CONSIDER THE LOWLY TOAD

Voracious Hunter of Harmful Slugs—Also a Sweet, Though Unappreciated Singer.

By Miss M. Going.

The toad is not impressive, nor beautiful, nor strong, nor swift, nor graceful. Neither is he musical except for a little while in the spring. One wonders therefore why he is the hero of so many wonder tales. More untrue stories are told and believed about him than about any other creature of the fields.

We hear that whoever handles him is punished by warts, that if he be killed the cows on the farm where he dies give bloody milk, and that his breath poisons babies. Scary fairy stories, one and all! According to a pleasanter old belief, a toad in the cellar brings luck to the house. Shakespeare says, "the toad, ugly and venomous, has yet a precious jewel in his head;" but the jewel is as imaginary as the venom.

When so much that is false has been told and believed about the toad it is time that we learned some truth about him.

Great Help to Farmers.

The value of birds, as destroyers of insect pests is now recognized, but the great help which the toad gives to farmers throughout the growing season is not appreciated, because it is not known.

"It is estimated," says The Technical World, "that an average toad is worth to the farmer five dollars a year just for the cutworms which it destroys. But this is only one item. The amount a toad will eat is astonishing. A large specimen has been known to devour a hundred rose beetles at a single meal. One toad needed seventy-seven "thousand-legs" to satisfy his appetite, another fifty-five army worms and a third sixty-five gypsy moth caterpillars. Still another toad ate thirty-five large celery worms in three hours, while a fifth accepted eighty-six flies, fed to him in less than ten minutes. Indeed it has been suggested that the farmers of the country should hatch and rear toads to help them in the summer-long warfare with greedy insects. But the one thing necessary is that they be protected from their enemies, and some of their worst enemies are small boys, who, through mere thoughtlessness, kill toads whenever they get the chance.

Off the coast of New Hampshire there is a group of nine islands, surrounded by rock and reef, and called "The Shoals." They are smiten forever by the ocean winds, and they are so rocky that only herbs, grasses and bushes can get foothold on them. But there, Celia Thaxter, whose lovely verses are so familiar, undertook to make a garden. Earth was gathered, here a little and there a little, out of pockets in the rock, and spread deeply in a long narrow strip, and here the garden grew. When I saw it it was a glory of color, but in its early days of struggle it was crawled over and devoured by slugs, till its mistress was in despair.

"Every living creature has its enemy," said the friend to whom she told her woes, "and the enemy of the slug is the toad. You must get toads."

There were no toads on The Shoals, so Celia Thaxter sent to the mainland for them. Two boys caught sixty and sent them to her in a wooden box filled with earth and covered with wire neting. When the box arrived there were three thirsty-looking toads in sight, sitting on a mound of dry soil. Only three! What a disappointment. But pitying their thirst and dryness, Celia Thaxter showered them with water, and behold! the dry baked earth heaved tumultuously; up came dusgy heads and bright eyes by the dozen. The whole sixty were freed in the island garden, and as summer went on they grew as round as apples and the mischievous slugs disappeared.

Slugs are seldom seen except in dark rainy weather. During sunny hours they sleep, under boards and stones. They are busy all night eating lettuce, and other growing plants, but the gardener does not see them, and so does not know where to place the blame for the mischief done to his vegetables. But toads, like slugs, are out all night. Thus the toad misses the credit he deserves as a mighty hunter.

Toad's Tongue a Trap.

The tongue of the toad is a trap to catch his living, moving food. It is fastened to the front of his mouth. Were your mouth like this, your tongue would be rooted just behind your lower front teeth, with its tip down your throat. The toad can dart the whole length of his tongue out into the air, and its surface is sticky. If a fly comes within say two inches of his head, there is no movement of his body. Quick as lightning his tongue shoots forth and the fly is caught.

