

The Mary Frances Garden Book



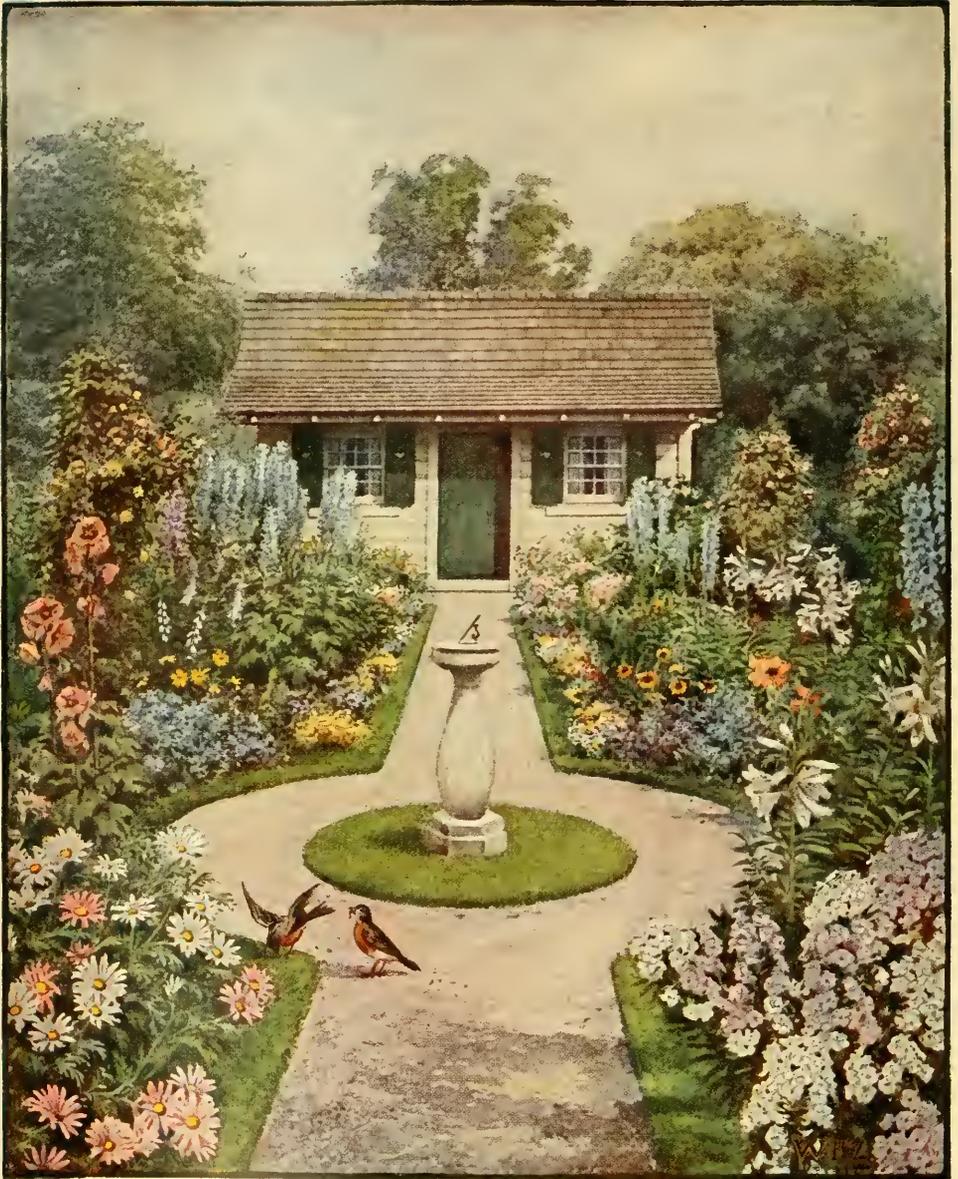
Adventures Among the Garden
People by Jane Eayre Fryer

PART ONE

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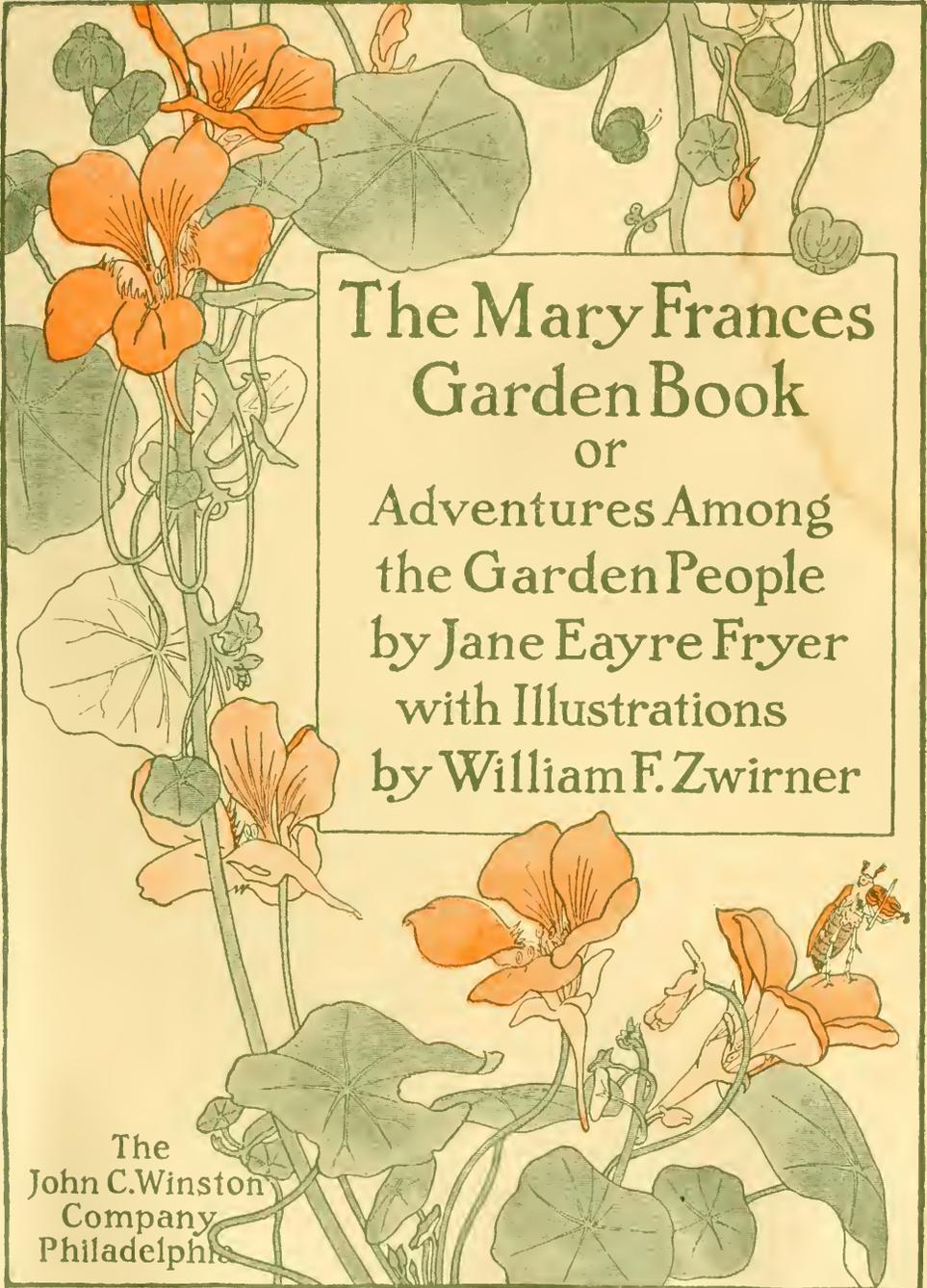
[Green Thumb Family](http://GreenThumbFamily.com)



A GARDEN WHICH MARY FRANCES AND BILLY PLANTED



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The cover features a detailed illustration of nasturtium plants. Large, vibrant orange flowers with prominent stamens are scattered throughout the scene, accompanied by large, rounded green leaves with distinct vein patterns. A small insect, possibly a bee or fly, is depicted on one of the lower flowers. The entire illustration is framed by a thin green border.

The Mary Frances
Garden Book
or
Adventures Among
the Garden People
by Jane Eayre Fryer
with Illustrations
by William F. Zwirner

The
John C. Winston
Company
Philadelphia

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BY THE SAME AUTHOR

THE MARY FRANCES COOK BOOK

—OR—

ADVENTURES AMONG THE KITCHEN PEOPLE

The Mary Frances Cook Book is the exceptionally clever and fascinating story of a little girl who wanted to learn to help her mother. Only it is much more than a story. It tells in story form how Mary Frances learned to cook. She wants to know what all the kitchen pots and pans are for, so she asks them. And they tell her—the pots and pans talk. The book gives recipes in the simplest, plainest words. It describes every operation clearly—just what Mary Frances did, and how she learned to avoid mistakes. The book stimulates the imagination and creates a desire to follow Mary Frances' example. Svo. Cloth, 170 pages. Over 200 colored illustrations by Margaret G. Hayes and Jane Allen Boyer.

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PREFACE

DEAR BOYS AND GIRLS:

Mary Frances and Billy have been growing up, and with their growing, they have learned to love the great out-of-doors.

No, they haven't outgrown fairy folk, at least Mary Frances hasn't, for that is a part of this story—how Feather Flop, the rooster, and Jack-in-the-Pulpit and Bouncing Bet, the fairies of the wood, helped teach her to garden.

But in their study and work, Mary Frances and Billy learned more than that—they learned to appreciate what a wonderful amount of energy is expended by Mother Nature in growing one little plant from a seed; how careful she is that nothing be wasted; and what pleasure there is in tilling the soil, and helping things grow!

Everything else in the Mary Frances stories had

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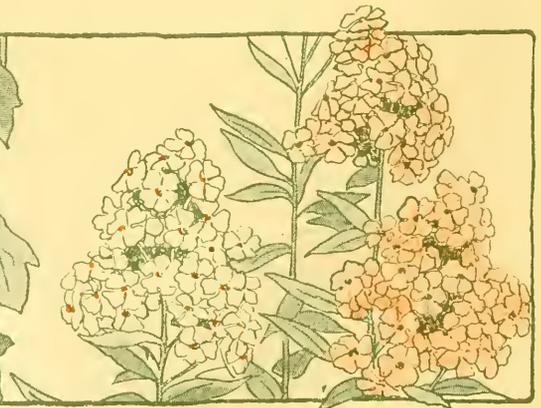
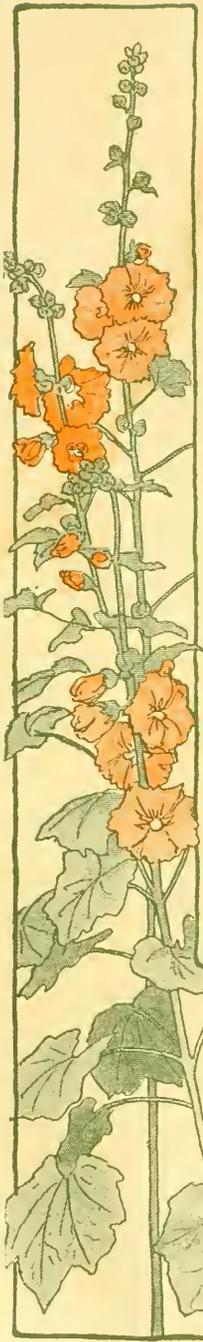


to do with indoors: in cooking, feeding the body; in sewing, clothing the body; in housekeeping, sheltering the body. In gardening, which took them out-of-doors, the children had so much fun and had so much to learn, that the whole story cannot be put down here—you must finish it out for yourselves in your own gardens.

That you, too, may learn to help things grow, and share the pleasure which Mary Frances and Billy, and their friends, Eleanor and Bob, had in making a garden, is the wish of

THE AUTHOR.

MERCHANTVILLE, N. J.

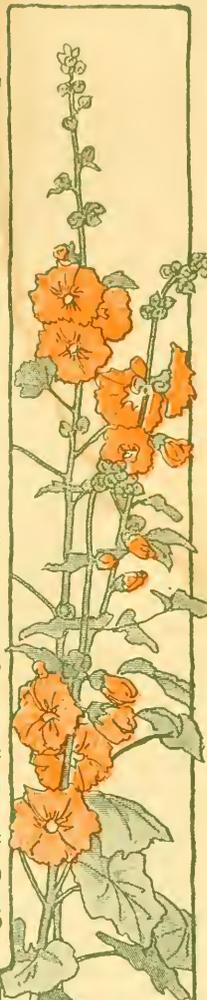




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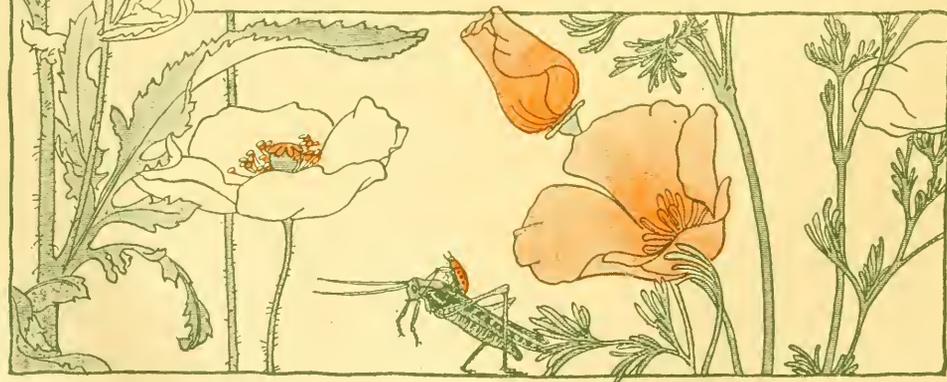
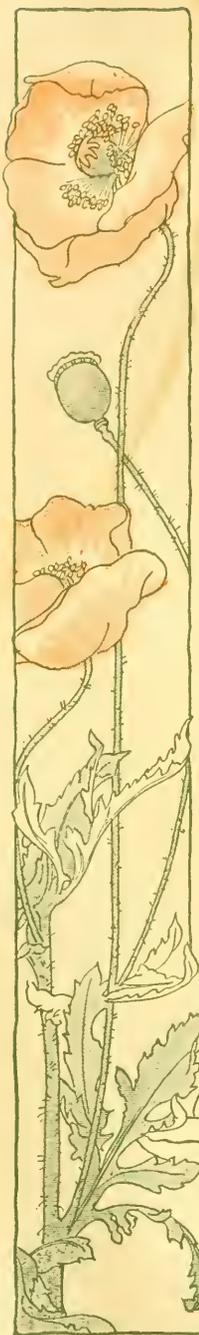
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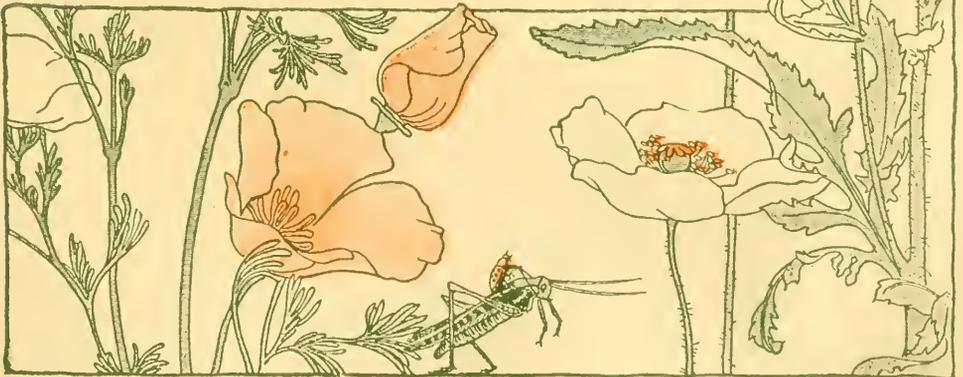
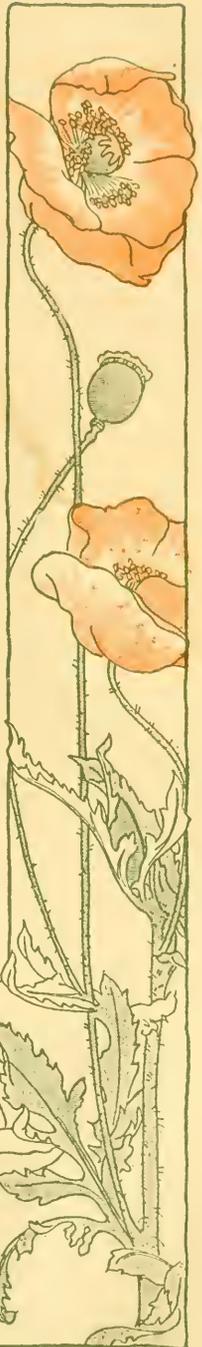
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THE MARY FRANCES GARDENS

To be Cut Out and Mounted by the Reader

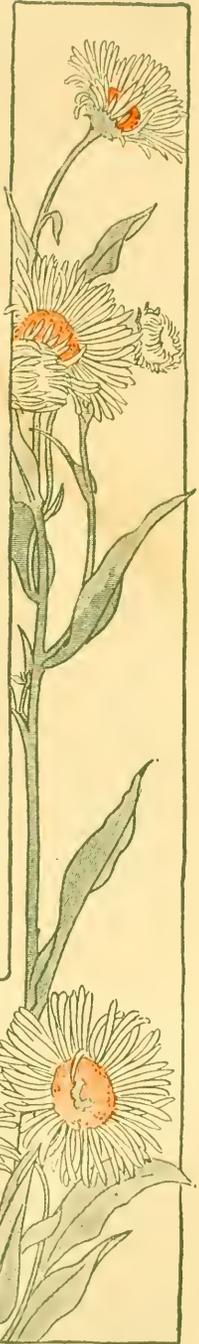
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These cut-outs will familiarize the child with the plants shown, and their season of bloom, and inspire a love for practical out-of-door gardening.

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THE PLANT FAMILIES

Cherry

Rose

Blackberry

Strawberry

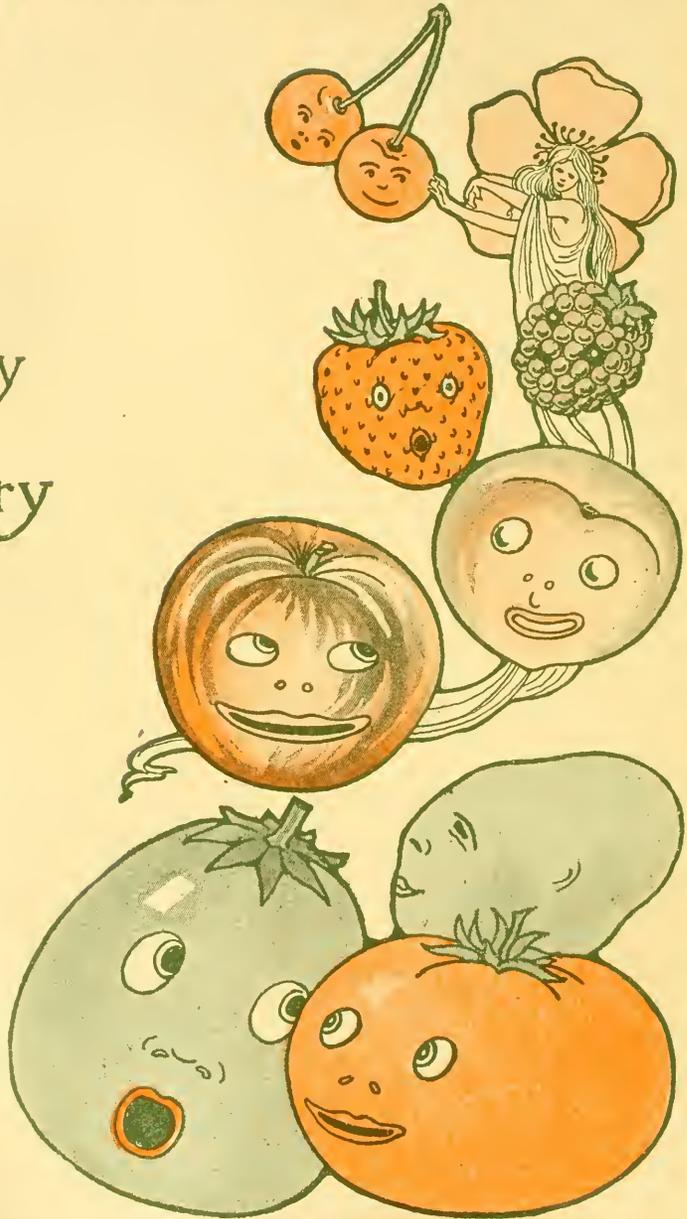
Peach

Apple

Potato

Egg Plant

Tomato





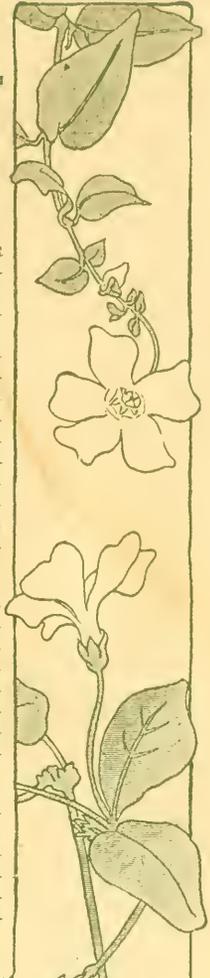
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GARDENING

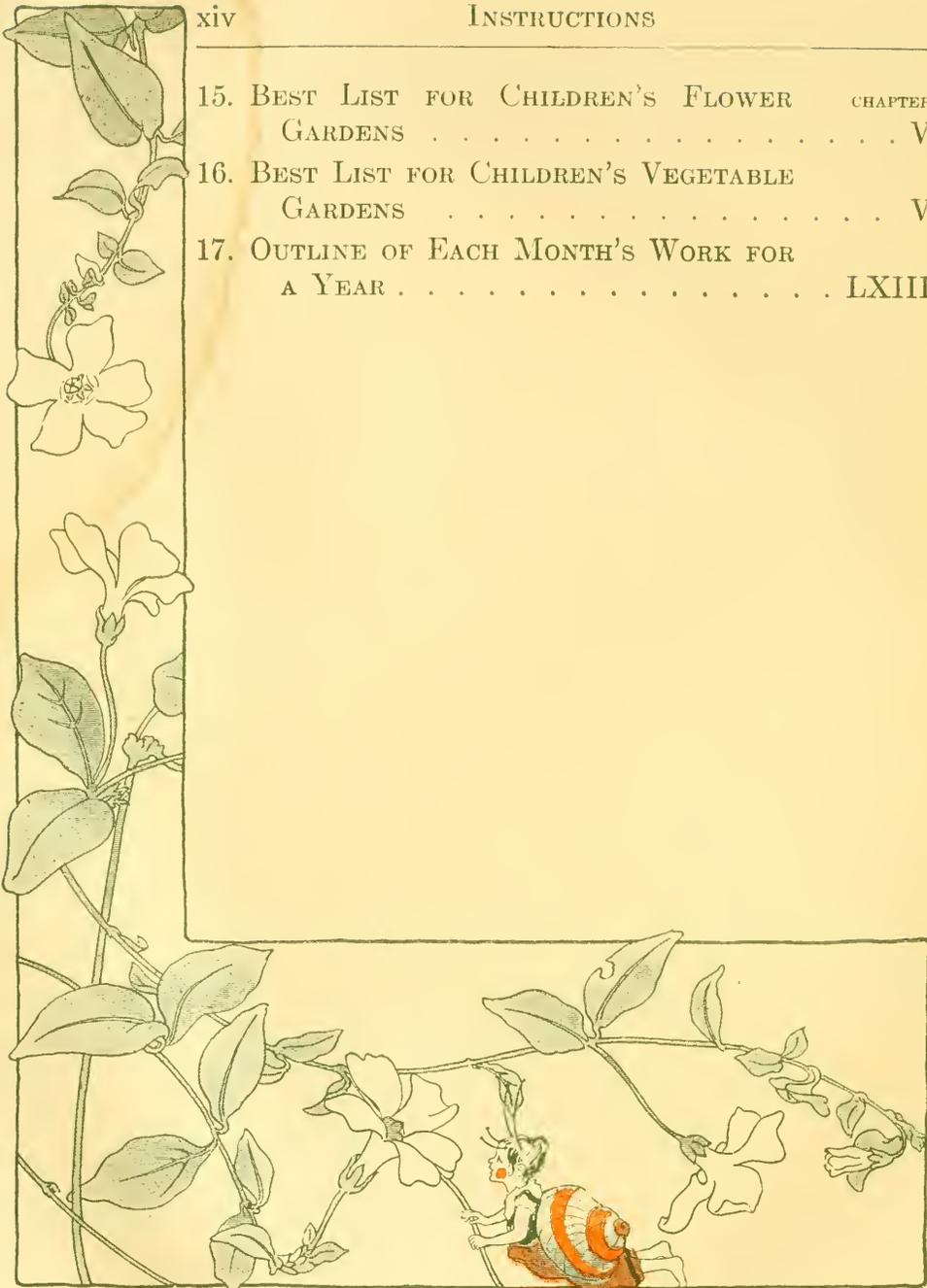
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THE GARDEN PEOPLE

Good Mrs. Bee



Feather Flop



Little Lady Bird



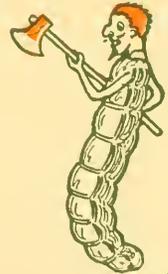
Beauty Butterfly



Mr. Hop Toad



Mr. Cut Worm



The Wicked
Rose Bugs



CHAPTER I

FEATHER FLOP, THE GARDEN BOSS

“OH, dear, I can’t understand a word this book says,” sighed Mary Frances, who was sitting on the garden bench, looking over a seed catalogue. “I can’t understand it!”

“Of course you can’t,” said a strange voice. “Not without help.”

Mary Frances was startled; she looked about, but saw no one.

“Why, who can it be?” she exclaimed.

“You can’t without help, I said.”

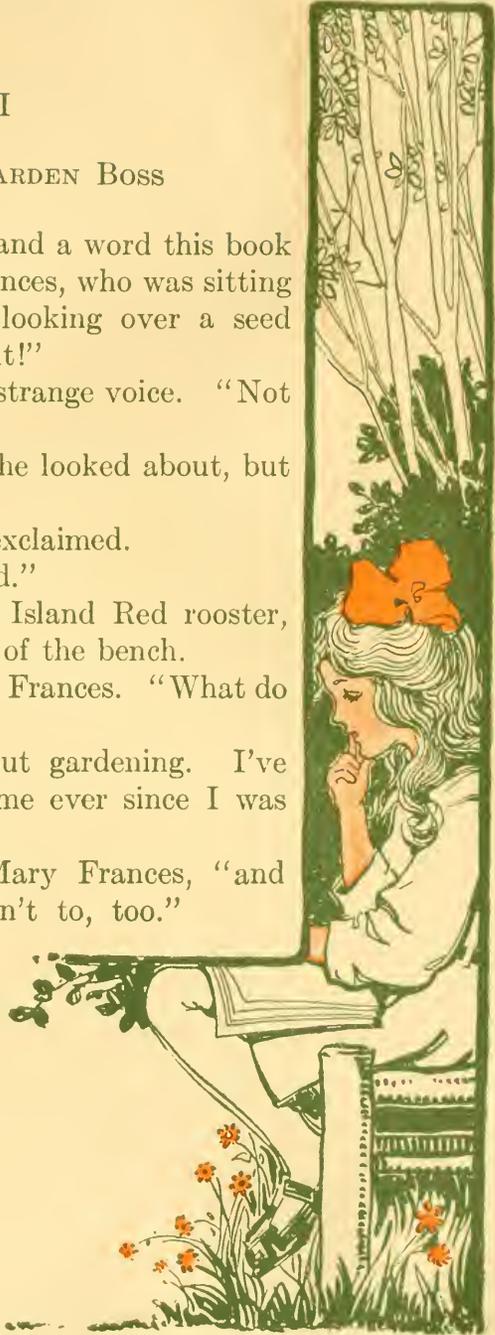
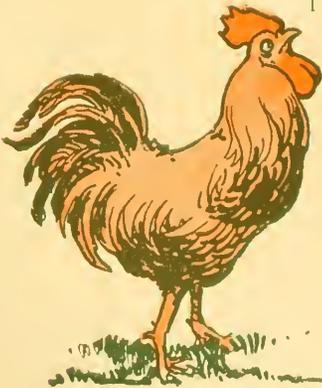
Feather Flop, the big Rhode Island Red rooster, came strutting around the corner of the bench.

“Why, is it you?” cried Mary Frances. “What do you know about gardening?”

“I ought to know a lot about gardening. I’ve lived in a garden most of the time ever since I was hatched,” shrilled Feather Flop.

“Yes, you have,” laughed Mary Frances, “and you’ve eaten up what you oughtn’t to, too.”

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"That was when I was bad. I'm going to be good now."

"Oh, well, that is different," replied Mary Frances. "What's the first thing to do?"

"Let me see," said Feather Flop, scratching his head with one foot. "Let me see—why, the first thing—the first thing is to get the ground ready!"

"What do you do to get it ready?" asked Mary Frances.

"Why, dig, of course," answered Feather Flop. "I can dig."

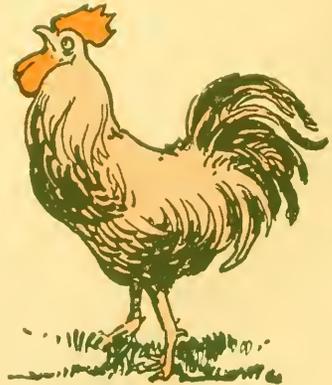
"Well, well," replied Mary Frances, "I see you really want to help me, so we'll plan out what we're going to do. I want all kinds of flowers and vegetables."

"Did you start the seeds in the house in March so that some would be ready to set out now?" asked Feather Flop anxiously.

"Oh, no," said Mary Frances, "but Billy did. He has a lot of little seedlings growing."

"Can't you steal some?" asked Feather Flop.

"Oh, I wouldn't do that, Feather Flop," said Mary



Frances. "Would you? I'd rather ask Billy for them."

"Don't say anything about me when you do," begged the rooster:

"Why?" queried Mary Frances.

"I'm afraid of him. He's chased me out of the——"

"Vegetable garden several times this Spring, already," laughed Mary Frances. "Maybe if he knew how much you wanted to help with this surprise garden of mine, he would be kinder to you."

"He's kind enough," said Feather Flop, "but I'm not anxious to know him much better yet a while. So I'll ask you not to mention me."

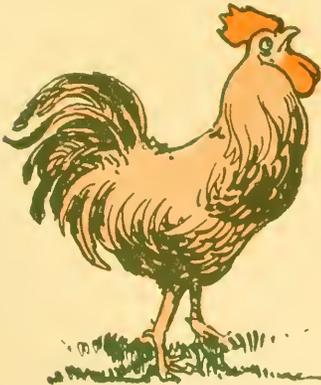
"All right," agreed Mary Frances, "I think I understand. But Billy wouldn't hurt you."

"Do you really wish me to help you, Miss Mary Frances?" asked the rooster.

"I certainly do, Feather Flop," said the little girl; "if you will be so kind."

She could scarcely keep from laughing at how pleased and proud he looked.

"Then, let us take a look at the garden plot," he



said, leading the way to the front of Mary Frances' play house.

"I'll set right to work," said Feather Flop, beginning to scratch, "right to work, and dig the whole afternoon, and early to-morrow morning, too."

"Don't work too hard," said the little girl. "I think I ought to help you."

"Oh, no, little Miss," answered Feather Flop. "Why, see what's done already."

Mary Frances put her hand over her mouth to keep from laughing aloud as she looked at the little round hole the rooster had made.

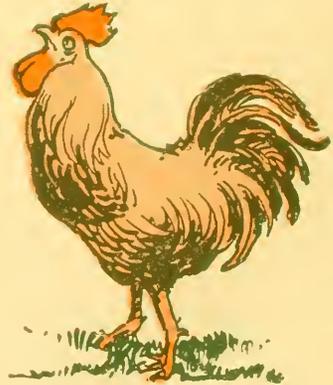
"You do splendidly," she said, "and to-morrow morning I'll be here bright and early."

"Just one question," called Feather Flop. "Is the garden a secret?"

Mary Frances turned back. "In a way," she explained. "You see, Father gave Billy a part of our big garden for his camp and garden——"

"I know," said Feather Flop, nodding. "I was down there one day—and I don't care to go again."

"I wanted to ask Father for a garden plot of my own," went on Mary Frances, "but Billy said, 'Why



don't you have a flower garden in front of your play house, and a vegetable garden back of it and surprise all the folks?" You can't imagine, Feather Flop, how delighted I was with that idea."

