rats have a great appetite for birds; they are vicious and crafty and cause great damage wherever they can locate a breeding room. This rodent has been known to destroy over twenty birds in one breeding room in a single night. The tactics of the rat are cunning in the extreme; first quietly creeping upon it's prey, while it sleeps, near the bars of the cage; if then unsuccessful, causing the bird extreme terror with a hissing noise; then thrusting it's paws through the bars of the cage to seize and devour the bird. The only method which meets with practical results is the large steel trap.

It is advisable when traps or poison fail, to fill mice and rat holes with pieces of finely broken glass; then close the holes with cement, plaster paris, or cover them securely with tin.



CHAPTER XII.

MOULTING

The saddest time in the personal career of a roller, is when he moults. It is his annual change of dress. Although, this may occur at any time from a sudden change of temperature. The first or second moult is usually not so distressing; but the third time is serious. In the first moult, the roller only loses the body feathers; it is very slight; the young males continue studying. The most constant breeders are deeply affected; during that period, the male can neither mate nor procreate his specie. His song becomes feeble and finally hoarse. The otherwise vivacious bird disconsolately sits with drooping and dishevelled feathers. This period may continue for six weeks or two months. It depends upon the bird's physical condition, treatment and freedom from drafts. This season begins about the month of July; but some birds commence in September. He usually does not sing until this period has passed. This may be determined after the small feathers have grown upon his head. The small feathers fall from the body of the bird first, then the long and tail feathers. These are replaced by new ones.

During the moulting season, birds are very sensitive, morose and dejected. They should have a quiet, retiring, secluded place; sunlight should be avoided; also drafts of any kind; he must be kept from dark or damp places. During this period, the bird is more susceptible to colds than at any other time; because of the scarcity of the covering. Bathing should be in tepid water, if the room is warm, but by no means cold; if the room is warm and dry, the bath may assist in discarding the decayed and dishevelled feathers.

During this eventful period, the bird should be fed upon nourishing and sustaining food; with crushed egg shells constantly in his cage; occasionally, he should have a piece of apple. In this weakened condition, he necessarily requires stimulating food and care; gravel should also be plentifully supplied to build up and strengthen the wasted material. As this period grows to a close he begins snatches of low, soft tones; as a young bird, uncertain, studying his song. Oft times, he may return with his melody vastly improved; it may be entirely changed; it may be even forgotten.

The severity and length of his moulting seem to depend upon the expenditure of energy during the breeding season; the constancy of his song, the condition of his health; more particularly, upon the amount of cold he has contracted; or the exposure

to draft; or the quality of his food. His moult may be long or short; light or severe. But without this ordeal, his procreating success or melody would be eventually quite limited. The moult seems to accomplish a double purpose, physical and spiritual metamorphosis; the necessary change of his dilapidated and dishevelled plumage; the arousing of a downhearted and dejected demeanor. It may be analogous to the Fall of the year, when plants discard their season's attire.

During this period the bird seems to have lost all spirit; there is a complete metamorphosis; the passing away of all waste material; a rehabilitation, recreation of the old; it is a thorough cleansing of his personality, both spiritual and physical. During this period, nature accomplishes a double purpose; she cleanses his unkempt attire; she adds fresh strength and vitality; also, she selects that season of the year, July and August, when the bird is least susceptible to drafts. Her wisdom in this choice of season seems premeditated.

Birds differ considerably in the process of moulting. Some moult promptly, with a complete set of new feathers in four weeks, while others require sometimes, two months; such birds as the latter are not healthy; they do not make good breeding stock; neither do they retain good song. The quicker and more thoroughly a bird moults, the healthier and more satisfactory his moult.

There are two kinds of moult; the natural annual moult and the artificial moult caused by a sudden change of temperature. This change may be either hot or cold. Some breeders undertake to force the moult, by placing the bird in an artificially warmed place. But this is not advisable.



CHAPTER XIII.

SICKNESS AND DISEASE; THEIR PREVENTION AND CURE

One of the most instructive principles of zoology is discerned in the marvelous analogy between man and the lower animals. Both are afflicted with the same analogous or comparative diseases; may be, known and designated under different names, but practically showing the same symptoms and diagnosis. They are the same complaints, caused by similar conditions. These correlative diseases are cured by the same medicines, corresponding tonics, counter-irritants and antidotes. The same treatment is usually conducive toward effecting and curing, preventing and relieving the same maladies. Animals are exactly similar, before birth, in foetus form, in physical construction and formation; they are also similar after death and decomposition; they are destroyed by the same gasses and parasites. The health and vitality of the roller, more so than other animals, is dependent upon Food and Temperature. Almost the whole category of his diseases and sicknesses is regulated by these two great factors.

Food is one of the principal mediums in the formation of types and species in both plants and animals, as to size, color and conformation. Food is dependent upon climate, which usually regulates both the quality, kind and quantity of diet, to supply the necessary chemical ingredients to counteract the temperature. In hot climates, rice and cereals are essential to obstruct the excessive heat; in cold climates, an abundance of fat is required to heat the body to withstand the bitter cold.

Climatic conditions affect both man and beast in a similar manner; this depends upon the habits, requirements and physical construction. There are more suicides, for instance, in London than in Paris, because the light, sunny climate of Paris is conducive to gaiety and amusement; while the heavy, foggy weather of London may create a morose, dejected and despondent disposition, tending to morbid introspection.

Conditions and environments regulate the health, habits and physique of the entire animal kingdom. Man lost the use of large teeth, when it was no longer necessary to eat raw meat; in northern climates, man, by force of the severe cold, learned a nasal twang, by talking with his mouth closed; in the south, he produced the flat sound of speech, due to speaking with his mouth open, in mild temperature.

No animal is affected more than the bird by climatic conditions and temperature; especially, the roller. There are certain fundamental indications, which will generally determine the exact physical condition of the roller. These will be briefly described.

If your bird appears puffed up and does not sing; if his abdomen is red and swollen; if his eyes are dull and half closed; if he moves in a sluggish manner, with ruffled, soiled and dishevelled appearance; if he places his head under his wing in a doleful, listless way; sleeps during the day; sits at his food cup in a half-hearted, dejected mood, wearily picking at an occasional seed—, this bird is either temporarily ill, or is not healthy. He needs attention. Look into the seed cup; there should not be any peeled or half eaten seed.

A healthy bird looks rugged and slender; his eyes are fully opened and alert. He is shifty in action, lively and cheerful; not drooping and downcast; keen, quick and ambitious. He snatches a seed with vim and vitality; he is a constant singer; his voice is clear and smooth; he is a steady and consistent feeder; his figure is tapering; the breast is full, plump and fleshy, not fat; the abdomen is a light pink and slightly concave.

Breeders find certain fixed and reliable principles from careful and watchful experience in the treatment of bird diseases. These maxims and data

should be observed and studied with zealous caution; not only as information, but a preventive to sickness and disease. They are as follows:

FIRST: The origin of the principal diseases and sicknesses may be traced to attacks upon a roller's two main vital organs —, the Stomach and Lungs. As a rule, his entire physical trouble is usually due, except in cases of inheritance, either to a weakness of the abdominal or pulmonary systems.

SECOND: These diseases and complaints are usually caused by poor, damp, musty or improper food, filthy or impure water or undue exposure to draughts or cold.

THIRD: Weak and defective birds, when bred, usually transmit their physical ailments, more readily than any other animal.

FOURTH: There are certain incurable diseases, which may be temporarily relieved, but not permanently cured.

FIFTH: "An ounce of prevention", in breeding birds, "is worth a pound of cure"; applies with double force in roller breeding; since it is far easier to keep a bird healthy than to cure one.

SIXTH: To determine a bird's exact physical status, two conditions must be accurately ascertained. First; his stomach should be in health, light

pink, but not red. Second; his stool should be white and dark; the lower part white; the upper part dark; it should fall coneshaped.

SEVENTH: Sick birds should always be segregated and placed in a separate cage, not only to avoid contagion, but to give the patient more comfort, quiet, peace, and convenience for treatment.

EIGHTH: As a rule, all medicines should be dissolved in water unless another liquid is advised.

NINTH: When giving medicine, ordinarily, in consideration of the constitution and vitality of a bird, one drop of medicine should be sufficient, to a teaspoonful of water, placed in a separate drinking dish.

Slight complaints produced by minor causes, might be quickly cured, if taken in time by some simple remedy; but if neglected, may develop into some incurable malady; until it seriously threatens the bird's vitality. These complaints and diseases may be prevented, unless hereditary, by the use of proper food and placing the bird in a warm position. Some birds require more heat than others; some birds being more rugged and hardier in temperament, can endure more exposure.

The complaints subject to the condition of the abdominal tract, either due to improper food or in-

heritance are: CONSTIPATION, COSTIVENESS, INDIGESTION, DIARRHEA, INFLAMATION OF THE BOWELS, LIME STOOL, FATTY DEGENERATION, YELLOW JAUNDICE, DISEASES OF THE GLANDS, GOUT, DROPSY, WIND SWELLING, SCEPTIC FEVER AND DISEASE OF THE LIVER.

Constipation: This complaint is quite often the foundation of many diseases. The principal causes are indigestion and fatty degeneration. The symptoms are frequent straining when evacuations occur; the excrement is hard and kernel shaped; there is the rapid whipping with the tail of the back part of the body; the feathers are liable to be unkempt and dishevelled; there is a general depression of mein and loss of appetite. To stop this complaint, feed for several days upon oatmeal, without any other seed or give two or three drops of castor-oil, with oatmeal gruel, once or twice daily; another method is to feed grated, fresh carrots, seasoned with a small pinch of pulverized sugar.

Green food, sweet apple and crushed oats usually overcome this complaint. In very severe cases, when this trouble is continued, put two drops of glycerine in a teaspoonful of warm, soapy water and give an injection of about ten drops; if necessary, another may be given in half an hour; two or three drops of castor oil may be also given into the

mouth with a medicine dropper. Some breeders use aconite, hepar sulphur and spongia to stop this complaint. Two corns of nux vomica will also stop this trouble; also white bread soaked in milk.

