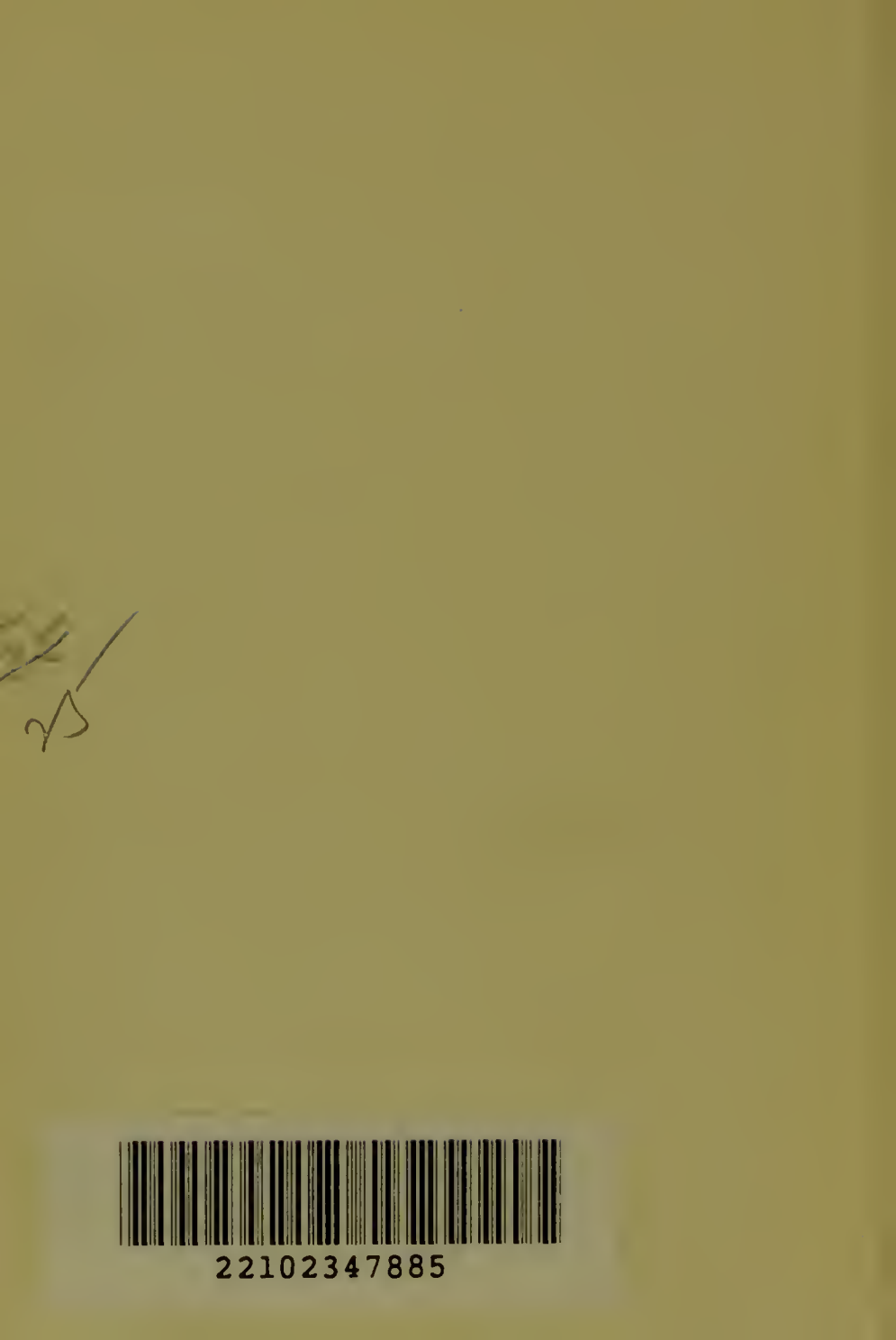
EVERY GIRL'S BOOK

BUTLER

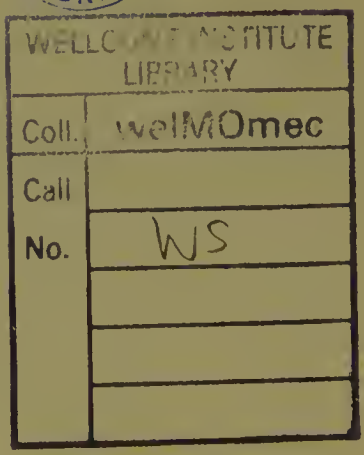


EVERY GIRL'S BOOK

EVERY GIRL'S BOOK

BY
GEORGE F. BUTLER, M. D.