If the toad gets little credit for his hunting, he gets less for his singing. Yet he can sing and sweetly too. He spends the winter in some snug hole, fast asleep, and as soon as he wakes he goes down to the nearest pool and there lifts up his voice in the spring song. It is a soft drowsy musical trilling and has been called the sweetest sound in nature. In New England this song, sung by male toads only, is heard in April or May. In the Ohio valley it may rise from the pools in March. If winter comes howling back the music stops, till sunshine and warmth return. It may be heard, day or night, till July.

Eggs Hatch Quickly.

Soon after the water-song begins we can find toad's eggs—black specks, enclosed in long curly ropes of jelly, which are tangled among the weeds in shallow water. The jelly is so clear that we can see, by the help of a pocket lens, something of the wonderful process by which Nature makes the black specks into living creatures. About four days after the eggs are laid little tadpoles wriggle out of the jelly and cling to any hold they can find in the water.

When toad babies leave the egg they have neither mouths nor eyes. On each little head is a pair of sticky humps called "suckers," and with these the tiny creatures hang in black bunches to the water weeds. Now the jelly which has done its work begins to melt away. There are some swollen gray lumps in it—eggs which failed to hatch and are beginning to decay. If the tadpoles are being raised indoors, such eggs must be removed, lest they poison the water nursery.

Every toad or frog of whatever sort begins life under water as a tadpole, and so do the salamanders which have so many popular names—mud puppies, newts, and efts. All these various tadpoles, when newly hatched look much alike, but they differ greatly in the time they take to develop the adult form. Toad tadpoles mature quickly. Three or four days after they leave the egg each becomes provided with two pretty neck frills. These are the gills, which enable tadpoles to breathe under water as do fish.

Baby toads ten days old are lively polywogs, as black as coal, with tails that wriggle constantly and with little round mouths searching forever for something to eat. These mouths have horny jaws for biting off the tips of large plants, or for scraping tiny ones from their foot-hold. By this time the tadpoles can see and their gills are covered.

When the tadpole begins to be a toad, in latter June or July, the first sign of change is the budding out of hind legs. Ten days or a fortnight later front legs suddenly appear. Meantime the mouth and eyes grow larger and the shape of the head changes till we have a strange-looking creature—a little toad with a long tail. By this time he prefers land to water. He has been changed within as well as without, and is now breathing by lungs. Soon his tail shortens and vanishes, and behold! a perfect toad—but with a satin-smooth skin. He sheds his coat every few weeks and each new suit is rougher and more warty than the last.

His skin has the wonderful power of changing color, so that he matches his surroundings, and thus is concealed from hungry enemies. And he needs this protection, sorely.

The ranks of the little toads are ruthlessly thinned. They have many enemies. Crows and hawks love to eat them, so do ducks, and hens; but the most ruthless of all their foes are snakes.

We should wish prosperity and long life to the young toad hiding in the moist grass, for he is one of our greatest blessings. He helps to keep the house free from mosquitoes, flies and vermin, and the garden safe from a host of greedy enemies. And so there is some truth in the old saying, "a toad in the cellar brings luck to the house."

The Apple Includes the Core.

"His love for her is the core of the situation."

"Ought to be—she's the apple of his eye."

A Successful Truant.

Recently closed for repairs, Waterloo Bridge, described as the noblest bridge in Europe, owes its existence to a farmer's son, who later in life developed a genius for engineering.

The boy was John Rennie, and so keen was his interest in machinery that he frequently absented himself from school, spending his time at a millwright's when he should have been at his lessons.

Out of this passion for mechanics grew some of the most notable engineering feats of the past century, among them the building of Southwark Bridge, London Bridge, many bridges in Scotland, and harbors and docks all over the kingdom, including those at Grimsby, Holyhead, Hull, and the East India Dock, London. In addition he reclaimed large areas of land threatened by the sea.

So great was the esteem with which the nation regarded him that when he died at the age of sixty, the erstwhile farmer's son received the honor of interment in St. Paul's Cathedral.