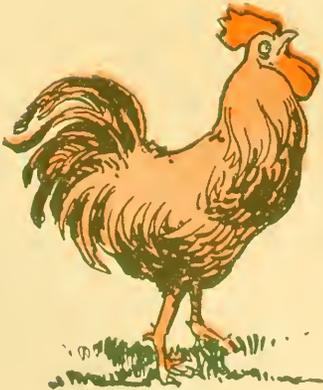
"Fine idea!" agreed Feather Flop, scratching again. "Won't it be splendid when the things grow!"

"And won't it be a perfectly lovely surprise!" cried Mary Frances.

"I won't tell anybody," volunteered Feather Flop. "It will be grand to have a real secret with someone."

"Oh, thank you, good old Feather Flop," answered Mary Frances. "Are you certain you don't want me to help spade up the garden?"

"Claws were made before spades," said Feather Flop, scratching away. "I'd like to do this myself, please. Come bright and early in the morning when you hear me crow."



CHAPTER II

FEATHER FLOP OVERSLEEPS

VERY early in the morning Mary Frances awoke and listened a long time for Feather Flop's signal, but not a sound was to be heard except the faint crowing of a distant rooster at the far end of the village.

"I expect he crowed before I was awake," concluded Mary Frances, as she quickly dressed and went down-stairs on tiptoe.

The sun was just getting up as she ran out into the garden.

"Hello, Feather Flop," she called softly as she hurried along, but there was not a sight or sound of Mr. Rooster.

"Mercy," she thought, "I hope nothing's happened to him. Where can he be? Oh, see, he's dug—let me count," (counting them off) "eighteen holes! My, it must have tired him out."

"But where can he be?" she went on, and called again and again as loudly as she dared:

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"Feather Flop!"

"*Feather Flop!*"

"FEATHER FLOP!"

"Oh, maybe he's in my play house!" she suddenly thought and ran to look. And there he was—where do you think? Fast asleep in one of the doll's beds with the covers tucked close up under his bill!

"Well, you're a funny kind of a gardener," laughed Mary Frances as soon as she recovered from her astonishment. "Here it is long past crowing time."

Feather Flop turned over. Then he began to mutter sleepily:

"I don't care what people say,
I shan't get up and crow to-day;
I've never laid in bed—so then!
I shall not crow till half-past ten—to-night!"

"Oh, Feather Flop!" cried Mary Frances. "Oh, Feather Flop! How you disappoint me! Why, I've gotten up early because you promised to help in my garden! Come, get up!" going toward the bed.

"Excuse me!" exclaimed Feather Flop, hopping out of bed. "Excuse my bad manners, dear Miss,"



and away he ran out the door and into the garden before Mary Frances could catch up.

"My, but you can dress quickly, Feather Flop," she called.

"Oh, nothing like having your clothes grow on you," answered Feather Flop, lifting his wings, "especially if they are pretty."

Mary Frances laughed. "Come, come, no con-ceited remarks, please," she chided; "and now to work."

"It takes longer than you'd think," said Feather Flop, beginning to scratch, "especially with an empty stomach."

"How dreadful of me not to think of your break-fast, Feather Flop," she said, and ran to get some corn.

"Thanks, thanks," said Feather Flop, hungrily eat-ing. "If they only didn't keep the food locked up, I could help myself, and not have to trouble anybody."

"Well, this is not gardening," he went on; "and besides, I want my dessert. I had splendid luck yes-terday—four hundred and fifty-one grubs I ate, and several score of nice long worms. Besides, I let Robin Redbreast have a hundred or so."

"Oh, my," shuddered Mary Frances.



“What’s the matter?” asked Feather Flop, looking up. “You didn’t want any, did you? I’d have been delighted to have saved some for you.”

“Oh, my, no!” cried Mary Frances. “Oh, no, thank you! No!”

“You’re sure?” inquired Feather Flop. “Well, you must certainly be glad they are not left here in the garden to eat up your plants, I know.”

“Indeed! I’m much obliged, Feather Flop,” said Mary Frances. “While you dig, I’m going into the house to get some seeds, and to plan out my garden.”

“All right!” said Feather Flop. “Don’t mention me, please, to—you know.”



CHAPTER III

BILLY PLANS THE GARDEN

MARY FRANCES," called Billy, as she came into the house, "I say, let's start work in your garden to-day. The first thing to do is to dig and spade it."

"Oh, Billy, it looks as though it had been done," answered Mary Frances. "I guess I can plant it right away."

"Ha! Ha!" laughed Billy. "Why, it has to be dug deep; the earth has to be turned under, and compost mixed with it and all pulverized before little seeds or plants can take hold with their roots."

"How deep?" asked Mary Frances.

"Oh, about a foot, I guess," said Billy; "but don't let's talk too loud if you want to keep this garden a secret. Let's go out and have a look at it."

"You needn't mind—" began Mary Frances, but Billy was well on the way.

"That old Rhode Island Red! See what he's done!" exclaimed Billy, throwing a stone at the rooster.

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"Oh, Billy," begged Mary Frances. "Poor old Feather Flop! Don't scare him! Maybe he thought he was helping!"

"Helping?" laughed Billy. "Helping! If he tries to help that way when things come up, I'll wring his neck!"

"Oh, you wouldn't do that, Billy," cried Mary Frances. "He'll be good, I know."

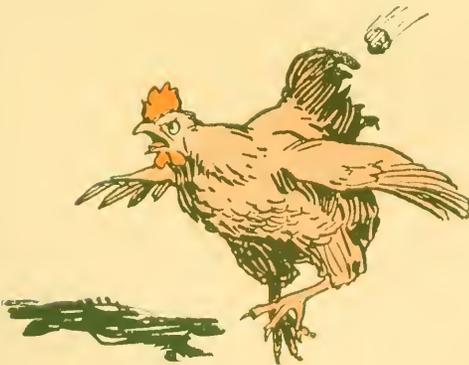
"Well," said Billy, "you're responsible for his behavior then—he's your rooster. I'd like to clip his wings and cut his tail off right up next his ears—maybe."

"He will be good, Billy, I feel sure," answered Mary Frances. "But you are very kind to dig my garden up."

"Well," answered Billy with a very grown-up air, "I know what sort of an undertaking this is. How're you going to lay the garden out?"

"Oh, I don't know yet," answered Mary Frances. "Won't you help me plan it?"

"Yes, but it's best to begin with pencil and paper; that's the first thing Miss Gardener told us in our 'Home Garden Course.'"





"Well, here they are," laughed Mary Frances, throwing open the play house door.

"Fine," said Billy, seating himself at Mary Frances' little desk and helping himself to the articles needed.

"But wait," he continued. "If I show you how to plan this surprise garden you must carry out my directions. I don't get caught with any promise to do all the work."

"Oh, no! No-indeedy! Of course not; I'm just crazy to start and I promise not to trouble you a bit."

"Well then," said Billy, "here goes for the—

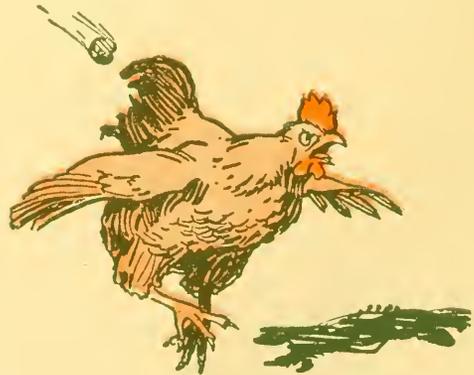
GARDEN LESSON NO. 1

Planning a Garden

First: How much ground have you to work in?

Let us say 15 x 25 ft. in front of the play house for the Flower Garden, and 15 x 15 ft. in the rear for the Vegetable Garden."

He rapidly drew an outline of the two gardens with a pretty sketch of the play house between.



"Now," he went on, "you will wish to leave a walk down the center with a border of flowers on each side," sketching them in.

"You see, the beauty of a garden depends so much on the way it is laid out that garden planning has become a profession, and the man who studies it is known as a landscape gardener."

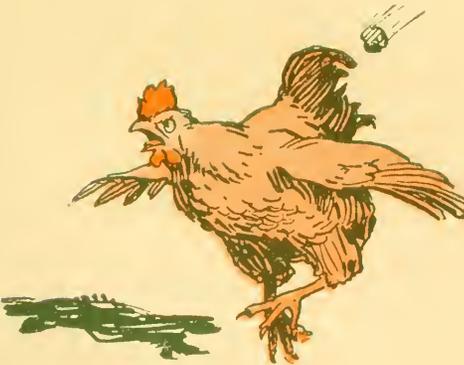
"My," laughed Mary Frances, "how much you learned at the garden school; you're lots better than a seed catalogue."

"Much obliged," replied Billy, "that'll do for bouquets. Now listen: the way to grow early Spring flowers is to plant bulbs in the Autumn—about the first of November. Then, early in March, sometimes even in February, tiny snowdrops will pop up and, a little later, beautiful crocuses."

"Won't that be grand!" cried Mary Frances.

"Yes, in the next lesson perhaps, I'll give you a list of bulbs and plants which you can set out at the proper time.

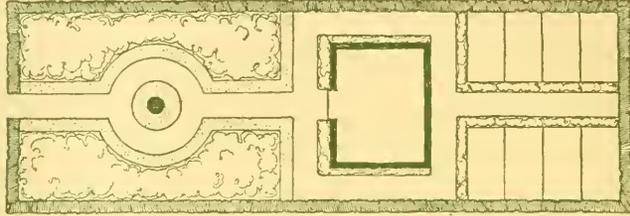
"The best scheme for the vegetable garden is to work it out into small rectangular beds between well-kept walks," said Billy, finishing the—



LAY-OUT OF THE GARDENS

"How perfect!" exclaimed Mary Frances examining the sheet of paper which Billy handed her. "I can just imagine how beautiful my gardens will look. Isn't it a lovely idea to have that circle in the walk!"

"It would look fine if it had a sun-dial built in the



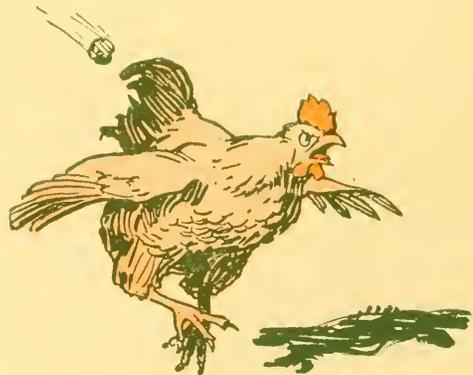
THE MARY FRANCES PLAY HOUSE GARDEN

center," said Billy, much pleased with his sister's praise.

"Oh, Billy, Billy," laughed Mary Frances, "I believe, I do believe you are going to surprise me!"

"What are you talking about?" cried Billy. "I must be going—another lesson to-morrow, if you say so, because you didn't interrupt more than twice while I was talking."

"It pays to be good," he teased as he went off.



CHAPTER IV

FEATHER FLOP'S ARGUMENT

NEITHER of the children had noticed the head of the big rooster as he peered curiously through the curtained window of the play house while they were talking.

As Mary Frances came out of the door, Feather Flop walked around the corner of the house. The little girl was so absorbed in looking at the plan that she did not see the rooster.

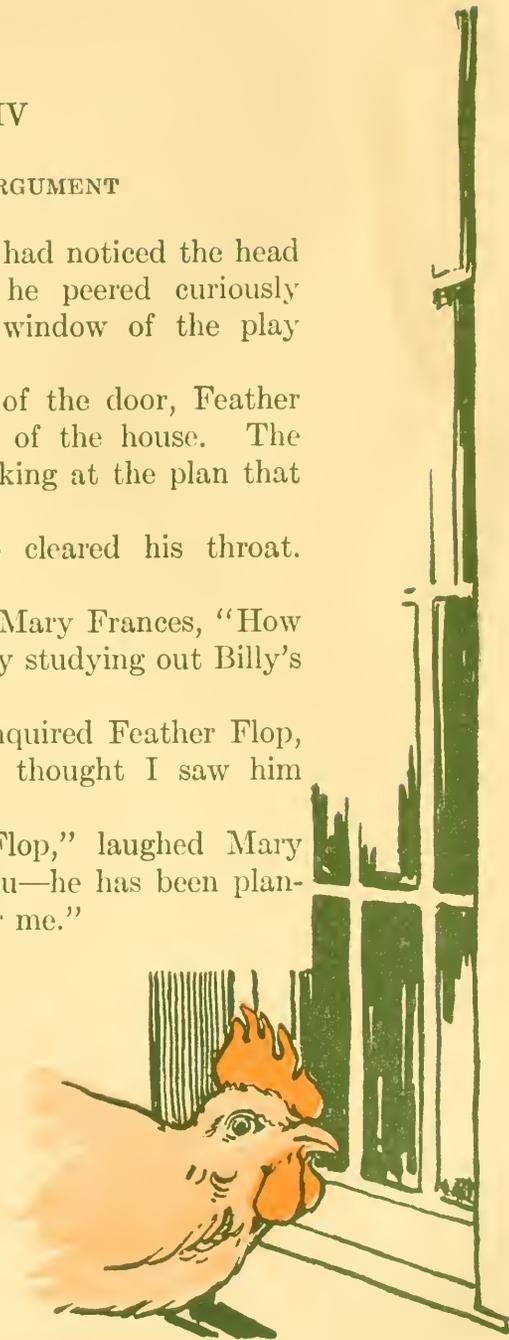
"Caw-caw!" Feather Flop cleared his throat. "Caw-caw!"

"Why, Feather Flop," cried Mary Frances, "How you surprised me! I was so busy studying out Billy's plan for the garden——"

"Is he anywhere about?" inquired Feather Flop, looking around anxiously. "I thought I saw him go."

"Yes, he's gone, Feather Flop," laughed Mary Frances. "But let me show you—he has been planning such a delightful garden for me."

[31]



"Delightful!" shrilled Feather Flop. "Delightful! I don't think so."

"Why, what makes you say that? How do you know what he planned?" inquired Mary Frances.

"I heard every word, every word," said the rooster. "Of course you didn't see me—I was peeping in the window."

"Oh, Feather Flop!" cried Mary Frances. "Were you eaves-dropping?"

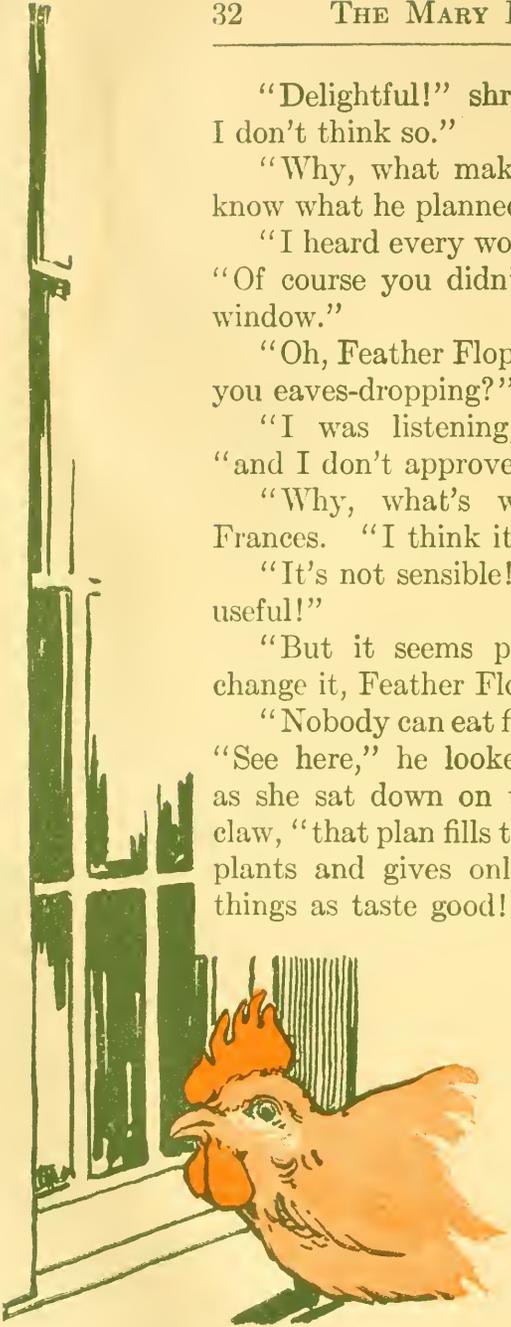
"I was listening," acknowledged Feather Flop, "and I don't approve of the plan at all."

"Why, what's wrong with it?" asked Mary Frances. "I think it's beautiful."

"It's not sensible!" said Feather Flop. "It's not useful!"

"But it seems perfect to me. How would you change it, Feather Flop?"

"Nobody can eat flowers!" exclaimed Feather Flop. "See here," he looked over Mary Frances' shoulder as she sat down on the bench, and pointed with his claw, "that plan fills the entire front yard with bloomin' plants and gives only the little back yard for such things as taste good!"



"Dearie me! Dearie me!" laughed Mary Frances. "Is that it, Feather Flop? Why, don't you love to see beautiful flowers?"

"Not half as much as I do to eat beautiful lettuce and beet tops and other beautiful vegetables," declared Feather Flop, shaking his head sadly.

"It's too bad, Feather Flop," said Mary Frances, smoothing his fine feathers, "but I'll see that you get plenty of such green things as you like."

"Oh, thank you, little Miss," said the rooster. "If you will do that, I'm ready to help with your silly—I mean your brother's, plan."

"Thank you, Feather Flop, for all your help," said the little girl, "and good-bye for now. I must go or maybe mother will send Billy to look for me."

"Good-bye! good-bye!" cried Feather Flop, jumping off the bench and running away as fast as possible.



CHAPTER V

GARDENS FOR LITTLE FOLKS

“**H**OW would you like another lesson on gardening to-day, Mary Frances?” asked Billy the next morning as he appeared at the door of the play house.

“Oh, Billy, you know I’d just love to have one!” said Mary Frances, getting the desk ready.

“This time we are to make a list of what to plant, if I remember correctly,” said Billy, taking a seat.

“Let me see: we will try to plant the garden so that we will have flowers in bloom from early Spring till late Fall.

In order to have flowering plants continuously in the garden, we must use the class of flowers called Per-en-ni-als,* *the roots of which live from year to year.*

If we depend on An-nu-als,† the seeds of which must

* See Chapter LI on Perennials.

† See Chapter XI on Annuals.



be planted every Spring, we will not have blooms until Summer or early Fall.

So you see, in order to plan wisely, our next lesson is very important, and it is our—

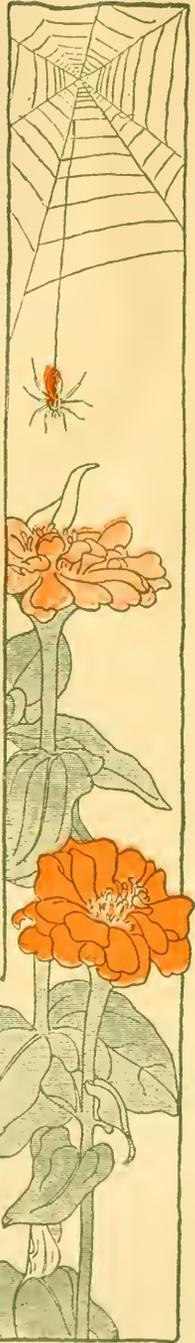
GARDEN LESSON No. 2

WHAT TO PLANT

Now, Mary Frances, I have really planned a delightful landscape flower garden for you to plant in front of your play house, and a wonderfully useful vegetable garden for the back of the play house; but before I give you that outline, I am going to pretend that you are a very little girl, and I will give you a list, just as our teacher handed it to us. I have it here:

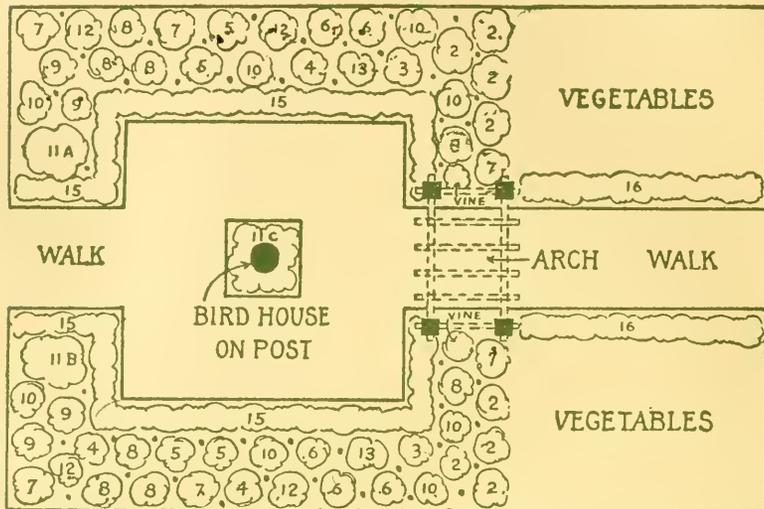
GARDEN FOR LITTLE FOLKS

1. Plan out the garden; that is, make a list of what you wish to plant.
2. Draw a picture map of your garden, marking the space where each different kind of flower or vegetable is to be planted.
3. Remember that low-growing plants should be placed in the foreground (front part) of the garden, and tall-growing plants in the background.
4. Order the plants or seeds.
5. Get the ground ready. (See Chapter XIV.)
6. Now begin to plant, following instructions in Chapter XV.



If space for your garden is about 10 x 15 ft. it would be delightful to plant it as shown by the picture-map drawn here.

GARDEN FOR LITTLE FOLKS—10x15 FEET



(.) Bulbs. 2. Iris (blue). 3. Bleeding Hearts. 4. Pyrethrums. 5. Sweet William. 6. Phlox. 7. Eupatorium. 8. Coreopsis. 9. Gaillardia. 10. Chrysanthemums. 11A, 11B, 11C. Roses. 12. Hardy Asters. 13. Iceland Poppies. 14. Cosmos (not to be given a permanent place in garden; it may be used, however, as a filler between Hardy Perennials. 15. Alyssum. 16. Nasturtiums.

Plant Daffodils and Tulips between Hardy Perennials as indicated on plan with dots.



Now, for an—

EXPLANATION
OF
THE LITTLE FOLKS FLOWER GARDEN

FOUR HARDY BULBS FOR LITTLE FOLKS GARDEN

These bulbs should be planted in late October or early November. They bloom in the early Spring and then die down, to come up the next Spring.

No. on Map.	No. of Flowers to Plant.	How Deep to Plant.	Color.	Average Price.
(.)	6 Emperor Daffodils.	4 inches.	Yellow.	25c for $\frac{1}{2}$ doz.
(.)	6 Cottage Garden Tulips, called also May-flowering Tulips.	4 inches.	All colors.	15c for $\frac{1}{2}$ doz.
(.)	6 Darwin Tulips. Bloom later than "Cottage Garden" Tulips; grow taller.	4 inches.	All colors.	15c for $\frac{1}{2}$ doz.
(2)	6 German Iris roots, called also "Blue Flags."	4 inches.	Blue, purple, and yellow.	50c for $\frac{1}{2}$ doz.

HARDY PERENNIALS

The plants whose roots live on from season to season, or "winter over," and come up every Spring, are called Hardy Perennials.



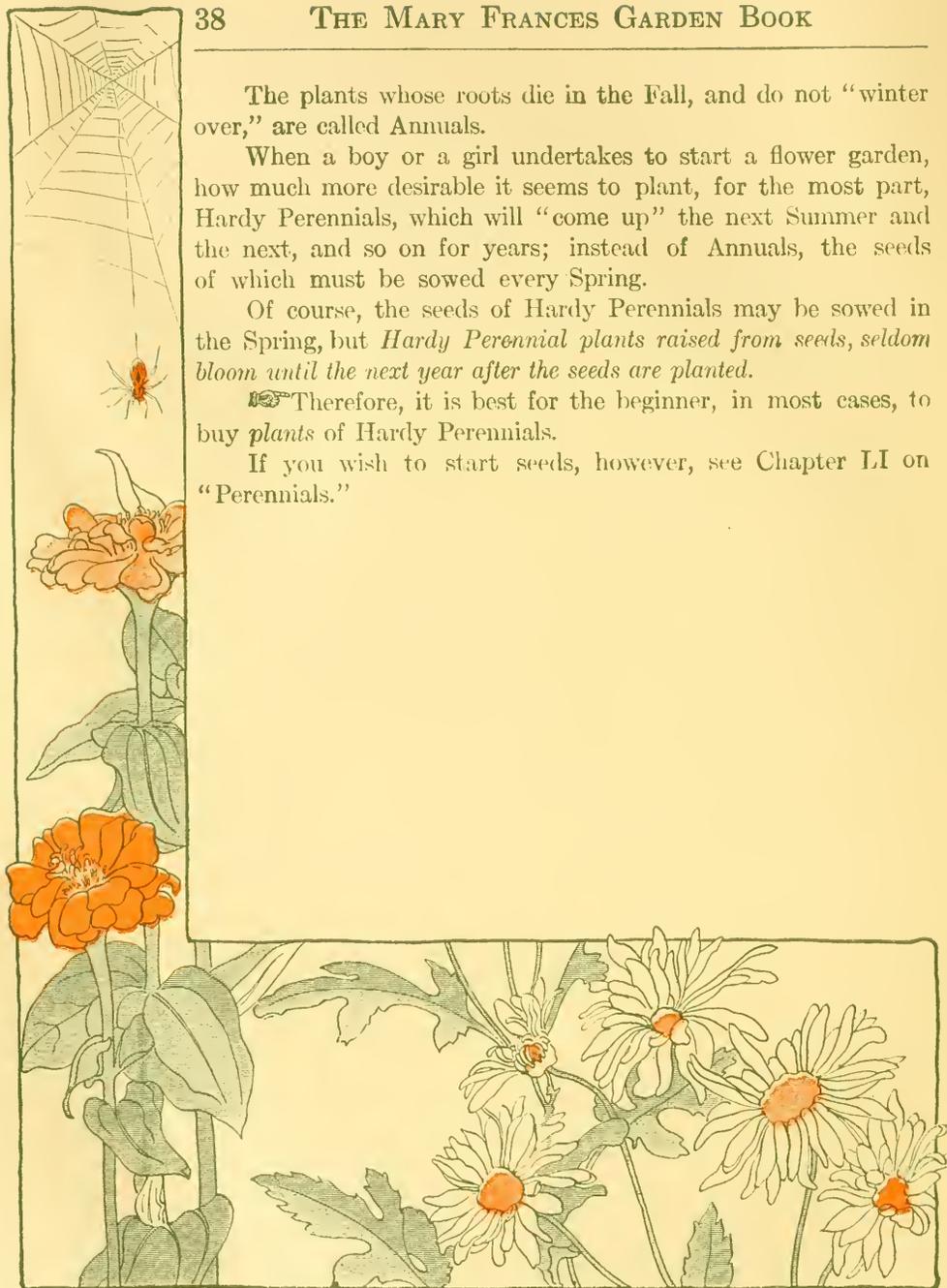
The plants whose roots die in the Fall, and do not "winter over," are called Annuals.

When a boy or a girl undertakes to start a flower garden, how much more desirable it seems to plant, for the most part, Hardy Perennials, which will "come up" the next Summer and the next, and so on for years; instead of Annuals, the seeds of which must be sowed every Spring.

Of course, the seeds of Hardy Perennials may be sowed in the Spring, but *Hardy Perennial plants raised from seeds, seldom bloom until the next year after the seeds are planted.*

☞ Therefore, it is best for the beginner, in most cases, to buy *plants* of Hardy Perennials.

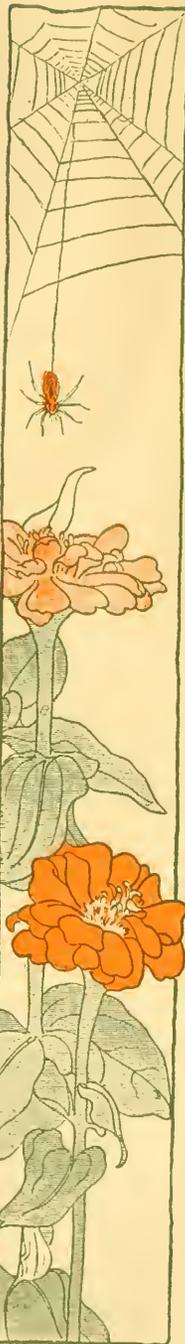
If you wish to start seeds, however, see Chapter LI on "Perennials."



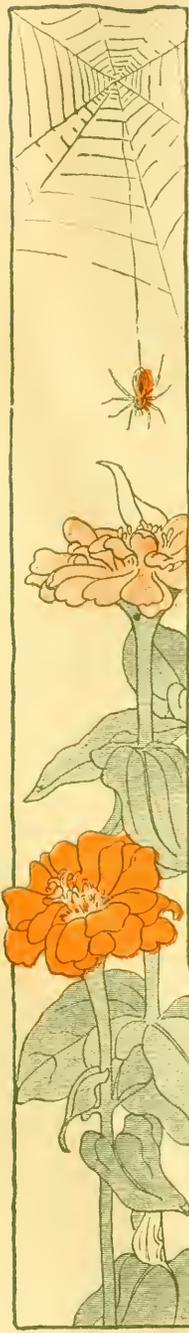
Following is the list of—

TWELVE HARDY PERENNIALS FOR LITTLE FOLKS GARDEN

No. on Map.	Name and Number of Plants.	Remarks.	Average Price.
(3)	2 Bleeding Hearts.	Pink heart-shaped flowers on graceful stems. Buy the plants in clumps in the Fall.	15c a plant.
(4)	Hardy Py-re-thrums.	Red, pink, white daisy-like flowers. When ordering, use the name: "Pyrethrum Hybridum." It is best to plant seeds in early Spring or August, to get plants which will "winter over" and bloom the next Summer. Plants may be purchased if you wish blooms the first year.	20c a plant. 10c a package.
(5)	Sweet-Williams (London Tufts).	"Biennials," which means the plants "come up" the second year, but do not do well after that. Plant every other year; preferably in August. Order mixed seed. Sweet-Williams often sow their own seed.	10c a package.
(6)	3 Hardy Phlox.	1 Salmon Pink; order "Elizabeth Campbell," or "Rheinlander." 1 White; order "Mrs. Jenkins." 1 Lavender; order "La Vague," or "La Mahdi."	20c a plant.



No. on Map.	Name and Number of Plants.	Remarks.	Average Price.
	Hardy Phlox— <i>Continued.</i>	Buy the <i>plants</i> of Hardy Phlox. The seeds are not generally satisfactory, because they should be sowed within a short time after ripening.	
(7)	Blue Thoroughwort ("Eu-pa-to-ri-um").	Order "Eupatorium Celestium." Blue misty flowers, sometimes called "Blue Mist," pretty in mixed bouquet. Bloom late in season. Buy the plant.	15c a plant.
(8)	1 Co-re-op-sis.	Order "Coreopsis Lanceolata Grandiflora." Yellow daisy-like flowers. A large, bushy plant. Keep the flowers well picked, to get continuous bloom. Easily raised from seed if planted early.	15c a plant.
(9)	1 Blanket Flower (Hardy "Gail-lard-i-a").	Large reddish-brown flowers with yellow edges, etc. It loves to bloom. If sowed very early, it often blooms the first season. Order <i>mixed</i> seed.	10c a package.
(10)	3 Chrys-an-the-mums.	Order "Hardy Pompon" (1 yellow, 1 red, 1 bronze). Bloom very late in the <i>Fall</i> . Buy the plants.	3 for 45 cts.



No. on Map.	Name and Number of Plants.	Remarks.	Average Price.
(11)	Roses (See Chapter XXXV).	DWARF "BABY RAMBLERS": (a) 1 Fairy Rose—"Ceeile Brunner." Little double flowers of soft rosy pink on a creamy white ground. (b) 1 Baby Tausendchon—"Louise Walter." Larger flowers of a tender shade of pink. CHINESE ROSE: "Hermosa"—pink.	50c a plant.
(12)	3 Hardy Asters ("Mich-ael-mas Dai-sies").	Lavender, pink, white and purple little daisy-like flowers, growing in clusters on large tall bushes. Buy the plants.	15c a plant.
(13)	Iceland Poppies.	All colors. Sow mixed seed in August to grow plants which will bloom the next Summer. Cover with leaves in the Fall. Order mixed seeds of "Papaver Nudicaule."	10c a package.

ANNUALS

Sow the seeds of Annuals early in the Spring. The roots of Annuals do not live over Winter, and seeds must be sowed every Spring.