1912
The Abbott Press
RAVENSWOOD
CHICAGO



PUBLISHER'S NOTES

This is the second of a series of books on "How to Live," by Dr. George F. Butler. These books range from childhood to old age. The boy and the girl, the young man and young woman, the young husband and young wife, middle-aged people, and old people are instructed in these books in matters of the utmost importance to their health and happiness. The first in this series was "Every Boy's Book." These two books are especially intended for boys and girls from ten to fourteen years of age, but every father and mother should read them, so they, too, can know the truth about these great sex facts, and be prepared to answer children's questions—now sometimes troublesome.

CONTENTS

Chapter		Page
I	How the Story Began . . .	1
II	What the Bee Wanted of Elsie's Nose	10
III	The Husbands and Wives of Plants	21
IV	The Papa and Mamma Parts of the Plants	34
V	The First Life on Earth . . .	43
VI	Where Baby Animals Come From	54
VII	Where Baby Girls Come From .	62

PREFACE

The greatest duty of mankind lies in the proper uprearing of our children. The fact is recognized, but is the duty fulfilled? Do we rear our children as we should? There is but one answer: We fail. Teaching them many things for their good, we yet keep from them ignorantly, foolishly, with a hesitancy and neglect unpardonable—knowledge, the possession of which is essential for their future welfare.

The first necessity for well-being is a healthy mind in a healthy body. We can give our children that, if we will, by teaching them all about the body, its source of life, its different functions, and its care. The child should grow

to maturity knowing that the human body is something fine, something that accomplishes good, something to be proud of in every way. Above all should the child be taught all concerning the process of reproduction, just as it is taught the action of the stomach or of the brain. By so doing, we can produce a better and healthier and happier generation to follow ours. By what strange and mistaken impulse in the past such absolutely required teaching has been so studiously withheld is beyond all comprehension.

We want the best for our children. We want them to grow up with right thoughts and habits, yet we keep from them the knowledge without which their thoughts and habits will surely be imperiled when there arises in them the generative instinct, which has its effect upon both male and female youth alike.

We give them no information as to sexual matters; and, when it comes to them, it is too often but in the way of half-truths, mysterious, exciting to the imagination, and dangerous.

Yet how simple and natural the giving of this information might be made; and how easily the child might be safeguarded! Mankind has demands which must be gratified. We have hunger; we have thirst; we have the impulse of reproduction. Each is right and natural. There should be no difference in the consideration of either of these wants. All about them the child should be taught, from the beginning, so that all will be natural and right and commonplace and a matter of course long before the age is reached when the sexual instinct is developed.

Is not this reason? Is it not healthful,

logical, common sense? Is it not the wholesome and right and proper view?

Nature is devoted to reproduction. From the cell to the flower, and so on upward, the creatures of the world are but renewing themselves, and the learning of this is the greatest and most beautiful of all studies. All this the child can be taught.

Elementary biology, or the study of subjects of what we call zoology and botany combined, can be made the most attractive of studies to any child who has learned to read. The boy or girl may be taught that the trees and flowers are living things that are beautiful and are male and female. The child may be shown how the bees carry the pollen from flower to flower, and how other plants and flowers are produced in that way.

He can be taught the wonder of seed, and its consequences. He can be shown the birds in their mating, and the marvel of the egg, and why it can produce a chicken. And thus the child, boy or girl, may be led on, through the gradations, to a study of the human body, and how reproduction is provided for there as in the bodies of all other living things, vegetable or animal.

Before the child, boy or girl, has reached the age of ten, long before the sex instinct has been aroused, the sexual lesson will have been learned innocently and thoroughly and, when the change comes, it will be as no bewildering, exciting thing, but something anticipated, and received with a sense of understanding and responsibility.

This knowledge almost unknowingly acquired as a child, will mean health

of mind and of body, and the avoidance of what may result most evilly.

How is sexual instruction given now? In tens of thousands of instances—no doubt in the majority—not at all. Lectures to youth of either sex are given sometimes, but only when they have reached what is called "the age of understanding."