Costiveness: This complaint may be cured with a piece of sweet apple, lettuce or spinach salad. This trouble may be permanently avoided by feeding crushed oats occasionally.

Indigestion: This is one of the principal complaints from which a bird suffers. The symptoms may be observed in his failing appetite, very light stool, hard brown in color, general apathy and laziness. This trouble is usually caused by unfit and spoiled food. In this condition the bird should be fed very light food.

By mixing a few crushed oats with a bird's daily food, this condition may be prevented altogether; it may also be advisable to place a small portion of red pepper in his food; also a little salt in warm drinking water or two or three drops of red wine might be given in his drinking cup. Egg shells, green food, fresh sand and cuttle bone are useful aids to digestion.

Diarrhea: In older birds, this is usually caused by colds or poor or spoiled food; also stale drinking water. Either cure the cold or change the food and water. The symptoms are: A long, thin, green or jelly-like discharge with air bubbles; sometimes,

the excrement is white or yellowish; the feathers near the vent gum together; the rectum is swollen and often protrudes from severe straining. The speediest cure, is to remove all green food; place the bird in a warm room; feed poppy seed. One drop of the tincture of opium should be put into the drinking cup or place a rusty nail in the drinking water.

It is noticeable that, while suffering from this complaint, the bird rapidly whips his tail feathers; quite often, blood is mixed with the evacuations. Another remedy is to give two or three drops of castor oil, with oatmeal gruel; also, a thin, watery rhubarb tincture may be given, one to three drops daily in drinking water. A portion of ground nutmeg may be mixed with food. Bryonia and red wine are also helpful.

The soiled feathers during this complaint, must be washed with warm, soapy water; then thoroughly dried with a soft cloth; then apply a lotion of vaseline.

This complaint is very weakening and frequently arises from inflammation of the mucous membranes of the intestines. A good remedy is to use from two to three grains of dover powder to an ounce of gum water; substituted for the drinking water; two drops of castor oil given internally, is a good remedy, on the point of a knitting enedle; the

needle should be warmed before putting it into the oil. If the bowels appear inflamed, alternate the former treatment, with water containing twenty drops of antimonial wine to each fluid ounce. If caused by indigestible food, use tablespoonful of carbonate of soda to three ounces of cinnamon water and give in place of ordinary water; castor oil should be used with either of these remedies. Five drops of elixir of vitriol in drinking water is very beneficial in curing this complaint or place a small piece of common chalk between the bars of the cage. But if this trouble continues, put from two to four drops of paragoric in drinking water; then place the bird in a real warm place.

Inflammation of Bowels: This complaint is usually caused by colds. Ice cold or stale drinking water, sour, spoiled or too rich food may also cause this ailment. It may also be due to the feeding of unripe seed or the use of wet green food. The symptoms of this malady might be observed, in the bending of the abdomen, the speedy whipping of the tail at times of evacuation. It may be further seen in the swollen and inflamed stomach. The sufferer seems languid; rests his body upon the perch; fails to sing.

During this period of sickness, the breast bone is noticeably extended, the evacuations are greenish black, instead of white and black; they also have a strong, nasty odor. A bird in this condition, suffers from loss of appetite, while his crop seems full;

he is also affected with great thirst. This sickness is contagious. It may be carried to other birds, by the watery evacuations coming in contact with the food; it quite often becomes epidemic.

To meet this problem with proper caution, each bird afflicted should be segregated in a separate cage. The patient should be placed in an even temperate, warm room, between 72 and 75 degrees; all soft food and soaked seed should be stopped. It must not be fed any green food or fruit. Every day, the patient should be given one drop of the tincture of opium, or a few drops of red wine in the drinking cup; feed poppy seed and oatmeal mixed in equal parts; anise seed is also beneficial. Rice water and burnt magnesia, mixed with water to a thin paste, given internally, will produce good results. In most cases, unless speedily helped, the bird is lost. As soon as the bird is convalescent, give ten drops of gentian in drinking water, fresh daily, as a tonic, for a week; also castor oil and boiled carrots.

During this complaint, the cage should be kept thoroughly clean. The inflamed abdomen may be painted with warm turpentine, with a camel's hair brush; light biscuit soaked in milk may be given every few hours; a few drops of gum arabic may also be added to the drinking water; if the bird is especially weak, a few drops of brandy may be given.

Lime Stool: The causes of this malady are certain microbes and bacteria, probably due to the excessive use of egg shells and lime material. The symptoms are: excessive evacuations of a thin, white, yellow phlegm which turns green and considerably soils the abdomen. While suffering from this complaint, there is usually a failing appetite. The bird sits aimlessly about, with drooping feathers; sometimes, it throws up a thin, greenish substance; the sufferer is very thirsty, quite often shivering. At times, the feathers are ruffled up and stand on end; the victim also suffers with vertigo and **deadly** cramps.

To affect a cure, the breeder must separate each bird afflicted with this malady. Carefully disinfect the cage with chloride water and use every effort to obtain absolute cleanliness. Give a solution of sulphuric manganate of iron, one to two drops daily in drinking water, to five hundred parts of water, for about fourteen days, for those birds not yet afflicted. For sick birds, which have already succumbed to the disease, mix sulphuric manganate of iron, with one to five hundred parts of water, from three to four times a day. Sometimes powdered rhubarb and sugar grated in with the food is very helpful. But as a rule, birds afflicted with this malady are seldom saved.

Fatty Degeneration: This condition is due to over eating and too much rich food. It may be ascer-

tained by the labored breathing; the peculiar noise made when breathing. The evacuation seems to cause pain; it is hard or thick in composition. On closer inspection, the belly is very full and seems to be cushioned with layers of fat. The skin appears dead in appearance; there is a loss of feathers in spots.

To treat this malady, scant food should be given; the bird should be fed a great deal of green food; one to two drops of castor oil should be given daily. The sufferer should be given a large cage and a bath often. It is advisable, to feed nothing but oatmeal for a period of from eight to fourteen days.

Yellow Jaundice: It is difficult to detect this complaint. It usually follows catarrh of the rectum; the passage becomes clogged; which affects the gall and causes it to enter the blood, thereby causing yellow jaundice.

To cure this disease, the bird should be given a quantity of glycerine in water, once or twice daily, to loosen the bowels; also, a solution of calomel root, one to one hundred parts water, from two to three times daily. The bird should be fed light sparing food, with sufficient green food.

Disease of the Glands: This disease keeps the necessary fat from the feather glands. Usually, the glands are overfull with fat. In the diseased con-

dition, this substance hardens or turns to matter, so that it forms a hard lump, often miscalled "the pip"; which some people attempt to cure by lancing; then squeezing this substance out. This operation really endangers the life of the bird.

To affect a cure, examine the bird carefully, to see if the gland is merely hard and fat or if it really contains matter. In the former case, anoint the spot with warm olive oil, two or three times daily. At the same time, feed plenty of green food; bathe with luke warm water. Where matter is found, make a careful incision and syringe it out with a solution of boric acid, of from one to one hundred parts of water.

Gout: This disease is accompanied by loss of appetite, fever, swelling of joints, wings and feet. In the beginning, the joints will appear stiff, red and feverish; they are usually very painful. The swelling will then become soft and filled with matter and blood. Then it turns hard again to a gally and cheese-like substance. Most cases after a few weeks will heal themselves. However, the joints usually remain enlarged.

In other cases, slow emaciation takes place; the bird becomes anemic. During this malady, the stool becomes very thick and heavy; death usually results from constipation. To give relief, the bird must be removed to a warm, dry place. If the swell-

ings appear feverish, cool by bathing with lead water, arnica water or vinegar water. If the swellings are hard, bathe with spirits of camphor or spirits of ants; also bandage with warm woolen cloths. If matter has collected, lance it, but be careful not to do this too early; then gently press out the matter and wash with carbolic acid solution, one to two hundred parts. Give inwardly in either case, salicylic acid solution, one to five hundred parts.

Dropsy: The cause of this serious malady is due to colds and inflammation of the lower stomach; also, it follows other sicknesses, such as tuberculosis of the intestines. The symptoms are usually noticeable in the beginning by labored breathing; then the abdomen swells. In more flagrant cases, a fluid is plainly seen in swollen parts. This complaint is incurable.

Windswelling: This is a very serious and dangerous complaint; unless quickly discovered and speedily suppressed. It appears as a flat, white blister; it happens mostly in cages of nestlings; it begins usually with indigestion; arising from the use of either too rich or spoiled food. In light cases, it may be curable by lancing the swelling and gently pressing the affected part until the air has escaped; then anoint this spot with warm oil. In cases of nestlings, wrap them in soft, loose cotton; scant food should be given.

Sceptic Fever: This is caused by excessive use of egg food; old birds, weak from breeding and indigestion. To cure this complaint, take one teaspoonful of fluid of magnesia, six drops of lemon juice to each ounce of drinking water, until bowels move freely; then for two or three days no seed should be given; but bread soaked in milk and squeezed out dry as possible, with one small teaspoonful of canary seed daily; no green food should be given.

Disease of the Liver: This complaint comes from decayed and soiled food; from too many birds in one cage or in one room. This disease may be discerned by these so called liver spots upon the body, loss of appetite and fading of color. If the spots are small, the belly will not appear bloated and the bird may still sing. Under these circumstances, there is no cause for alarm. To meet this emergency, dry food only should be fed. Birds with this ailment should not be put in a heck, as their young ones will be sickly.

If a large, violet, brown spot is noticed under the breast bone and the color spreads over the belly, especially, over the right side, in this case, inflammation has set in and a swelling will appear. It is hardly possible to save such a bird. To render the utmost relief, it should be kept in a warm room; fed on poppy and linseed, with very little rape seed. The

offspring from such birds, are sick while still in the shell and therefore seldom manage to survive birth. From diseases of the liver, both young and old birds can contract, and are susceptible to inflammation of the bowels and stomach.

Cramps: This complaint comes from a filthy cage or close confinement in too small a cage. Give the patient a larger cage; do not let the bird bathe more than once a week; immerse the legs in warm water; place two drops of laudanum in the drinking water.