ANNUALS FOR LITTLE FOLKS GARDEN

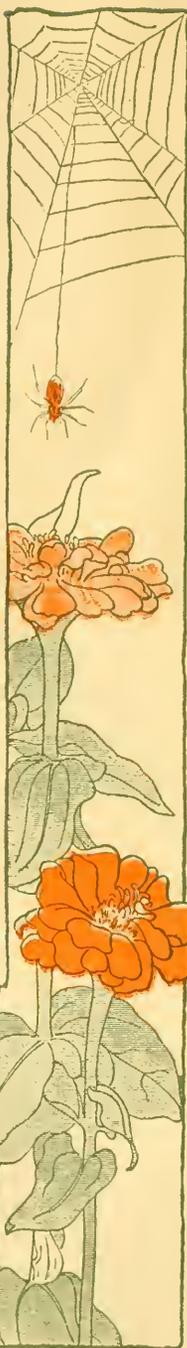
No. on Map.	Name.	Remarks.	Average Price.
(14)	Cos'-mos.	Easily grown in poor soil. Grow over 4 feet tall. Flowers: pink, white, garnet, with yellow centers. Buy mixed seed, "Summer or Early Flowering" Cosmos which will bloom early and continue until frost.	10c a package.
(15)	Sweet A-lys'-sum.	A charming edging plant. Order "Little Gem," which grows 4 inches tall, and blooms like a snow carpet.	5c a package.

VEGETABLES FOR LITTLE FOLKS GARDEN

Name.	Remarks.	Average Price per Package Seed.
<i>Nasturtiums.</i> Buy "Tom Thumb" or Dwarf.	In the early Spring, sow seeds of <i>dwarf</i> nasturtiums for narrow border along the walk of the vegetable garden.	5c.
<i>Lettuce.</i> Buy "Early All-heart;" Early Cos; Late Lettuce.	Plant a small quantity of Early Lettuce seeds in the early Spring; when plants are two inches high, plant more seeds; thin plants out, that the ones left standing may grow large. Plant a few seeds every week until weather grows very warm.	5c.



Name.	Remarks.	Average Price per Package Seed.
<i>Lettuce—Continued.</i>	Lettuce does not grow well in very warm weather. Plant late variety in early Fall. <i>Cos or Romaine lettuce</i> is easily grown, and stands the heat better than the other varieties. It has a very crisp fleshy rib in the leaf, but the leaf part is not so delicate as of the other varieties. <i>All lettuce needs very rich soil.</i>	
<i>Parsley.</i> Buy "Dwarf Curly."	Plant in early Spring. Soak seed overnight in warm water, mix sand in the water, and fling sand and seed over the prepared ground. Sometimes it takes six weeks for parsley seed to "come up." Except far north, it lives over winter if well covered with leaves. Plant some parsley every year, as what has "wintered over" goes to seed very easily.	5c.
<i>Onions.</i> Buy yellow "Onion sets."	"Onion sets" are tiny little onions which are set out in early Spring, about 2 inches apart in rows. Usually when they are partially grown, they are pulled, and green tops and bulbs are used for salads and in soup.	10c a pint.

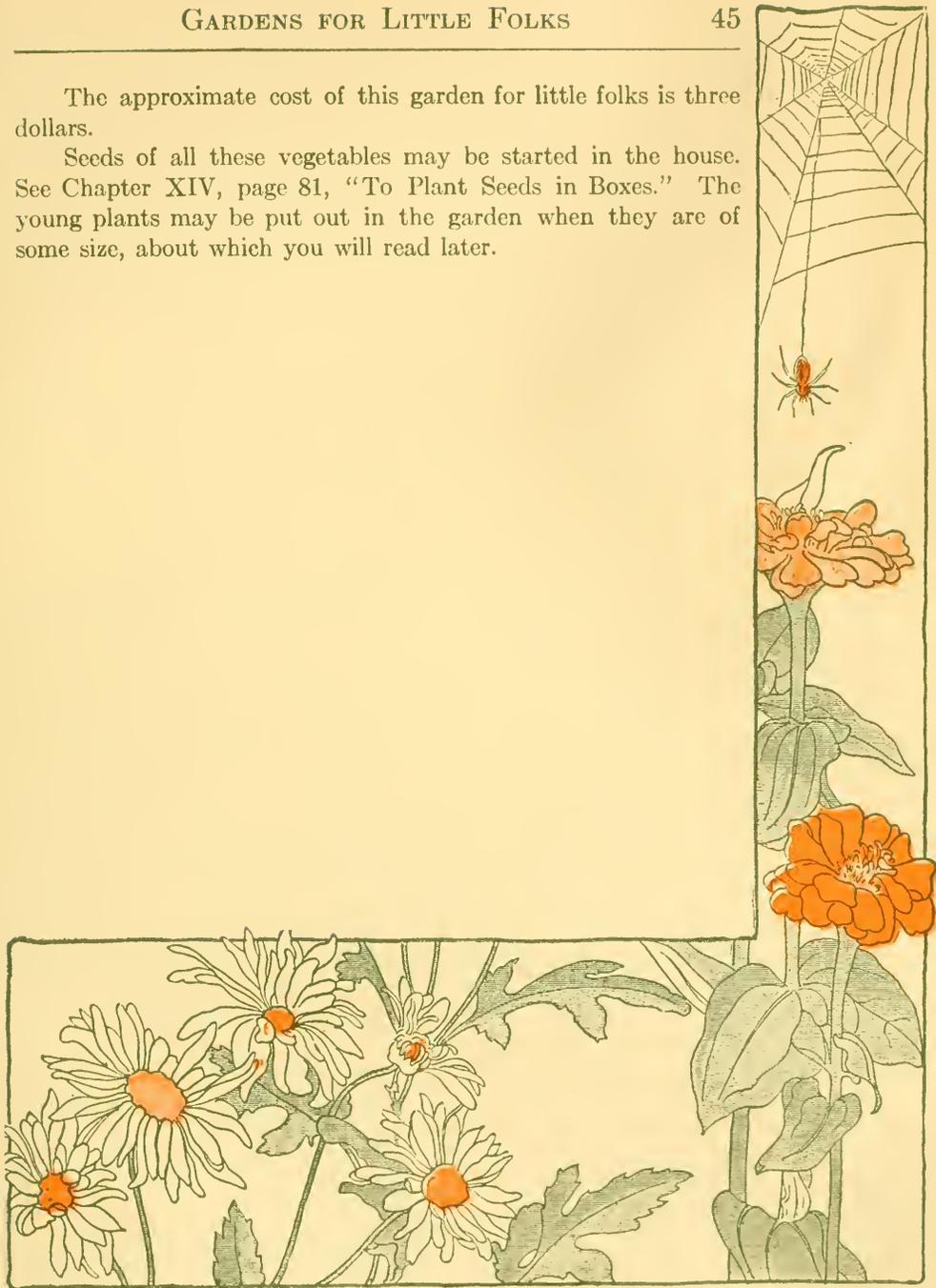


Name.	Remarks.	Average Price per Package Seed.
<i>Thyme.</i>	A very pretty low-growing herb, used to flavor soup, and "stuffing" for meat. Grows easily from seed if sowed early. Lives over winter—except far north—if covered with leaves. Is, therefore, a "perennial." Plant in the Spring in the northern states. Plant in the Fall in the southern states.	5c.
<i>Radishes.</i> Buy Little Red Globe-shaped.	Sow a few radish seeds every week for four weeks, to have new young tender radishes ready for pulling each week. Radishes do not do well in very hot weather. The late or "winter" radish is planted in the early Fall.	5c.
<i>Tomatoes.</i> Buy 2 plants of early and 2 of late varieties.	Tomato seeds may be sowed in a box placed in a sunny window or under glass in the hot bed in very early Spring, but unless a large number of plants is needed, it is better to buy the young plants. A very interesting variety is "cherry tomatoes," which grow in little clusters of red fruit resembling cherries in appearance. Buy 1 plant.	2 for 5c.



The approximate cost of this garden for little folks is three dollars.

Seeds of all these vegetables may be started in the house. See Chapter XIV, page 81, "To Plant Seeds in Boxes." The young plants may be put out in the garden when they are of some size, about which you will read later.



CHAPTER VI

GARDENS FOR BIG BOYS AND GIRLS

“O H, Billy,” cried Mary Frances, as her brother laid down the paper, “that doesn’t sound a bit babyish to me! If I could just have a garden like that——”

“That’s an all-right garden,” interrupted Billy, “but, Mary Frances, it isn’t much compared with my plan for your wonderful play house garden, as you’ll soon see when I give you the——”

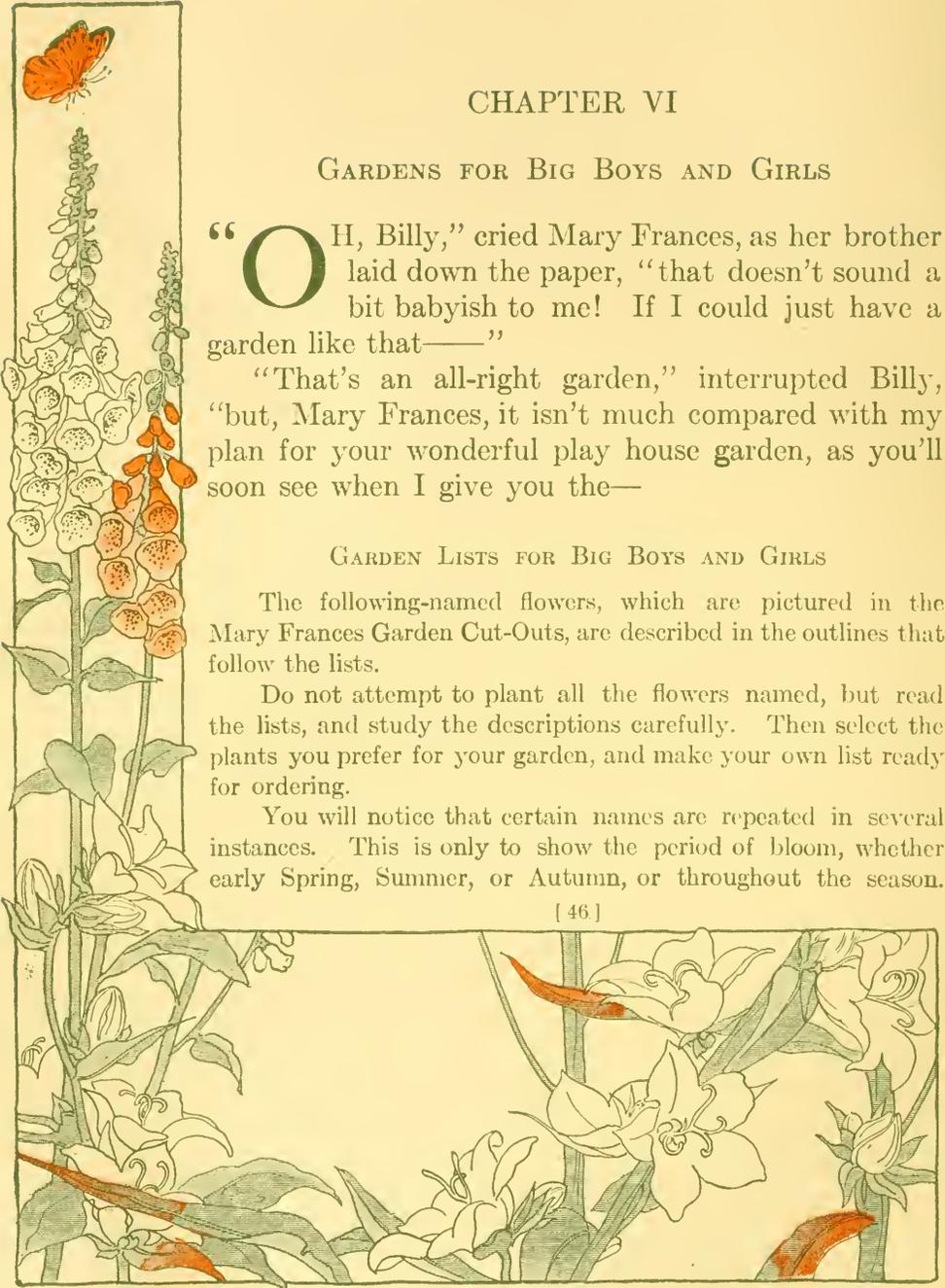
GARDEN LISTS FOR BIG BOYS AND GIRLS

The following-named flowers, which are pictured in the Mary Frances Garden Cut-Outs, are described in the outlines that follow the lists.

Do not attempt to plant all the flowers named, but read the lists, and study the descriptions carefully. Then select the plants you prefer for your garden, and make your own list ready for ordering.

You will notice that certain names are repeated in several instances. This is only to show the period of bloom, whether early Spring, Summer, or Autumn, or throughout the season.

[46]



NOTE ON THE GARDEN CUT-OUTS

DEAR GIRL OR BOY:

No doubt you will wish, just as Mary Frances did, to be able to cut flowers every few days from your garden for your mother to use as a "centerpiece" on the dining table, or for your father's desk, or for your grandmother's dresser, or to give to some dear friend.

Now, anyone can have a few plants which will bloom at some time or other, but the garden you and Mary Frances have in mind is one which will have flowers blooming from March, through April, May, June, July, August, September, October, and on into November, until killed by frost.

Flowers nearly nine months of the year! Yes, that is quite possible in almost every part of our country—if you study carefully the outlines given on pages 51-62, inclusive.

The *first* outline gives a list of plants which bloom in the Early Spring. (See Garden Cut-Out No. 1.)

The *second* names the plants which bloom in the Early Summer. (See Garden Cut-Out No. 2.)

The *third*, the plants which bloom in Mid-Summer. (See Garden Cut-Out No. 3.)

The *fourth*, those blooming in Late Summer or Early Autumn. (See Garden Cut-Out No. 4.)

For instructions for making the Garden Cut-Outs, see Chapter LXII, page 373.



PICTURE OF MARY FRANCES PLAY HOUSE BEFORE THE CHILDREN PLANTED THE GARDENS
For Directions for Garden Cut-Outs, see Chapter LXII

Thirty-seven Hardy Perennials

Aster (Wild)	English Daisy	Phlox (Hardy)
Alkanet (Anchusa)	Forget-me-not	Pyrethrum
Baby's Breath	Foxglove	Poker Plant
Bellflower	Hollyhock	Rock Cress
Bergamot	Larkspur	Roses
Blanket Flower	Lupine	Sneezewort
Bleeding Heart	Marguerite	Speedwell
Campanula	Monkshood	Sweet Alyssum (yellow)
Candytuft	Pæony	Sweet-William
Centaurea	Pinks { Moss	Thoroughwort
Chrysanthemum		{ Hardy
Columbine	Poppy { Iceland	Wall Flower
Coreopsis		{ Oriental

Twenty Annuals

Ageratum	Garden Geranium	Scarlet Sage
Cockscorb	Lemon Verbena	Snapdragon
Cornflower	Nasturtium	Sweet Alyssum (white)
Cosmos	Petunia	Verbena
Cigar Plant	Princess Feather	Wild Cucumber Vine
Everlasting	Periwinkle	Zinnia
Four-o'Clock	Phlox	

Eight Bulbous Plants

Daffodil	Lily of the Valley	Tulip
Hyacinth	Madonna Lily	Yellow Day Lily
Iris	Snowdrop	



A LETTER ABOUT THE GARDEN CUT-OUTS

Dear Boy or Girl:

No doubt you will wish, just as Mary Frances did, to be able to cut flowers every few days from your garden, for your mother to use as a "center piece" on the dining table, or for your father's desk, or for your grandmother's dresser, or as a gift for a friend.

Now, anyone can have a few plants which will bloom at some time or other, but the garden you and Mary Frances have in mind is one which will have flowers in bloom from March, through April, May, June, July, August, September, October, and into November until ruined by frost.

Flowers over eight months of the year! Yes, that is possible in nearly every part of our country—if you study carefully the outlines following this page.

The first outline gives a list of plants which bloom in the Early Spring.

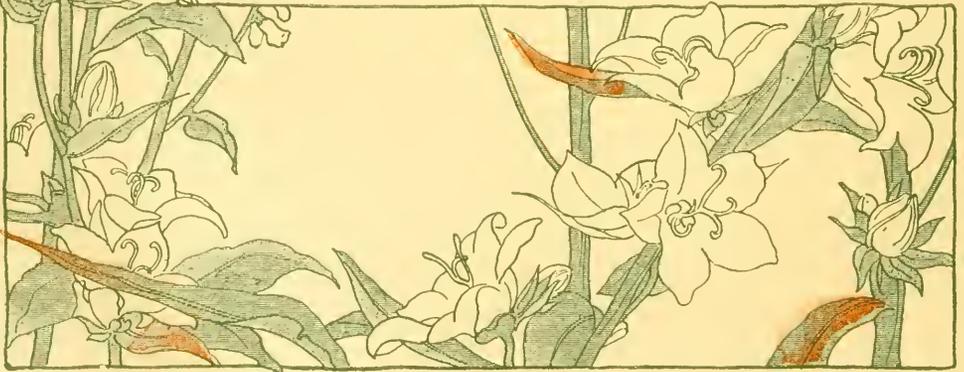
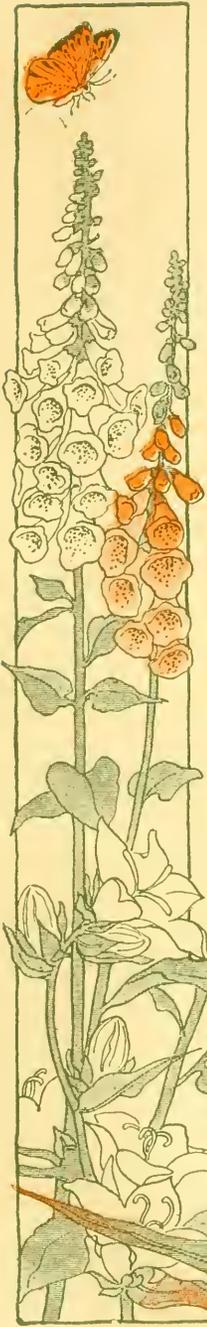
The second names the plants which bloom in Early Summer.

The third, the plants which bloom in Mid-Summer.

The fourth, those blooming in Autumn.

These lists are nearly like the ones given Billy by his teacher, which he and Mary Frances used in planting a garden in front of the Play House. As you read these lists, turn to the pictures of the Mary Frances Garden Cut-Outs, and try to recognize the flower named.

All that Mary Frances wished, she and Billy made "come true," and every day through the flowering season she gathered flowers



from her garden—but that is part of the story, so now begin to read

A FEW HINTS ON GROWING THE FLOWERS SHOWN IN THE GARDEN CUT-OUTS

In using the following lists, if the garden space is small, select only the names marked with a star.

The height of each plant is given because it is always desirable to plant low-growing flowers in the foreground; and tall ones in the background.

The following-named Perennials (the roots of which live from year to year) may be grown from seeds, but *cannot be depended upon to bloom the first year*.

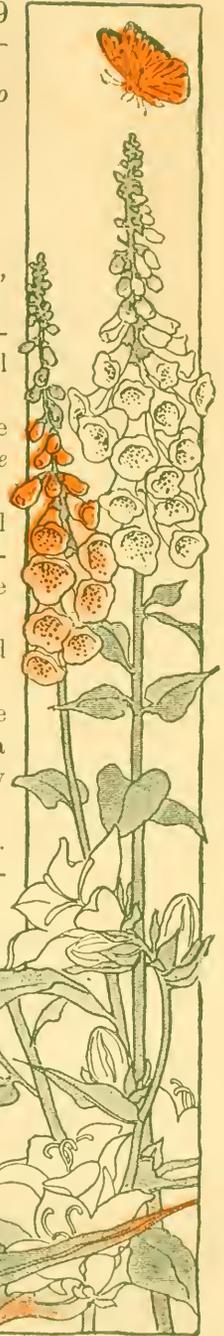
Instead of beginners starting *seeds* of *Perennials*, it is well to buy the young *plants* from a reliable dealer to start the permanent garden, and to experiment with seeds after acquaintance with those plants already established.

Do not buy many plants of any kind, as a few, well cared for, will increase in number the next year.

Annuals (the roots of which die in the Fall) will bloom the same season as planted. Start seeds early, either in a box in a sunny window, or in a warm sunny corner out of doors early in May.

The first step in garden-making is the planning of the garden.

(See Chapter LXII on "The Mary Frances Garden Cut-Outs.")

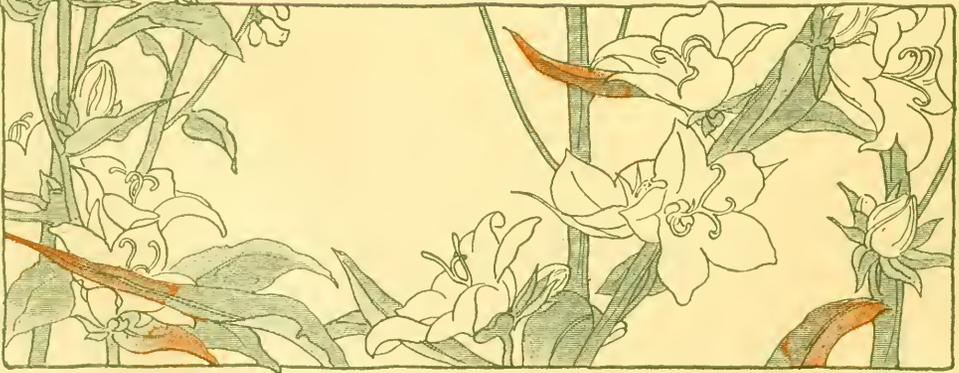
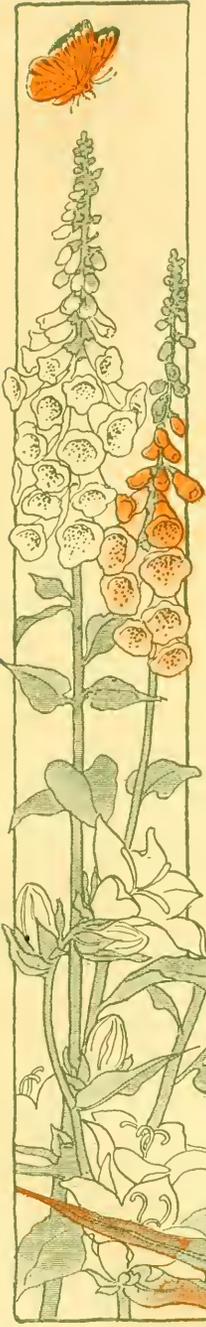


The second step is selection of the seed, and the ordering of the same from one of the *best* seed firms.

Never try inferior or untested seeds. It is no economy.

In regard to "color scheme," see Chapter LX.

For artistic effect, it is usually best to plant the same kind of flowers close together to obtain "masses" of bloom.



CHAPTER VII

EARLY SPRING GARDEN

LIST No. 1

FIVE BULBS* FOR EARLY SPRING HARDY GARDEN

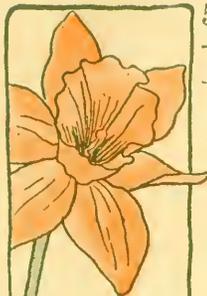
See Mary Frances Garden Cut-Out No. 1.

Plant the following named bulbs in the Fall. See Chapter LVI.

Name.	Remarks.
Snowdrops.	Pure white small bells, blooming late in February or early in March, whenever the snow leaves the ground. Leave bulbs in the ground over Winter, covered with leaves. Plant 4 inches deep.
Nar-eis-sus or Daff-o-dils.*	Daffodil bulbs are very hardy, and increase in number from year to year. They should be covered with leaves over Winter. The best varieties are "Emperor"* and "Empress." Plant 4 inches deep. Barii Conspieuus, a Star Narcissus, is beautiful for cutting. Poet's Narcissus have beautiful white petals, with golden and red center.

* If garden space is small, select only the names marked with a star.





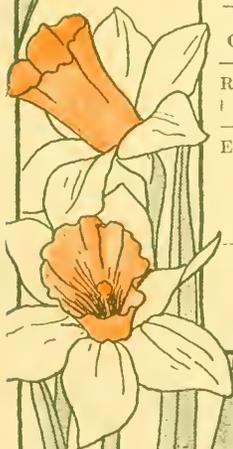
Name.	Remarks.
Cottage Garden* (May-flowering) Tulips.	Beautiful large flowers of all colors, making the Spring garden bright and gay. Plant bulbs 4 inches deep. Plants grow 18 to 24 inches high.
Darwin Tulips.	These beautiful, stately tulips grow two feet high and more. Large globe-shaped brilliant blooms. They come in all colors except yellow. Plant 4 inches deep.
Hy-a-cinths.	Plant only a few hyacinth bulbs, because they do not "winter over" well; new bulbs should be added every year, as the old ones deteriorate. Colors: pink, purple, white.

SEVEN HARDY PERENNIAL PLANTS WHICH BLOOM IN THE EARLY SPRING

As pictured in the Mary Frances Garden Cut-Out No. 1.

Common Name.	Botanical Name.	Remarks.	Height.
Rock-cress.	Ar-a-bis Al-pi-na.	Little white flowers blooming in early Spring.	6-8 inches.
English Daisies.	Bel-lis Per-en-nis.	Little white and pink flowers, blooming in April and May. Pretty among Poet's Narcissus, or mixed in an edging.	3-6 inches.

* If garden space is small, select only the names marked with a star.

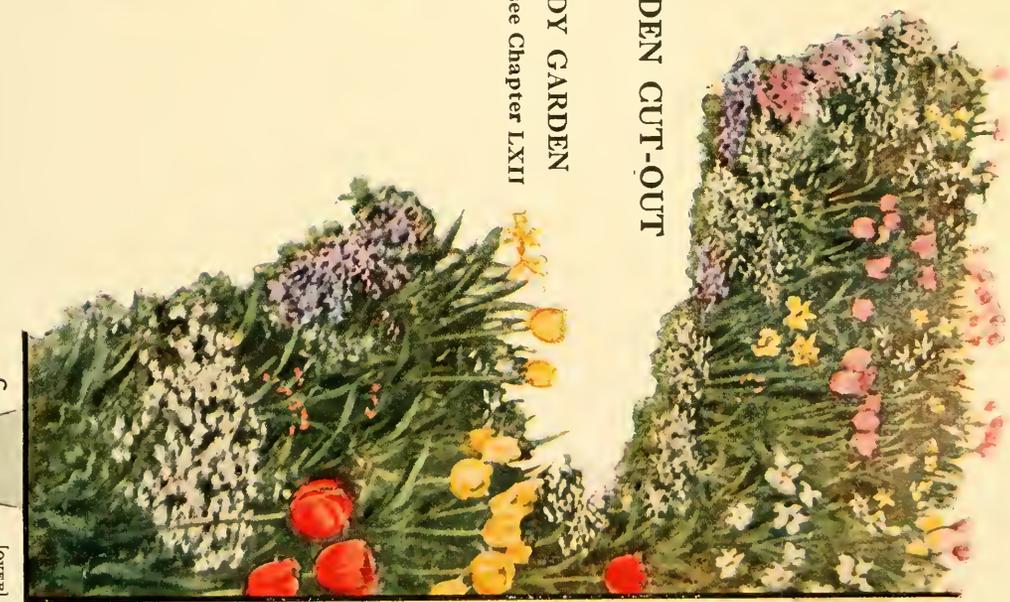
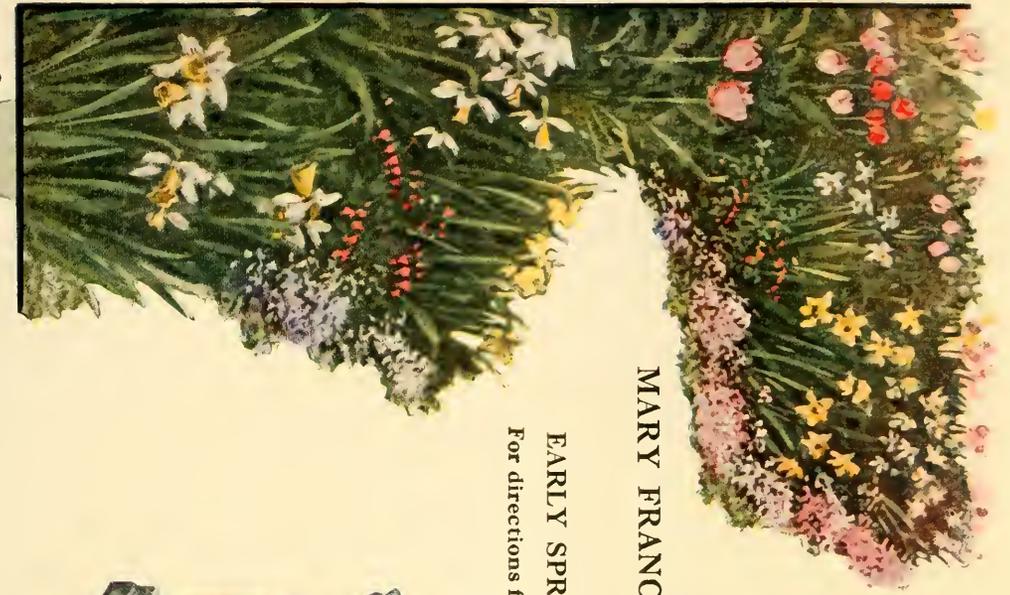


MARY FRANCES GARDEN CUT-OUT

No. 1

EARLY SPRING HARDY GARDEN

For directions for making, see Chapter LXII



C

A

A

B

B

C

OVER

MARY FRANCES GARDEN CUT-OUT
No. 1

For description of the flowers shown here
see Chapter VII.

*List of flowers shown in the Early Spring
Hardy Garden*

Snowdrops,
Narcissus or
Daffodils,

Cottage Garden Tulips,
Darwin Tulips,

MARY FRANCES GARDEN CUT-OUT
No. 1—*Continued*

Hyacinths,
Rock-cress,
English Daisies,
Bleeding Hearts,
Moss Pinks,
Violets,

Yellow Alyssum,
Wall Flower.

SUNDIAL

Common Name.	Botanical Name.	Remarks.	Height.
Bleeding Hearts.*	Di-el-y-tra.	Pink heart-shaped drops on graceful stem. Raised from plants only. Buy clumps in the Fall.	24 inches.
Moss Pinks.	Phlox Sub-u-la-ta.	White, rose, lilac, little flowers blooming in April and May. Blooms make a carpet of flowers. Buy only a few plants as they soon spread.	4-6 inches.
Violets.		There are native and double Russian varieties. Buy plants of sweet-scented double Russian variety.	4 inches.
Yellow Alyssum "Basket of Gold."	A-lys-sum Sax-a-tile.	Little yellow clustered heads of flowers. Pretty for edging flower beds. Sow seed in August.	12 inches.
Wallflower.		Not perfectly hardy in all places. Fragrant brown and yellow flowers. Plant seeds in August, in a protected southern corner, where they may "winter over" if the weather is not very severe. Plant needs sun.	15 inches.

In order to obtain good Spring blooms, plant these flowers in August of the Summer before, or earlier.

* If garden space is small, select only the names marked with a star.



CHAPTER VIII

EARLY SUMMER GARDEN

LIST No. 2

ELEVEN HARDY PERENNIAL PLANTS WHICH BLOOM IN THE EARLY SUMMER

As pictured in the Mary Frances Garden Cut-Out No. 2.

Common Name.	Botanical Name.	Remarks.	Height.
Yellow Alyssum.*	A-lyssum Sax-a-tile.	See List No. 1 for description.	12 inches.
Columbine.	A-qui-le-gi-a.	Airy, graceful plants, with spurred flowers, in red, blue, violet, white, yellow. Buy the seed of "Long Spurred Hybrids."	18-24 inches.
German Iris ("Blue Flags").	I-ris Ger-man-i-ca.	Lavender, purple, yellow, white. "Corm" roots which "winter over" and take care of themselves, "coming" up every Spring in increased numbers.	24-30 inches.
Lily of the Valley.	Con-val-la-ria.	Sweet-scented tiny white bells. Buy clumps and roots in Spring or Fall.	6 inches.

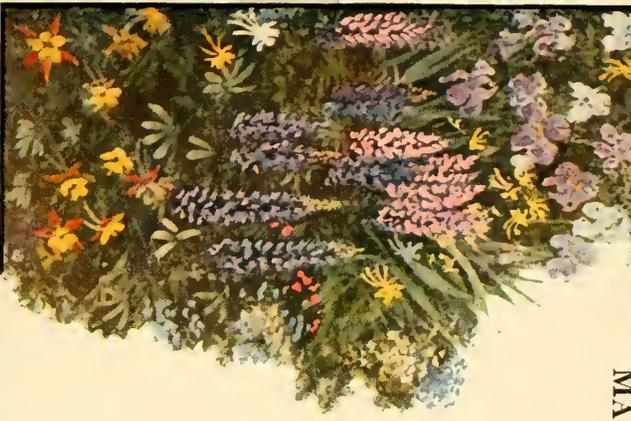
* If garden space is small, select only the names marked with a star.