Here is where parents err, and seriously. The teaching has been deferred too long. The young of either sex, long before puberty, have acquired some knowledge of the mystery—which should have been no mystery at all—and late teaching, however sound and wise, but gives an added and inviting direction to the subject suddenly made to assume a new and startling importance. It arouses curiosity, and more. It may sometimes be harmful.

As for the youth never taught at all, those who acquire their knowledge only through accidental sources—usually incapable, and too often vicious—their case could not be worse. They are unprepared for one of the tests and demands for life. Their parents are guilty.

There is nothing impure in nature. To guard the children, to prepare them for every phase of life, is the parents' duty. The child is pure, and to the child all things are pure. Teach the child, simply as a matter of course, all about the ways of reproduction, and to the boy or girl purity will remain when the age of sexual sway and impulse comes. This is the only law in the case. Let it be followed, and the generation to follow will be clearer, wiser, and healthier than is the present one.

It is my hope that this "Every Girl's Book" (with "Every Boy's Book" which preceded it) will afford the means so long needed and desired for teaching children what they should be taught. I have tried to tell the story of sex naturally, in a clear and simple way, from the development of life, and of life's relations, from protoplasm all through organic life up to mankind. Its teachings should result in wide promotion of the innocence of knowledge which is better, infinitely, than the imperiling innocence of ignorance.

George F. Butler, M. D.

Chicago, Ill.
July 1, 1912.

I

HOW THE STORY BEGAN

HER name was Elsie and she was asleep in a cozy nook in the woods, which was the beginning of it all.

Many strange things may happen to a little girl who falls asleep in the woods, but there never happened to any other little girl, either asleep or awake, in the woods or at home, a more important thing than that which had its start for Elsie while she lay there under the green boughs beside a bubbling spring of crystal-clear water, the scent of pines and flowers sweetening the still air. A robin redbreast whistled melodiously for "rain, rain, rain," and the cows in the pasture, who do not like rain as well as

they do sunshine, lifted up their voices in protest, calling "oo-oo-ohh! moo-oo-hh! noo-oo-hh!" as if they were trying to say "no, no, no!" and could not speak the English language well. It was a peaceful woodland scene, a scene into which, if you were awake, you would expect that a railroad train would be about the last thing that could possibly enter.

But Elsie was asleep, and in her dreams she was sure she saw a great locomotive engine charging down upon her with frightful speed. As soon as she saw it she tried to cry out, but could not do so. Somehow she could not send a single sound from her lips. Then she tried to jump out of the way, but was unable to do that either. She could not even move in the slightest degree. So, full of terror, she thought she stood there,

helplessly, while the engine rushed nearer and nearer, puffing forth vast clouds of black smoke, and roaring and hissing and clanking. Again she tried to scream, and could not: again she tried to run aside, but could not move. She seemed so small, so tiny and weak, beside that monster! And she wondered how it could possibly bear to hurt her, a big, powerful thing like that—it was not fair! But—bang! The cowcatcher caught her up—

And she awoke to see a fuzzy bumble-bee just alighting on her nose!

Though Elsie did not, as a general thing, care much for bumble-bees, and would rather have their room than their company, she was so highly relieved to find that the gigantic engine was *only* a bumble-bee that she said, "Oh!" with

such violence of surprise and gladness that the bee, doubtless as much afraid of her as she had been of the dream-engine, shot out of sight in an instant and she never saw him afterward, that she knew of.

She sat a moment staring after him, trying to collect herself, for she was confused with her sudden awakening, and then she jumped up laughing.

"What a funny bumble-bee!" she exclaimed. "*I* wouldn't have hurt him!" Then in conscious dignity, proud to think that she was now big enough for something to be afraid of, she took up the pail of water that she had come to get from the spring and hurried homeward.

Now if this were all the story it would not amount to much, and it never would have got itself told in these pages. And,

if Elsie had been like some girls, who are not chums with their mothers, the story would never have been told here either, because she would not have repeated the adventure to her mamma, in which case her mamma would not have taken the story up where the daughter left it, and shown its importance. But Elsie and her mother were like two sisters, a big and a little one, and there were not many things that happened to the one that the other did not hear of very soon So away went Elsie singing and laughing and swinging her pail of water, her bright hair blowing in wisps around her sweet face with its red lips and cheeks and white teeth, the prettiest, loveliest picture in the whole lovely landscape of foliage and flowers and pastures and meadows.