Catarrh of the Stomach: Place a small quantity of aconite or pulsatilla, from one to two corns in the drinking water; also, cooked oatmeal and grated carrot is very helpful.

If the bird seems puffed up unnaturally, he probably has fever. Dissolve two corns of aconite in his drinking water daily; not too cold. If the stomach appears black at any time, it may be due to the eating of some spoiled or poisonous substance formed by the decay of salad food and the metal of the cage. For swollen or black stomach, give two drops of castor oil to swallow, by holding the bird's bill open, between thumb and forefinger and dropping the oil from a medicine dropper into his mouth; better results may be obtained by warming the oil slightly; this should speedily remove the cause of the trouble.

CHAPTER XIV.

COMPLAINTS CAUSED BY DRAUGHTS, COLDS AND EXPOSURE.

In this chapter, it is undertaken to classify and treat those complaints due to the attack upon the pulmonary tracts of the roller; caused by careless exposure to draughts, and the use of ice cold drinking water. These complaints are: HOARSENESS, COLDS, CATARRH, BRONCHITIS, ASTHMA, CONSUMPTION, RHEUMATISM, PNEUMONIA, INFLAMMATION OF THE LUNGS.

Most of these complaints, with the exception of those inherited, may be successfully and easily stopped in their incipiency. These maladies generally trace their origin to neglected colds; which in due time, unattended, result in asthma, bronchitis or consumption.

Loss of voice or hoarseness are caused by either over feeding, over singing, moulting or a cold. If due to a cold, the bird must be kept in a warm place; remove water and give instead, for a day or two, boiled camilla tea or pure rock candy, dissolved in water or a few drops of the juice of

hoarhound dissolved in the drinking water. Pure honey, or honey and camilla tea mixed, will affect a speedy cure. Red pepper mixed with egg food or bacon rind, sprinkled with red pepper or raw fat, salt pork, soaked to remove surplus salt, will accomplish the same result.

If the complaint is purely hoarseness, belladonna or aconite will accomplish the same purpose; the bird should be kept free from all draughts; if the room is chilly, cover the cage at night.

Often, the best and sweetest singers become hoarse from oversinging when they strain themselves. If his silence is due to oversinging, either darken the room or his cage. Raw egg, with rock candy, ground barley and malt sugar dissolved in drinking water or mixed in egg food, will remedy this condition. If his silence is due to fatness or overfeeding, the egg food should be immediately removed; place the bird on a diet of rape seed only; also green food may be given; this treatment should be continued for several weeks.

Catarrh or Cold in the Head: This condition is caused by draughts, ice cold drinking water, sudden changes in temperature or cold. The symptoms are sneezing, yellowish discharge from the nostrils, which settles and crusts; continual shaking of the head and throwing up phlegm. The first aid for this condition, is to remove the bird to a warm, dry room; then clean the nostrils and bill with a feather

dipped into salt water; then paint or anoint the nostrils and bill with almond oil. In all cases in which a cold is the fundamental cause, honey mixed with camilla tea is always beneficial; also use salt pork or bacon rind sprinkled with red pepper.

Bronchitis: While suffering from this complaint, the bird is feverish and restless; he frequently quenches an almost insurmountable thirst at the drinking cup; he has a dry husky cough; has difficulty in breathing; which is accompanied with a rattling noise from the throat. This malady comes from a cold. The patient should be kept in a very warm place.

To relieve or cure this trouble, fill a large basin about three quarters full of hot water; place it across two pieces of wood; stand the cage on these sticks and cover with a piece of flannel. The object of this procedure is to give the sufferer a steam bath. If it is a serious case, add to water about ten drops of carbolic acid and twenty-five drops of turpentine; but with this solution, cover with calico or muslin, instead of flannel. This operation should last from twenty to thirty minutes; this should be repeated twice daily for three or four days.

Internally, a good remedy is to boil two tablespoonfuls of linseed in a teacupful of water; strain the juice through a piece of muslin; add to this two dr. of best Spanish juice, one dr. of gum arabic

crushed to powder and dissolved in warm water, two dr. of glycerine and one dessertspoonful of honey; then place a teaspoonful of this mixture to three tablespoonfuls of water and give it fresh every morning.

Honey, rock candy, hoarhound, pure licorice juice and salamoniac are very helpful given in small portions. The inhaling of tar vapor, administered as a steam bath, is also beneficial. If the bird is in a severe condition, while suffering from this malady, the mouth may be swabbed out, with a solution of salicylic acid, one to five hundred parts of water, with a small brush.

The bird will be relieved speedily if kept in a warm room, with a temperature of from 72 to 76 degrees. If the room is too dry, an atomizer should be used, containing warm water to spray the cage, since artificial heating oftentimes removes too much oxygen from the air.

Asthma: This is one of the most constant diseases, with which a breeder must contend. When the bird is annoyed by a short whistling sound, breathing hard, with bill open, his breath hot, melancholy, with no relish for food, noticeable fever, painful cough, expectoration of yellow phlegm; sometimes streaked with blood, or if the breathing is heavy and quick, similar to that of an athlete, after a strenuous effort; making a smacking sound, usually

heard at night, he is afflicted with asthma. There is no reliable cure for this complaint; but it may be temporarily relieved. It may be harmless, unless accompanied by the smacking sound; then the case is incurable; even if he sings occasionally and is lively. The cause of this complaint is principally due, unless inherited, to the bird being placed in some exposed position.

This disease may be further observed by the shortness of breath exhibited after a little excitement or chase of any kind; or by the peculiar grating noise made with his bill when the weather is thick or the temperature heavy. Honey mixed with camilla tea or raw, fat salt pork, sprinkled with red pepper is the most helpful remedy; also, warm bread and milk may be given every morning.

The bowels should be opened with a mild purgative, if the bird is constipated; if in a weakened condition, a few drops of brandy may be given in the drinking water. Where catarrhal conditions are observed with the above symptoms, the same remedy must be used as for bronchitis. Sponge cake soaked in sherry wine is also helpful or a few drops of gum arabic may be added to the drinking water.

The following is a good recipe for asthma: Take a hard boiled egg and powdered biscuit in equal portions; one half teaspoonful to each bird; mixing in three drops of cod liver oil and three

drops of olive oil. The drinking water may be prepared by adding four drops of elixir of vitriol and three drops of tincture of capsicum.

Another good prescription for Asthma is the following: Ten drops of antimonial wine, ten drops of tincture of henbane, add to this one ounce of water; also, a good remedy is one dr. of tincture of aconite, one dr. of tincture of belladonna, add to this two dr. spirits of ether nitrogen; mix this thoroughly and give ten drops to each fluid ounce of drinking water; this should be renewed every alternate day.

Consumption: The cause of this complaint, like those originating in the pulmonary tract, commences with a cold. The symptoms in the worst stages are the bird's debilitated and emaciated condition; his song will be very weak; whatever food he eats, seems to produce no strength; expectoration of a yellow phlegm; sometimes, streaked with blood. Of course, in such a condition, he could never be placed in the heck. The voice of a roller, when afflicted with this malady will become thin before it turns hoarse; this usually happens early in the morning and late in the afternoon; the strength of his body seems to gradually waste away. Of course, there is no cure for this disease; but his life may be prolonged. This may be accomplished by nourishing food; using a mixture of hard boiled egg and zweibach; brown rock candy dissolved in water; honey mixed with camilla tea

will keep him alive some months longer. Aconite, hepar sulphur and spongia are exceedingly helpful.

Rheumatism: This is probably the most painful condition the bird is heir to; especially, when there is lameness without joint swelling. This malady comes from colds and drafts; also damp cages and perches. It may be cured by anointing the afflicted parts with warm oil and wrapping the same with woollen bandages. Such a bird must be kept in a warm room. Salicylic acid solution is very beneficial.

The swelling and inflammation of the eyelid and eyeball are usually caused by colds. This complaint may be observed by tears in the eyes, swelling of the lids; also the bird is shy of light. The affected parts should be painted with a luke warm solution of chloride, one to five hundred parts of water or alum one to five hundred parts or a solution of zinc ointment one to six hundred parts. Furthermore, the inflammation of the eye skin can come from knocks or bites on the eye. It is a soothing relief to bathe this with water and paint with a solution of potash and opium; potash 1%, water 200%, opium 1%.

Pneumonia: Pneumonia may be detected in the rough and crumpled up condition of the feathers; the difficulty in breathing; the dry, husky cough; the soreness of the throat.

To meet this condition the bird should be placed in a very warm position. Take one gram quinine, dissolved in a few drops of elixir of vitriol, mixed with one ounce of pure water; then add one teaspoonful of this mixture to an ounce of drinking water. Another good prescription is the following: Vin., ant., tart., one dr.; spirits of ether nitrogen, one and one half dr.; tincture opii camphor, one dr.; tincture of belladonna, one half dr.; add fifteen drops of this mixture to every ounce of water in place of drinking water.

Inflammation of the Lungs: This malady may be cured if taken in time; when the symptoms first develop. But when it becomes chronic, there is no hope for recovery. Unless checked or treated, it may quickly lead to dilation of bronchi, Asthma, consumption, apoplexy or dropsy of the chest. The following is a very good prescription: Ten drops of ethereal tincture of lobelia; one dr. of compound tincture of camphor; three dr. syrup of ginger; one ounce of cinnamon water; two tablespoonfuls of this mixture to two ounces of water, given in place of ordinary drinking water. Continue this treatment until the most distressing symptoms have subsided; then reduce to one half; then increase, whenever breathing becomes difficult to the patient. The bowels must be carefully watched, during this ailment and a gentle purgative given if necessary.

CHAPTER XV.

RARE DISEASES.

This chapter will consist of those rarer diseases, the origin and causes of which little is known.