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MARY FRANCES GARDEN CUT-OUT
No. 2



EARLY SUMMER HARDY GARDEN

For directions for making, see Chapter LXII

[OVER]

MARY FRANCES GARDEN CUT-OUT

No. 2

For description of the flowers shown here
see Chapter VII.

*List of flowers shown in the Early Summer
Hardy Garden*

Yellow Alyssum,
Columbine,
German Iris,
Lily-of-the-Valley,

MARY FRANCES GARDEN CUT-OUT

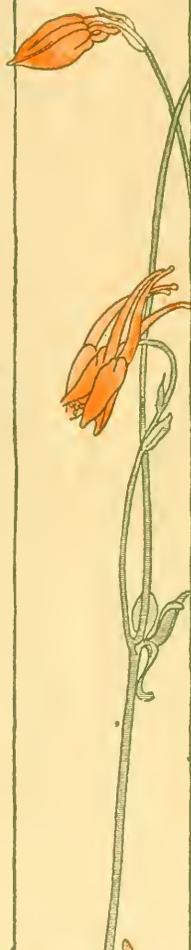
No. 2—*Continued*

Anchusa,
Lupines,
Tufted Pansies,
Bleeding Hearts,
Hardy Candytuft,
Forget-me-not,
Perennial
Cornflower.

Common Name.	Botanical Name.	Remarks.	Height.
Alkanet or Bugloss.	An-chu-sa I-tal-i-ca.	Buy "Dropmore ^h " variety. Blue flowers. Buy the plants.	36 inches.
Lupines.	Lu-pi-nus.	Varieties in blue, white, pink.	24-28 inches.
Tufted Pansies.*	Vi-o-la Cor-nu-ti.	Sow seed early. Resemble pansies, not so large; but bloom all Summer.	5-8 inches.
Bleeding Hearts.	Di-el-y-tra.	See List No. 1 for description.	
Hardy Candy-tuft.*	I-be-ris.	Buy "Iberis Sempervirens": white. Pretty for edging.	8-10 inches.
Forget-me-Not.	My-o-o-tis.	Buy "Myotis Palustris Sempervirens." Sky-blue little flower.	8-10 inches.
Hardheads or Knap Weeds. Perennial Cornflower.	Cen-tau-re-a.	"Centaurea Montana" is known as the Perennial Cornflower. Bears large violet-blue flowers from July to September.	2 feet.

Rambler roses also bloom in early Summer.

* If garden space is small, select only the names marked with a star.



CHAPTER IX

MID-SUMMER GARDEN

LIST No. 3

TWENTY-FOUR HARDY PERENNIAL PLANTS WHICH BLOOM IN
MID-SUMMER

As pictured in the Mary Frances Garden Cut-Out No. 3.

Common Name.	Botanical Name.	Remarks.	Height.
Hardy Larkspur.*	Del-phin-i-um.	Order plants of varieties named, "Belladonna" and "Formosum," which are turquoise blue and dark blue. Buy the plants, or seeds.	24 inches.
Pæony.		Bloom but once in the season. Beautiful showy large rose-like flowers. Foliage of plant dies down in Winter, coming up in young new "shoots" in the Spring. Colors: red, pink and white. There is also a "tree" variety. Most pæonies bloom in early Summer.	3 feet.
Alkanet or Bugloss.	An-chu-sa.	See List No. 2 for description.	

* If garden space is small, select only the names marked with a star.

[56]



MARY FRANCES GARDEN CUT-OUT

No. 3

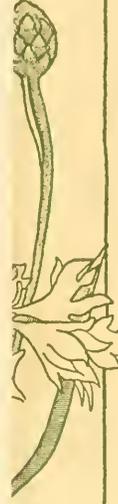
For description of the flowers shown here
see Chapter IX.

*List of flowers shown in the Mid-Summer
Hardy Garden*

Hardy Larkspur,
Pæony,
Anchusa,
Bellflower,
Madonna Lily,
Poppics,
Foxglove,
Sweet William,
Hardy Garden Pinks,

MARY FRANCES GARDEN CUT-OUT
No. 3—Continued

Marguerites,
Coreopsis,
Gaillardia,
Hardy Phlox,
Hardy Pyrethrums,
Tufted Pansies,
Baby's Breath,
Hardy Candytuft,
Hollyhocks,
Veronica,
Japanese Bellflower,
Summer Violet.



CHAPTER IX

MID-SUMMER GARDEN

LIST No. 3

TWENTY-FOUR HARDY PERENNIAL PLANTS WHICH BLOOM IN MID-SUMMER

As pictured in the Mary Frances Garden Cut-Out No. 3.

Common Name.	Botanical Name.	Remarks.	Height.
Hardy Larkspur.*	Del-phin-i-um.	Order plants of varieties named, "Belladonna" and "Formosum," which are turquoise blue and dark blue. Buy the plants, or seeds.	24 inches.
Pæony.		Bloom but once in the season. Beautiful showy large rose-like flowers. Foliage of plant dies down in Winter, coming up in young new "shoots" in the Spring. Colors: red, pink and white. There is also a "tree" variety. Most pæonies bloom in early Summer.	3 feet.
Alkanet or Bugloss.	An-chu-sa.	See List No. 2 for description.	

* If garden space is small, select only the names marked with a star.

[56]



MARY FRANCES GARDEN CUT-OUT
No. 3

For description of the flowers shown here
see Chapter IX.

*List of flowers shown in the Mid-Summer
Hardy Garden*

Hardy Larkspur,
Peony,
Anemusa,
Bellflower,
Madonna Lily,
Poppies,
Foxglove,
Sweet William,
Hardy Garden Pinks,

MARY FRANCES GARDEN CUT-OUT
No. 3—Continued

Marguerites,
Coreopsis,
Gallardia,
Hardy Phlox,
Hardy Pyrethrums,
Tufted Pansies,
Baby's Breath,
Hardy Candytuft,
Hollyhocks,
Veronica,
Japanese Bellflower,
Summer Violet.

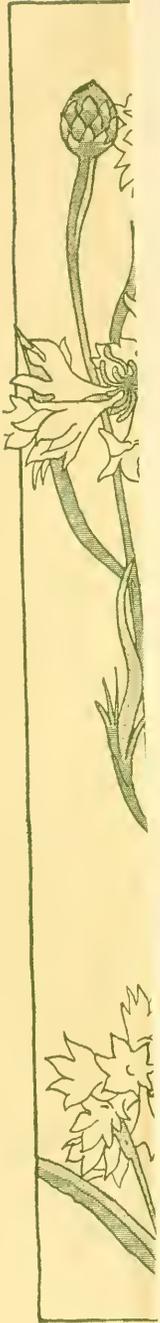


MARY FRANCES GARDEN CUT-OUT
No. 3

MID-SUMMER HARDY GARDEN

For directions for making, see Chapter LXII

[OVZu]



Common Name.	Botanical Name.	Remarks.	Height.
Bellflower.*	Cam-pa-nu-la.	<p><i>Perennial Varieties:</i></p> <p>(a) <i>Campanula Carpatia</i> (Carpathan Hare-Bell). Bloom from June to October. Blue.</p> <p>(b) <i>Campanula Persicifolia</i> (Peach Bells). One of the best. Large blue, and white varieties.</p> <p>(c) <i>Campanula Pyramidalis</i> (The Chimney Bellflower). Stately pyramid form plant, with many blue flowers. There is also a white variety.</p> <p>It is best to buy plants of the above.</p> <p>NOTE.—There are also biennial varieties of <i>Campanula</i>; namely, <i>Campanula Medium</i> or <i>Canterbury Bells</i>, and <i>Campanula Calycanthema</i> (Cup and Saucer). <i>Biennial</i> means of two season's duration.</p>	<p>8 inches.</p> <p>2-3 feet.</p> <p>4-5 feet.</p>
Madonna Lily.*	Li-li-um Can-di-dum.	Pure white lilies, resembling Easter Lilies, growing on strong stems. Plant in the Fall (or possibly in the early Spring), 6 inches deep, preferably in the shade of some other perennial. Lay bulbs on the side when planting.	2-3 feet.
Oriental Poppy.	Pa-pa-ver O-ri-en-tal-is.	Very large showy poppies in various colors. Buy plants in clumps in August.	36 inches.

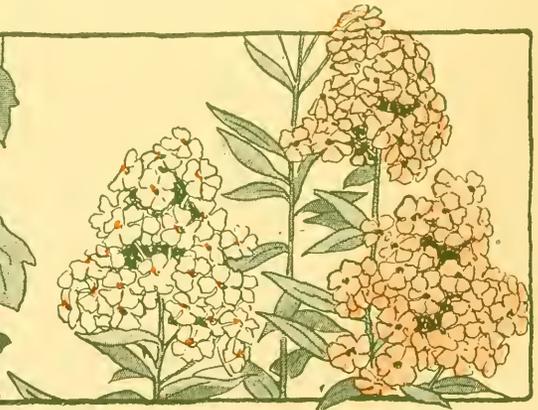
* If garden space is small, select only the names marked with a star.





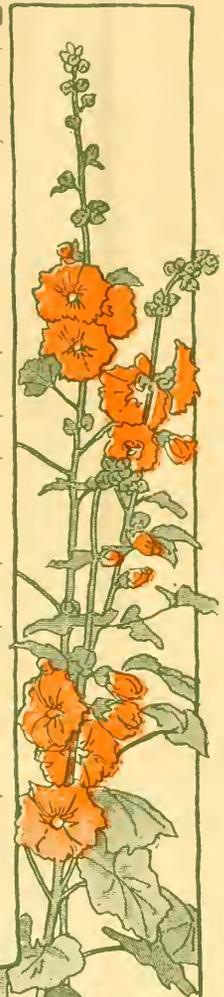
Common Name.	Botanical Name.	Remarks.	Height.
Foxglove.	Di-gi-tal-is.	See tall flowers pictured on cover of this book. Various colors.	36 inches.
Sweet William.*	Di-an-thus Bar-ba-tus	Red, white and various colors. See Garden for Little Folks.	18 inches.
Hardy Garden Pinks.*	Di-an-thus Sem-per-flo-rens.	Buy plants. Various colors. Old-fashioned favorites, with spicy odor. Excellent for cutting. Also: "Dianthus Latifolius Atrocincineus." Hybrid Sweet-William, with brilliant crimson double flowers, blooming all Summer.	6-12 inches.
Iceland Poppy.*	Pa-pa-ver	Buy "Papaver Nudicaule" mixed seed. See description in Garden for Little Folks.	9-15 inches.
Marguerite.*	An-the-mis Tinc-to-ri-a.	Buy "Anthemis Tinctoria." Color: yellow. Buy plant.	15 inches.
Coropsis.*	Co-re-op-sis Lan-ce-o-la-ta.	See Garden for Little Folks for description. Buy plant.	24 inches.
Blanket Flower.	Gail-lard-i-a.	Buy Gaillardia Grandiflora. Crimson and yellow. See Garden for Little Folks. Sow seed early.	24 inches.

* If garden space is small, select only the names marked with a star.



Common Name.	Botanical Name.	Remarks.	Height.
Hardy Phlox.*		<i>Phlox Sufruticosa</i> are the Early-flowering Hardy Phlox. <i>Phlox Decussata</i> are the later Hardy Phlox, and are the variety most used. All colors: Crimson, white, salmon pink, etc. See List of Hardy Perennials for Little Folks Garden.	
Hardy Pyrethrums.*	Py-re-thrum Hy-brid-um.	Red, rose, white flowers. See Garden for Little Folks.	18-24 inches.
Tufted Pansies.*	Vi-o-la Cor-nu-ti.	See List No. 2 for description.	3-6 inches.
Baby's Breath.	Gyp-so-phi-la Pa-nic-u-la-ta.	Tiny white misty flowers, beautiful to use in bouquets, making a "cobwebby" filmy spray over the flowers.	20-30 inches.
Hardy Candy-tuft.	I-be-ris Sem-per-vi-rens.	White low-growing flowers.	8-10 inches.
Hollyhocks.*		A grandmother's favorite—picturesque in a garden background. Red, white, yellow, rose, pink. Cut down the stalks when the seeds are dry. Plant seeds; they will bloom the next season.	5-8 feet.
Speedwell.	Ve-ron-i-ca.	Blue, rose, white. Plant seeds in August.	12-24 inches.

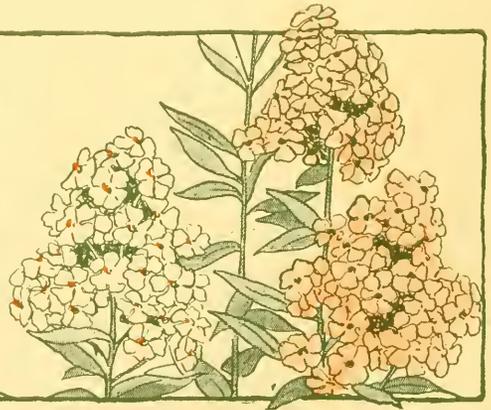
* If garden space is small, select only the names marked with a star.





Common Name.	Botanical Name.	Remarks.	Height.
Hybrid Tea Roses.		See Chapter XXXV on Roses.	
Japanese Bellflower. Balloon Flower.	Plat-y-co-don.	Blue, and white flowers; deep-cupped and star shaped. Buds resemble tiny balloons. Easily grown. Buy plants.	
Yellow Day Lily.	Hem-e-ro-eal-lis.	Yellow and orange tall lilies. These are not pictured in the Cut-outs, but are very similar to the madonna lily in form. They will grow in the shade.	18-36 inches.
Summer Violet.	Vi-o-la Cor-nu-ti Pur-pu-re-a.	Resembles single violets, and very desirable, for flowers appear when blooming season of violets is passed.	4 inches.

Turn to Chapter LX on "Garden Color-Pictures," to read about combinations of color for the garden.



CHAPTER X

AUTUMN GARDEN

LIST No. 4

THIRTEEN HARDY PERENNIAL PLANTS WHICH BLOOM IN THE
EARLY AND LATE FALL

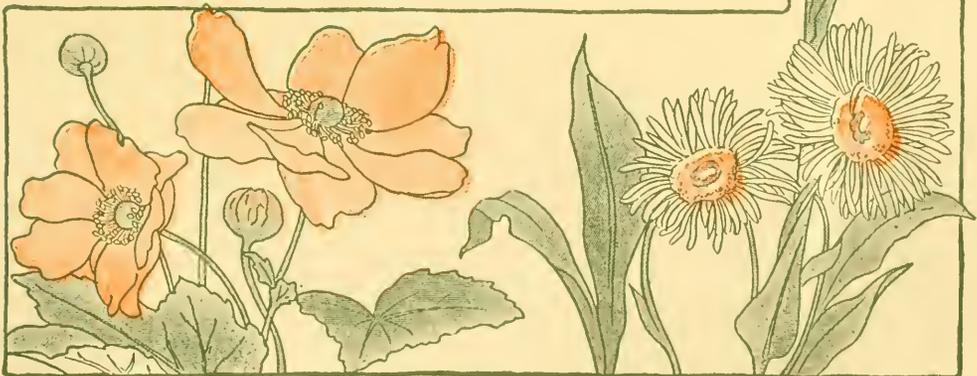
As pictured in the Mary Frances Garden Cut-Out No. 4.

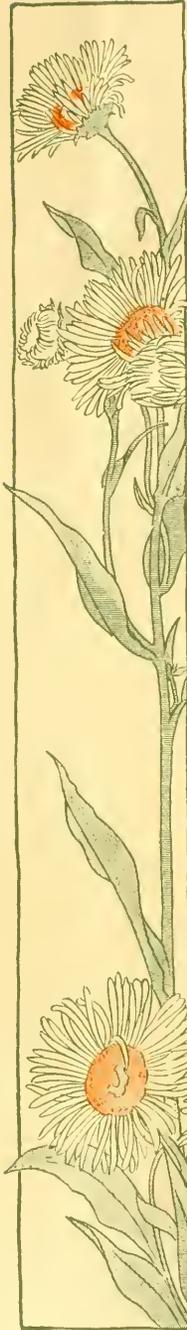


Common Name.	Botanical Name.	Remarks.	Height.
Hardy Larkspur.	Del-phin-i-um.	See List No. 3 for description.	
Monks Hood.	Ac-o-ni-tum.	Curiously shaped blue and white flowers. Will grow in shade. Buy the plants.	3-5 feet.
Hardy Phlox.*		See List of Hardy Perennials for Little Folks Garden.	
Sneezewort.	He-len-i-um.	Yellow, old-gold, changing to terracotta, daisy-like flowers. Buy "Riverton Gem," "Riverton Beauty." Plant seed in August, or buy the plants.	36 inches.
Hardy Asters* ("Starwort").	Mich-ael-mas Dai-sies.	See Garden for Little Folks for description.	36 inches.

* If garden space is small, select only the names marked with a star.

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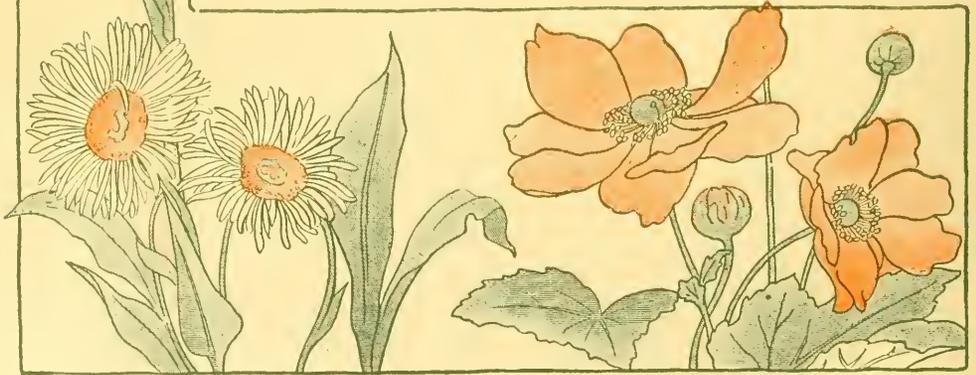


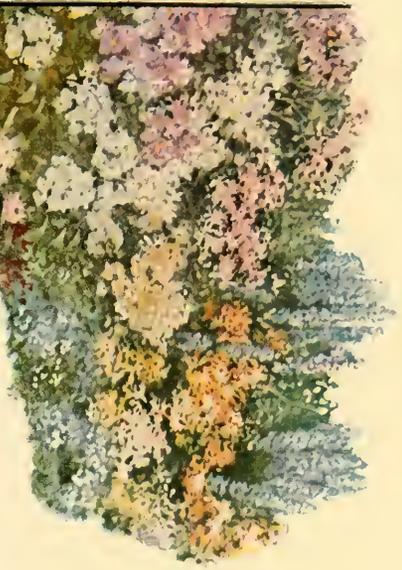


Common Name.	Botanical Name.	Remarks.	Height.
Hardy Chrysanthemums.*		All colors except blue and purple.	15-24 inches.
Wind Flower.	A-nem-o-ne Ja-pon-i-ca.	Rose, pink, white flowers. If grown from seed, protect with shade-cover until started. Cover well in the Fall with straw or leaves. Will not grow in all soils.	2-4 feet.
Blanket Flower.	Gail-lard-i-a.	See Garden for Little Folks for description.	
Coreopsis.*		See Garden for Little Folks for description.	
Red Hot Poker. Flame Flower. Torch Lily.	Tri-to-ma.	Yellow-orange-scarlet showy flowers hanging downward in long clusters on "spike" heads. Buy plants. Not shown in the Cut-Out.	36 inches.
Tufted Pansies.	Vi-o-la Cor-nu-ta.	See List No. 3 for description.	
Hybrid Tea Roses.		See Chapter XXXV on Roses.	
Thoroughwort.*	Eu-pa-to-ri-um.	See Garden for Little Folks for description.	

NOTE.—Most seed houses furnish collections of seeds of Wild Flowers. They may be had in tall-growing and dwarf varieties for a very reasonable price.

* If garden space is small, select only the names marked with a star.



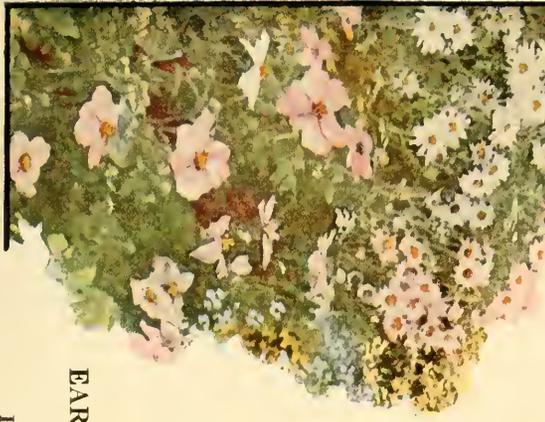


A

MARY FRANCES GARDEN CUT-OUT
No. 4



B



A



B

EARLY AND LATE FALL HARDY GARDEN

For directions for making, see Chapter LXII

C

C

[OVER]

MARY FRANCES GARDEN CUT-OUT
No. 4

For description of the flowers shown here
see Chapter X.

*List of flowers shown in the Early and Late
Fall Hardy Garden*

Hardy Larkspur,
Monk's Hood,
Hardy Phlox,
Helenium,
Hardy Asters,

MARY FRANCES GARDEN CUT-OUT
No. 4—*Continued*

Hardy Chrysanthemums,
Anemone,
Japanese Wind Flower,
Gaillardia,
Coreopsis,
Tufted Pansies,
Eupatorium.

CHAPTER XI

SOME FAVORITE ANNUALS

A few Annuals may well be added to these lists. Even though Annuals must be planted every Spring, there are many worth the trouble; in fact, a garden would look lonesome without some of the old favorites.

A very convenient arrangement is to give one bed in the vegetable garden to the starting of Annuals.

The plants may be moved, when some size, to the hardy garden, near the place of some of the Perennials which die down; for instance, hyacinths, tulips, and other bulbs. Indeed, those having short roots may be placed directly over the bulbs after their leaves have withered and dried.

A border of low-growing Annuals along the vegetable beds makes the vegetable garden a place of beauty.

If you live where there is snow in Winter, in order to have early Summer blooms, the seeds must be started early, under glass protection, in a sunny window, or in a hotbed. A box with a glass cover is a good substitute for a hotbed. If the seeds of Annuals are planted out of doors, they rarely bloom before Mid-Summer, while many Perennials, which have been out all Winter, bloom in early Spring. Select from the following lists the flowers which from the description are most pleasing to you.

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LIST OF FIFTEEN ANNUALS

(All may be raised from seeds. They do not "winter over.")

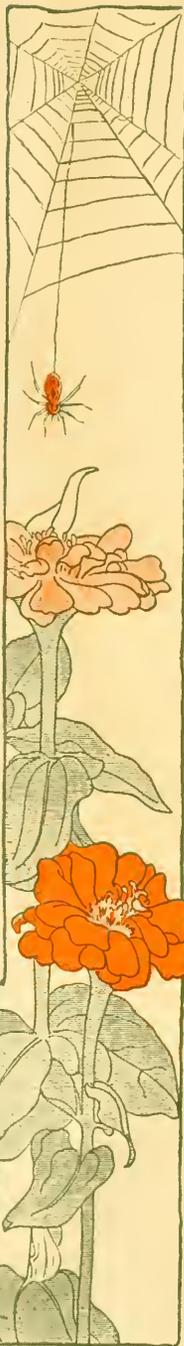
Common Name.	Botanical Name.	Remarks.	Height.
Cockscomb.*	Cin-e-ra-ri-a.	Crimson, showy flowers easily grown. Resemble the comb of a rooster. Bloom in the Fall.	24 inches.
Princess Feather. Feathered Cockscomb.	Ce-lo-si-a Plu-mo-sa.	Yellow and crimson, feathering spikes of bloom.	About 2½ feet.
Youth-and-Old-Age.*	Zin-ni-as.	All brilliant colors. Bloom late in Fall. Easily raised. Large-flowering Dwarf are the best seeds to plant.	2 feet.
Mad Wort.*	Sweet A-lys-sum.	Charming edging plant. Tiny white thick flower heads. Buy "Little Gem."	4 inches.
Wild Cucumber Vine.		A rapid Annual Climber.	
Floss Flower.	A-ger-a-tum.	Blooms from early Summer to late Fall. Buy "Blue Perfection;" small blue flossy flowers which grow in thick clusters. Excellent for blue among cut flowers.	12-15 inches.

* If garden space is small, select only the names marked with a star.



Common Name.	Botanical Name.	Remarks.	Height.
Snapdragon* ("Biennial" plants).	An-tir-rhi-num.	Resemble sweet peas, but are easily cared for; need no trellis or support. Excellent for cutting, having stout stems. Sow in February or March in seed-boxes. Bloom from July to November. Best variety; large Flowering Half Dwarf. Colors: garnet, red, rose, pink, copper, orange, yellow, white. Plants sometimes sow their own seed for next season.	18 inches.
Scarlet Sage.	Sal-vi-a Splen-dens.	Brilliant red bloom from Summer through Fall. Too harsh a shade for a border plant. Use only in a mass in the garden.	24 in.
Cornflowers.*	Cen-tau-re-a Cy-an-us.	Sometimes called: "Bachelor's Buttons," "Blue Bottle," "Ragged Robin." Buy "Double Blue" variety.	15 inches.
Nasturtiums.		Orange, yellow, salmon color. Buy "Dwarf" variety. Excellent for edging. There is a tall growing variety which clings to a support, or "climbs."	10 inches.
Cosmos.		See Garden for Little Folks for description.	

* If garden space is small, select only the names marked with a star.
NOTE: For description of Sweet Peas, see page 356.



Common Name.	Botanical Name.	Remarks.	Height.
Verbenas.		Buy sweet-scented verbenas which come in red, rose, pink, purple, lavender, white.	18-24 inches.
Four-o'Clocks.	Mi-rab-i-lis Jal-ap-a.	Do well everywhere. Mixed colors. Give each plant twelve inches of room. Interesting because often visited by humming birds.	2 feet.
Mourning Bride. Pincushion Flower.	Sea-bi-o-sa.		

Our grandmothers loved also lady slippers, heliotrope, mignonette; but the perennial flowers have taken the place of many old-fashioned Annuals because they require less care.

Among the most interesting Annuals are—

EVERLASTING FLOWERS

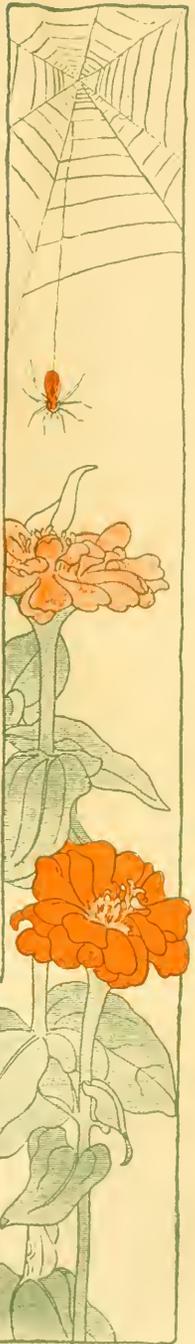
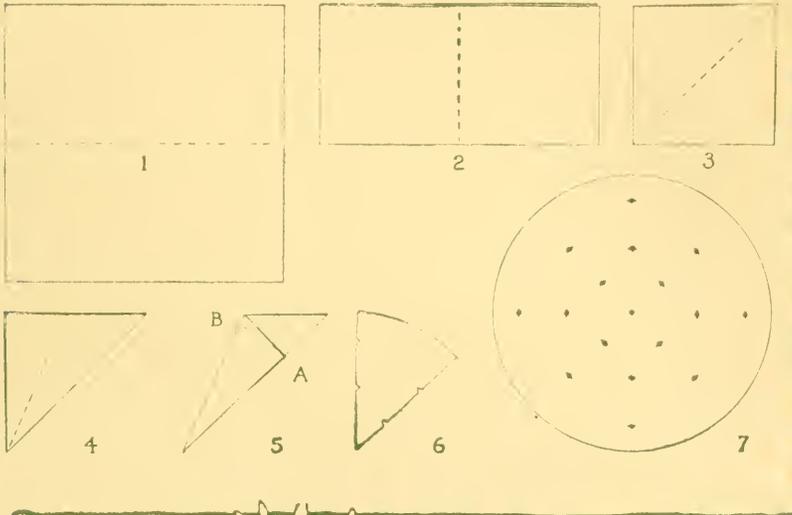
which may be dried and will keep their color for years. They make charming winter decorations for the table. There are several varieties.

Do not try all of the varieties named, but select from the descriptions the one or two which would be most pleasing to you.



Common Name.	Different Varieties.	Height.
Everlasting Flowers or "Immortelles" (pronounced im-mor-tel).	A-cro-lin-i-um. Pretty white and rosy-pink flowers, which should be cut and dried while in the bud state.	15 inches.
	Hel-i-chry-sum (Strawflower). One of the best "Everlasting" flowers. Plant 12 inches apart. Mixed colors.	30 inches.
	Xer-an-the-um. One of the prettiest of "Everlastings." Purple, white, rose.	
	Globe Am-a-ranth (Bachelor's Buttons). Resemble clover heads in white and purple.	12 inches.

In drying "Everlasting" Flowers, make a paper flower holder in the following manner:



PAPER FLOWER HOLDER

1. Cut a large square from a heavy piece of paper. Eight inches is a good size.
2. Fold the paper across four times, as shown by the dotted lines in figures 1, 2, 3, 4.
3. Cut along dotted line A-B, figure 5.
4. Open to form figure 6. Clip a tiny piece off the point, and clip along the edges as shown.
5. Spread the paper open. Set it over the mouth of deep vase or jar, and let the stems of the "Everlastings" hang full length through the little openings cut in the holder until dried. This method of dried Everlasting flowers gives long straight stems.

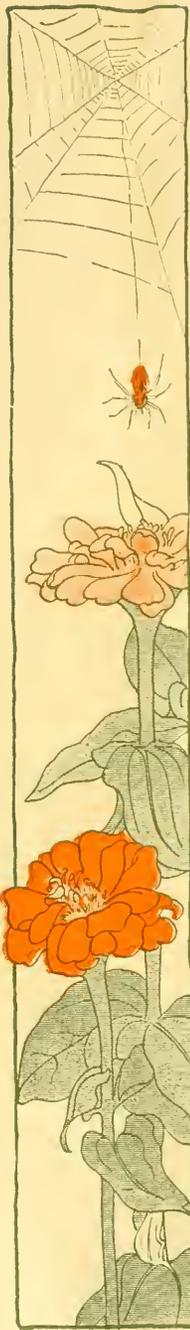
"Some list, that," said Billy at length, "and we haven't yet thought of what we will plant in the

VEGETABLE GARDEN

See Chapter LVIII, "Some Hints on Growing Vegetables."

Peas	*Radishes
*Onions	Carrots
*Parsley (Dwarf Curly)	Beets
*Tomatoes	Beans—Stringless
*Lettuce	Beans—Bush Limas
*Thyme	Corn
Peppers	Leeks
Potatoes	Cucumbers
	Sweet Basil—a soup herb

* If garden space is small, select only the names marked with a star.



CHAPTER XII

WINDOW BOXES

“WHY, Billy, the very thought of a garden like this almost frightens me,” cried Mary Frances. “I don’t believe I ever, ever can remember one-quarter of the names!”

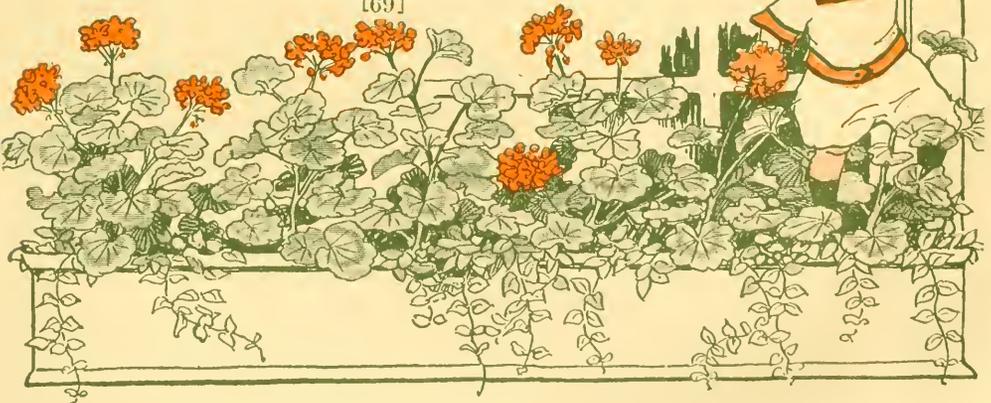
“Pshaw!” exclaimed Billy, “that’s just like a girl! I wouldn’t let a few names scare me! Besides, there aren’t so many names; some are *repeated* in each list. That’s not a very difficult garden, if managed just as Miss Gardiner explained.”