Nobody in the world ever yet found a prettier picture anywhere than a fresh and clean girl is, as everybody will admit if asked, and Elsie was fresh and clean even if she had just been rudely aroused from sleep. She bathed her whole body twice every day, washed her face and hands often, brushed her teeth always after eating, smiled a great deal, and got plenty of fresh air and sunshine, and this was enough to make any girl fresh and clean and pretty, or almost enough.

Of course a girl must eat sufficient food, and must brush her hair and take care of her nails, and all those little things—everybody knows that. But the main things, beside food, the things, too, that some little girls fail in, are air, sunshine, water and smiles. Elsie had all

these and therefore she looked clean and fresh and pretty.

She had on a dress too, naturally, but I don't know just what kind of a one it was, for that is a small matter compared with the body itself. I think it was some kind of a calico, made for vacation frolicing, for Elsie was a city girl staying in the country for the summer, and almost anything was good enough for that.

So Elsie, fresh and clean, dancing and singing up the lane, swinging her pail of crystal water, the loveliest sight in the whole lovely landscape, came in view of the house where they were staying. And no sooner had she caught a glimpse of her mother on the porch than, eager to tell her funny experience, she ran forward in pleasant excitement, crying out:

"Oh, mamma! Such a queer thing— Oh, Oh, it was an engine, the biggest, biggest you ever saw — and — and it stepped on my nose—I mean it was only a bumble-bee and — it — it almost ran right over me—"

"Isn't my little girl somewhat mixed in her speech!" smiled her mother as Elsie paused for breath.

"I — I guess I — I am!" Elsie faltered. "But then, I'm so excited!"

"Yes, you are excited," smiled her mother, putting her arm around her shoulders and walking with her to the kitchen. "And when you are calm you may tell me all about it."

So Elsie carried the pail of water to the sink and set it on its shelf. And when she had worked off her surplus energy in this way she felt sober enough to tell

her story clearly, and she did so, snuggled in her mother's arms in the hammock on the porch. She finished by saying:

"Wasn't that a funny thing, mamma, that I should dream that the bumble-bee was an engine just going to run over me!"

Then the really important part of the story began. Her mother answered:

II

WHAT THE BEE WANTED OF ELSIE'S NOSE

YES, it may seem funny, but it is natural. When you were asleep you heard the bee buzzing and rumbling, and the sound reminded you of an engine, so you began to picture an engine in your mind, and with the queer mixture of fact and fancy that are common to dreams you thought it was coming right at you. And it was only a bumble-bee taking a look at your little red-and-white nose."

Elsie clapped her hands and laughed. Then she asked:

"What did the bee want to see my nose for, mamma?"

"He thought, perhaps, that it was some new kind of a bud, and he wished to examine it," Mrs. Edson smiled. "A little girl's face is very much like a pretty flower. Your hair was tumbled all about your head, I suppose, and your little rosebud of a nose, peeking through, attracted the bee."

At this idea Elsie laughed again, joyously.

"But, mamma," she asked, "why should the bee wish to see my nose, even if he did think it might be a flower? Do bees eat flowers, mamma?"

Elsie's mother threw her a sudden look that was almost a startled one. Then she hugged her close and kissed her.

"What a great big little girl you are getting to be, darling!" she said, gazing fondly at her. This did not seem to

Elsie much like an answer to her question, and she fixed her eyes brightly on her mother's face as if waiting for her to go on with her words. But her mother only said: "I scarcely realized that you were no longer my little baby-girl, and that you were instead almost a young lady, old enough to understand many new things, among them the reason why a bee goes to flowers."

She paused again, looking at her big little girl wistfully. She was thinking: "Elsie has begun to be a woman now, and I shall soon, all too soon, lose my baby-girl, for she will grow up and marry and go away to a home of her own and have a little girl like herself, just as I have had her!"

This made her feel sad, but she said nothing to Elsie of this feeling, for she

would not be able to understand it and it would only make her feel sad too. By and by she would tell her what it meant to have a husband and children and home of her own, after her parents were passed away, and she must begin to prepare her for this knowledge now. So, finally, she said:

"No, darling, bees do not eat flowers, though they eat a part of them, or a product of them. The most important thing that they visit flowers for, as far as the world is concerned, is to fertilize them."