Sometimes, a bird is afflicted with a malady known as "throat worm." This is a very rare complaint; it is very closely allied to the small worm known as *Trichina*, which in its larval stage, sometimes infests the muscles of man, swine, and other animals. The symptoms of this complaint are shaking of the head, shortness of breath, gasping for air and expectoration. When in this condition, the mucous discharge from the throat is very dangerous for other birds, as it contains eggs of the worm. This parasite is similar to a small leech, round in form, pointed toward the end; reddish in color; the length of the male throat worm, is from four to five millimetres, but the length of the female worm, is from twelve to thirteen millimetres. Microscopic examinations must eventually develop more minute information.

This worm settles in the throat or bronchial tubes, causing swelling; thick mucous finally chokes the bird to death. When the symptoms of this

malady appear, thoroughly clean and brush the cage with some strong antiseptic solution; also, clean the food and water cups thoroughly; give plenty of fresh air.

Although, as a rule hopeless, swabbing out of the throat with pure turpentine, inhaling the vapor of creosote, by taking one part of creosote to five hundred parts of water, heating an iron red hot and sticking it into this solution which creates a vapor, and holding the bird over it to inhale, will render substantial relief. From time to time, a few drops of linseed oil may be also given to a bird suffering from this disease.

Small Pox: If this disease breaks out in the neck, usually, every bird is lost. It begins with little blotches or pimples, appearing on the head and both sides of breast and belly. Within a few days, all the birds usually die. There is no use mentioning a cure. Only one thing can be done to retard or stop it, that is to segregate it as much as possible. The breeder should be careful in handling other birds; because of the violent contagion. The suffering of the afflicted might be speedily and mercifully alleviated with the inhalation of gas.

Paralytic strokes; Apoplexy: These complaints are caused by too much excitement, sudden scare, fear, great heat, too much hemp seed and hot weather; they are also due to too strong a blood pressure

and over eating. These ailments may be observed by that peculiar manner of holding the head sideways, rolling the eyes; dizziness, going backwards; that turning, twisting motion in a circle. These symptoms are usually followed by quick death accompanied by cramps; they are the products of shattered nerves.

To relieve such a condition as much as possible, scant food should be given. Plenty of green food should be used and salicylic acid should be placed into the water cup; one drop is sufficient. Placing cold water on the head is a great relief; also, a mild shower and placing of a wet sponge upon the neck and head; for the bowels, castor oil should be given. If this attack should be violent, to restore the bird, dilute a quantity of water with a portion of ammonia or hartshorn, saturate a sponge or cloth with this solution and let the bird inhale it.

Epileptic Fits: While suffering from this cruel malady, the bird suddenly collapses with violent convulsions, beating the wings rapidly; there is a twisting and turning motion; it sways the head from side to side; it shivers and the eyes dilate; this condition is due to the same causes as those above. It is also produced by using too small a cage; where the oven or the room is too warm or sun heat is too great or unsatisfied sexual desires.

To relieve this malady, feed same as above; there should be a change of food; much green food and fruit should be given; there should be cool, fresh air, a change of location of the bird. At first sign of stroke, take bird in hand and hold him upright, so he will not hurt himself but have relief.

The old barbarian cure, such as cutting off the toe or the outletting of blood is neither sensible nor beneficial. It belongs to the same school with cupping a human being for appendicitis, when it was called inflammation of the bowels. Usually the bird which is highly nervous and hysterical, chirping loudly when fed, is the most subject to Epileptic Fits. If a bird has only one attack, it is not necessary to take it seriously. But if the attack repeats itself, then try to find the cause, and cure the same.

Vertigo is usually caused by confinement in too small a cage; from the constant turning which the cage necessitates or from knocking against some sharp edge and injuring the skull. It may also come from a small insect, which bores itself into the brain. There are the symptoms usually observed in birds of nervous trouble, of holding their heads on the side, bending over backwards, turning in circles, dizziness and severe cramps. It is only possible to cure a bird attacked with this malady when the first symptoms are observed. To give him relief, place the bird in a roomy, four cornered cage.

If these symptoms then continue after treatment, the bird is incurable.

There are many complaints in the bird family, which are contagious and even epidemic, with similar symptoms, that have been classified under different names. These diseases have caused no end of discussion and controversy, universally, among breeders, as to the origin, causes and proper remedies. Such disagreements have always existed even among the **medical fraternity**, in the diagnosis and treatments of vital diseases affecting the human family.

There is small wonder then, that in the bird industry, where facilities for discussion, analysis and communication through clinics, journals and magazines, have been impossible, that breeders in various parts of the world, should fail to agree on either classifications or treatments of diseases. However, where diagnosis and symptoms are exactly similar, it is of small concern, what the **nomenclature** of disease may be, so long as the remedy is helpful and correct.

This overheated argument, while disputants are discussing the same malady, under different names, reminds one of the dog which held a bone in its mouth, lost it by attempting to snatch the shadow it saw in the water. In other words, in the language of the immortal Shakespeare, "A rose by any

other name would smell as sweet". Why let the patient die, while the doctors are splitting hairs over the abstract distinction between "tweedledom and tweedledee"?

There are several kinds of tuberculosis, that of the liver, heart, kidneys, stomach, intestines and egg bag. When any one of these organs is so affected, the malady is incurable. The life of the bird under such conditions, may be indefinitely prolonged by feeding nourishing food; but it is absolutely useless for the heck; it may be also useless for song; which will be determined by the nature and severity of the sickness.

Diphtheria: This is truly a very rare disease, but extremely contagious. It severely affects the head and throat. The mucous membranes of the throat become thickly coated with secreted matter; the throat and tongue become ulcerated. This disease is almost incurable unless taken in time. Unless the bird or birds afflicted with this malady are very valuable, they should be destroyed to stamp out the malady; then the doors of the breeding room, after the healthy birds have been removed, should be tightly closed, and sulphur should be burned to fumigate the place and remove all germs. Of course all cages should be washed with the strongest disinfectant and the walls and floors treated in like manner.

The very most that could be done to assuage the ravages of this deadly disease is to use a lotion for the throat. That consists of two dr. of cupri. sulphur dissolved in four ounces of rain water and apply to the throat with a feather; turning it around gently a few times. If an effort is made to save any of the diseased birds, they should be speedily segregated from the room as far away as possible from the other birds. The breeder should use every precaution himself to prevent carrying the germs to other birds, by carefully cleansing his hands and all implements used in treating the diseased birds.

Scarlet Fever: This awful malady commences with cold shiverings; then loss of appetite; the tongue is very rough and coated with a slimy mucous of yellow fur; at first, slightly red, with raised papillae. Finally, the throat becomes swollen and inflamed; there is a dry cough. The body then assumes a red appearance.

The very first aid in this case, is to attend to the bowels; they should be thoroughly cleansed of all fetid matter. To do this properly, put an ounce of Epsom Salt and a piece of Spanish juice, the size of a Spanish nut in a pint of warm water; when cold give this solution instead of drinking water for twelve hours; then give half the quantity filled up with water and add twenty drops of sweet-nitre

and twenty drops of antimonial wine to each ounce of the former mixture; give fresh every morning until the fever has subsided. If the throat has swollen, give gargle with twenty drops of muriatic acid to one and one half ounces water and to this add thirty drops of tincture of myrrh; open bird's mouth gently, dip a small feather in this gargle and carefully swab out the throat. The diet should consist of white bread, soaked in warm milk, and sponge cake soaked in sherry wine, and squeezed dry as possible. After the sixth day, if patient is recovering, add to the drinking water, in place of antimonial wine and nitre, thirty drops of tincture of gentian, fifteen drops of diluted sulphuric acid and a small quantity of best gum arabic.

Typhoid Fever: This malady was formerly known as the "Bird Plague" and the "Bird Cholera". It usually happens just before the moult. At this critical time, in a bird's life, there is a great demand on the serum of blood. If there is not sufficient health and vitality to meet this demand and replenish the loss, stagnation of blood ferment follows, which creates a bacillus, the origin of typhus. There is great difficulty in getting rid of excretory matter; this lodges in the region of the vent; which may be seen upon examination.

To meet this condition, a purgative should be given to relieve the bowels. These birds should be speedily removed from the room and segregated as

far away as possible from the other birds. This complaint, like Scarlet Fever, is not only of a contagious, but of an epidemic character. The following remedy is known as the very best prescription: Take one dr. of tincture of belladonna; vin. ipecac, two dr.; one dr. tincture of aconite; one dr. tincture of hyoscyami; three dr. spirits of ether nit.; one half ounce gentian; then add twenty drops of this mixture to each ounce of the ordinary drinking water and twenty drops of the compound infusion of senna. After the fever has exhausted itself, gentle tonics and egg food should be given. Such tonics as gentian, camomile and chinchona bark, made into weak infusions, should be used. If this malady should occur during the summer, a small leaf of fresh young dandelion, well washed and dried, will help rebuild the wasted tissues.

Internal Parasites: Birds affected with this complaint die suddenly. If examined after death, exceedingly minute parasites, hardly discernible to the naked eye, are found upon the liver and viscera. There is no known cause for this malady; nor known cure.



CHAPTER XVI.

WOUNDS

This chapter is devoted to the cure of wounds and external physical complaints; necessitating treatment of a surgical nature.

Wounds: Wounds usually heal on a bird without further attention, by the process of adhesion; especially, after being washed with a sponge dipped into luke warm water and cooled off. In more serious cases, bathe in a solution of arnica water, twenty-five to fifty parts water; with solution of carbolic acid and sweet oil, one to two hundred drops. Even if left entirely alone, bird wounds usually heal in a very short time.

Broken Bones: The broken bones of a bird heal with surprising rapidity. A simple break of the foot or ankle, needs only rest to mend perfectly. Of course, it is better, if the breeder takes both broken ends and carefully manipulates them into their proper place; then gently places them between two flat little sticks; cover this with warm glue; then tie securely with a strong but soft cotton cord; then cover this with thick, luke warm glue, evenly

covered; hold the bird in hand, until this is dry and put him into a small cage. After about four weeks, soak the leg in water and carefully remove bandage.