City engineers attending the Canadian Good Roads Convention snapped at St. Andrew's-by-the-Sea. From left to right, they are: Mr. Brian, J. A. Duchastel, Outremont; P. E. Jarman, Westmount, and R. H. Parson, Peterboro.

Last of Eminent Victorians Active at Age of 92.

In a small house in Chelsea's art colony lives a venerable woman who, as a child at six years, hearkened to the guns saluting the coronation of Queen Victoria. This venerable lady whose memory goes back to the very beginning of the Victorian era is Mrs. E. M. Ward, the artist, and the small house in Chelsea was full to overflowing the other day when notables from all walks of life called to congratulate her on her ninety-second birthday.

She relates that the present ex-German Emperor was sent by the Crown Princess of Germany to visit his royal grandmother in the hope that "he would be put in his proper place." As indeed he was, for Queen Victoria found it necessary to conduct the boy from the room by force and then to administer a spanking to the future "All Highest."

Mrs. Ward remembers the great painters of mid-Victorian days as young men. Maclise, Millais, Leighton, Alma-Tadema, Poynter, Mulready, Fred Walker Frith and many more.

Not only in her own field—that of painting—did Mrs. Word know the great personalities of the Victorian era, but she was on terms of intimacy with those who ennobled literature. She has much to tell concerning Dickens, whom she knew well. She was one of a supper party at Dickens' house when Cruikshank, who "had at that time developed a mania for total abstinence, and a seeing me about to sip a glass of wine, snatched the glass from me to dash it on the floor. I had never seen Dickens so angry.

To Cruikshank he said: "How dare you touch Mrs. Ward's glass? It is an unpardonable liberty. What do you mean? Because some one you know was a drunkard for forty years it is not for you to object to any innocent glass of sherry."

Thackeray was another friend. Mrs. Ward having offended her relatives by reason of her marriage, Thackeray advised her "to have nothing to do with relatives, to keep them well at a distance, as they were no good to any one."

Quite Right.

The lecturer was warming to his subject, and presently come with an eloquent burst to the statement:

"Man, as we have seen, is a progressive being, "but many other creatures are stationary. Take the ass, for example: always and everywhere the ass is the same creature. You never have seen, and never will see, a more perfect ass than you see at the present moment."

A deserved kick helps us more than an undeserved pat.

Keeping the Cut Flowers Fresh.

It is easy to keep flowers fresh if the right precautions are taken right from the start. In the first place you should cut the blooms in the morning before the sun has had time to cause them to wilt any. Then they should be placed in large vases that give the stems plenty of room and that are deep enough so the water can come up almost to the flowers. This is necessary to fill the stems perfectly. Keep them in a cool place that is not subject to drafts. After they stay here for a few hours they are ready to use on the table or any place you want them, not in the direct sunlight or strong wind, and will remain fresh ordinarily. They should be treated in this same way if you desire to ship them, and I have sent flowers for a thousand miles and had them come through in good shape. They should be packed in a box just large enough to hold them without crowding, and this should be lined with one or more sheets of oiled paper (wax paper), and inside this with common tissue. The water on the stems when removed from the vase is sufficient, but be careful to keep it off the blooms. Wrap the box well and it will go reasonable distances all right.—A. H.

Training Women Doctors.

The Jubilee of the London (Royal Free Hospital) School of Medicine for Women, part of the University of London, will be celebrated in October.

At the present time there are nearly 400 women students who pass on for their hospital training to the Royal Free Hospital, the governors of which institution made possible from the first the training necessary for fully-qualified women doctors.

This is the only centre of medical training exclusively for women in the British Empire, and to-day its medical students include women from eighteen countries.

A thousand graduates of the London School of Medicine for Women are now practising in various parts of the world.

Her Complaint.

Margaret was housemaid in the Blank family, the members of which are given to quarrelling. One morning Margaret sought her mistress and gave notice. Mrs. Blank was distressed and unwilling to part with so excellent a servant.

"And are you really going to leave us, Maragaret?" she asked, sadly. "What is the matter? Haven't we always treated you as one of the family?"