"Fer-fer-ilize!" stammered Elsie. "What is that, mamma?"

"Not ferferilize, darling, but fertilize, fer-til-ize, which means to make rich, or fruitful. As strange as it may seem the bees and other insects are of vast importance to men—sh-h!"

She suddenly held up her hand, motioning for silence, and Elsie, wondering what was coming, followed her mother's pointing finger with her eyes. What she saw was a bee hovering over a bright yellow buttercup that grew almost within reach of where she sat.

"Watch him!" whispered her mother.

Elsie did so, holding her breath for fear of scaring him away. He alighted on the flower, crawled clumsily over it for a second or two, pausing now and then to bury his head in the blossom, but he did not do anything else, that Elsie could see, except to tumble about very awkwardly and funnily and then fly away to another buttercup and repeat the operation. Elsie drew a long breath and looked at her mother inquiringly.

"It did not seem as if he did much, did it, dearie!" she said in answer to the look. "But in reality he did a great deal, for he—what shall I say—married? Yes, married! The bee actually married those two buttercups together, so that next season, when these two flowers, the papa and mamma, are dead and gone, there will spring up and grow other buttercups, baby-plants, the children of these two. If it were not for the bee, or other insects, we should have no bright flowers in the world."

"Oh!" Elsie's eyes opened wide. She thought a moment, then, "Could he marry my nose to anything?" she burst forth. But seeing the absurdity of the notion before the words were fairly out of her mouth she joined in her mother's laughter over it.

"No, dearie, of course not. It is only flowers that bees marry together. And not the least strange thing about it is that they do not know they are doing so."

"Don't know what they are doing!" exclaimed Elsie.

"Oh, yes, they know what they are doing for themselves, but they can't have the least notion of what they are doing for the flowers and indeed for the whole world! Without plants there could be no life of any kind on earth. It is the plants that produce life. Through them come animals, and even men and women and little girls. The plants feed on the earth and air, which men and animals cannot do. A man or a lamb cannot eat the soil or live on air, but a plant lives by eating the minerals and gases and water of the earth and air, and

the man and the lamb eat the plants, and so are able to live. Without the plants we could not exist, and without the insects, which fertilize the plants, so that they can grow, the plants themselves would soon die. Don't you think now that what the bee did was quite an important matter, even if it did seem so trivial?"

"Ye-yes," Elsie hesitated. She did not yet grasp the full depth of her mother's words. They meant so much! "But," she continued, her bright eyes eagerly turned on her mother's face, "we don't eat the buttercup, mamma, do we?"

"No, sweetie, but we do eat very gladly a part of it, and that is the part that the bee visited the flower for, and which he took away as his fee for marrying the two. Can you guess what it is?"

The idea of a bee performing a marriage between flowers and taking a fee for it was a little too much for Elsie, and when it was added that she and her mother ate this fee such a look of amazement came into her sweet face that her mother could not help smiling broadly.

"It is the honey, little girlie," she said. "The bee takes the honey from the flower and carries it home to the hive, where he stores it up until he has a great mass of it, and then the bee-man gets it and sells it to the grocer, who sells it to us."

"W-e-l-l!" said Elsie slowly, "if that isn't strange!" She sat a moment thinking of this miracle, her mother watching her lovingly and considering what she ought to say next, for she had a great secret to tell her little daughter,

a secret so great and important that much wise thought was required to study out just how to make it plain to a girl as young as Elsie. Besides, she was interested to know what Elsie herself would say next, for she was bringing her up to think logically, so that she might know always how to ask the right question at the right time, instead of the wrong one. And she was very much pleased when Elsie, instead of putting the last question first, as some little girls would have done, put the right one first by saying:

"But, mamma, how *can* flowers marry! And how can a bee possibly marry them?"

This was the right question to ask first, even if it was a kind of double-headed one, because this marriage was the first

of the wonders that had amazed her, and the answer to it would lead logically to the fee and the honey eaten by people, and these questions would be easier to make plain after the first one was answered.