“Oh, I’m not scared—exactly,” said Mary Frances, “not when I have such a wonderful teacher, ahem! Professor Billy, when does my next lesson come?”

“Can’t promise,” said Billy not knowing whether to be pleased or vexed, “next lesson begins work. Hello! I see by my note book, I’ve left out a part of this lesson. I suppose it is because we’ve never had window boxes that I overlooked this list.”

“Window gardens are almost like a doll’s garden, it seems to me,” said Mary Frances, as Billy started to read:

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SUGGESTIONS FOR PLANTING OF WINDOW BOXES

1. Have the boxes made with small holes, or outlets, so that there may be good drainage; for although plants love to drink water, they do not enjoy having "soaking wet feet" all the time.

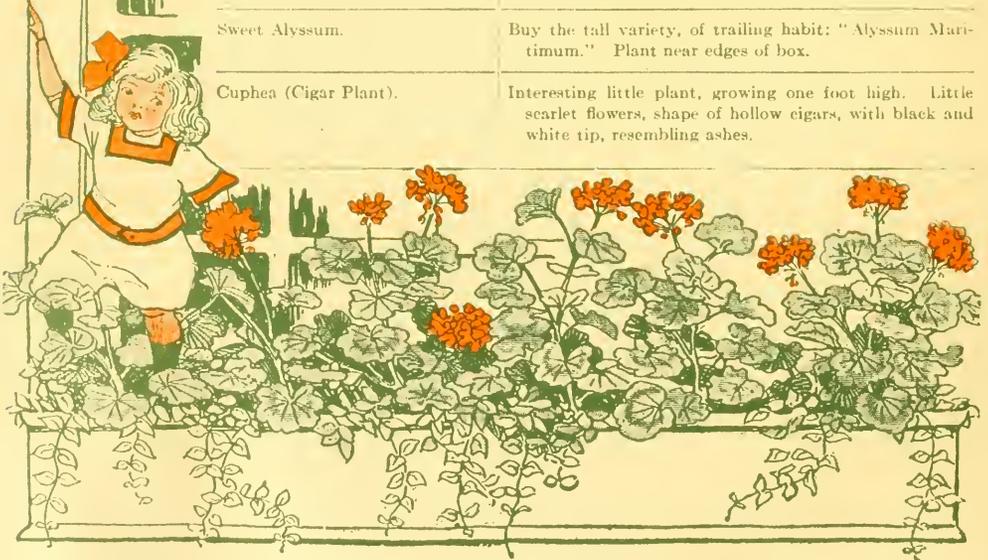
2. In the bottom of the box place some pebbles or broken stone; this, also, to make the drainage good.

3. Fill box with sifted sand and humus (or manure) very much as for seed boxes. See Chapter XIV.

Following is a list of—

NINE EXCELLENT FREE-BLOOMING PLANTS FOR WINDOW BOXES
(Most are annuals, easily started from seeds)

Petunias.	Many beautiful colors. Sow the seeds indoors; the plants may be placed out as soon as danger of frost is passed. If seeds are saved, they should be taken from the weakest plants, as they will give better results than from stronger plants. Bloom until killed by frost. Buy double large flowering.
Zinnias ("Youth-and-Old-Age").	All colors except blue and purple. Buy "Dwarf Double" varieties. Bloom late into the Fall.
Phlox Drummondii (Annual Phlox).	Very many beautiful mixed colors. Easily grown.
Sweet Alyssum.	Buy the tall variety, of trailing habit: "Alyssum Maritimum." Plant near edges of box.
Cuphea (Cigar Plant).	Interesting little plant, growing one foot high. Little scarlet flowers, shape of hollow cigars, with black and white tip, resembling ashes.



Ageratum (Floss Flower).	Buy Dwarf Variety. See List of Annuals for description.
Verbenas.	Sweet-scented Verbenas. Colors: Rose, pink, white, purple, lavender, etc.
Vinca Major Variegata ("Variegated Periwinkle").	Excellent for trailing over the edges of window boxes. Leaves glossy green with light green edges. Flowers, blue.
Geraniums.	Too well known to need description. Easily grown from "cuttings." See Chapter XXXV. Do not expect geraniums to bloom the year round. Give them rest in Winter or Summer by pinching off the buds.

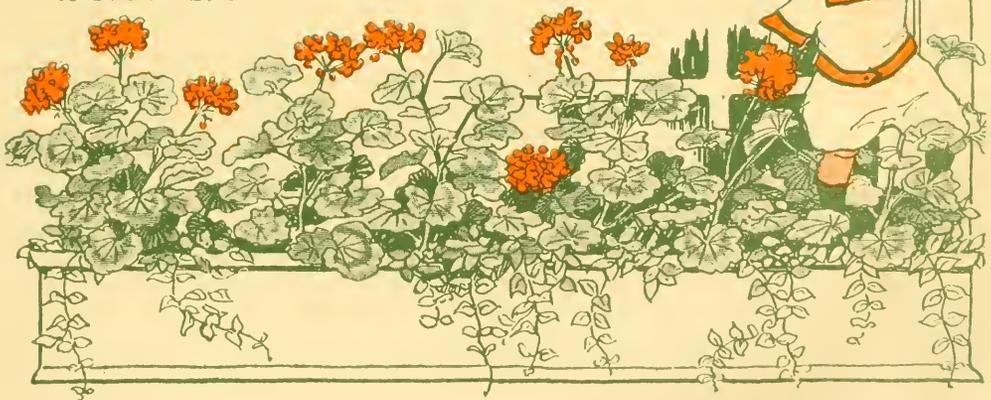
One of the prettiest shallow windows boxes is planted with Violas in mixed colors, with "Tom Thumb" Alyssum for edging.

"Oh, Billy, will you build me a window box soon for my play house?" asked Mary Frances with enthusiasm.

"Will I? Indeed, Mary Frances, what do you think! I don't believe you'll find another fellow——"

"Oh, Billy, I didn't think! I didn't! You're so good to give me these lessons! I'll wait until later for the window box."

"You'd better," said Billy; "you interrupted my notes. There is just one more flower mentioned in these lists. It is—"



Lemon Verbena
(not hardy).

An old-fashioned favorite, because of the sweet-scented foliage. It is better grown in the garden than in window boxes. The flowers are insignificant, but the lemon-scented leaves are a delight.

“Some ‘lemon verbena’ I shall have!” exclaimed Mary Frances. “I remember it well in Grandma’s garden, don’t you?”

“I remember it, but I remember another sweet-scented leaf better:

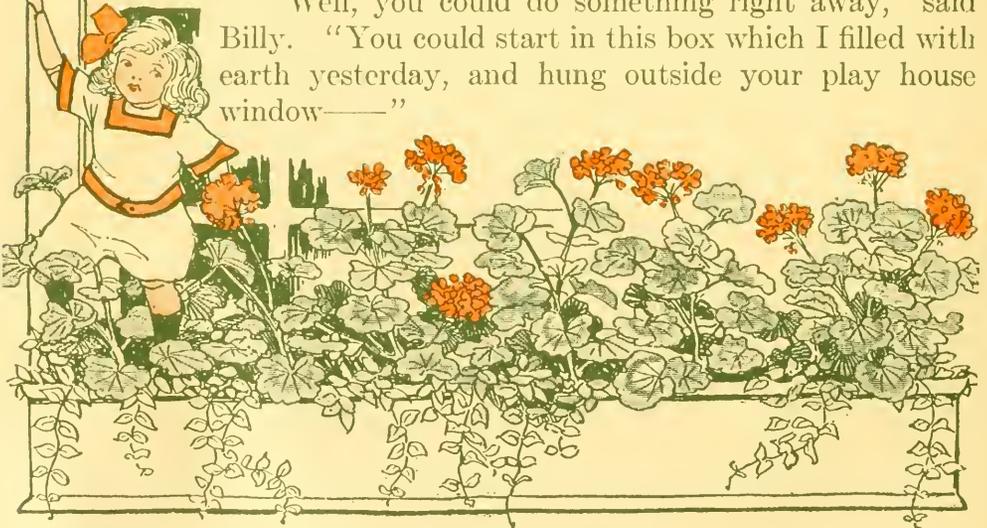
Ber-ga-mot.

Hardy, easily grown.

Flowers: Brilliant red; pretty, but not beautiful. Leaves very fragrant. Humming birds often gather nectar from the flowers.

“Oh, Billy, I remember that, too. Wasn’t it lovely! I know Grandma will give me some roots. Now, let’s begin the next lesson. I am so anxious to get to the place where I really begin to do something!”

“Well, you could do something right away,” said Billy. “You could start in this box which I filled with earth yesterday, and hung outside your play house window——”



“Oh, Billy!” breathed Mary Frances, “I didn’t see it! My, how pleased I am!”

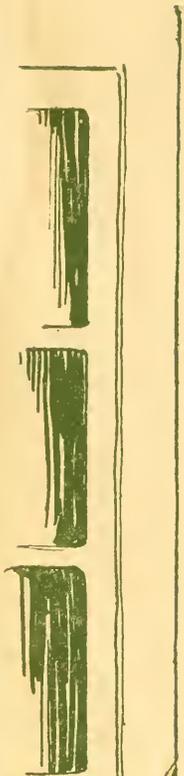
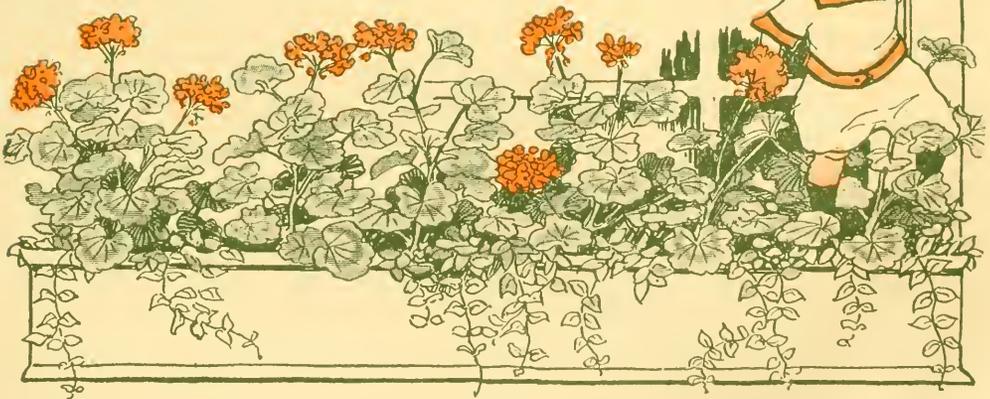
“Humm!” Billy acknowledged her gratitude and continued: “You could start—

AN HERB-GARDEN WINDOW BOX
A SOUP-AND-SAUCE GARDEN

Parsley.	See List of Vegetables for Little Folks' Garden.
Sage.	A savory herb. Buy the plant. It grows about 15 inches tall.
Mint.	Used for “mint sauce.” Easily grown. Buy the plant.
Chives.	Somewhat like small delicate green onion tops. Bear a pretty blue flower. Buy clump of roots.
Thyme.	Edge the box with thyme. See List of Vegetables for Little Folks' Garden.

“I’ll start it immediately,” declared Mary Frances, who was very fond of cooking, “I’ll get my purse and go to the florist’s right now to buy the plants.”

“Good-bye, then!” called Billy, “I’ve done my part. My next help is in eating the soup—or sauce!”



CHAPTER XIII

BILLY TESTS THE SOIL

“**D**O you suppose, Professor—I mean Billy—do you imagine we can keep the garden a secret?”

The early Spring day was so lovely that the children were sitting in the summer house.

“I guess the folks will suspect something,” answered Billy, “when they see us digging and spading, but they won’t for a moment think of all we’re planning to do.”

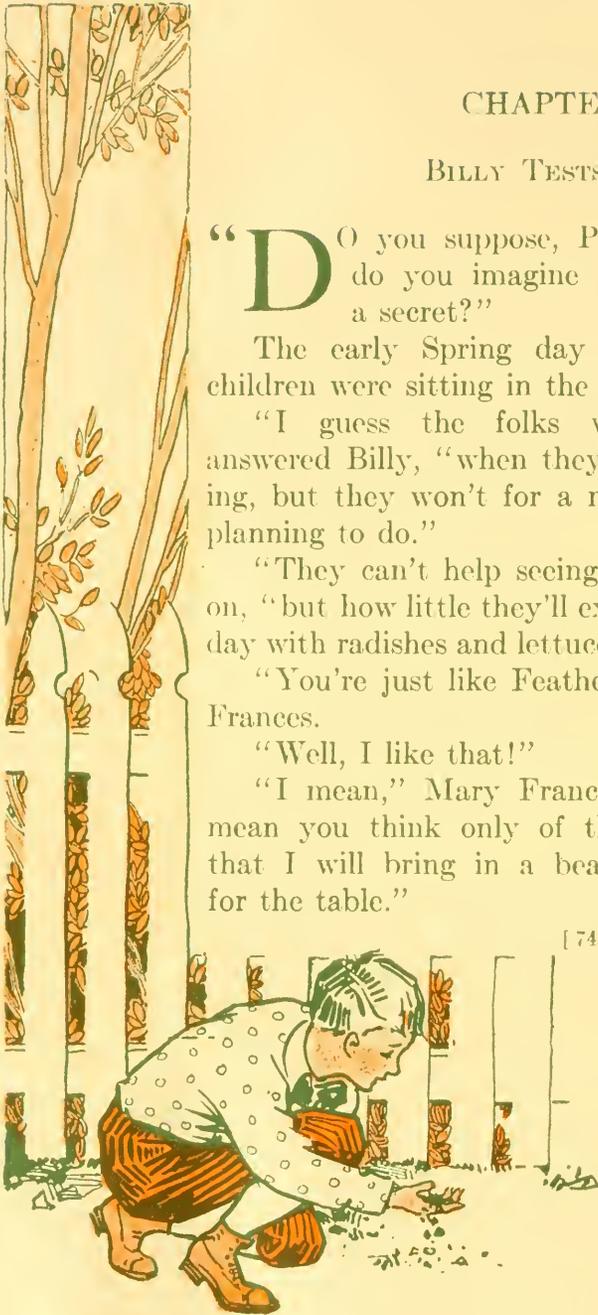
“They can’t help seeing things grow,” Billy went on, “but how little they’ll expect you to come in some day with radishes and lettuce from your own garden.”

“You’re just like Feather Flop!” exclaimed Mary Frances.

“Well, I like that!”

“I mean,” Mary Frances caught her breath, “I mean you think only of the vegetables, and forget that I will bring in a beautiful bouquet of flowers for the table.”

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"Oh, to be sure," nodded Billy, "but you won't have either unless we begin the next lesson. The first thing after making out the list, so our professor told us, is to understand about the soil. He said that after knowing what to plant, we must learn how to plant. So let us go have a look at the soil near the play house."

In front of the play house, Billy caught up a handful of earth.

"Listen, Mary Frances," he said, earnestly, "let us examine this closely. To test the soil is the most important point in gardening, as you will readily see after you have heard—

GARDEN LESSON No. 3

TESTING THE SOIL

There are very few places where the soil is "just right" for plants.

In order to find out what kind of soil is in your garden, you may make a little test by squeezing some tight in your hand.

Almost any soil, if very damp, will "hold together;" that is, if a handful is squeezed, it will stay in the shape of the hand, so do not make the test until two or three days after a rain, when it will be quite dry.



CLAYEY SOIL

If, in a couple of days after a rain, the soil is sticky, something like putty, and a squeezed handful holds together, and shows the marks of your fingers, it is clayey soil.

Now, if the soil in your garden is clayey, it will never, never do for plant babies. No indeed!

You see, it holds so close together that the little roots cannot push it apart, and cannot grow. So to clayey soil you must add something which will lighten it up; like sand, or even coal ashes, or stable manure which contains a large quantity of straw.

Deep digging and forking help a lot, too, in breaking up the tight hold which clay grains have upon each other. Sometimes that in itself will make the clay sufficiently light.

SANDY SOIL

Little plant babies are so delicate that a very sandy bed would not do for them either, for a rain might wash away the soil from their roots.

All plants are very particular, and grow best if their bed is "just right."

So, if in a couple of days after a rain, a squeezed handful of your garden soil will not hold together at all, and sifts through your fingers, heavier material must be added.

A little clay worked into the sand and run over with a roller helps; but there is something even better—it is stable manure.



HUMUS

Stable manure* not only helps hold sandy soil together and lightens clayey soils, but it contains a very great deal of plant food in the form of humus, and without humus all the other plant food in the soil is of very little value to the plant.

WHAT HUMUS IS

I know you are going to ask me what humus is; but first I want to ask you to think what the soil is. Yes, dirt, that is right; but dirt came from where?

For the most part from broken and crumbled-up rock, for this earth was once nearly all of rock.

But dirt or soil is not only rotten and broken and crumbled-up rock, as you will see in one minute.

Do you remember how the leaves fell off the tree last Autumn, and how the grass died down? What became of the leaves and grass?

They died, yes, and turned into leaf mold, which is one form of humus.

You have guessed right, Mary Frances. Humus is decayed vegetable matter.

* Manure should be well rotted, otherwise plants cannot make use of it, for they must have food that has been "broken down," so that the plant roots can take up what they need.

Manure that is rotted has been piled up and left out in the weather with a board or two for cover to shed water. The pile has been turned over once a month, and dampened when dry.



WHAT HUMUS DOES

Humus mixed with water makes humus soup, which is the very best kind of plant food, and the plant babies love it. They drink it through their roots, you know.

Not only does humus help with the matter of food, but it holds moisture in the soil, and in some almost magic way makes other plant food into a form which the plant can use.

Of course, you wish to give your plants the best kind of food, and of course you will want humus.

But suppose you cannot readily get stable manure, or leaf mold from the woods, why then, you can make humus. Every day the very things you need to make humus may be going to waste.

TO MAKE A COMPOST HEAP

Save all the vegetable tops, leaves, grass, etc. Pile them up and let them decay. When decayed, they are humus.

Another way to make a compost heap is to dig grass sods about eight inches square, and make them into a pile about two feet high, with layers of earth and manure between, and let stand in the weather to decay. Turn over when decayed. When wanted for use, cut some down, knock apart and spread.

You have heard of sowing rye or oats, and "ploughing the crop under" to enrich the soil; this makes humus out of the green rye or oats and their roots.

The plant baby and big plants, too, need many different kinds of food, but the most important is humus.



CHAPTER XIV

HOW TO PLANT

“OH, yes,” continued Billy “I’m going to tell you how the plants eat, and why they are so fond of plant-food soup, and why they like bones (of course, for soup! that is right); but I think you would prefer that story later on, and would rather talk now about—

GARDEN TOOLS

The best small garden tools are a “Ladies’ Set,” for they are strong and yet small and pleasant to handle.

A fork for digging; a rake and a hoe and a “cultivator” are necessary.

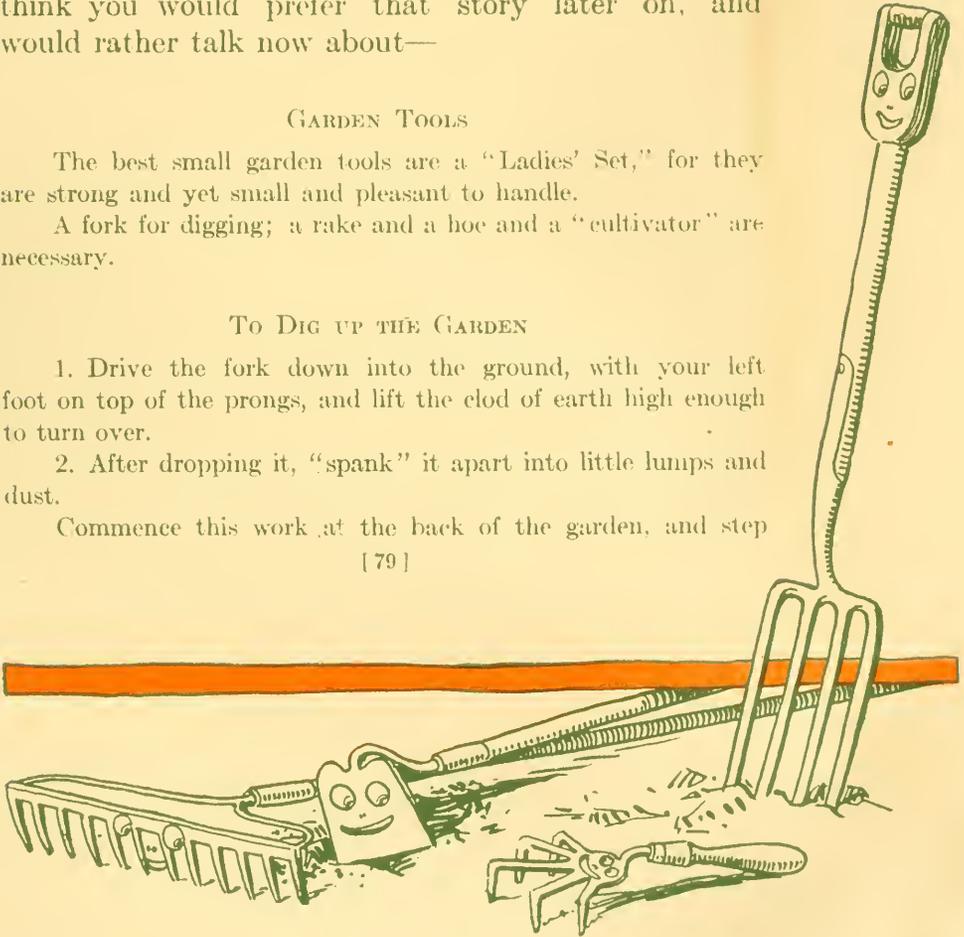
TO DIG UP THE GARDEN

1. Drive the fork down into the ground, with your left foot on top of the prongs, and lift the clod of earth high enough to turn over.

2. After dropping it, “spank” it apart into little lumps and dust.

Commence this work at the back of the garden, and step

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backward over the untouched earth, until you have covered the entire plot. Begin at the left-hand corner "A" and across to the right.

In this way, you will not step on the loosened soil, nor pack it down.

Of course, in large fields, this work is done with a plow.

TO PREPARE THE SOIL

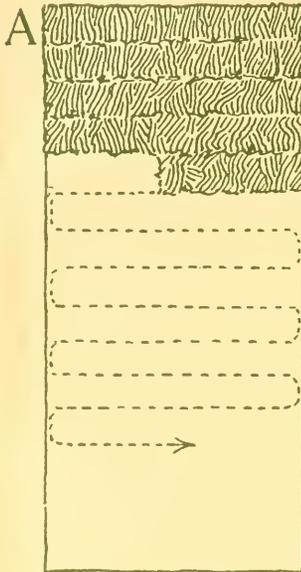
1. Spread humus or manure, or both, all over the surface and dig it in, in the same manner in which you first dug up the garden, if you wish to be entirely certain of having success.

But even then, the soil is not fine enough. No. I see you shake your head. But, Mary Frances, if you want a lovely garden, you must get the garden table ready for the plant roots in the most enticing way.

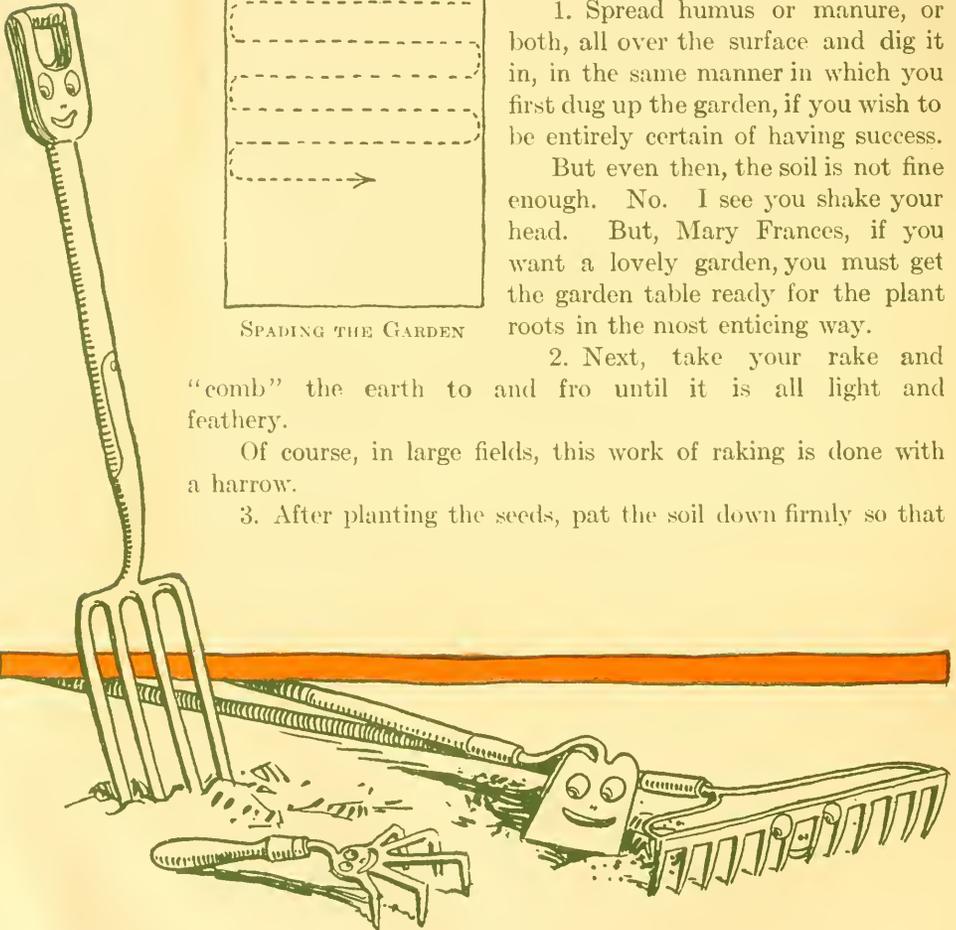
2. Next, take your rake and "comb" the earth to and fro until it is all light and feathery.

Of course, in large fields, this work of raking is done with a harrow.

3. After planting the seeds, pat the soil down firmly so that



SPADING THE GARDEN



it will be firm enough for the little rootlets to "get a hold," yet will be movable so that they may grow.

TO PLANT SEEDS IN BOXES

Little seeds are not always started, or planted, out of doors.

Instead, early in the Spring, seeds are often started in boxes in a sunny window, or in hotbeds. (See Chapter LVII.)

We'll make a hotbed of our own one of these days, Mary Frances, but at present we'll have to be satisfied with seed boxes.

PREPARING THE SOIL

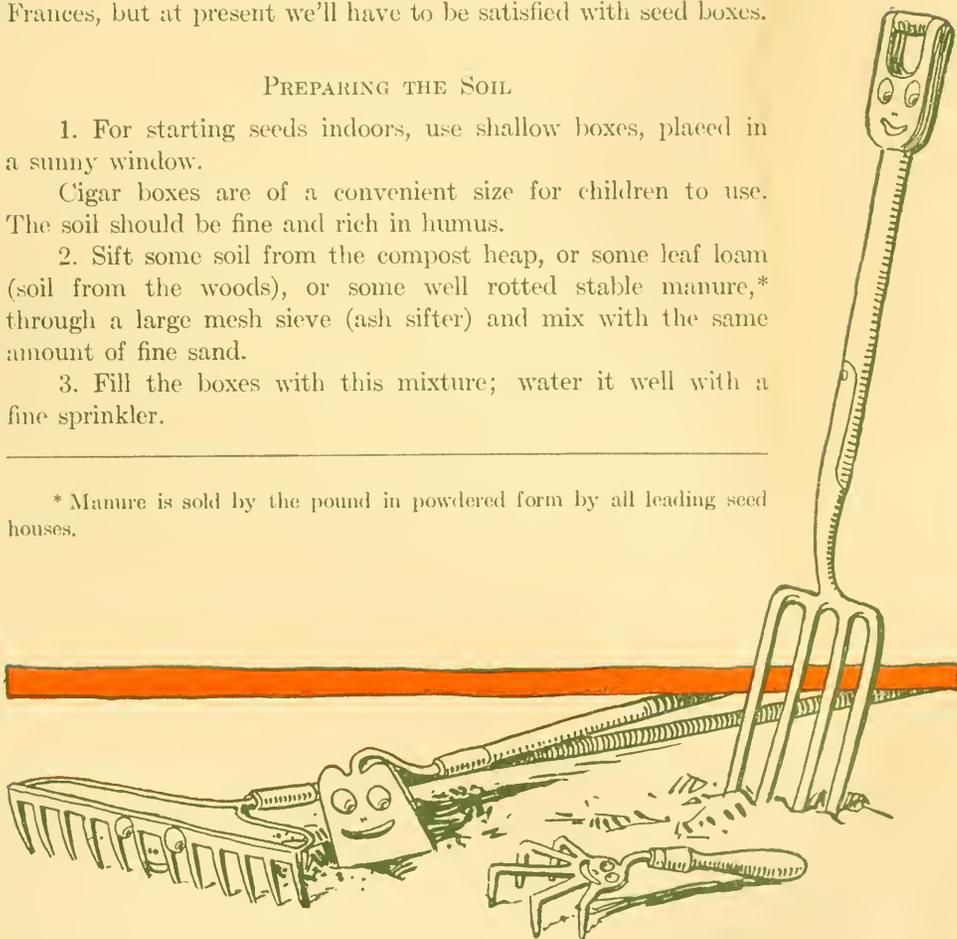
1. For starting seeds indoors, use shallow boxes, placed in a sunny window.

Cigar boxes are of a convenient size for children to use. The soil should be fine and rich in humus.

2. Sift some soil from the compost heap, or some leaf loam (soil from the woods), or some well rotted stable manure,* through a large mesh sieve (ash sifter) and mix with the same amount of fine sand.

3. Fill the boxes with this mixture; water it well with a fine sprinkler.

* Manure is sold by the pound in powdered form by all leading seed houses.



SOWING THE SEED BOXES

1. Sow the seeds thinly, sprinkle them like pepper from a shaker on the surface, and over them spread a very, very little sand.

2. If possible, cover the box with glass to prevent the soil from drying, but let the *air into the box by tilting the glass on one side*, using a cork on the edge.

WATERING THE SEED BOXES

1. Do not water often, but when necessary to do so, use the finest sprinkler possible.

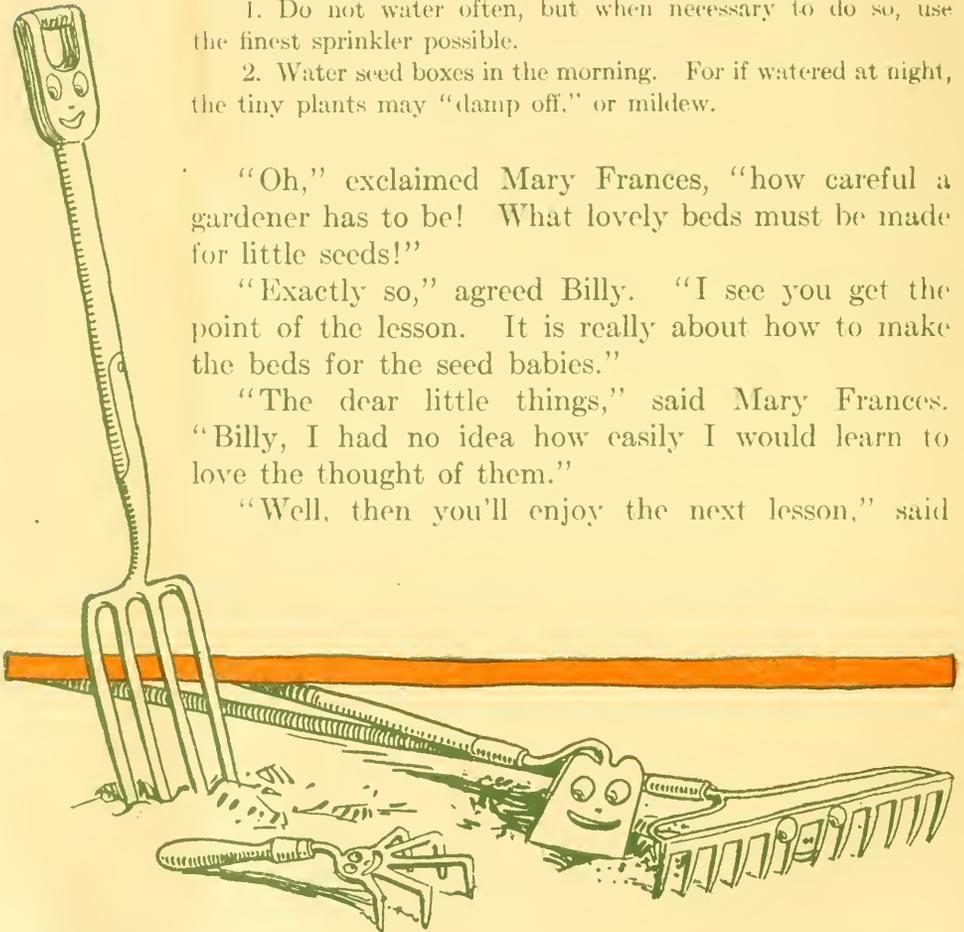
2. Water seed boxes in the morning. For if watered at night, the tiny plants may "damp off," or mildew.