Until the leg is thoroughly healed, give the bird a low, broad perch on which he can rest easily. Place drink and food in a position where it can be easily obtained without any effort. If the break is on the wing, naturally, the feathers must be cut, but by no means plucked out. Cover this place with a woolen bandage; over this wrap a linen bandage, which has been soaked in a solution of water glass and bind it; then sprinkle this with powdered chalk. This method should have first consideration as it holds the break in an exact and natural position. At the same time, it is very easy to cut off.

Swellings: A hard swelling may be cured with warm poultices and a little fat to soften it. A very inflamed swelling, where it is both hot and red, may be cooled considerably with lead water. This may be softened at the same time, with warmth by often renewed poultices. A ripe matter swelling can be usually treated by lancing and pressing the substance out without any danger. After lancing the affected part, paint with carbolic acid solution and sweet oil, one to two hundred parts.

Skin Boil: This affliction usually comes on the head next to the bill or near the eye. These are

neitehr hard nor soft. They are filled with skin like matter and enlarge very rapidly. Sometimes they go very deep. They cause the bird a great deal of discomfort, misery and pain. As long as it is small and sets loose in the skin, it may be touched with caustic. This may also be removed, by tying it off with a thin but very strong thread.

Skin boils usually come from impure blood. The removal of one will not help, as new ones constantly appear. The strictest care should be used in removing all heating and unnatural food. Give salicylic acid water, (one to three hundred parts water), slightly warmed to drink; continue this treatment two or three weeks. It is necessary to carefully watch the stool and keep it in a healthy condition.

Misformation of Bill: If the upper bill grows too far over until it hinders the bird from picking up it's food, it should be often rubbed with warm oil. Then take a sharp pair of scissors or knife and carefully cut back to the natural length. Extreme caution should be used in performing this operation, to prevent breaking or tearing the bill; as it is easy to reach the quick; which often becomes sore and never heals; frequently, breaking again and causing the bird much pain; sometimes keeping it from eating; finally causing it's death. Should such a break in the bill horn happen, it should be cleaned out daily and painted with a mixture of warm oil.

A hurt, and sometimes even a well bill, will suddenly begin to have an unnatural growth at the end. After a time, it will become split and ragged. This may be due to insufficient or incorrect nourishment of the bill horn. Such a bill must be very carefully cut back with the scissors; even then sometimes, the bird will succumb.

The bill horn often grows very long and gets soft and either bends or brittles off, so that it becomes useless to crack seed with. In such an emergency, give plenty of lime and sand. With a bird suffering from this malady the breeder should give him such food as he can eat and easily digest. In most cases, this will have to be egg food.

Desease of the Feet: On a neglected bird's feet, under the dirt, inflamation will set in; there will be matter with large and small swelings; which will tend to inflame the joints, causing the decaying and dying off of seperate toes; it may even cause a bird to lose the whole foot. If this is taken in time and bathed in warm water, then the inflamed feet cooled with lead water, and the necessary places painted daily with thinned glycerine, one to ten parts; then powdered thickly with the finest corn starch, this condition will be speedily relieved. In very bad cases, anoint with lead salve or if the wound is open and wet, anoint with zinc salve. If

this is done, the foot must be placed in a leather bag and tied up securely; as the salve is poison for the bird.

Worse than the above are callouses from which can come swellings in the joints or corns. In the first place, treat as above. However, try to find the cause, which may be the thin, hard perches. The corn must be thoroughly rubbed in with warm sweet oil. In this way, it may be softened and then washed in warm soap water; then peeled very carefully with a small knife; then anoint with vaseline.

At times, caused by internal sickness, yellow swellings and knots will appear on the legs; especially, between the toes. These must be treated as other swellings. They usually show themselves with the cause of the sickness.

To cleanse caked feet, one must be careful in picking off the dirt which has accumulated and hardened. This substance should be removed by soaking the feet in luke warm water and soap. When thoroughly dried with a cloth, moisten with olive oil or vaseline. If done otherwise, picking off the encrusted dirt roughly, a part of a toe or the nail might be removed.

After a bird is three years old, he is sometimes troubled with long claws. These must be cut off with sharp seissors. To do this, hold claws toward

the light, when a red stripe will be perceptible; this reaches from out the flesh, denoting the flesh mark, and beyond and away from which any part of the claw may be trimmed off. It is very important to keep the toe nails of a bird at a normal and proper length, for when overgrown, they may be caught and entangled in the wires of the cage, causing the fracture of a leg or wing.

Sometimes, a bird is bald, because he did not complete his moult or may have caught cold. Put a rusty nail into his water to strengthen him; he needs iron; or touch the bald spot with alcohol, whiskey or brandy. It may also be a touch of eczema or skin disease. Alcohol will kill the germ which produces it, if it is of local origin. If constitutional, being due to internal causes, feed with rape seed only, until the cause is discovered.

Yellow Gall: This complaint may be observed by a small ulcer or a number of them, usually, around the eyes. It is probably due to the use of too rich food. The bird should be placed upon a rape seed diet and given a piece of apple occasionally, with a spray of spinach salad to regulate the condition of his blood; a drop of castor oil may be given every other day, until the blood is in good condition. The ulcers should be carefully treated by cutting and anointing them with a sugar of lead ointment.



CHAPTER XVII.

BREEDING FOR TYPES

The most important doctrine in the law of evolution is the principle of natural selection. All nature is regulated by the doctrine of natural selection. It may be either natural or artificial. It is natural, when subject to environment; produced by food, habits and climate. It is artificial, when invoked by the premeditated design of man to produce specific results, in color, conformation, plumage, size and melody. Science has demonstrated that habits, size and color are regulated by the effect of external influences on both plants and animals; by food, climate and soil. Every member of the body responds to the influence of environment or external conditions. It may be accidental or premeditated. If accidental, it may result in the development of certain types, produced in the pursuit of food or conquests. If premeditated, it may be the design of man to produce, by food, culture and breeding, some fixed standard of type in both plants and animals.

The cultured song of a roller is but the product of natural selection; the selecting of both

male and female representatives of certain melody, to produce by the transmission of species and culture, the desired type of melody. Just as birds of check color are produced by the crossing of yellow and green males and females, so may the production of specific qualities of melody be produced, by select breeding.

In accidental selection, which depends upon chance in the wilds of the forest, the male transmits his strength or cunning, in the struggle for existence; thereby the weaker type is eliminated; hence in the course of time, by the process of elimination, a strong breed is gradually evolved; which is the survival of the fittest. When this principle of natural selection is invoked by man, to produce some specific type, in either plants or animals, it responds more readily to premeditated design or intelligence than when regulated by accident or chance. Select breeding, by choosing the male and female representatives of some desired type, continuously, for generation upon generation, is bound to create exact and speedy results. Upon this theory the Germans proceeded to produce a distinct type of canary; they bred mainly for song; hence the incomparable melody of the roller.

In the wilds of nature, types are produced in the taste, habits and disposition of both male and female birds. Females, in the animal kingdom are attracted by the various virtues or qualities of males.

The female of certain species is attracted either by the brilliant plumage, song, virility or courage of the male; even by vocal and instrumental music. There are many habits and devices resorted to by male birds to attract the female. They possess special weapons for fighting, such as spurs, and thick feather ruffs used as shields; they are ornamented with combs, wattles, air distended sacks, top knots, plumes and lengthened feathers, gracefully springing from all parts of the body. The beak and naked skin about the head are gorgeously colored; males pay court by dancing, and fantastic antics are performed on the ground or in the air. In one instance, the male emits a musk odor like the Australian musk duck, which can be detected long before the bird is seen. Among the song birds the best singing males are enabled to procure mates more speedily than those which produce no melody, therefore, in course of time, the muscles of the larynx are stronger in males than females.

It is contended by breeders, that the female roller is attracted by the melody of the male; hence his love song immediately upon being placed in a breeding cage with a female. In a state of nature gradually, after many generations of females selecting superior songsters, a fixed type of melody would be produced. In this rivalry, the best singers would be enabled to procreate their kind; by the

process of elimination; the poorer singers gradually becoming extinct. By this method in course of time, melody would respond to the law of natural selection. The victor, by either combat and struggle for supremacy, or by fierce rivalry, dependent upon sexual desire, and strife to attract his mate, the roller species would eventually produce a fixed type. These results in the law of natural selection are produced by environment, which is subject in the forests, to accident or chance; the male transmitting the very quality which made him victor, whether by combat, beauty of plumage or melody. The roller, of course, can only be improved by artificial selection; his complete domestication placing his improvement entirely upon the ingenuity and experience of the breeder.

Artificial selection is controlled by the desire in man to produce some particular, specific type. In plants, this may be observed in creating fruits of enormous size and sweetness; even trees are magnified or minimized in growth. In the animal kingdom, dogs have responded to this immutable law to such an extent, that it seems almost inconceivable that the giant St. Bernard and the pigmy Chihuahua could have originated from the same ancestors, the fox or the wolf. The marvelous result of this doctrine has been disclosed in the creations of almost two hundred distinct types of the original red rock pigeon.

Man himself, it has been satisfactorily demonstrated from the drift of ancient gravel beds, has indelibly written his history; that he was evolved from the manlike ape; which gradually, by the force of environment, learned to walk upright, by strengthening the calves of his legs; finally, from guttural sounds, he composed a form of speech. Lamarck, on "Habit" says, that the long neck of the giraffe has arisen from its constantly stretching out its neck to high trees; from the endeavor to pick the leaves off their branches; as this animal generally inhabits dry districts, where only the foliage of trees affords them nourishment; naturally they are forced to their action for sustenance. In like manner, the long tongue of woodpeckers, humming birds and ant eaters, arose from constant habit of fetching their food out of narrow, small and deep crevices or channels.

This wonderful law is further disclosed by the web between the toes of frogs and other aquatic animals; which have arisen solely from the constant endeavor to swim by striking their feet against the water. The very movements of swimming, as an inheritance, fix these habits on the descendants; finally, by further elaboration the organs were entirely transformed. On the contrary, muscles once highly developed, become useless and merely rudimentary; such as the cartilage of the human ear. This member was once highly important to pre-

historic man to catch the sound of menacing danger in the wildwood; neglected, under changed conditions and mode of existence, it has ceased to exist.