III

THE HUSBANDS AND WIVES OF PLANTS

MRS. EDSON drew a long breath because she knew the time had arrived when, for her little daughter's sake, she must give her the information which would mark her growth from girlhood into young womanhood, and the fact disturbed her, for she did not want to lose her little girl, even in exchange for the lovely young lady whom she knew would take that dear little girl's place. But it must be done, and, thankful that she had studied the subject enough to know how to do it in a nice and plain way, she began:

"In the first place, dear," she said, "you must know that the flowers are the husbands and wives of plants, made so by nature. They are in their way as truly married as Mr. and Mrs. Jones are in their way, or as your papa and I are. This marriage is a law of nature, invented to carry on the race, whatever that race may be, whether it is that of mankind, or plants, or animals, or birds, or even fishes. For not only do men and flowers marry, everything in nature does the same—turtles, frogs, robins, elephants, everything!"

Elsie wished very much at this point to ask if her mother had ever seen an elephant's wife, thinking that she must look rather funny, much different, to say the least, from a flower's wife, but as the answer came to her at once,

without asking the question, she said nothing. Of course an elephant's wife must be another elephant, as the flower's wife was another flower. But it was all very singular, and the sparkle of her eyes as she looked into her mother's face showed her interest in what might be coming. Mrs. Edson went on:

"We will begin with plants, because they came first into the world as living beings, and all other living beings not only had their origin in plants but live by aid of them to this day. From the plants grew animals, and from animals grew men and women and little girls. It took a long, long time for all this to come about, so long that the human mind fails to grasp or comprehend it; and at first, when one hears of it for the first time, it seems wholly impossible and

unbelievable. But science has proved it to be true, and even shows the exact way in which the various changes were made. Many, if not all, the steps by which we mounted from the condition of a tiny speck of jelly-plant, a speck no bigger than the point of a pin, to become human beings are still in existence and are frequently observed by scientists. With a microscope anybody may see them. So we know that the theory of evolution, as it is called, is a true one. It is also an exceedingly wonderful and beautiful truth, full of secrets and surprises of the most interesting and delightful kind, as I shall show. Now let's go and examine the buttercup that the bee just married to the second buttercup."

Elsie jumped up with a little gurgle of joy and ran ahead of her mother to the

flower. This was better than playing "secret" with Rosie and Eva and the other girls, for their secrets were not real ones, they were just made up and they did not amount to very much after all, but this was a real one, kept up in earnest with the bees and flowers. And now she was to be let into it! Mrs. Edson bent over the bright yellow blossom, taking it gently in her fingers to prevent it from nodding so briskly in the breeze that they should be unable to examine it closely.

"You see, dear," she said, pointing with a twig to the different parts as she named them, "right here, in the exact center of the blossom, is a bunch of green growing in the form of an oval, shaped somewhat like an egg with the smaller end upward."

"Yes, oh, yes!" Elsie answered eagerly. "What is it, mamma?"

"Broadly speaking we will call it the ovary. I am not going to confuse you by giving you too many hard words at first, words like corolla, carpel, style, stigma, and the like. I shall name only two parts of the flower for you to remember just now, because only two are really necessary to be named at this point. So the name of this one is—what?"

"Ovary!" answered Elsie quickly.

"Yes, ovary! It is called so because it contains ovules, which are tiny seeds or eggs. That is the mother part of the plant."

"The mother!" Elsie queried. "Why, mamma, is there a father too?"

"Yes, dearie, many plants have both a mother and a father part, which grow

near together in the same flower, while other plants have only a father part, and still others have only a mother part. This buttercup has both, has both the male and the female principle. The ovary is the female, and here, above it and surrounding it, you see a number of taller spires, yellow in color and each of them bearing a tiny enlargement, a kind of knob, at the top."

"Yes, yes, but that—that can't be the papa part! Is it, mamma?" she cried, examining the rather insignificant appearing spires dubiously. "They don't look much like a—a papa!" she said in some disappointment. Her mother laughed.

"They certainly do not look much like a man-papa," she returned, "but they form the papa part of the plant, nevertheless, and are truly the papas of the

baby buttercups. And their name is the second one that I wish you to remember from now on. It is stamen."

"Stamen!" said Elsie.

"Yes, each of these stems is called a stamen, and they form the male part of the plant, the father part. Many plants, those of the simpler kinds, have only one stamen and it grows in the flower so that its head hangs right above the ovary. Here you see that all of the stamens are above the ovary, and the reason why they are placed there by nature you will see very soon. What I wish now is to show you why the bee came to the flower."

"I know—it was for honey! Isn't that what you said before, mamma?"

"Yes, darling, but do you see any honey here?"

"No, mamma, and I never knew before that buttercups had honey. I always thought honey came from a beehive."