"Yis, mum," replied the girl, "an' Oi've shtood it as long as Oi'm goin' to, mum."

—AND THE WORST IS YET TO COME

FLYING OPERATIONS DURING 1924

Growth of Work Assigned to Royal Canadian Air Force—Increase in Patrols and Surveys.

A programme of flying operations to be undertaken this season by the Royal Canadian Air Force for other Federal Government departments has now been drawn up. The steady growth of this work is the best proof of its usefulness and each year brings an increase in the number, variety, and extent of the operations called for from the Air Force by other branches of the government service.

As in the past, the work of the Forestry and Survey Branches of the Department of the Interior is the largest item on the programme. The plans for 1924, however, show an important addition which opens up a new phase of activity in aviation. This is a request from the Fisheries Branch of the Department of Marine and Fisheries for a continuance, and a large extension, of the experimental patrols carried out last year on the Pacific coast for the prevention of illegal fishing and other allied work in connection with fisheries protection. The base chosen is at Prince Rupert and extensive patrols will be carried out from there covering the entire coast of northern British Columbia and the islands adjacent to it.

The success of the photographic operations undertaken for the Topographical Survey Branch of the Department of the Interior is best shown in the large increase in the area to be covered by aerial surveys this year. The actual mapping work is under the Topographical Survey and as will be seen from the large amount of work proposed, progress is being made in the development of methods of utilizing the information shown on aerial photographs for practical mapping purposes.

The fact that aircraft can be used successfully in forest protection is now fully established. The only remaining step is to perfect organization and develop equipment at costs within the ecconomic means of forest authorities. The R.C.A.F. and the Dominion Forest Service are bending all their energies to this end. The necessary practical experience and working knowledge of essential factors involved in reducing costs are being obtained through large scale air operations in Manitoba and Alberta. These operations to-day serve a double purpose. They provide patrols for areas otherwise impossible of protection, and at the same time serve as proving grounds in which organization and material can be developed suited to the needs of all forest protective agencies.

Details of the programme are given below with an estimate of the flying time required to carry out each operation:—

Department of National Defence.

Air Service.—Air Force practice, machine tests, etc., 300 hours; flying training for R.C.A.F. service pilots and cadets, 1,000 hours; total, 1,300 hours.

Militia Service. — Flying as necessary in connection with Militia Courses of Instruction at Esquimalt, Sarcee, Sherbrooke, Petawawa, and Halifax, 82 hours.

Department of the Interior.

Forestry Branch.—Patrol of the forest areas in the Railway Belt of British Columbia in periods of unusual fire hazard, 40 hours; routine patrols of the forest reserves on the eastern slope of the Rocky Mountains from the Clearwater river to the International Boundary, 700 hours; patrols of the forests in Manitoba, east, north, and north-west of Lake Winnipeg and experimental patrols over northeastern Saskatchewan, 800 hours; sketch mapping of young timber growth areas in the French river section, Ontario, 20 hours; experimental work in forest surveying by aerial photography, 30 hours; total, 1,590 hours.

Topographical Survey Branch—Vertical photography in the Edmonton district, of an area of 520 square miles, in the vicinity of Vermilion, of an area of 2,592 square miles, and in the Wainwright district, Alberta, all for map revision purposes, 59 hours; oblique photography of an area of 3,224 square miles in the vicinity of Edmonton, Alta., for map revision, 24 hours; oblique photography over water courses in northern Saskatchewan, including the Churchill and Reindeer rivers, Reindeer, Churchill, and Ile a la Crosse lakes, for mapping purposes, 35 hours; oblique photography over water courses in the Kississing Lake district, and of Crosse Lake and Oiseau districts, Manitoba, for mapping purposes, 49 hours; oblique photography in connection with map revision in the counties of Digby, Yarmouth, and Shelburne, Nova Scotia, 23 hours; vertical photography in the districts of Windsor and New Glasgow, N.S., 10 hours; total, 200 hours.