The great law of natural selection is observed in the production of many types of singing birds. This has been successfully accomplished by patiently mating pairs most distinctly representing certain types. The English caring little for song, have produced handsome shaped birds of rich, dark or orange color; they have also excelled in creating birds of enormous crests and topknots of peculiar form. The Scotch try for fancy markings; the Belgians are interested in shape alone. The French are attracted by the lustre of brilliant plumage. But German breeders have always made song and melody a specialty. Their type was produced after long years of natural selection. By patient study of the habits, taste and disposition of the roller, they have probably produced the greatest domestic songster of the age. In cultivating the song of the roller, with the use of the nightingale and thrush, musical instruments devised to perfect certain chords of melody, the voice of a roller responded to the law of natural selection.

The American breeders have always admired and patronized the German birds. In the past few years, they have improved wonderfully in the class and quality of their breeding. If this success is

provement, as to the quality and softness. While the promise of improved melody is limitless, the prerequisite to harmony, is that of a sound body. The absolute necessity of health and vitality is indispensable to any substantial improvement. No one can deny, that the roller is in great need of physical improvement. But the great question underlying the secret of all success in roller development, is the food question. The creation of sweeter tones and variety of tours, is entirely dependent upon the kind and quality of nourishment, without producing any of those abdominal complications which always follow the use of improper food and overfeeding.

With the food question once firmly established in the breeders mind, the further development of continued, they will be able to produce the equal if not the most superior bird in the world.

To Seifert, of Dresden, Germany, the American breeder is deeply indebted; his birds were recognized as among the best throughout the world. After attaining perfection, in the production of the roller with wonderful melody, he came here, with several hundreds of his best birds; to this stock American breeders attribute their success.

Apparently, the great goal of the American breeder is to first produce greater range of melody, in the sweetness of tone and variety of tours; since there are certain tours which need vast im-

melody should be of minor concern. Even in the wild state, without the assistance of intellectual guidance or selection, birds develop the most marvelous sounds. They have even created instrumental song and melody; such as the peacock and the bird of paradise; which rattle their quills together; turkey cocks scrape their wings against the ground; the male of the Kaliz-pheasant in the Himalayas, makes a singular, drumming sound with his wings, like shaking a stiff piece of cloth. In Africa, weavers make a rapid, whirring sound like a child's rattle. The thundering noise of the common snipe is made by the peculiar shaped feathers of the tail. This instrumental music, developed without artificial selection or assistance, has been gradually evolved by the males to attract the females. What should be the vocal possibility of the roller, when guided in the development, by the intelligence of man in the selection of melody?

By observing the wonderful laws of natural selection, there must eventually be great improvement in the color, size, plumage, melody and conformation of the roller, and which can only be regulated by the interest aroused and intelligence displayed in breeding. The possibilities of the future bird, may be estimated by the wonderful development of the past. This may be observed in the amazing variations produced in size and

length, from the original small bird of the Canary Islands, of five inches, to the one of to-day of eight inches; in color, from the original apple green, to birds of yellow, check or mottled, deep green, white, cinnamon and deep orange; in conformation, from the small, stunted original type to the long, angular and husky specimen; in plumage, from the smooth tight fitting coat, to top knots of astounding crests, curly and highly feathered kind; in song, from the loud and boisterous bird of the heather, singing with mouth fully distended, to the polished songster, softly warbling, with a variety of melody and bill closed; forming it's song from the throat.

Any one of the types may be heightened and improved by selecting both male and female of the type desired and breeding for that one effect; in fact, several features may be practically combined, such as color, size, song and conformation in one mating.

Suppose one is breeding to develop the Knorre and Water Roll; then use the male possessing the deepest Knorre to be mated with the hen which is sired by some bird of a deep Knorre; then the following season, their nestlings will be mated with the offspring descended from birds with a deep Knorre. This same principle can be invoked as to color, conformation and size. If one wishes yellow birds, mate yellow males and females on

the same plan of selection. To produce green birds, mate two green birds; to produce mottled or check birds, cross a yellow male and green female or vice versa.

To produce birds with a variety of tours, mate a cock with a good substantial tour of bass foundation, with a hen descended from a cock with an opposite variety or class of tours. To improve the offspring of a good stock bird with note too high, mate him with a hen descended from a cock with a deep Knorre or Water Roll.

The peculiar law of natural selection in breeding likes to produce a fixed type, occasionally, reverses itself. This is noticed in an effort to produce top knots, by breeding male and female top knots together. Such a union will invariably produce bald headed birds. To produce the top knot, either male or female top knot must be mated with a plain bird. But this offspring, if a plain bird, should be mated the following season with a top knot, but not of the same family.

In breeding for types, two problems for choice confront the breeder-- sentiment or business, pride or commerce. While the yellow bird is handsomer and the choice of the public, the green bird is hardier, as a rule, more rugged, a sweeter singer, a better stock bird and will last longer. He is preferred by the breeder.



Birds in Good Health.

CHAPTER XVIII

HINTS TO BREEDERS AND FANCIERS

Never purchase a bird, male or female, until you have "blown it up", to ascertain it's physical condition; a process of blowing up the feathers of it's abdomen and breast to see the color of it's stomach; since the stomach is to the bird what a thermometer is to the weather; it determines it's exact physical condition. If it is a pale pink color, the bird is in a healthy condition. If slightly reddish, and the male in full song, without some internal, constitutional or inherent defect, he is ready to breed. If a pale sickly sallow or yellow color or bluish, the bird is not healthy.

Never purchase a male, until you have heard him sing; if to breed, until you know the stock, through either inquiry as to ancestry or relying

upon the confidence reposed in the reputation of a reliable dealer. Never purchase a hen, unless you are thoroughly convinced of the genuiness and quality of her pedigree; the younger, the better; purchase her from the early year's produce, around about the months of October or November for the following Spring breeding.

Do not buy any bird, male or female, simply because it is cheap. Quality and breeding is the first prerequisite to success.

Always wrap up a bird securely before taking it out into the weather; the colder, the more securely the bird should be wrapped. In the Spring and Summer time, make one or two holes through the paper or cloth for air in the inside cover.

Do not feed any sweets, unless purely medicinal.

Do not breed birds possessing any constitutional defects whatever; they transmit maladies of all kinds; especially, hens and cocks with asthma and liver diseases; the healthier and stronger, the better.

Do not continue to breed from the same stock; inbreeding weakens the stock; outside stock may be obtained from reliable breeders for outcrossing, which materially strengthens the breed.

Do not breed in the hot months of July and August; it weakens and destroys the birds; the results are very unsatisfactory.

Never enter breeding room with your hat on; it makes birds nervous and fretful.

Do not approach cage hastily or move roughly; move from one position to another with care; speak or chirp to the bird to allay fear.

Do not sweep the breeding room, before having sprinkled the floor with water; dust is injurious to birds' throats and lungs. To avoid this, the cages can be covered.

Avoid sudden change of temperature in bird room; the temperature should always be normal; between 65 and 70 degrees; unless birds have been accustomed to cooler temperature. A breeder must adopt that temperature upon which his birds will thrive best.

Do not purchase poor or cheap seed or gravel. Avoid too much light or sunshine; except after the bath. Strong light makes a bird sing loud or shrill.

Avoid drafts, steam or damp air. Cages should never be hung higher than a gas jet; never more than four cages on top of each other.

Ventilation is very necessary. It is preferable to have the ingress of pure air, if possible, near the floor, the egress for impure air near the ceiling; to avoid the danger of colds and drafts.

Never allow birds to become too fat; it impairs their song and destroys all prospects of breeding.

Do not hang the bird in a doorway, window or on a porch or in the yard; such a position may be subject to draft and sudden change of weather; the roller is not as hardy as the "chapper".

Never place the bird at too short a distance from the ceiling or near a stove, heater or radiator; the air is too dry and warm in such positions; the cage should always be at least about two and one half feet from the ceiling.

The cage ought to be cleansed occasionally to prevent the growth of vermin. If possible, it should be cleaned every six weeks, by dipping it into a solution of black carbolic.

A bath should be given on warm days only, or in a warm room; preferably in the morning or at noon, to allow the bird ample time to dry its feathers. The bath serves a threefold purpose, i. e., it is a health promoter, plumage preserver and insect abater.

Every breeder should keep a pedigree book to register the date of settings, hatching and parentage of his birds; also, leg bands to distinguish and identify the different individuals and families, to prevent in-breeding; he should also keep in the breeding establishment, a bread grater, egg sieve, seed crusher or grinder, a pair of small bellows, a distributor for the purpose of spraying insect powder and a thermometer.

A good remedy for birds which drop their feathers after the moult, is to use ten drops of tincture of steel, to two tablespoonfuls of water daily.

Every breeder should become a member of some local bird society, to enjoy the privilege and opportunity that such membership will afford, of showing, exhibiting and comparing his birds with the birds of other breeders, in order to promote the general welfare of the bird industry, and that he may lend assistance and help in advocating and agitating a protective tariff, for the protection and improvement of the American bred birds.

The American breeder is entitled to such legislation and every one interested in this industry should use every influence to make possible the passage of this bill; by either writing or seeing his Congressman.

A bird should be shipped in a small wooden cage, bound around the sides with a cloth or paper to prevent draught, opening from the top, so that the expressman can see the inside of the cage. There should be a water and food cup on the inside of the cage. The outside cover should be marked "Live Stock, handle with care!" The expressman will water and care for the bird. Of course, the bird must be delivered for shipment in good condition. If it fails to arrive or dies while in transit, the express company usually forfeits the reasonable valuation of Twenty Dollars, unless a higher valuation has been previously claimed. Sometimes, water is provided by placing a sponge filled with water between the bars of the cage.

In England, the leading bird journal, "The Bird Cage," has succeeded in establishing the deposit system, between seller and purchaser. Dealers in this country, might with mutual satisfaction, imitate this plan. It would enable the bird industry to prevent innocent purchasers from being imposed upon by charletans and mountebanks. This system would establish confidence between vendor and vendee. The idea of this plan is to satisfy the purchaser, who must rely upon the sole representation of the seller. The representative of "The Bird Cage" acts as stakeholder and referee, until the sale is fully and satisfactorily consummated. The bird is shipped on approval; at the seller's risk. If the bird should die or is not satisfactory, upon the mutual agreement of the parties, the deposit may be either refunded or held pending another shipment.