"It does come to us from a beehive, but it comes from flowers first, and one of the many kinds that furnish it is this buttercup. The bee sips it from the flowers, just a tiny bit from each blossom that he visits, and when he has enough he takes it home to the hive and puts it away to eat by-and-by, in the winter, when there are no flowers growing for him to rifle. He does it just as men lay away money for "a rainy day," as we say, and as squirrels lay up a store of nuts for the cold weather. Now, suppose you count those flattened, round-cornered parts of the buttercup—how many are there?"

"Five," said Elsie quickly.

"Yes, there are five of them, and they are called petals. You will notice that they are much narrower and slighter at the bottom than they are at the top. It is at the bottom that they are joined to the central part of the flower. Now, just where they are connected with this central part there is a tiny sack of honey."

"It must be *very* tiny," said Elsie, regarding the slender connection earnestly, "for there isn't room enough for much, I'm sure. And it must be all covered up, for I can't see any signs of it."

"It is covered up. There is a very small scale, or leaf, over it to protect it from those insects who have no right to the honey. But the bee knows how to get at it, and he does so very quickly, once he alights on the blossom, as we

have just seen one do. For while he appeared as if he were merely tumbling clumsily around on the flower he was sampling those honey-sacks, and we saw how speedily he finished all five of them on this flower and then buzzed busily away to the other."

"He was just the same as at dinner, then, wasn't he mamma! But why did he go to the other flower—didn't he get all he wanted from this one?"

"No, darlingest, he gets but very little from each flower. If he could take all he wanted from one he would never fly right to another. And then, if all the other insects should do the same, the whole plan of nature would fall through and there would soon be no life on earth."

Elsie's eyes looked very large when she heard this.

"Would I die, and you, mamma, and all of us—Alice and Rosie, and, oh, everybody we know?"

"Yes, dearie, all of us. Those few simple plants which still, in the primitive way, fertilize themselves, are not enough and are too weak to carry on the vegetation of the earth, and without the insects and birds and the wind we never should have been born at all; for they are necessary to make the plants reproduce their kinds and grow, and the plants are necessary food for us as well as for the animals that we eat, such as the hens and ducks and sheep and cows. So nature has given each flower only a little honey, not enough for the bee, and he is compelled to fly to many before he becomes satisfied. And this brings us back to the stamen and ovary again, to show

what they are for and how the bee marries the two plants together after he has collected his fee of delicious honey."

"I am all 'tention," said Elsie, in so quaint an imitation of older folks that her mother was forced to smile, knowing that she had a listener that was interested, to say the least—a listener who felt the importance and gravity of the study which they were now pursuing. Elsie never attempted big words except when she felt dignified.

IV

THE PAPA AND MAMMA PARTS OF THE PLANTS

"NOW," said Mrs. Edson, taking hold of the buttercup again, "you see here, at the top of each stamen, the slight enlargement that I mentioned. It looks like a kind of knob, and it really is a hard, hollow sack, or bag, containing a fine yellow powder, which is called pollen. Is that plain so far, dearie?"

"Pollen, yes, mamma! And do you wish me to remember that name too?"

"Yes, it is very necessary that you should do so. You will soon learn why. Now look again at the green ovary. That is also hollow, and contains seeds or eggs, as I said before. In plants we

call them seeds and in animals eggs. And it is these seeds that grow into the baby plants. But they cannot grow alone, without help. With a certain kind of help they can and do grow, and what do you suppose that help is?"

Elsie gazed earnestly at her mother, trying to think it out. But she was compelled to shake her head after all.

"I can't imagine," she said.

"Nothing but that some of the pollen shall be mixed with them," said her mother.

"Oh, I see, I see!" Elsie cried delightedly. "That is why the stamens with the pollen in them are right over the ovaries."

"Yes, dear, you have guessed it. The ripe pollen, falling into the ripe ovary, would fertilize the seeds. And with

some plants, the earlier and simpler kinds, this is just what happens. But here you can see that the ovary is not ripe. It is hard and green. When it is ripe its color is yellow. But the pollen is ripe now, you can see it all over the anthers, as the knobs or sacks are called. If the pollen should fall upon the ovary now it would roll off without entering, and would be wasted. Now what do you suppose happens?"