"Oh," exclaimed Mary Frances, "how careful a gardener has to be! What lovely beds must be made for little seeds!"

"Exactly so," agreed Billy. "I see you get the point of the lesson. It is really about how to make the beds for the seed babies."

"The dear little things," said Mary Frances. "Billy, I had no idea how easily I would learn to love the thought of them."

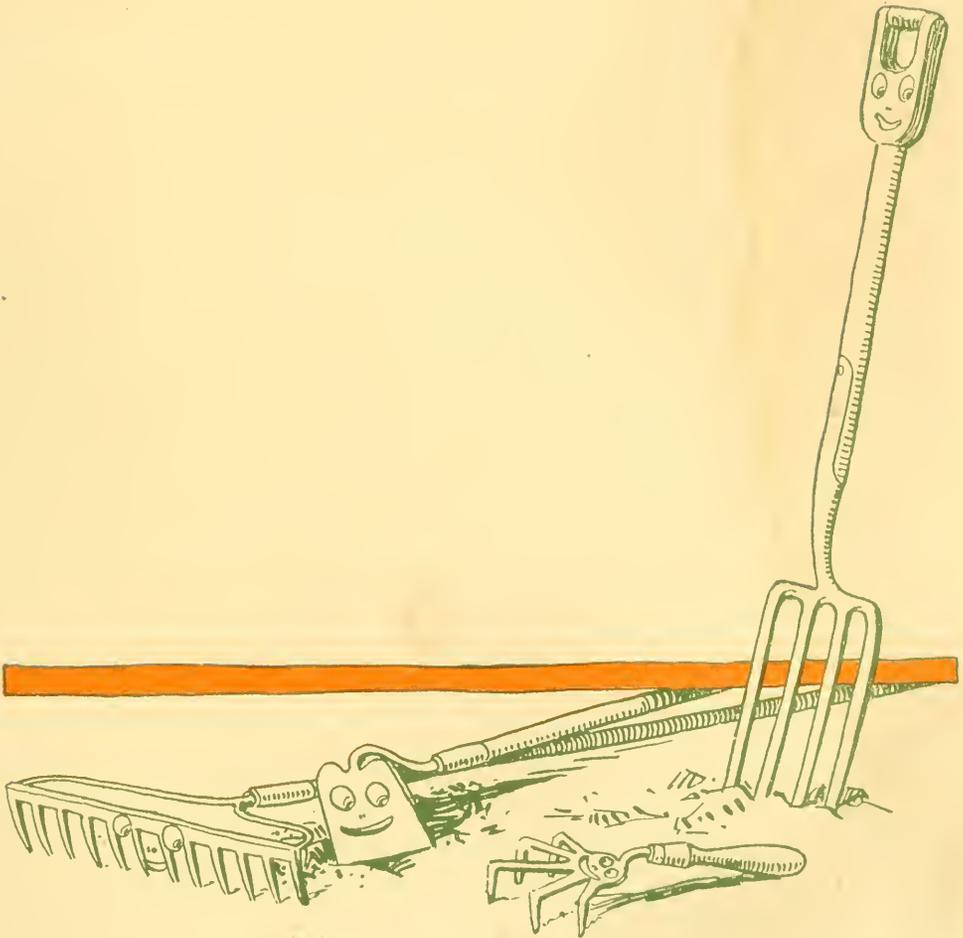
"Well, then you'll enjoy the next lesson," said



Billy, turning over the leaves of his note book. "Our professor told us next a good deal about the seed babies."

"Can't we go right on now with that lesson?" asked Mary Frances, in delight at the willingness of Billy to teach her.

"I guess so," replied Billy, looking at his watch. "The ball team doesn't meet until two-thirty."



CHAPTER XV

THE OUTDOOR SEED-BED

“LET me see,” said Billy. “What lesson is this?”

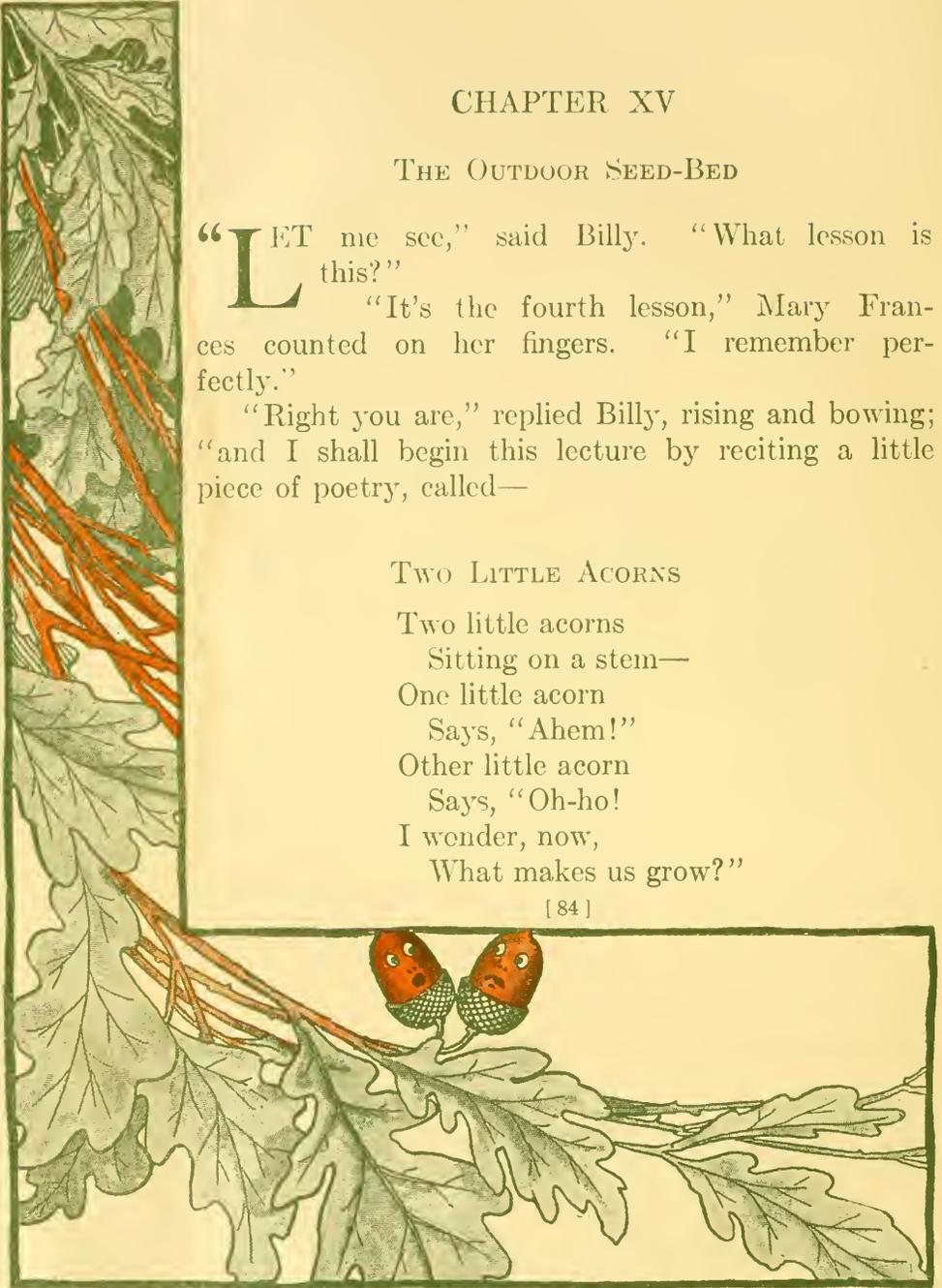
“It’s the fourth lesson,” Mary Frances counted on her fingers. “I remember perfectly.”

“Right you are,” replied Billy, rising and bowing; “and I shall begin this lecture by reciting a little piece of poetry, called—

TWO LITTLE ACORNS

Two little acorns
Sitting on a stem—
One little acorn
Says, “Ahem!”
Other little acorn
Says, “Oh-ho!”
I wonder, now,
What makes us grow?”

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"I don't know,
But this I see;
It must be someone
Wiser than we."
Other little acorn
Says, "Oh-ho!
Indeed, indeed,
That must be so!"

Billy made a deep bow, and Mary Frances clapped her hands; then Billy opened his note book, cleared his throat, and began:

GARDEN LESSON No. 4

THE OUTDOORS SEED-BED

Having found how to get the outdoors seed-bed ready, we will next learn how to plant the seed.

Of course, you have made your list of the seeds needed, and have received them from the dealer.

If possible, it is best to run the planting of the rows or drills north and south so that *the sun will shine* upon the rows of plants all day, from the east in the mornings; from the west in the afternoons.

You will need a garden line to make a straight first row.



TO MAKE A GARDEN LINE

1. Cut two sticks about as large around as a broom handle, each eighteen inches long.
2. Point the ends so that they may be easily stuck into the ground.
3. Tie one end of a strong twenty-five foot cord to each stick. Roll the cord on the stick.

TO USE THE GARDEN LINE

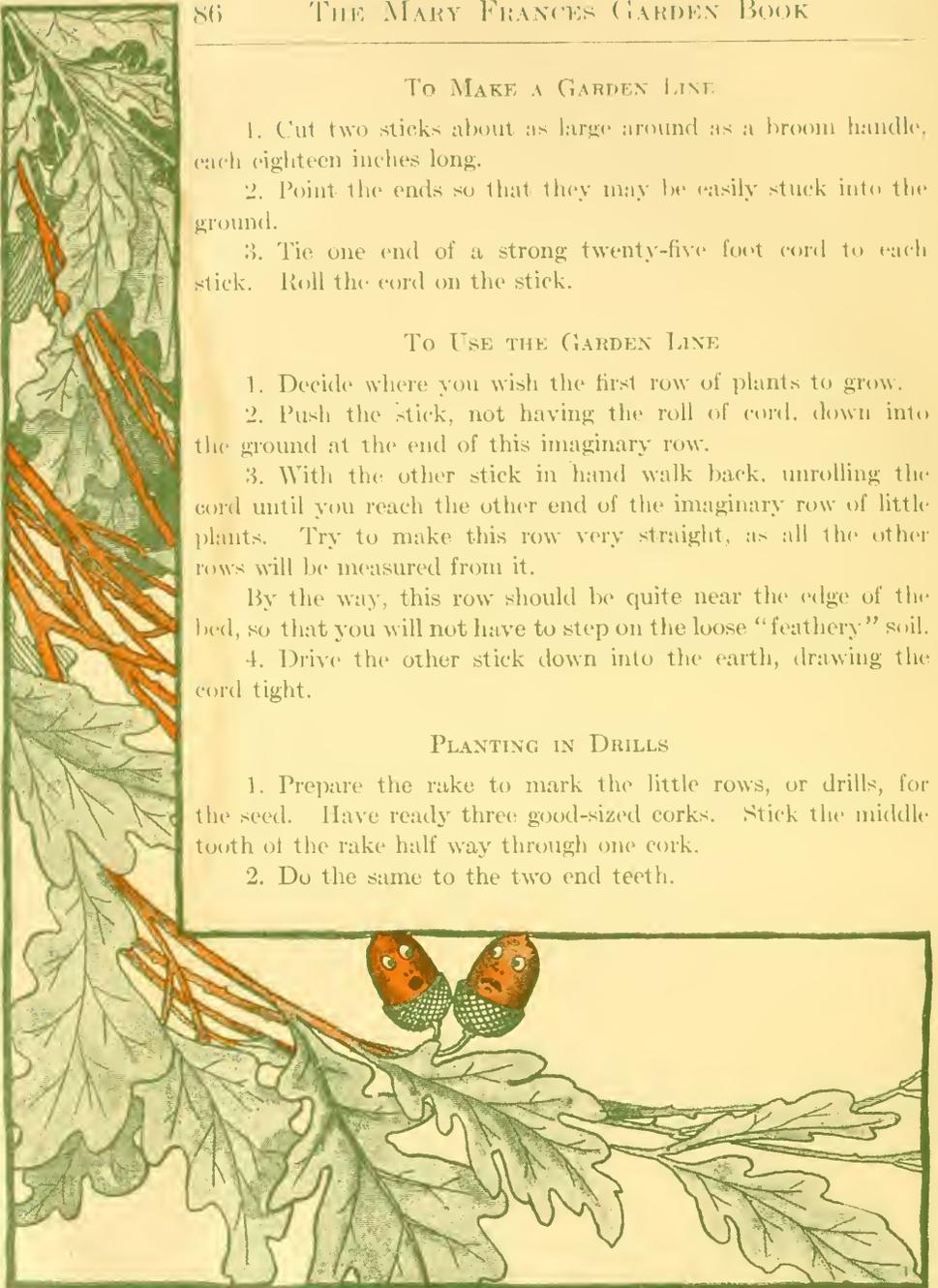
1. Decide where you wish the first row of plants to grow.
2. Push the stick, not having the roll of cord, down into the ground at the end of this imaginary row.
3. With the other stick in hand walk back, unrolling the cord until you reach the other end of the imaginary row of little plants. Try to make this row very straight, as all the other rows will be measured from it.

By the way, this row should be quite near the edge of the bed, so that you will not have to step on the loose "feathery" soil.

4. Drive the other stick down into the earth, drawing the cord tight.

PLANTING IN DRILLS

1. Prepare the rake to mark the little rows, or drills, for the seed. Have ready three good-sized corks. Stick the middle tooth of the rake half way through one cork.
2. Do the same to the two end teeth.



3. Run one end tooth of the rake along the stretched garden line keeping all the teeth parallel with the line. Continue to use the rake across the entire bed. This is a convenient method of getting straight rows. Make the drills (hollows) about a half inch deep.

BROADCASTING

Seed are often not sowed in "drills," but are "broadcast;" where plants are to be thinned out when they come up, and not to be transplanted, the *drills* are better.

Broadcasting is throwing the seeds lightly over the surface of the ground, so that each will fall a little way apart from the other, like sprinkling with pepper from a pepper shaker.

COVERING THE SEEDS

After the seeds are sown, draw the earth lightly over them either with your hands or with the back of the rake. It is best to sow seeds just before a rain, except when the seeds are very small; then, just after a rain. If there is no rain, sprinkle lightly, but thoroughly dampen the earth.

Pat the earth down gently with the palms of your hands or with a board.

A board is much the better if seed has been broadcast.

The reason? Oh, yes, the reason is that the soil will be too light and airy unless firmed.

The little seed rootlets need close-packed light earth, with



no lumps. Just imagine how tiny they are, and how near to them must be the tiny grains of sand for them to take hold on.

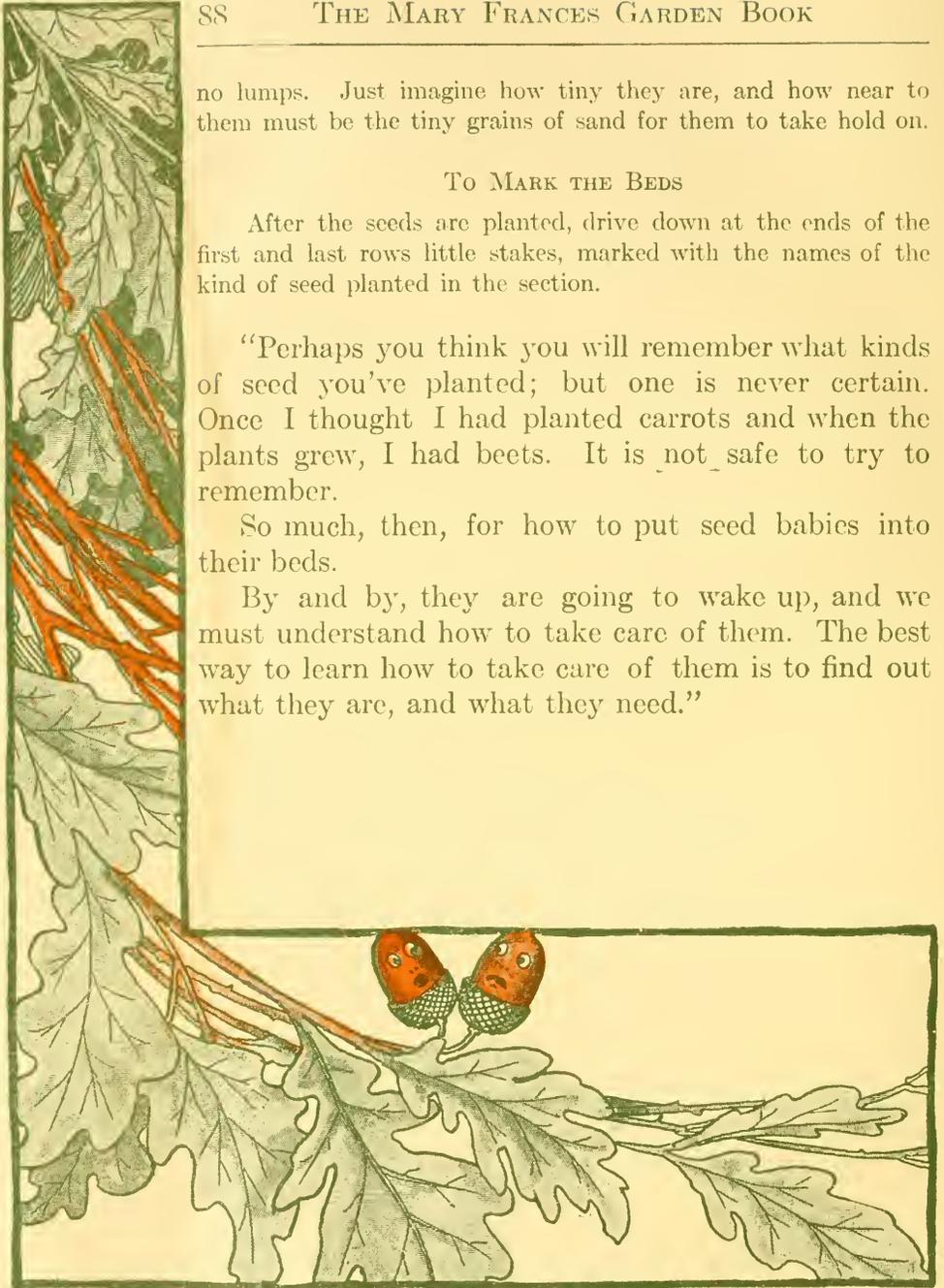
TO MARK THE BEDS

After the seeds are planted, drive down at the ends of the first and last rows little stakes, marked with the names of the kind of seed planted in the section.

“Perhaps you think you will remember what kinds of seed you’ve planted; but one is never certain. Once I thought I had planted carrots and when the plants grew, I had beets. It is not safe to try to remember.

So much, then, for how to put seed babies into their beds.

By and by, they are going to wake up, and we must understand how to take care of them. The best way to learn how to take care of them is to find out what they are, and what they need.”



CHAPTER XVI

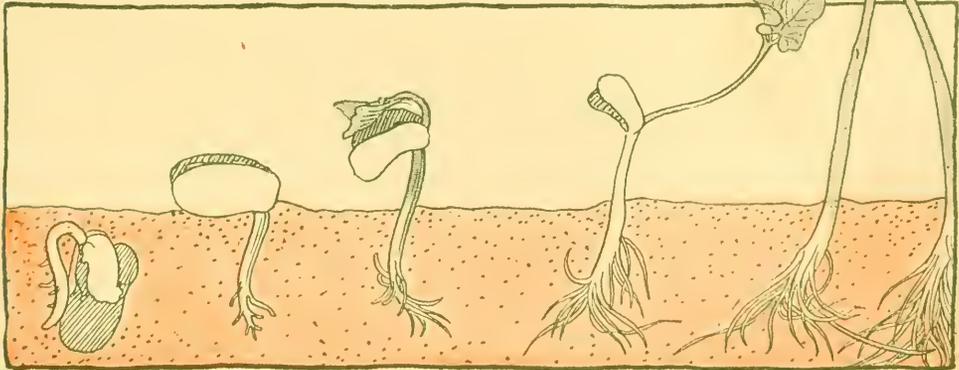
SEED BABIES AND THEIR NURSES

“**F**IRST of all, we must understand that the seed has a coat which holds the living, sleeping baby. You see, the baby itself is so tiny and delicate that it would not be safe for it to be out without its seed coat. The wind and the sun would soon dry it up and kill it; then, too, it would die of hunger, for it is too little to find its own food. So its mother wraps the baby up in its strong seed coat, and puts its food in beside it, in the same coat. And there the seed baby lies sound asleep until—until everything is just right for it to wake up. The time it likes best to awaken is in Spring, when the weather is getting warm.

SEED BABIES IN THEIR COATS

You will put your seed babies, coats and all, into the warm ground early in the Spring, when they will feel like growing. Then you will dampen them, for without moisture and food, the seed baby will not wake up. The moisture swells the seed coat, and wakens the baby, and gets the food ready for the baby to eat.

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The baby begins to eat the food its mother put inside the seed coat; it stretches itself, and pretty soon sends down into the earth a "teeny-weeny" rootlet. This rootlet takes a little food from the earth up to the baby. Oh, yes, plant soup, that is the kind of food it takes. Plant soup is mixed earth and water.

How good it is for the plant child, depends on how sweet the soil is, and how much humus or compost or manure food is in the soup. Humus soup tastes wonderfully good to the baby plant.

COTYLEDONS

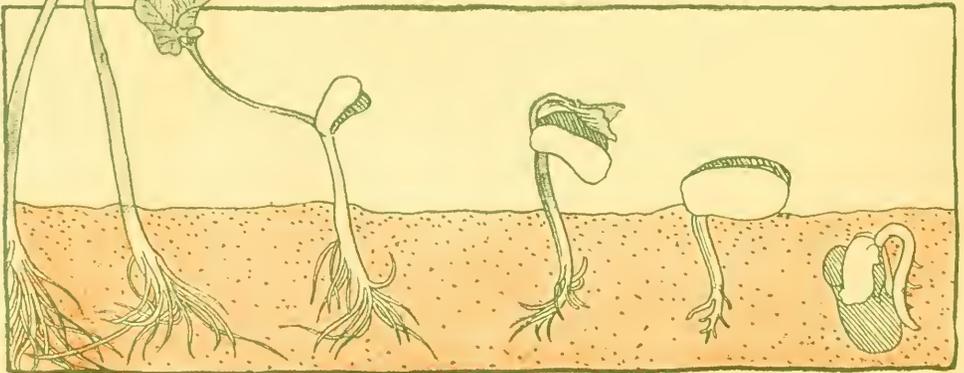
Well, not only does the baby plant send down this tiny rootlet, but its tiny stem grows upward, and bursts through the seed coats and show two tiny leaves.

The two tiny leaves which appear on top of this stem, while down in the soil grew larger, threw open the seed coat, and came up to the surface for the air and sunshine.

These leaves are called the seed-leaves, or cōt-ŷ-lē'-dōns. They are not the true leaves of the plant baby, but are nurse-leaves which go ahead of the leaves of the baby plant, and really hold the true leaf of the baby between them.

These nurse-leaves take care of and feed the tiny plant baby until it can send out its own tiny leaves to gather air and digest food for itself.

If you pull up a Lima Bean Seed Baby after it has started to grow you will see the nurse-leaves.



No plant should be moved or transplanted until at least two true leaves, or leaves of its own, not nurse-leaves (cotyledons), have appeared.

Of course, when the little plants first come up there will be so many that each will choke the other, and so we must learn about—

THINNING OUT THE PLANTS

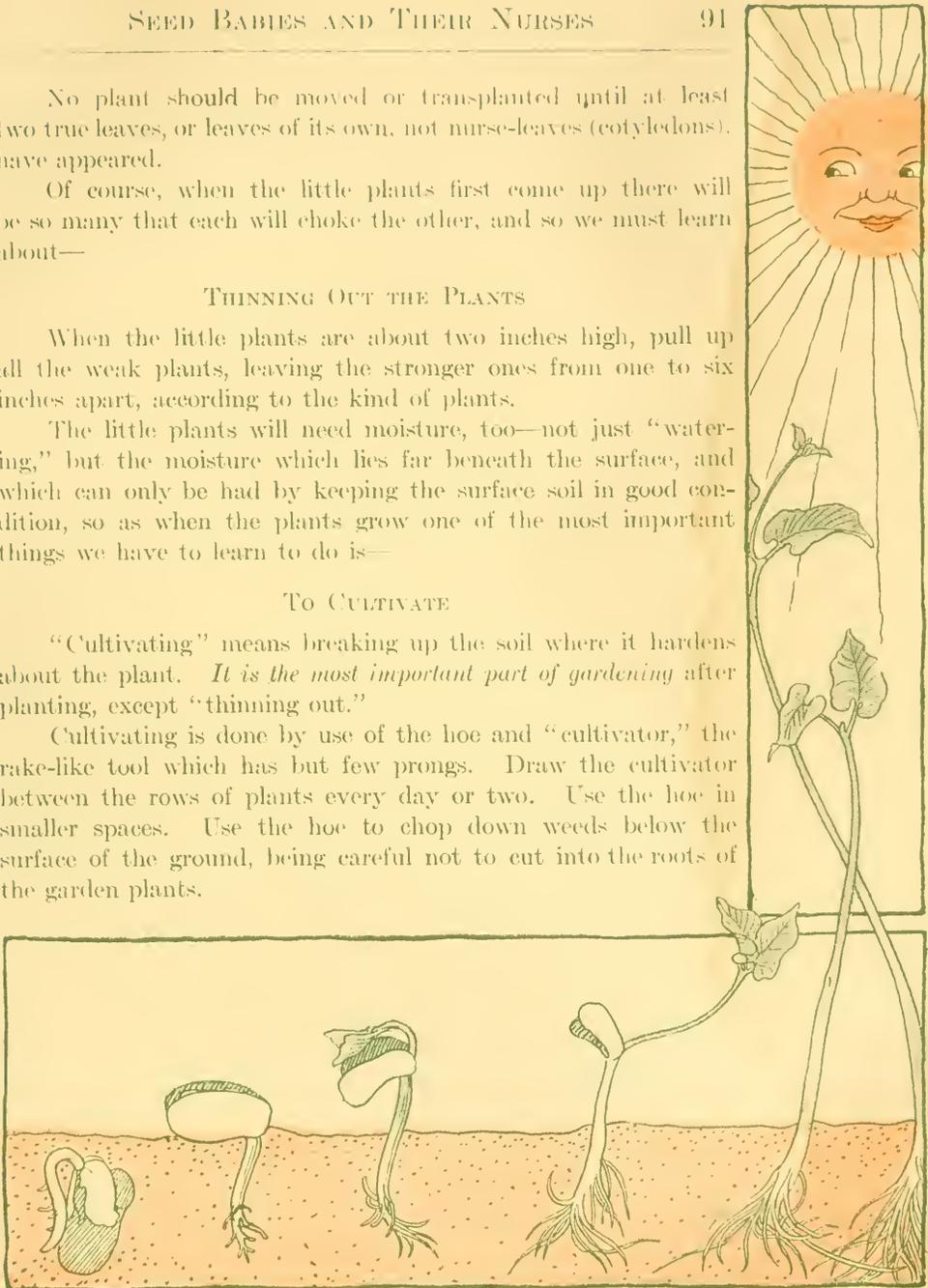
When the little plants are about two inches high, pull up all the weak plants, leaving the stronger ones from one to six inches apart, according to the kind of plants.

The little plants will need moisture, too—not just “watering,” but the moisture which lies far beneath the surface, and which can only be had by keeping the surface soil in good condition, so as when the plants grow one of the most important things we have to learn to do is—

TO CULTIVATE

“Cultivating” means breaking up the soil where it hardens about the plant. *It is the most important part of gardening after planting, except “thinning out.”*

Cultivating is done by use of the hoe and “cultivator,” the rake-like tool which has but few prongs. Draw the cultivator between the rows of plants every day or two. Use the hoe in smaller spaces. Use the hoe to chop down weeds below the surface of the ground, being careful not to cut into the roots of the garden plants.



In breaking up the hard soil, or "cultivating," the weeds are destroyed, but hard soil is a worse enemy of plant babies than weeds even, although every child knows how dreadful it is for a garden to let weeds steal all the food from the baby plants.

Baby plants need { air,
food,
moisture.

Now if there is a hard crust of soil around the roots, they cannot get the *air*; so we *cultivate* or break up the hard soil to give them air.

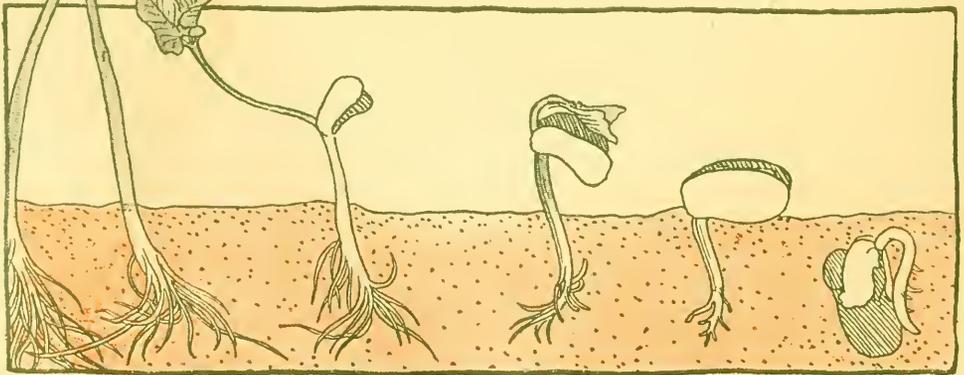
Baby plants cannot get *food* if big strong weeds steal it from them; so we *cultivate* to kill the weeds.

Baby plants need *moisture*, perhaps more than anything else, so we cultivate; for cultivating keeps in the moisture that is down in the soil. I will explain this in a very little while.

So you see *Cultivating* is the most important garden work.

WATERING

Perhaps you think watering the garden most important. If so, you are mistaken. Yes, the garden must be watered from time to time; but when it is watered it should be drenched soaking wet, never sprinkled a little every day or two. One soaking in a week is better than a light sprinkling every day. Light sprinkling brings the roots to the surface, where the sun dries them up in a short time. On the other hand, the rain or a thor-



ough drenching soaks down, down, down, into the earth, where it is stored up for future use.

THE IMPORTANCE OF CULTIVATING

Now, I am going to tell you why cultivating is so important in regard to moisture.

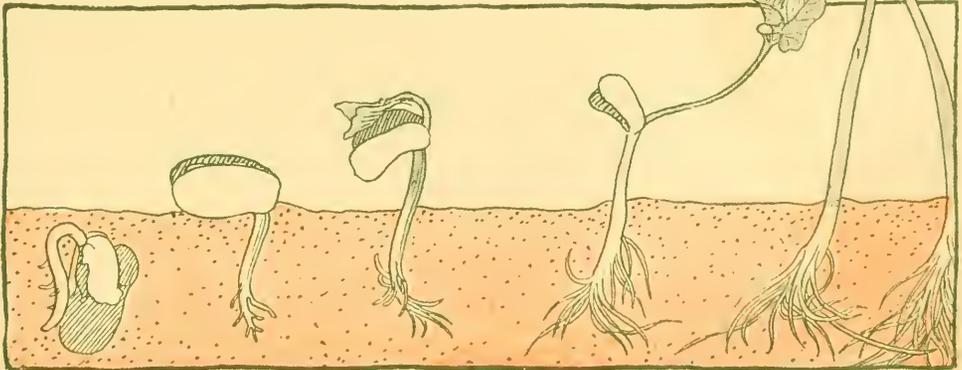
If the soil is all soft and fine and loose, the rain can easily run down through it to the roots.

If it were hard, the water would run off to lower ground. That's easily understood.

But immediately after the rain, when the sun comes out and the wind blows, the surface of the soil begins to dry.

Then the sun "coaxes" and "pulls" the water up, up, up, to the surface it has dried, something like the way you pull the juice of an orange up through a stick of lemon candy. Now let me ask you—could you pull much orange juice through the stick of candy if the stick of candy were crumbled or broken apart at the top? No, you could not.

Neither can the sun pull the moisture up through the tiny little tubes in the soil if we break those little tubes and crumble the tops into dust. No, you need not look for these tubes, Mary Frances; they are too tiny for you to see, but they act very much like blotting paper to bring the under moisture up to the surface, and unless they are broken and crumbled, the deep earth moisture goes sailing off into the air to meet the sun, as fast as if it ran out of a little spigot running it off, and the poor plant baby dries up for want of deep moisture near its roots.