National Parks.—Routine fire patrols in the Waterton Lakes National Park, included under patrols of forest reserves on eastern slope of Rockies for Forestry Branch; photographs of islands in Georgian Bay for survey purposes, 15 hours.

Water Power Branch.—Photographs of water-power developments and sites for future development, 10 hours.

Department of Indian Affairs. — Transportation of Indian agents to points in the Norway House agency and Group 3, Clandeboye agency, 18 hours.

Department of Marine and Fisheries.—Fishery patrols to prevent illegal fishing in British Columbia coastal waters, 300 hours.

Grand total for all Federal Departments, 3,515 hours.

A Good Job for a Lazy Man.

A wealthy man insisted that his head gardener should take as an apprentice a boy in whom he was interested. The boy was lazy, and the gardener was not at all pleased at having such a youth thrust on him. Some time afterward his employer while walking in the garden came upon his gardener and said:

"Well, John, how is my young friend getting on?"

"Oh, he's doin' fine," replied the gardener, smiling; "he's working away there at the very job that suits him."

"I'm glad to hear that. What may it be?"

"Chasing snails off the walks,' was the cutting reply.

So Could Mother.

It was in the drawing class at the school.

"Sargent was a great artist," said the teacher. "With one stroke he could change a smiling face to a sorrowful one."

"That ain't nothin'," piped up Johnny. "Me mother does that to me lots of times."

Vocational Training.

"Did that agricultural course your boy took in college help him any in his work?"

"Yes, indeed. He's in the city now, writing 'Back to the Farm' pieces for the magazines."

My, My, What a Memory!

Marian, who is seven years old, had gone to the hospital for a slight operation. She looked round and seemed puzzled.

Finally she said to the nurse, "My, but things do look changed here!"

"Have you been here before?" asked the nurse, much astonished.

"Why, yes; I was born here," was the startling answer.

The Game They Play.

"Great game, these women play pretending to want to pay each other's carfare."

"A great game, you say?"

"Yes; the one who can take the longest to get her nickels out wins."

Masts 180 Feet High.

The highest masts of sailing vessels are from 160 to 180 feet.

$50,000 Table Prop.

An old art dealer of Antwerp, on his way up six flights of stairs to examine some pictures, was offered a chair by a woman on the fourth floor, who noticed that he was out of breath.

While he rested on the chair he happened to glance into a room of the woman's house. and he saw a couple of chairs and a rickety table, under one leg of which was a book.

His practised eye noticed immediately that the book was bound in parchment made from human skin.

The dealer obtained permission to examine it closely, and found that it was one of the three extant copies of an old Latin work for which he knew he could get a high price. The woman told him that she could neither read nor write, and that she had picked the book up because it was of "just the right thickness to keep her table steady."

The dealer took the book, sold it to a collector, and rewarded the woman with $25,000—half the proceeds of the sale.

He Wanted to Meet the Mouse.

We have never liked the idea of frightening children into quiet and submission. The immature nervous organization of the child often suffers severely from such treatment. But there are some strong souls among the youngsters about whom we need not worry; they are not easily scared.

One of them, as we read in the Argonaut, is three years old. One evening after he had been put to bed he began to wail, and Mary, the maid, was requested to soothe him. After a short lull the crying broke out again with renewed vigor, and papa was instructed to investigate the trouble.

"What's all this noise about, you young rascal?" he demanded.

"Well, Mary said if I kept on crying a great big mouse with big green eyes would come and sit on the end of my bed, and I've kept on, but it hasn't come yet!"

Too Many Letters.

"Great Scott! What on earth has that fool of a jeweller been playing at with this ring?" exclaimed a young man, gazing at the engagement ring in his hand.

"What's the trouble?" asked his friend.

"Why, I told him to engrave 'From A to Z'—from Arthur to Zena—on the inside of it; and the idiot has put in the whole blooming alphabet!"

Lace Worth More Than Gold.

The highest price ever paid for lace was ten times its weight in gold.