In this country, the American Canary Journal, is the leading exponent of the roller; it is edited and published in Brooklyn, New York, by Alexander Volkommer; who represents The Canary Bird Breeders' and Protective Association of New York. It is a very entertaining and instructive magazine.

The Cage Bird World is edited by August M. Roth, of Baltimore, Maryland, and is ably and cleverly written.

Females often get ready too soon in the year, in a breeding room where they can hear the males

all the time. If the breeder has sufficient room, he can keep the females separated; where they cannot hear singing males. By this plan, the breeder will not have to begin breeding too soon. Too early breeding is inadvisable. Females do not feed well during the cold winter months; hence many nestlings die. Finally, when the real mating season arrives and the weather is warmer, the females are exhausted and do not lay many eggs; the results then are very unsatisfactory. From April to July is ample time to raise many birds. After all, quality is more desirable than quantity in any live stock industry.

Beware of sudden changes of temperature in breeding room; as it causes premature moulting. This may indefinitely terminate the mating season of both male and female birds.

It is always better to remove the male from his mate, after the eggs are laid, when the room is dark; so that the female will not miss him and be disturbed; it is also advisable after the female has built her nest, to place the male in the breeding cage to begin mating at night. If at any time the male must be removed after mating, it is better to place him in a distant room where the female cannot hear him.

There is no connection between the bowels and laying gut of the female, except in the rectum;

hence oil can only assist that portion of the female anatomy by making it more elastic, if egg bound; it also quickens the healing process of the laying duct.

Clear eggs appear mostly at the beginning of the season, caused by change of food; there are not so many as a rule, in the middle and end of the breeding season.

It is estimated that in the first two hatches, seventy-five per cent. are males; fifty per cent. in the third hatch and twenty five per cent. in the fourth.

If the female does not feed first born nestlings, she may be often successfully tried with young birds from eight to ten days old. In most cases they will not only feed these larger birds, but in course of time become good mothers.

The nest egg is very essential in keeping the laying hen satisfied; without it, she is liable to lay on the floor of the cage.

There should be a sharp border line, between the yolk and white portion of a boiled egg; if they have flowed into each other, the egg is not fit for feeding.

Flying is a great help to birds too fat. This exercise combined with ample green food will soon reduce them to the proper condition.

Inspect all dark places of the breeding room for vermin. The cage and nesting material are not the only haunts for these pests.

The biggest crusade against "chappers", is for breeders to join canary societies. This is not only necessary for concerted action and self protection in the defense of breeding, but will eventually cause "chappers" to disappear from wealthy homes; first class rollers will then take their places.

The United Canary Breeders of America is the main organization for the breeding industry; it is the father of all societies throughout the country; many bird organizations are affilited with this main branch.

There are two classes of birds judged at exhibitions; Class A, consists of birds owned and exhibited by members only and Class B is composed of birds entered by the outside public. It might be well to encourage exhibitors of Class B, in order to arouse more general enthusiasm and universal interest in the melody of the roller.

The best plan to arouse the greatest interest in the breeding industry, would be to offer special prizes for certain tours; a medal offered in a special class for the bird with the best Waterroll, Knarrow or Hollowbell would be the means of perfecting

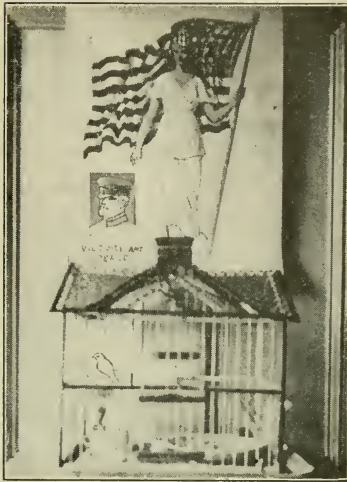
these tours and stimulating the efforts of breeders to produce birds with surpassing melody.

It has been suggested by a number of breeders, that it would be advisable to offer prizes for females at bird shows; not for their song, but for their call, shape, color and general condition. Such an inducement would eventually improve the quality of our females. Whenever there is a reward offered in any class of live stock to produce specific results, competition is stimulated; an effort is then made by breeders, with the desire to perfect and improve that particular type.

Young birds while studying should not be disturbed; unnecessary disturbance causes broken tours.

Crushed hemp seed sours in a few days; it then becomes injurious; hence it is necessary to be kept in a fresh condition.

The necessity of pure water is disclosed in the chemical analysis of an egg, which is PROTEIN 13.5%, fats 17%, sulphur 2%, water 67.5%. The combined PROTEIN, fats and sulphur represent 32.5% of the entire egg composition and water 76.5%. Hence there is 107.7% more water than the combined other elements.



The American Spirit.

CHAPTER XIX.

PROTECTIVE TARIFF FOR AMERICAN BIRDS

The tariff question is of utmost, vital importance to the American breeder. There could be nothing more menacing, than the present unprotected and exposed condition of the American breeder to the unjust, inequitable and unequal competition produced by the importation from Europe of cheap and inferior birds.

The breeding, raising and training of rollers for profit, could never be successfully maintained in the United States without a protective tariff. Either Congress must come to the rescue of the American roller industry or else it is doomed to perish! The American breeder obtained inadvertently through war, what he has thus far been denied in times of peace; an opportunity to build and develop without molestation, an industry which bids fair to rival, if not surpass that of the great German breeders. Four years of World Warfare have enabled the American breeder without the hindrance of a pauperizing competition, to lay the foundation of a thriving industry, in which the improvement of the class and quality of the roller was marvelous. During these four years of free and untrammelled competition, the strength, health and melody of the roller was greatly improved. During that time the progress of the American breeder assumed proportions which have caused the importer to view with alarm our wonderful success.

To permit this thriving industry, struggling with the courage of honest convictions, to fail, through Congress turning a deaf ear to the earnest entreaty of the American breeder, would not only be woefully reprehensible and calamitous for this infant industry, but a crime committed against the people of the United States! Can the Congress of

the United States, thoroughly conversant with the particulars of this industry; fully informed of the controversy between the breeder and importer, refuse to render legislative assistance so sorely needed?

The controversy between the two interested disputants is based upon very simple causes; that of the importer is purely commercial; that of the breeder is the sheer impossibility of producing sickly and inferior birds, to compete with importations from Europe. The difference between the low cost of production in Germany and the high cost of food material in the United States, is the insurmountable obstacle with which the American breeder contends. This difference in the cost of production between the German breeder in Europe and American breeder in the United States, not only regulates the purchase price of the roller, but forces the American breeder to either raise birds for pleasure or give up in despair!

Birds raised in Germany, France, Belgium and England are produced at a very small cost, as compared to the enormous expense necessary here to raise and train a singer for the market. When a young bird, raised here to maturity, has been properly equipped for sale, receiving the necessary care and attention requisite for his health and vitality,

the cost has been far disproportionate and unequal to the amount expended by the German breeder; but that difference has been more than compensated in the class, melody and quality of the American bird! Of course, the bird produced in the Hartz Mountains, at far less cost, can be and is sold much cheaper here, than the American-bred bird, representing the exorbitant and excessive difference of cost in food, labor, time and housing facilities. Such is the magnitude of this intrinsic disparity, an imported bird from Europe, can be raised, crated, shipped and sold here for the paltry sum of four or five dollars!

To produce healthy birds of melody and quality in the United States, lettuce, rape and canary seed are very essential; egg food is absolutely indispensable to the roller industry. How could birds produced in the United States, fed upon egg food and lettuce, when eggs here cost, from eighty cents to one dollar per dozen, and lettuce fifteen cents a head, compete with European bred birds sold for four dollars apiece?

To raise the American bird to an age of maturity, the very lowest individual cost estimated would be about eight dollars a head! Unless this inequality of production is equalized by a protective tariff, the American breeder must cease to compete in this unequal, cruel and inhuman warfare to raise

birds for profit; the American roller industry must not only shrink and decline, but eventually perish!

The object of taxation is to defray the expenses of government. This system has been so devised, as to equitably levy the greater taxation upon luxuries; to remove the heavier burden from the necessaries of life; to place the lion's share upon the shoulders of the rich; to relieve as far as possible the poor. The canary bird is not a necessity, but has been justly classed as a luxury; as such, this bird should be taxed. It has ever been the policy of the United States government to tax luxuries and exempt necessaries. What invisible, sinister influence, now makes a distinction against the poor breeder in favor of the rich importer?

A high quality prima roller can be sold in Germany at from seventy to one hundred marks, equal at times, to from four to six dollars in United States currency! A bird of equivalent class and quality could hardly be produced at maturity here, for less than eight or ten dollars! Shall the wonderful progress made by the American breeder during the war, in which, by thrift and energy, patience and sacrifice, he has made this industry blossom like the rose, perish because Congress fails to hear the plaintive voice from the cellar, while listening to the stentorian shout from the roof?

Shall the will of the importer supersede that of the breeder? Shall the sovereign will of the people prevail or the wealth and influence of the importer?

The American public has been grievously imposed upon in the purchase of these imported birds; they have been far from satisfactory in melody and health. These birds do not last long; in a very short period they usually succumb to some complaint; many dying during their voyage. One is forced to arrive at one of two alternatives; either these imported birds have failed to meet the excessive hardship of a sea voyage, or, that they have been unable to endure the abrupt change of water and climatic conditions. It is further contended, by those in a position to know, that the Americans receive only the culls, cast-offs and weaklings from the hatches of European breeders! It has been well established by most competent authority, that these birds are usually afflicted with typhoid, cholera and consumption; they are generally weak, emaciated and debilitated; sometimes, whole crates of birds die immediately upon arrival. They fail to produce those soft, low tones of melody highly essential to good roller music. The tours sung by these birds indicate clearly that they have not been either associated with or influenced by good vorsingers; they often produce notes of the "chapper" variety, com-

bined with the roller tours; clearly demonstrating that they are birds of hybrid or mixed lineage. Many "chappers" are sold from this motely collection of imported birds for genuine "Hartz Mountain Roller Canaries". As usual, the American public has been inveigled into the purchase of such birds by the magic word "Imported". A protective tariff would protect the American public from this unholy deception!