How shall we break these tubes (the sun's lemon candy stick)?

Yes, that's right, Mary Frances!

By CULTIVATION.

"Jiminy! what a long lesson!" exclaimed Billy, wiping his forehead, "What're you going to do for me, Mary Frances, for all this wonderful instruction?"

"I'll give a dinner in your honor, Professor, and let you invite whom you please."

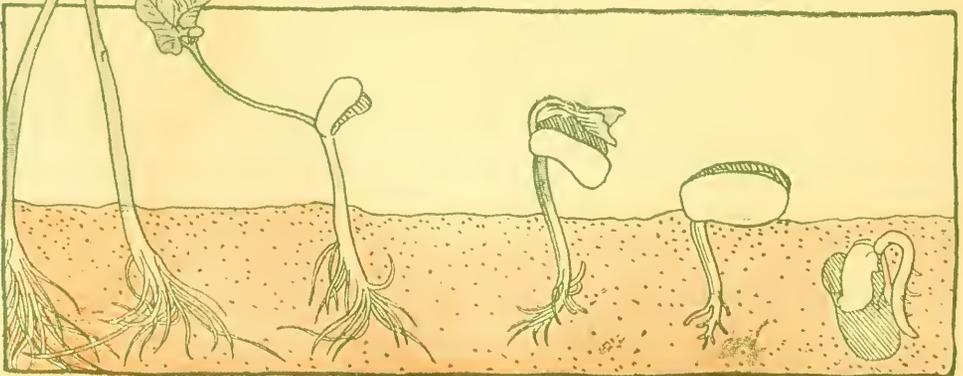
"On one condition," said Billy, "that every thing we have will come out of your garden!"

"Agreed!"

"To-morrow we begin real work and put into practice some of these remarkable lectures," added Billy earnestly.

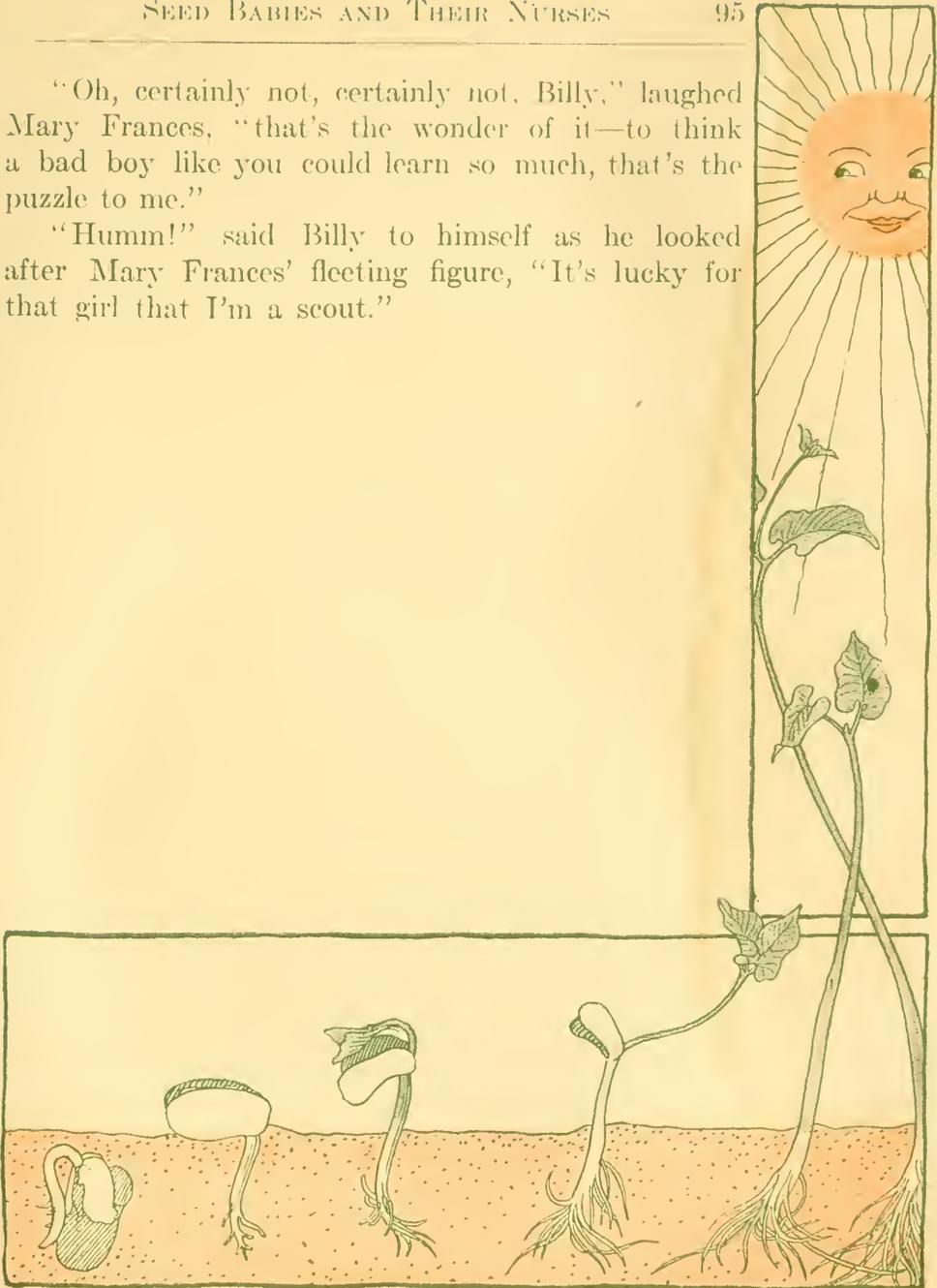
"Oh, how glad I am!" exclaimed Mary Frances. "Billy, it seems too wonderful! My, I'm glad Mother and Father sent you away to school, though I did miss you terribly, but you learned such a lot that it makes up for it."

"Augh! Mary Frances, you make a fellow feel queer, I wasn't such a perfect little *angel* in school."



"Oh, certainly not, certainly not, Billy," laughed Mary Frances, "that's the wonder of it—to think a bad boy like you could learn so much, that's the puzzle to me."

"Humm!" said Billy to himself as he looked after Mary Frances' fleeting figure, "It's lucky for that girl that I'm a scout."



CHAPTER XVII

NAMES OF PARTS OF FLOWERS

THE children worked in the garden early and late for days, and if the grown-ups in the big house suspected they were gardening, they did not hint that they thought of such a thing.

Billy spaded, and Mary Frances planted, and Feather Flop looked on from a distance whenever Billy was anywhere to be seen.

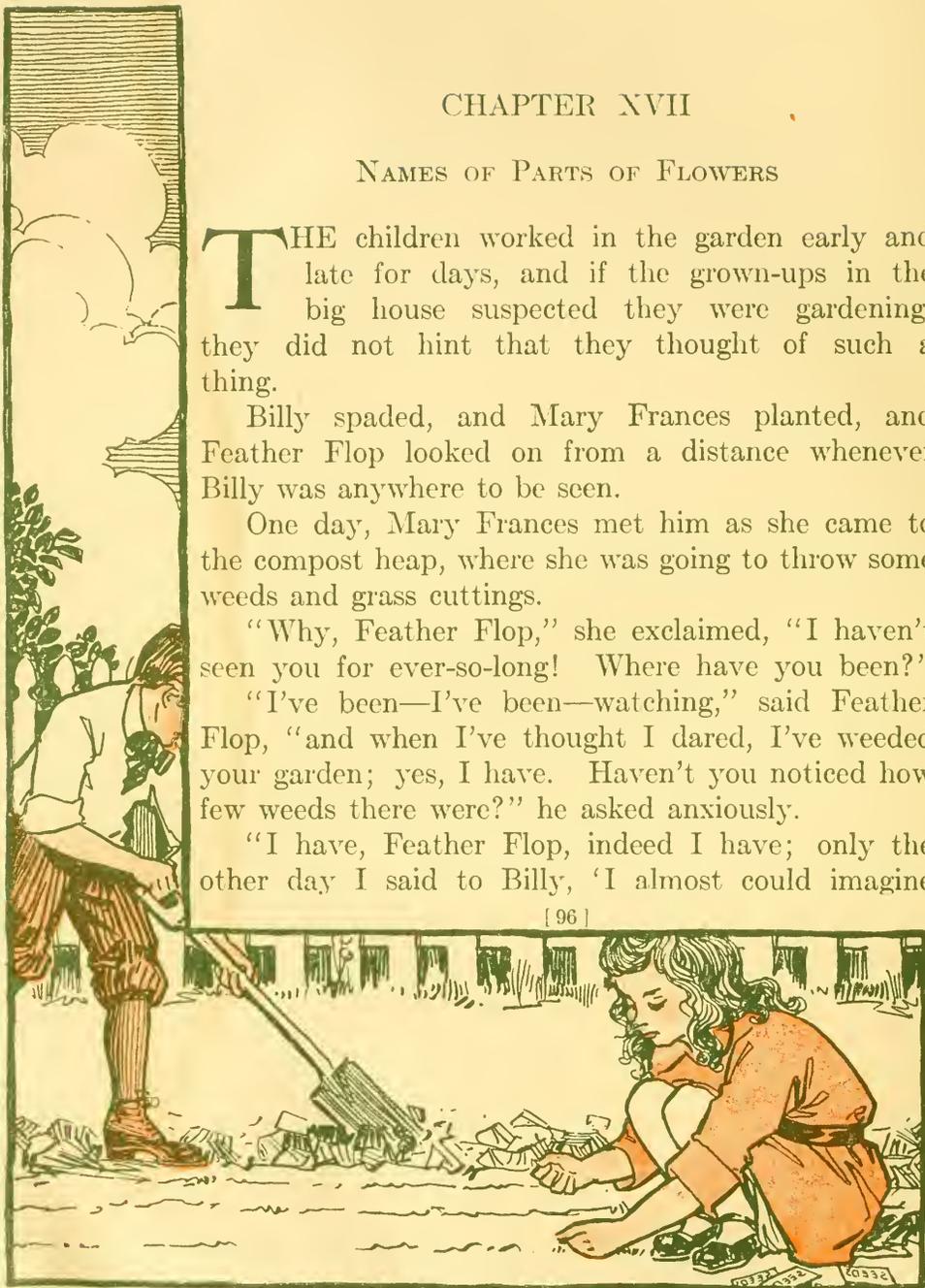
One day, Mary Frances met him as she came to the compost heap, where she was going to throw some weeds and grass cuttings.

"Why, Feather Flop," she exclaimed, "I haven't seen you for ever-so-long! Where have you been?"

"I've been—I've been—watching," said Feather Flop, "and when I've thought I dared, I've weeded your garden; yes, I have. Haven't you noticed how few weeds there were?" he asked anxiously.

"I have, Feather Flop, indeed I have; only the other day I said to Billy, 'I almost could imagine

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someone had been "cultivating" the garden this morning.'"

"That was the morning I got up before daylight, and went out there and scratched, and scratched, where I felt *sure* I would not disturb anything which ought not to be disturbed," said Feather Flop, delighted.

"My," said Mary Frances, "how perfectly dear of you, Feather Flop; I can't begin to tell you the wonderful fairy-story-feeling I have, to know that all the time that Billy and I are studying and working, you are so interested and kind, so anxious to help me!"

"Oh, yes, dear Miss," sighed the happy rooster; "but I certainly do wish I could do more and be with you oftener."

"Never mind, Feather Flop," said the little girl. "Some day when Billy goes to town, we'll spend the whole day together."

"Good!" cried Feather Flop, delighted. "Good! and now, please let me show you where I found so many cut-worms."

Mary Frances and he walked over to the garden.



"Right there," explained Feather Flop, going toward the tomato plants and pointing with his wing: "right down there. About twenty, I guess there were, and I had some difficulty——"

"Get out of that garden, will you, Feather Flop!" roared Billy, coming with a stick. "Say, Mary Frances, why don't you chase that old good-for-nothing rooster off? If he doesn't look out——"

"Oh, Billy," cried Mary Frances. "Oh, Billy, you ought—he was—he has eaten a lot of cut-worms. I know he has! You don't understand!"

"I don't understand! Well, I guess I don't! Get out of here, you old busybody of a rooster!" said Billy.

Mary Frances felt so sorry about the rooster she couldn't have helped crying, and out came her handkerchief.

"Oh, Billy," she sobbed, "he's so interested—in the garden."

"I should say he is!" said Billy. "I should say so! But whatever can be the matter with *you*, gets me! For pity's sake, dry up those tears. I was going to give you the next lesson."



At that Mary Frances dried her eyes.
 "Oh, were you, Billy—will you?" She was delighted.

"Yes," said Billy, "if you'll stop weeping. The next lesson is a real one in Botany, or the study of flowers and plants; and since I've found these few buttercups, which I pressed in my collection of dried flowers, if you wish, I shall begin—

GARDEN LESSON No. 5

NAMES OF PARTS OF FLOWERS

Not all flowers have every part. The buttercup (or better, the single geranium) is an excellent flower to study to show the various parts.

To learn the name of each part, our teacher told us—

THE STORY OF LITTLE BUTTERCUP

Little Buttercup has on a yellow collar.

Her collar is called a *có-ról-lá*.

Her corolla collar is made of five scallops; each scallop is called a *pěť'-al*.

The petal scallops of Little Buttercup's collar corolla are held in place about her neck in a little green cup-shaped holder.

This holder is called a *cā'-lěx*, or cup.



The calyx cup has five pointed scallops.

Each scallop is called a sĕp'-ăl.

Little Buttercup wears not only a beautiful yellow collar corolla made of shiny yellow petals, held in place by the green sepals of the calyx cup, but she has a lovely necklace of fringe close about her neck.

Each thread of fringe is a stā'-men.

Each stamen is made of a thread called a fil'-ă-mĕnt, and on the end of each filament dangles a little bead, called an ăn'-thĕr.

Proud little Buttercup not only wears all of these beautiful things, but she uses powder!

On each anther bead Little Buttercup carries some yellow powder.

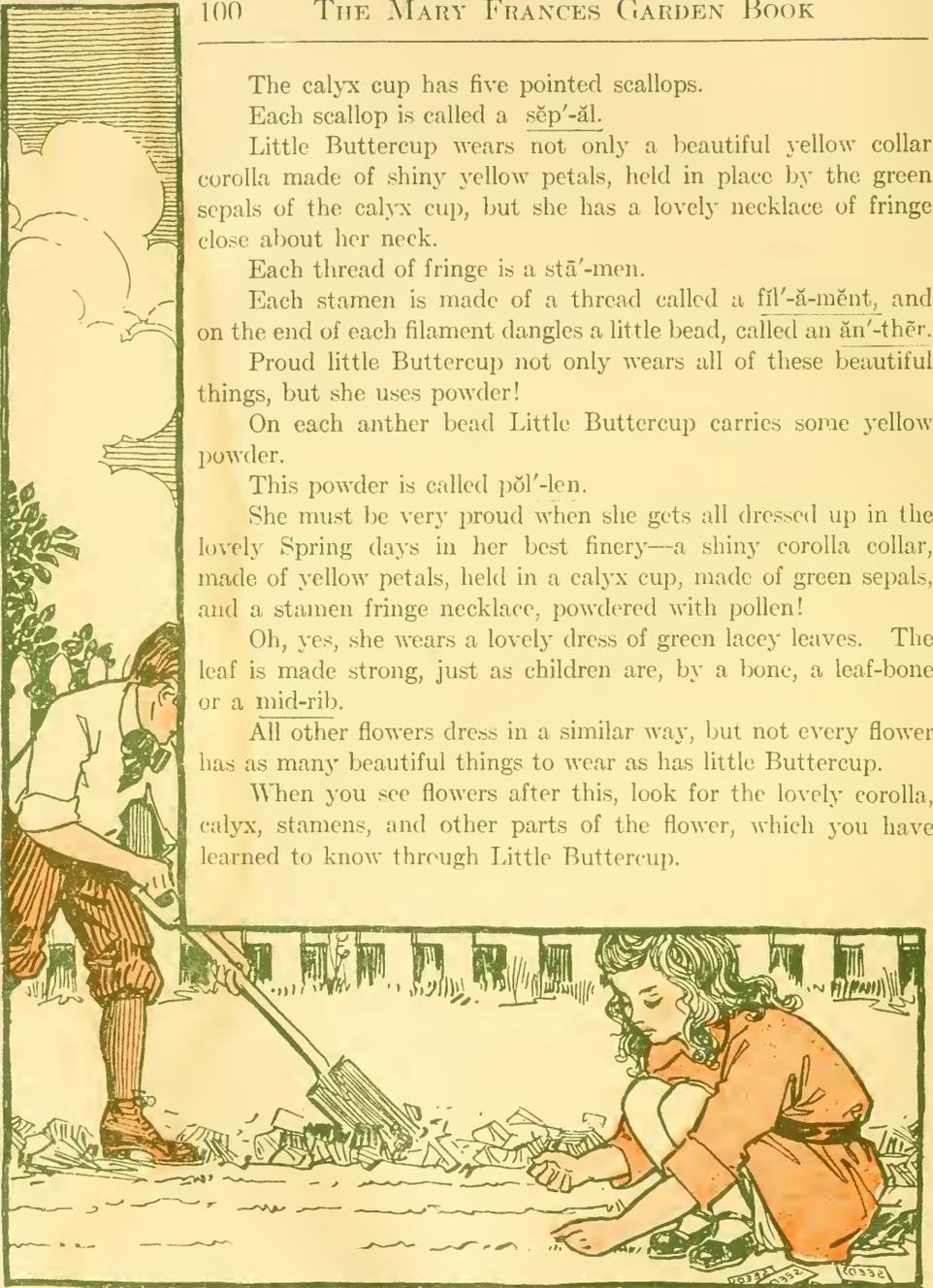
This powder is called pŏl'-len.

She must be very proud when she gets all dressed up in the lovely Spring days in her best finery—a shiny corolla collar, made of yellow petals, held in a calyx cup, made of green sepals, and a stamen fringe necklace, powdered with pollen!

Oh, yes, she wears a lovely dress of green lacey leaves. The leaf is made strong, just as children are, by a bone, a leaf-bone or a mid-rib.

All other flowers dress in a similar way, but not every flower has as many beautiful things to wear as has little Buttercup.

When you see flowers after this, look for the lovely corolla, calyx, stamens, and other parts of the flower, which you have learned to know through Little Buttercup.



There is another part to a buttercup, called the pis-til, but I shall tell you about that part of flowers in the next lesson, in just the way our teacher told us.

“Oh,” cried Mary Frances, as Billy finished, “What a delightful lesson! Never again will buttercups seem the same. Although I always loved them, they will be so much more interesting after this.”



CHAPTER XVIII

GOOD MRS. BEE

“GETTING tired?” asked Billy as Mary Frances finished planting the last of her radish seeds.

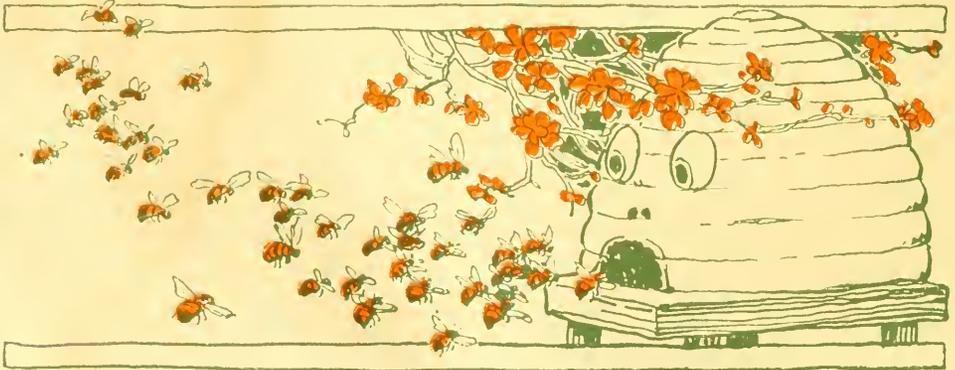
“Not so very,” answered Mary Frances, “but I would like to take a little rest,” sitting down on the garden bench. “Doesn’t everything look lovely—the beds all laid out, and neat as biscuits in a baking pan!”

“It is some garden, believe me!” agreed Billy, wiping his brow. “I guess I’ll stop for a few minutes, too,” throwing himself down at the foot of the tree.

“Oh, Billy, you oughtn’t to lie there on the ground,” chided Mary Frances; “you’ll take your death of cold.”

“Ha! Ha!” roared Billy, getting up. “Yes, Grandmother, certainly, your darling grandchild understands your kind admonition and obeys,” taking a seat beside Mary Frances, who made room for him.

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"Oh, Billy, don't tease," she begged. "Please don't! I've enjoyed my Garden Lessons so much, and you've been so kind——"

"Say, Mary Frances, if you want me to go away, just keep on praising me, will you," interrupted Billy.

"All right," said Mary Frances, "I'll stop, but I've gone over and over in my mind the lesson about the seed babies. It all seems so wonderful to me. Do you know, Billy, I've often wondered how the little seed babies are made. Where does their mother get them?"

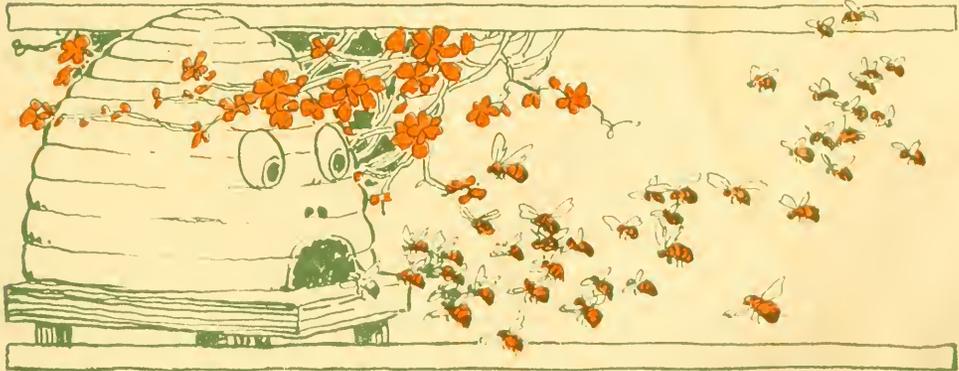
"Well," began Billy, "I guess I can explain."

"Oh," shrieked Mary Frances suddenly. "Oh, Billy, excuse me, please, but that bee nearly dashed in my face."

"It's not after you, Mary Frances," laughed Billy. "That's good Mrs. Bee looking for honey. And she'll have hard work to find it to-day, I'm thinking. Still, I saw a few very early blossoms out on the shrubs at the end of the garden."

"I saw them, too, Billy. Isn't it lovely that we have such beautiful things to enjoy?"

"That's what Mrs. Bee thinks, too," said Billy;





“and in fact, the flowers are made beautiful, not for us especially, but to attract the bees and moths and butterflies.”

“But I can’t imagine why,” said Mary Frances; “the bees only steal honey from them.”

“Only steal honey!” exclaimed Billy. “But then, I used to think so myself, Mary Frances, until about a year ago, when I learned better. You see, the bees do every bit as much for the flowers as the flowers do for the bees.”

“Oh, do they? That’s wonderful, Billy. Please tell me about it?”

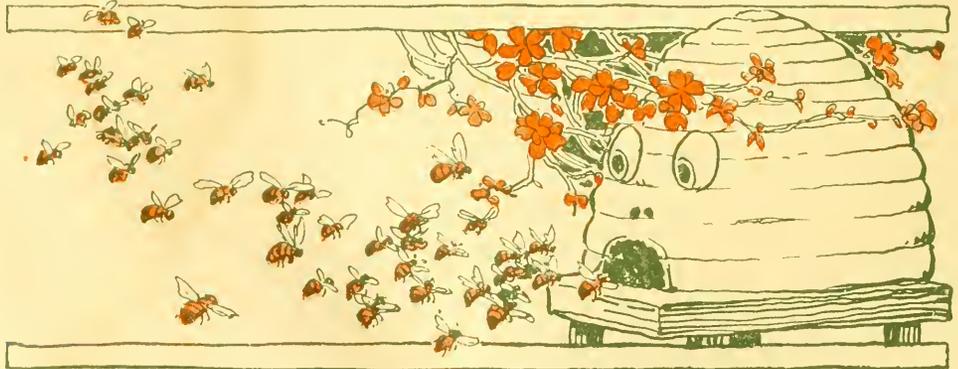
“If you’ll move over far enough on this bench to let me be comfortable,” growled Billy.

“Oh, certainly, certainly; excuse me.” Mary Frances almost fell off the end. “Oh, say, Billy, let’s go over under the trees and I’ll swing in the hammock, and you can take the bench.”

“All right,” said Billy, following Mary Frances.

“Now,” suggested Mary Frances, settling herself in the hammock, “I know you feel just like telling me the whole story.”

“All right,” agreed Billy, “and I have a surprise



for you—I just caught that honey bee you saw. Here, in my cap."

"Oh, let's see it, Billy," Mary Frances put out her hand.

"Take care!" warned Billy. "I guess you forget how a bee stings. Go get a large-mouth bottle and I'll slip it in."

Billy gently slipped the bee into the large bottle Mary Frances brought.

"Notice, Mary Frances, how furry its little body is."

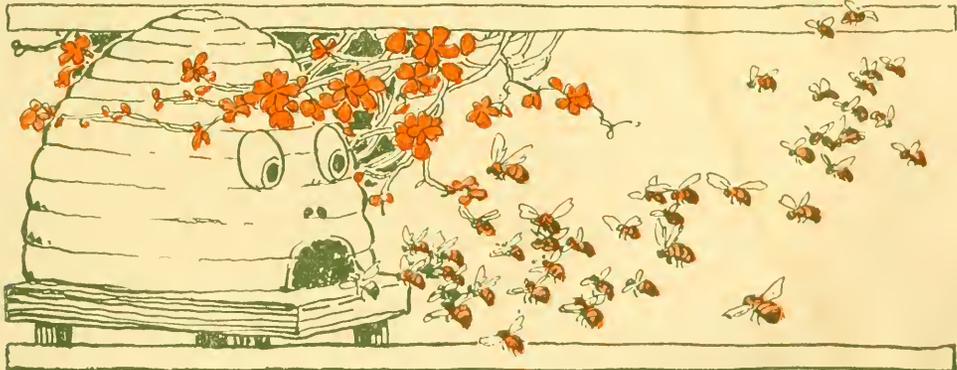
"Why, it's covered with yellow!" exclaimed Mary Frances. "I thought bees were rather dark in color."

"Yes," said Billy, "yes, this bee is quite dark in color; the yellow you see is pollen powder."

"Oh, off the anther bead!" exclaimed Mary Frances. "It's off the anther bead of some flower!"

"Guessed right that time," said Billy. "That's what it is, all right. I wish I could tell you the whole story of the bee and of fertilization the way Miss Gardener told us in class."

"Won't you try to remember, Billy; won't you try?" begged Mary Frances.



CHAPTER XIX

THE STORY OF FERTILIZATION

“WELL, as nearly as I can remember,” began Billy, “Miss Gardener said she had been studying very hard on the formation of parts of flowers, and the story of fertilization. It was pretty dry stuff, too, as it was taught when she was young; but the way she told it was so interesting that I took notes which will help me in telling you about

THE BIRTH OF SEED BABIES. FORMATION OF THE PISTIL

The pistil is the tall green center stalk generally found in the midst of the stamens.

The pistil is very interesting, for it has to do with the way in which the seed baby is born.

The pistil has three parts

{	the stigma (the top),
	the style (the stem),
	the ovary (seed holder).

“The pistil is the real mother of the seed babies.



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"Here, Mary Frances, I am going to cut a flower off that geranium in the window, down the center to show you. Mother will not object."

When Billy had cut the flower down lengthwise he explained further

THE NEED OF POLLEN

Now, the pistil needs pollen off the anthers of some other flower in order to bring seed-babies to life. Oh, yes, Mary Frances, I'm coming to the part about the bees. The pistil needs pollen, as I said; sometimes a pistil needs the kind of pollen which is on the anthers of the same plant, sometimes a pistil needs pollen from the anthers of some other plant, but it must have pollen to give seed babies life.

HOW CAN THE FLOWERS GET POLLEN

Now, flowers cannot walk, nor can the pistils or stamens of flowers walk. How can they get the pollen powder to their pistils? How can the pollen powder get to their pistils?

THE FLOWERS SPREAD A FEAST FOR INSECTS

In some cases the breeze blows some pollen upon the pistils of a few flowers, but it is a very *uncertain* way, to depend on a breeze; so the wonderful flowers *spread a feast* of just the most delightful food for *bees*, and sometimes for butterflies, and



sometimes for moths; and not only do they get the most enticing food ready for such insects, but they put out the most beautiful signs telling them the feast is ready.

They make the sign just as attractive as they possibly can for the particular kind of insect they wish to come to them to eat.

They use the loveliest colors and the most delightful odors, which please the bees, the butterflies, the moths, more than they please even you and me, by their wonderful beauty and fragrance.

NECTAR

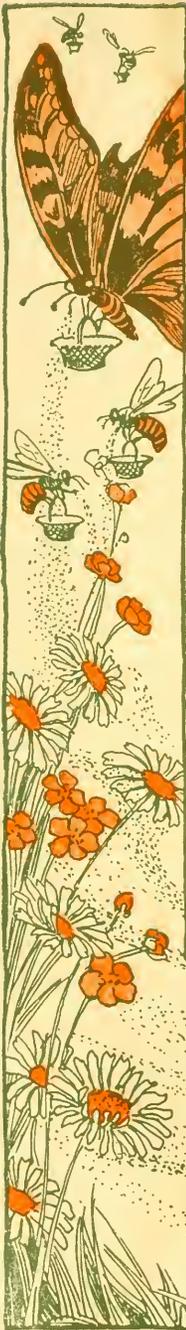
The food they give the bee is—no, Mary Frances, it is not honey, it is *nectar*, out of which the bees make honey.

HONEY BEE'S HONEY-CHURNS

Yes, I know you want to learn how they make it. No, they do not churn it in a churn; they really churn it, though. That is a good guess. They churn it in their honey-sac stomachs. The honey bees love pollen, too. It is their flour—pollen flour—and they carry it to their hives in little basket-like places on their legs.

THE INSECTS CARRY POLLEN

Now, the bees in coming to get this feast of good things to eat—the nectar for honey, and the pollen for bee-flour, both of which are very necessary for bees—do just exactly what the



flowers want them to do above everything—to carry pollen from some anthers to the pistil. This they do without knowing what a great kindness they are bestowing upon the flowers.

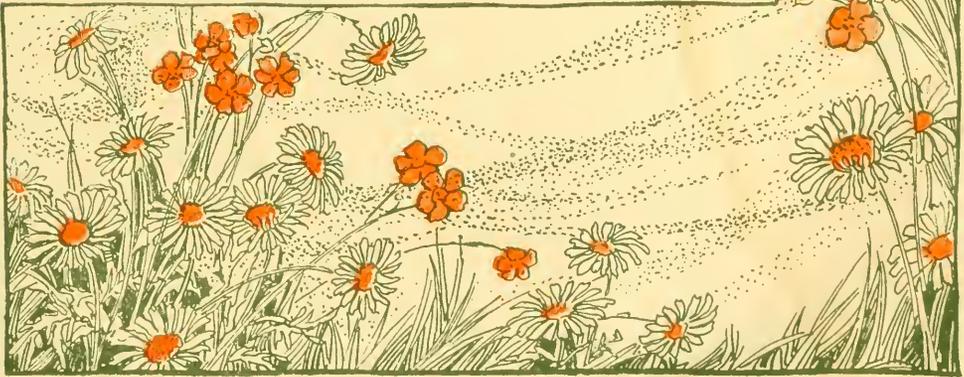
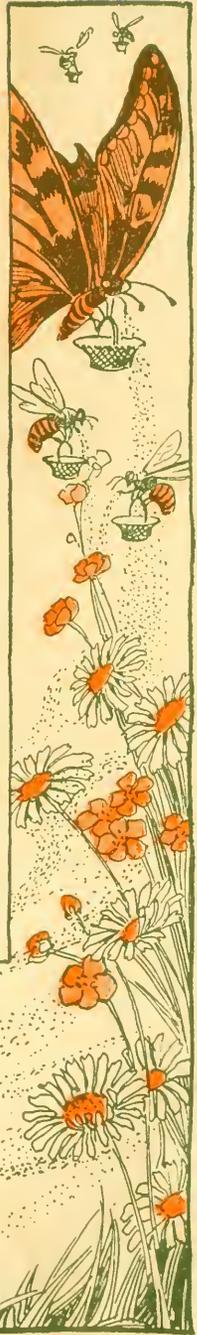
They think they are just doing their duty in gathering nectar to make honey and pollen for bee-flour, but in dipping their heads down into the deep calyx where the nectar is stored, they get their furry bodies covered with pollen, and when they come out of that flower, or go to visit another, they spread pollen all over the stigma of the pistil! And when the pollen is spread on the stigma of the pistil, somehow, in some wonderful way it sinks down through the style into the ovary where the dear little seed baby is born.

If you cut open an old bloom going to seed you will see a number of seed babies in the ovary from which they will fall when they are ripe.

BUMBLE BEES HELP

Sometimes flowers are very particular as to just what insect shall do this work for them. For instance, the clover hides its nectar too deep for the honey bee's tongue to reach; so the bumble bee and butterfly do most of the work of pollination for the clovers.

The little butter-and-eggs flower depends upon bumble bees, too, to bring pollen to the pistil, for she closes the nectar holder with so tight a lip that the weight of the honey bee is not heavy enough to open it.



ANIMALS WOULD STARVE WITHOUT THIS WORK OF INSECTS

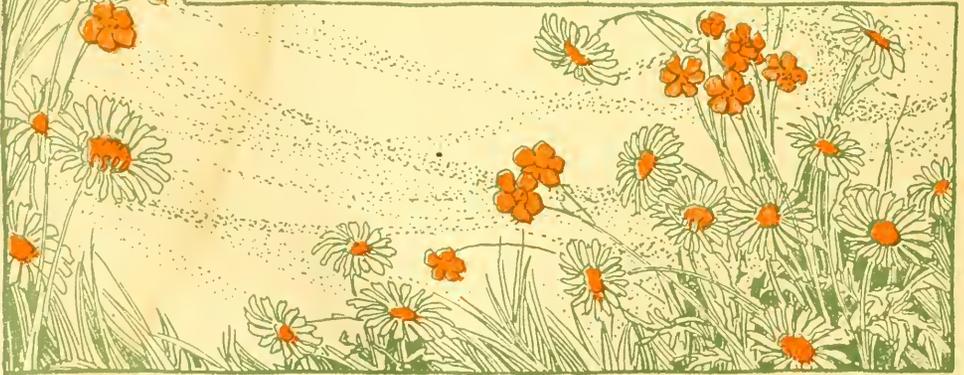
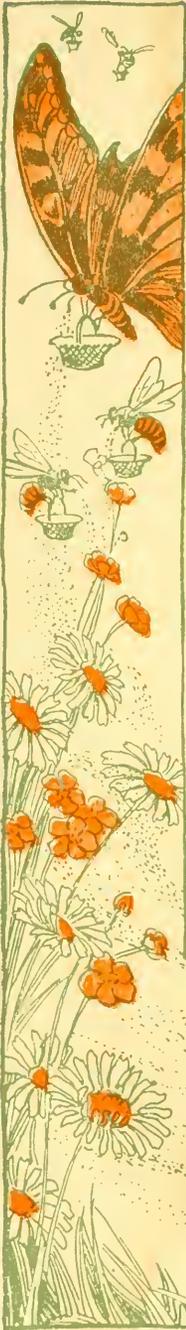
By the way, it is a dreadful thing to kill bumble bees. They do the work of pollenizing for many a deep-cupped flower, and *without their aid and the aid of some such insects, everybody would starve*, for there would be no seed and no new plants to take the place of the old ones as they died, and animals and birds and mankind would perish of starvation.

MOTHS AND BUTTERFLIES HELP, TOO

This work of pollenizing depends for the most part on bees, but many butterflies and moths feed on nectar in the same way. Most moths' tongues are very long, and many long-necked flowers depend upon them to bring pollen on their soft, furry bodies to the pistils. The moths fly at night, so many long-necked flowers, like the moonflowers, do not open their blooms nor shed their sweet odors in the day time, but wait to show their sweetness until their favorite insect is flying.

Now you see that Beauty Butterfly and night moths are not just a gorgeous bit of living color. Such moths and Beauty Butterfly accomplish much good.

"Well, Miss Gardener said she lay out in the hammock, just as you are lying, Mary Frances, studying just what I have told you, only in a much more difficult way, and she kept saying over and over to



herself, 'Corolla, calyx, sepals, stamens, pistil,' in order that she might know her lesson, when all at once her book began to slip out of her hand and she could not seem to cling to it at all. She heard the dull thud as it hit the ground."

"Are you ready?" asked a strange buzzy voice. "I'm always in a hurry, you see. Are you quite ready?"

"I'm ready," answered Miss Gardener; "ready for anything; but please, where are you, who are you, and what am I to be ready for?"

And again the buzzy voice spoke: "Ready to go with me?"

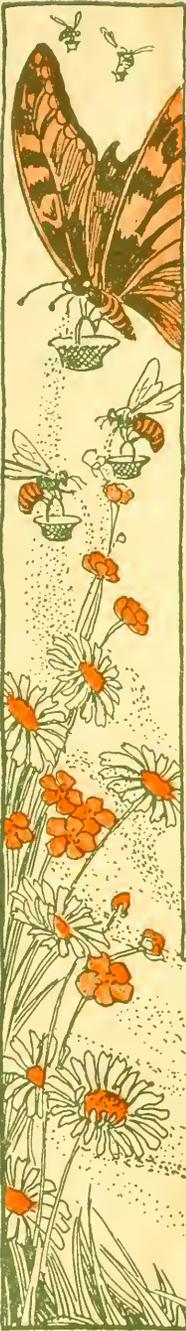
Miss Gardener looked around toward where the buzzy voice seemed to come from. There, sitting on a rose nearby, was a honey bee.

"Oh," gasped Miss Gardener, "I'm—that is—I—"

"You're afraid!" buzzed the bee, coming near her. "You're afraid I'll sting you!" She laughed. "We never sting unless we think we need to take care of ourselves or our lovely children."

"Oh," apologized Miss Gardener, "I—that is, I—I'm ready, Mrs. Bee."





"All right, then," buzzed the bee, flying nearer. "Are you certain you're not afraid?"

"I'm not," declared Miss Gardener; but she said a little shiver went down her spine.

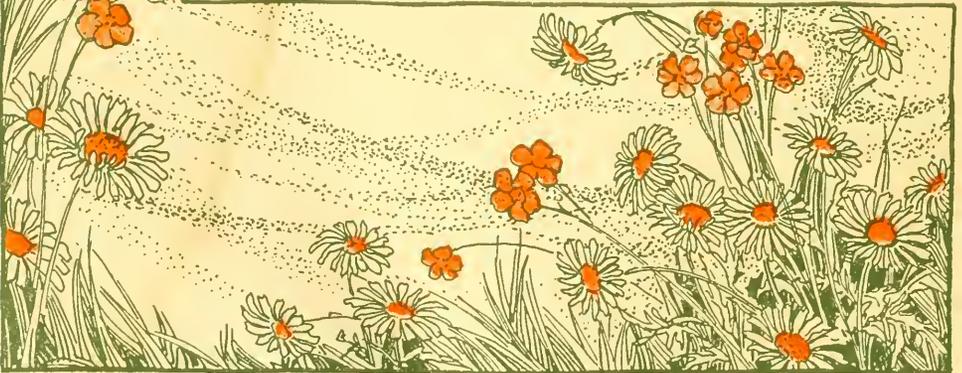
"Very well," buzzed the bee, coming straight at her and hitting her between the eyes.

Miss Gardener tried to scream; before she could do so she had the queerest sensation. Before she could think whether the bee had stung or not, she began to sink down, down, down, down, down, down, until she was just the size of the bee.

"You've wondered so long," said the bee, "about what a beehive was like inside, I am going to take you on a visit to ours. But we must hurry, or I shall not get my duty to the hive people done. Besides, you cannot enter without some pollen or nectar; so here, stop and get a bit."

"How can I?" began Miss Gardener.

"Fly over to that rose I was on," said the bee. Miss Gardener flew and gathered some pollen, and, together, Mrs. Honey Bee and she winged their way over to the hive.



CHAPTER XX

THE STORY OF THE HONEY BEE

“NOW,” began her strange little friend, “I shall tell you about the honey bees.

There are two thousand different kinds of bees known at the present time, but the most useful and best understood are the honey bees. The homes (usually wooden boxes) furnished by man for bees are called hives, but the wild bees live ordinarily in hollow trees or caves. The prettiest and gentlest family of the honey bees are the Italian Bees.

Perhaps you think you lead a busy life. If you worked from earliest morning to dark you could not be busier than good Mrs. Honey Bee, for she never trifles nor wastes a minute.

Perhaps you think she goes leisurely from flower to flower, sipping the sweet nectar, and has a very delightful time simply enjoying herself.

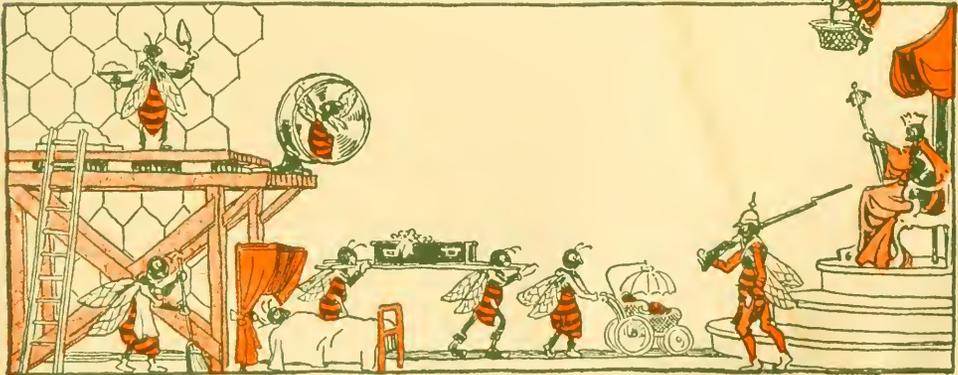
You are mistaken, then, for the worker honey bee is not thinking of herself at all, except to eat just enough to keep her well.

She is working for the good of the whole Bee family, and especially for the little Baby Bees.

You begin to see in all your studying, that almost all living



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things seem to live with the purpose of helping baby things like themselves to live.

So good Mrs. Bee is not gathering honey and pollen bee-flour to "gobble" them up, but is going to pack much of them away for the use of the bees who will live over winter, and for the baby bees, and for the male bees who have no way of gathering food from the flowers for themselves.

THE BEE CITY

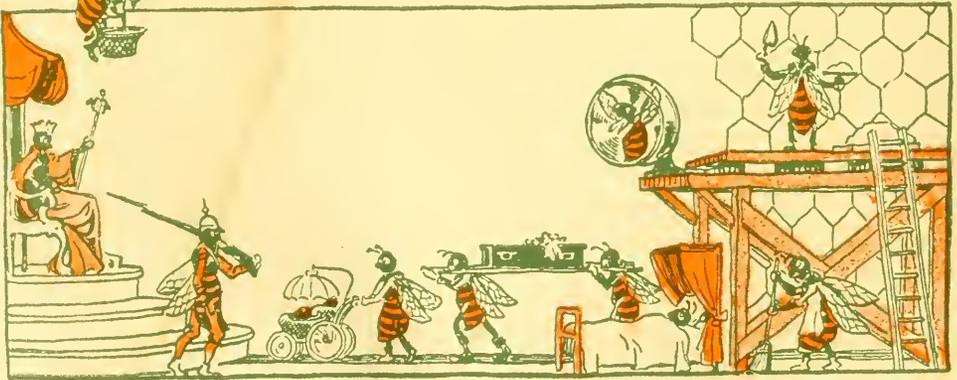
A Beehive city is a wonderfully busy place.

From twenty thousand to forty thousand, or more, inhabitants live in the Bee City, so no wonder it is a busy place. You would think that everything would be in confusion, but on the contrary everything is in marvelous law and order. Every inhabitant knows just what part it is expected to do, and each kind of inhabitant is particularly fitted to do its own particular part.

In every Beehive City there are { A Queen Bee,
Many Worker Bees,
Quite a number of Drone Bees.

THE QUEEN BEE

The Queen Bee is the mother bee, and it is her duty to lay eggs, out of which Baby Bees are hatched.



WORKER BEES

The Worker Bees do the work of the Beehive City. They gather food, and feed and care for the inhabitants, and keep the city clean.

DRONE BEES

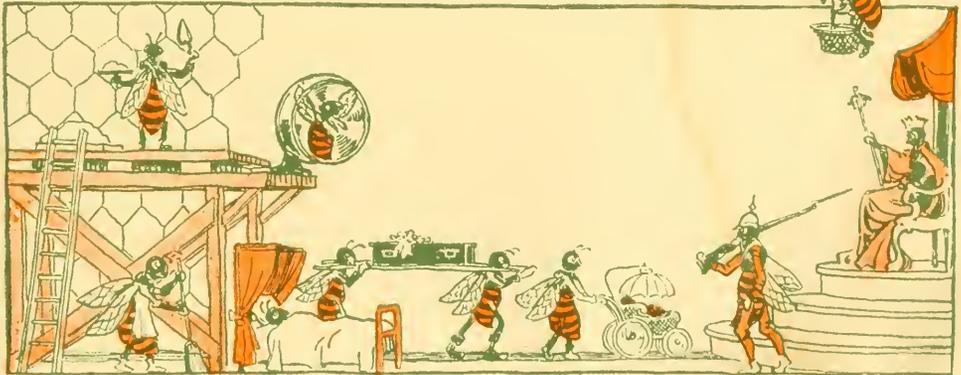
The Drone or male Bees do not work. Their bodies help keep the hive warm, but they cannot do any real work. One of them is the husband of the Queen Bee, but after she first marries him she doesn't pay any attention to him. She is too busy laying eggs in the cradle cells the Worker Bees have made.

WHY THE WORKERS KILL THE DRONES

Yes, it is expensive to feed the Drone Bees, and when the weather begins to turn cool, perhaps in September or October, the Worker Bees who up to that time have cared for the Drones, begin to rid the Hive City of them. They bite off their wings, and bite them in half sometimes—anything to kill them or send them away. No, it is not as cruel as it sounds, for you see, if Drone Bees kept on living they would eat up the honey which is so much needed in the Winter by the Worker Bees and the Queen who live over to care for the new Baby Bees in the Spring.

THE WONDERFUL BODIES OF THE BEES

Now, each different kind of honey bee has a body which is particularly fitted to the work it has to perform.



THE BODY OF THE WORKER BEE

The Worker Bee, the one you see so often on flowers, has a body made especially for the kind it is to do. It has many excellent eyes which look to you like but two eyes, unless you see them under the magnifying glass, and wonderful an-ten-næ, and a tongue in its head. The antennæ are its horn-like feelers, and they resemble your arms in the way they reach out, and examine objects by "handling" them.

THE ANTENNÆ

The antennæ are so delicate that the bee can tell the shape and size of any object by just passing them over it. On the antennæ are smell-hollows with which the bee "scents out" the honey.

LEGS, WINGS, AND CLAWS

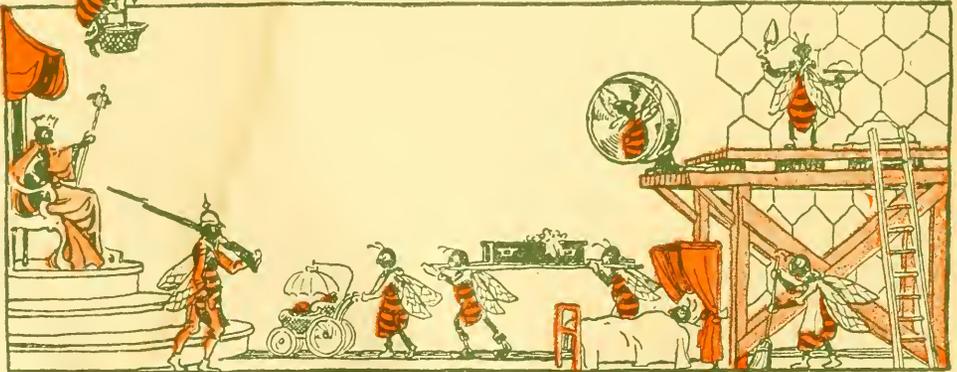
On the bee's body, as you know, are the legs and wings. At the end of each leg is a pair of claws.

POLLEN BASKETS

On each hind leg of the Worker Bee is a hollow in which she packs the pollen flour which she gathers. These are the pollen baskets.

THE WINGS

The front pair of wings is larger than the hind pair, and often in older bees who have done much work, the edges are frayed and torn.



THE INDUSTRY OF THE WORKER

A Worker Bee does not live often over five weeks. She actually works herself to death!

Just think. A bee has to visit nearly one hundred flowers to fill her honey-sack with nectar, and when it is full, it does not contain a full drop!

WAX POCKETS

Under the body of the Worker Bee are the little wax pockets. The wax is very important, as it is used to make the cells in which the honey is stored, and the cells in which the eggs are laid.

THE HONEY-SAC

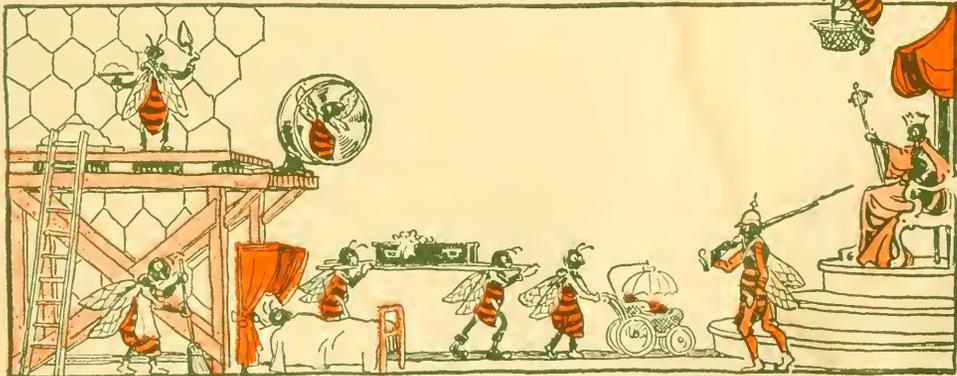
The honey, you remember, is carried to the hive in the honey-sac of the Worker Bees.

THE BODY OF THE QUEEN BEE

The Queen Bee, or Mother Bee, is longer than the Worker Bee and has a tapering, graceful body. She has no pollen basket, because it is not part of her work to gather pollen or honey, her work being to lay eggs—sometimes as many as three thousand in twenty-four hours, equal to about twice her own weight!

THE STING

Both the Worker Bees and the Queen Bee have a sting to use as a weapon of defense.

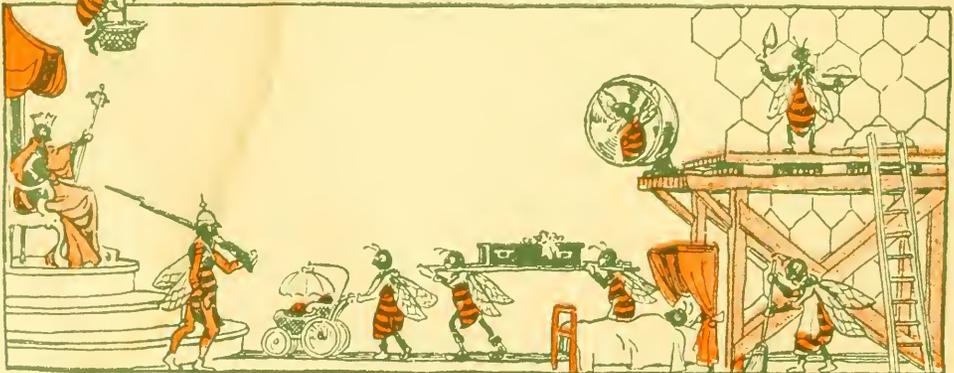


When enemies, such as mice, or moths, or bees from other hives get into the hive to steal honey, the sting is very much needed by the Worker Bees, as you can easily see.

The Queen uses her sting in a different way, as I shall tell you later on.

THE BODY OF THE DRONE

The Drone Bee differs much in appearance from the Worker and Queen, his body being broad and blunt. His eyes are very large and wings strong. He has no wax pockets nor pollen pockets. His tongue is not long enough to get honey from the flowers. He cannot even find food for himself, and when driven out of the hive, as sometimes in the Autumn, he starves to death in a short time.



CHAPTER XXI

HOW THE BEES WORK

AS I said, the work in the Beehive City is divided up.

The Worker Bees are divided into various groups: who forage for nectar; who gather pollen; who guard the entrance to the hive from enemies; who clean the city; who build the comb; the nurse-bees, who feed the babies; the undertakers, who carry away the dead; and a group whose duty it is to fan the air to keep the hive cool.

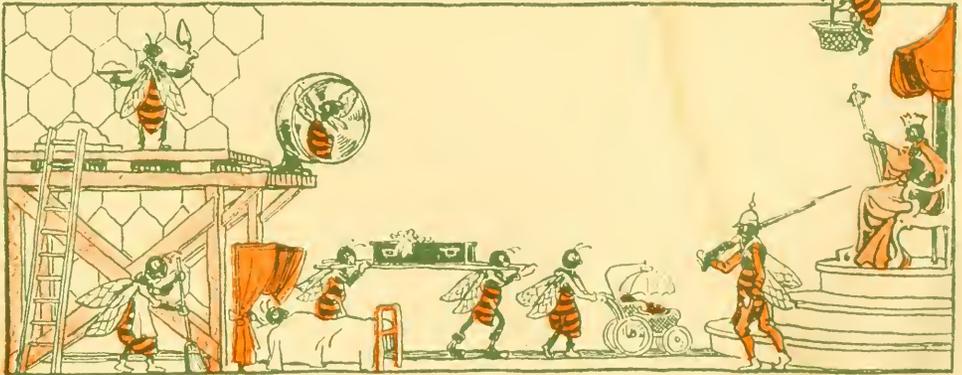
THE VENTILATING WORKERS—THE FANNERS

They keep their tiny wings vibrating so rapidly that sometimes the draught they make will put out a lighted candle flame held at the entrance of the hive at night.

THE COMB BUILDERS

When a colony or swarm of bees first enter their new home or hive, the comb builders set about making the comb. The comb is formed of food-cells, in which to store honey and pollen; and cradle cells, in which the queen may lay her eggs.

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The comb (cells) is made of beeswax—yes, the kind that your mother uses on her sewing thread sometimes.

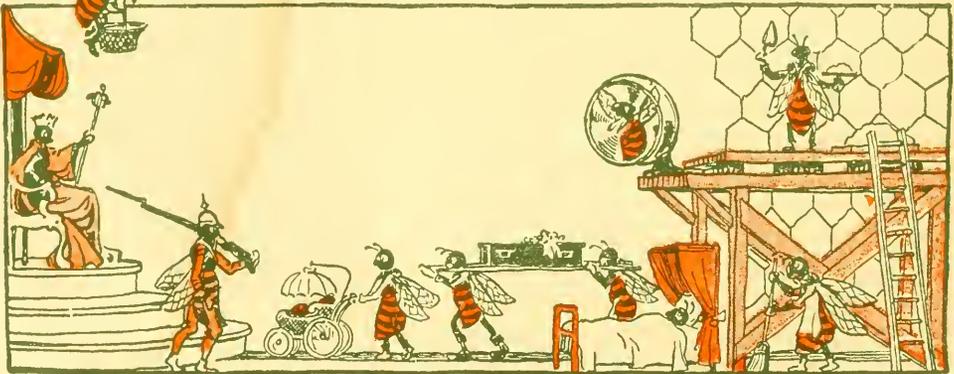
After getting in the right position on the ceiling of the hive (for bees build downward), the bees take from their wax pockets some little scales of wax, and begin kneading and chewing them into the correct degree of softness, and they or their helpers fix it in position. They make the cells six-sided, and there is no wasted space.

THE QUEEN'S WORK

All the time the comb builders have been working, the queen has wandered about in an excited way. When she sees that there are cells ready for her, she begins to lay eggs. She is attended by a number of bees who clean her, and massage her, and wait upon her, and feed her "royal jelly."

WORKER BABY BEES

In three or four days each egg (which looks like a tiny grain of rice) hatches into a little white grub, and later the nurse bees begin to feed it—no, not honey, but a kind of milk—honey bee milk—which the nurses make. The little grub feeds on this for three days, then is given richer bee-milk, and grows very rapidly, turning into a chrysalis on the fifth or sixth day. It spins around itself a silken cocoon, and is sealed into its cell by another set of worker bees.



In about two weeks it turns into a full-fledged worker bee; but there she is all sealed up in the cell. How can she get out?

It doesn't take long for her to discover she has a sharp pair of jaws, and she bites her way out. She is very pale and weak, so the nurse bees begin to clean and feed her.

As soon as she gains strength, she gets right to work on some task like feeding grub-babies; and perhaps after two weeks of such work, she flies away to gather nectar.

THE DRONE BABY BEE

The Drone Bee is hatched in the same way, only it takes longer for him to become perfect.

THE QUEEN BABY OR PRINCESS

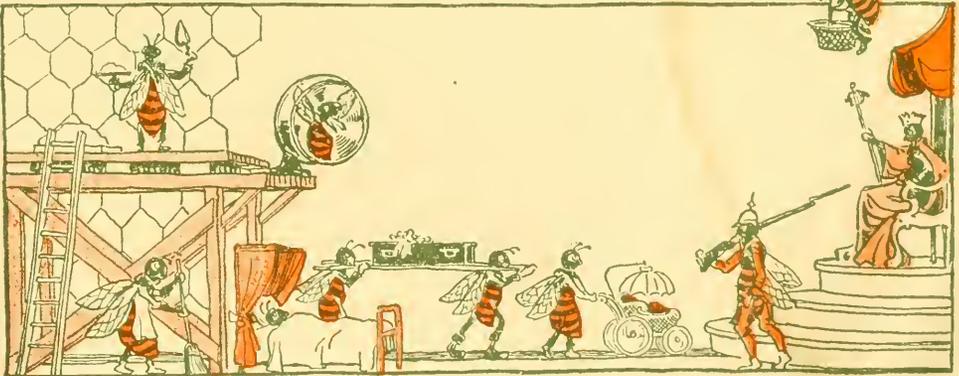
But the Queen Bee is different.

When the worker bees decide they need a queen, the comb builders make three or four queen cells, or "royal cradles," which are ordinary cells made large by cutting away parts of the next-door cells and building a hanging cell.

In these larger cells are placed the eggs. When the first egg is hatched, it is a princess bee.

WHY BEES "SWARM"

The old queen, knowing the princess will be the new queen, "swarms" with the bees who wish to follow her to a new hive.



The new queen, as soon as hatched, goes to the other royal cells and stings the other little princesses (who might try to be queen if they hatched) to death, and commences to be mother-queen of the Bee City.

HOW BEES SPEND THE WINTER

The bees spend the winter in a kind of sleep. They cluster together to keep warm.

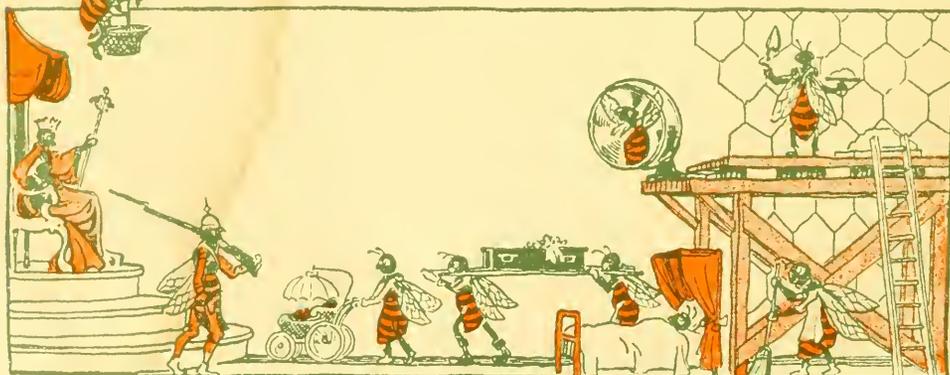
When the early Spring days come, and some of the bees begin to bring in pollen and nectar, the queen begins to lay eggs.

These eggs will be hatched out into worker bees to carry on the work of the hive, and the bees that lived over winter will live only long enough to care for them until they can carry on the work of the hive.

At length the Bee sighted her hive. "We are home," she said to Miss Gardener, "and I will explain to the guard bees that it is all right for you to enter, as you are one of us."

Miss Gardener thanked her. They flew to the Bee City entrance gate, and her new friend disappeared within.

Miss Gardener just poked her head inside to see how it seemed, when all the guard bees started toward her, and the foremost one stung her and stung her



until—she woke up shrieking, to find that there was a hive of bees swarming on the tree just over her head.

“Oh,” cried Mary Frances, “did they sting her?”

“No, not really,” said Billy; “it was only a dream, but somehow the fact that the bees were swarming there must have made her dream of the stinging.”

“Well, I just believe Miss Gardener never had to study the lesson about the bees,” said Mary Frances. “I imagine her wonderful dream taught her.”

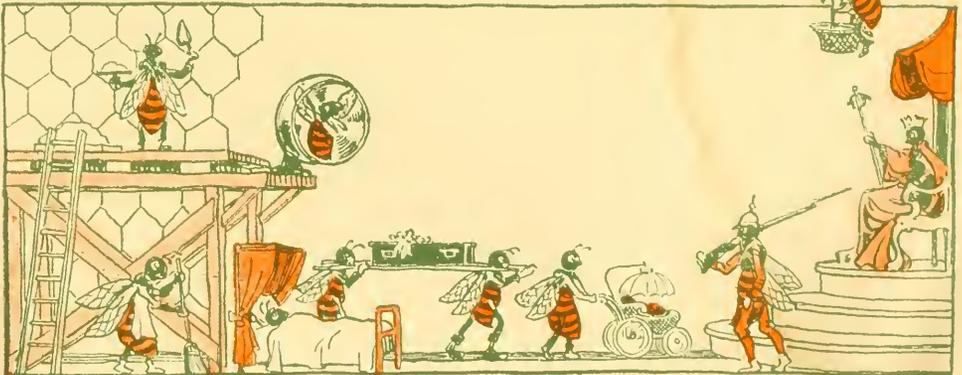
“But she was always sorry, she said, that she did not get inside the hive in her dream,” replied Billy.

“What wonderful little creatures bees are!” exclaimed Mary Frances. “When people sell honey, do they steal it from the bees?”

“Yes, practically that,” said Billy; “yet it is not a serious theft, for the bees generally store up much more honey than is needed, and the bee keeper always leaves enough for them to use.”

“Billy, wouldn’t it be lovely to have a hive?”* said Mary Frances.

* For information as to Bee Keeping write for Farmers’ Bulletins on Bee Culture, U. S. Dept. of Agriculture, Washington, D. C.





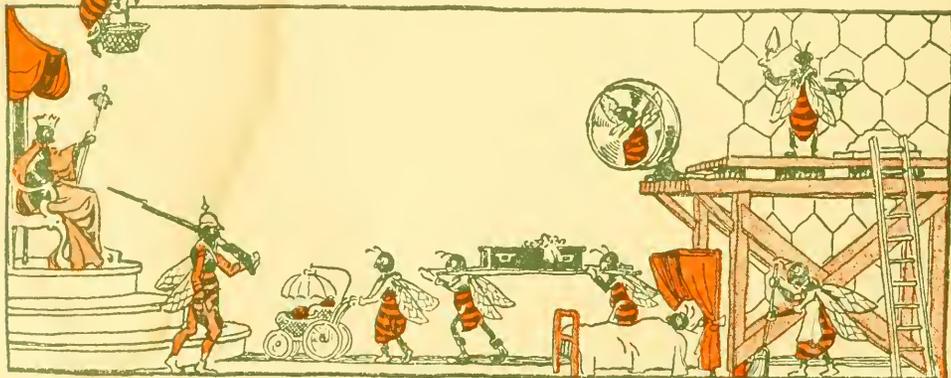
"I've thought of it myself," acknowledged Billy. "One hive would make from four dollars upward in a year, but I don't think we'd better experiment along any other line than gardening this year at least."

"Well, I guess you're right, Billy," laughed Mary Frances, "although you're a pretty good manager, we don't want too many 'bees in our bonnets' at one time, do we? Oh, Billy, do you remember the verses we used to say when we were little—

"The great round sun is sleepy,
And wants to go to bed;
So he hides his face so shiny
Behind a kerchief red.

"Then all the little clovers
That dot the velvet lawn,
Begin to nod their tiny heads
And put their night-caps on.

"Good-night, you winsome clovers,
All snug in grassy beds;
You'll dream of busy bumble bees
A-buzzing round your heads."



“That would please ’most any youngster,” remarked Billy, as Mary Frances finished, “but I think it is about time for us to let this honey bee fly away. She is anxious, no doubt, to get to work,” as he opened the bottle.

“Good-bye, good Mrs. Bee!” called Mary Frances as it flew away.

Continued in Part Two