Imported by the hundreds of thousands, sold here for a song, the American breeder has small chance of competition. To continue with his industry, he must either produce birds of far inferior quality or desist. Shall the Congress of the United States fail to heed the eloquent appeal of its loyal constituents? Shall the earnest request of the American breeder fall upon deaf ears?

The American breeder has built up this industry by patient and incessant toil, by much sacrifice during the rigors of wartime scarcity, and it is the duty of the American government, to protect him by just, immediate and adequate legislation. The slogan of every breeder here, should be, "America for Americans, first, last and all time"! With this war cry, persistently, sincerely reiterated, the victory must eventually be his!

The protective tariff will improve the quality, health and melody of the roller; protect the American public from being imposed upon in the purchase of diseased and inferior birds; defend the breeder from the cruel encroachment of an unjust competition. The importance and necessity of this legislation will not only be universally beneficial to breeder and purchaser, but proportionately increase the revenue of the government by an equitable and and fair taxation. No one with the patriotism of a good citizen, a sincere desire for the welfare of the roller, a genuine love for American industries, can honestly and conscientiously fail to either appreciate or indorse the request for this needful legislation.

By combined force, this evil may be corrected. To assist in the consumation of this victory, each breeder should join one of the bird societies; each society should send a signed petition to it's congressman, earnestly advocating and demanding the passage of a protective tariff, adequately, fairly and humanely adjusted, to equalize the present unjust conditions and protect the American breeder from utter annihilation. With each breeder, showing proper interest, determination and enthusiasm in his demand for equitable recognition, soliciting influence broadcast, procuring signed petitions, sending delegations to intercede with the Ways

and Means Committee of Congress—, success, will be assured! With justice on one side in the combat to overthrow avarice—, righteousness must prevail!

To further aid in the accomplishment of this commendable purpose, instructive propaganda must be prepared, to thoroughly arouse the American public and breeders to the absolute necessity of insisting and demanding that an American industry, of such vital importance to the vast army of bird enthusiasts be protected; that American products are entitled to first consideration; in preference to England, France, Belgium or Germany; that corrupt practices can neither retard nor prevent beneficial legislation. By this plan, we not only prevent the American public from ruthlessly being deceived and imposed upon in the purchase of sick and inferior birds, but give an infant industry a fair chance to thrive.

To succeed in this combat, there must be far more fraternity and harmony and less jealousy and dissatisfaction among American breeders; there must be more enthusiasm and less lethargy; they must be aroused as never before to the supreme importance and necessity of this legislation; there must be far more interest and determination displayed. The breeder here must be ever mindful of the fact, that "in union there is strength"; that in the immortal

language of John Hancock, while signing the Declaration of Independence—, “We must either hang together or hang seperately”! No single individual could be expected to accomplish this gigantic result. But combined, earnest, resolute and determined to fortify and protect this industry from the ravages of an unjust, inequitable and necessarily fatal competition the American breeder must eventually succeed.

To fail, he would lose the advantage gained during the war. To succumb, not only will the quality of birds, which American breeders so highly cherish, deteriorate, but this fair industry which he has erected as a monument to his indefatigable toil, will eventually crumble and collapse!

The Canary Bird Breeders' and Protective Association of New York, as the central organization, representing most of the many bird societies of the United States, passed a resolution, earnestly calling upon Congress to enact appropriate and adequate tariff legislation, to tax the importation of all foreign-bred canary birds. This measure was urged by The United Canary Breeders' and Protective Association of New York to prevent the importation of birds of inferior quality and unsound condition; to protect and improve the American-bred product; because of the high price of rearing, feeding and housing birds, in this country, compared to the low

cost of production abroad. The author of this book was chosen by the committee to draft the resolution.

Since then, this resolution and copies of the same, signed by some of the most powerful and influential public men in this country, have been forwarded to the Ways and Means Committee of Congress. The bill for the taxation of imported birds was introduced in the House of Congress, by Congressman Clarence McGregor of Buffalo, New York. It has been referred to the Ways and Means Committee and has not yet been voted upon. A copy of the resolution indorsing Congressman McGregor's bill adopted by The Canary Bird Breeders' and Protective Association of New York and prepared by the author of this book is as follows:

“Whereas, the American Canary Bird Breeders and Protective Association of New York, representing many thousands of breeders of canary birds in the United States, realizing, with grave concern, the vital necessity for the protection of the infant, but rapidly growing industry of breeding and producing roller canaries in the United States, from the unequal, inequitable and unjust competition created by the importation of foreign birds:

“Whereas, fully appreciating the utmost importance of invoking the aid of Congress for im-

proving the breed and quality of birds and urging the passage of the bill now before Congress, introduced by the Honorable Clarence MacGregor, of Buffalo, New York, for the defense and protection of the home industry, by the taxation of Five Dollars imposed upon every canary imported into the United States:

“Whereas, conscious of the utter impossibility of an honest and equitable competition between foreign bred and domestic birds due to the cheapness of production abroad in foodstuff, labor and rent, as compared to the high cost of labor, foodstuff and rent in the United States:

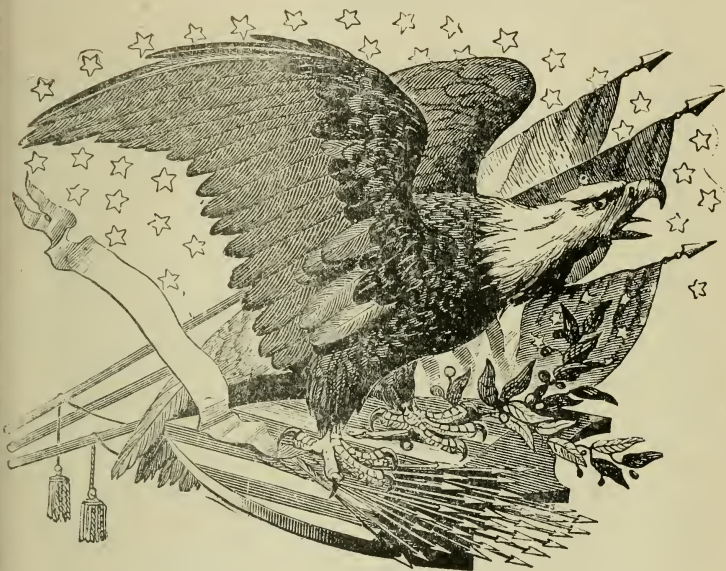
“Whereas, deeply aroused by the earnest appeals of the maimed soldiers, soldeirs’ widows and orphans and the many aged and infirm persons, whose principal source of livelihood, depends upon and is derived from the breeding and improvement of these birds; being thoroughly imbued with the idea, that charity begins at home; that any American industry should receive the first consideration wherein Americans are concerned:

“Whereas, firmly convinced that the purchase of canaries is a luxury, a burden for which, can be more judiciously adjusted, by a reasonable taxation, than the many commodities for household use:

“Be it hereby solemnly resolved, in order to continue this industry unhampered; that the law of supply of these birds in the United States may also meet the demand; to prohibit the further importation of weak and debilitated birds of far inferior quality from abroad; to improve the quality of the breed and stock in the United States; to prevent the deterioration and gradual death of this infant industry at home, we herewith, petition the Congress of the United States to enact the said MacGregor legislation and to give complete, adequate and necessary remedy, as will curb this grievous menace, protect and encourage this industry, by a just, equitable and sufficient tariff, well calculated to equalize the difference between the low price of production abroad and the high cost necessary to raise and maintain birds for market, bred in the United States.

“All persons wishing to assist American breeders are earnestly requested to sign this petition”.





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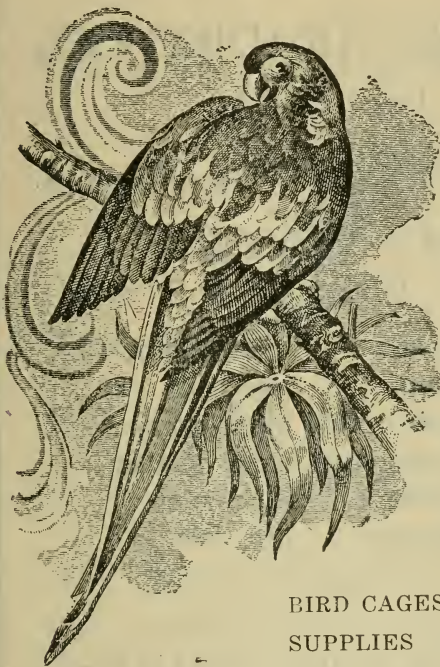
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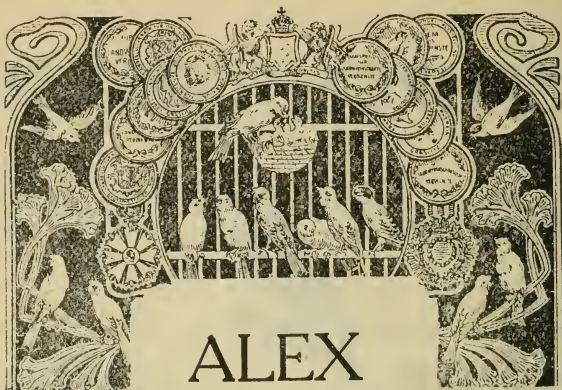
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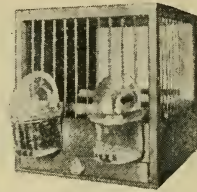
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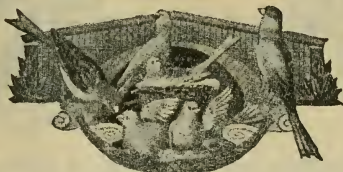
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