"The—the—"

Elsie hesitated, looking with very bright eyes at her mother, almost sure enough to go on, but not quite. It seemed so peculiar, the thought that had come to her, and she did not see just how it could be.

"You were going to say the bee, weren't you?" her mother smiled.

"Oh yes—and would that have been right?" Elsie cried in delight.

"Yes, that would have been exactly right. If we had been near enough to examine the bee's motions closely we should have seen that he alighted on the ovary, and then began to turn here and there in order to get at the honey at the base of each petal. As he did so he brushed off some of the pollen, for he was right in amongst the stamens, and this powdery pollen stuck to his fuzzy body and he carried it away with him."

"But if he carried it away how could it get into the flower's ovary?" Elsie asked, puzzled.

"It did not get into this flower's ovary," her mother answered. "Nature did not intend that it should, and that is why the bee is introduced. For the

other buttercup that he flew to, or some other one that he would visit afterward, would have its ovary ripe, and when he alighted on it in search of honey some of the pollen would be brushed off his body right into this ovary that was all ready to receive it."

"Oh! But what would happen then? The little baby buttercups would begin to grow right away, mamma?"

"Yes, the ovary would close up and the seeds would begin to grow, very slowly. They would keep on growing until they were ripe and then they would burst their covering and fall out on the ground. Those of them that were fortunate enough to become embedded in the soil, so that they would not freeze in the winter, would come out in the spring as little plants, which would soon bring

forth buttercups. That is the way with the wild flowers. But with the cultivated ones, like cucumbers, apples, beans, and the like, all of those that are valuable for eating, we are careful to save the seeds and plant them where they will be safe. Instead of leaving them to chance we make a garden and plant them in it where they will be snug and warm."

"And wouldn't the seeds grow, or the little plants come up, if the bee hadn't gone to the flowers, mamma?"

"No, darling, it is the bee, or some other insect, or the birds, that marry all the bright-colored plants in this way, as the wind marries the soberhued ones. Without these we should have no vegetation." "But, mamma, marry! Why do you say they marry? I thought only men and women married."

"The marriage that takes place between men and women, dear, is only a repetition of the marriage of plants. Its object is the same—to reproduce the race. Plants began to marry long, long before men and women ever came on earth and have been doing it ever since; fortunately for us, because if they should give up the practice we should have to follow suit. The earth would go back to the barren state in which it was before life came to it."

"It seems so strange," said Elsie. "Why, I never heard of anything so funny! A bee, just a little bee, and without him—"

"Funny is scarcely the word," Mrs. Edson smiled, "but it is certainly wonderful. The pumpkin, the bean, the pear, the squash, the orange, all the fruits

and vegetables that we eat, and which the animals eat, must be fertilized in order to reproduce their kind, and all the fertilizing is done either by the wind, which blows the pollen from one plant to another, or by birds and insects. But this is only a small part of the secret I have to tell you, just the beginning. There are many more wonderful things to come than I have told you yet, but I think this is enough for the first time. You would better think over what you have heard until tomorrow, when I will tell you the next step, which is about the animals. There are four things in this lesson that you must remember:

"First, every male plant has at least one stamen, which bears pollen.

"Second, every female plant has one ovary which contains seeds.

"Third, the seeds in the ovary must be fertilized by the pollen in the stamens in order to be able to grow and bear children.

"Fourth, flowers are fertilized by birds, insects and the wind.

"Do you think you can remember all that, darling?"

"Oh, yes, mamma, I'm sure I can!" said Elsie. She thought a moment and then added: "It was very nice of that bumble-bee to mistake my nose for a flower, I'm sure, for it was almost as if he should say, 'Doesn't she look sweet—there must be honey there!' But I guess he didn't think I was very sweet when I almost scared him to death, poor fellow!"

V

THE FIRST LIFE ON EARTH

THE next day Elsie was so eager for the hour to come when she should learn the secret of the animals that she had been waiting in the hammock quite a little while when her mother came down stairs and as soon as she appeared in sight Elsie clapped her hands joyously, crying out:

"Now I shall hear how the animals get their honey, sha'n't I, mumsey? But, mumsey, there isn't anything like the petals of a buttercup on an animal, unless it's his ears—do animals have their honey there—where they join the body—like the buttercups?"

Mrs. Edson could not help laughing at this funny notion.

"No, darling," she answered, "animals have no honey anywhere. In the plants there is honey because they must have something to attract the insects to them, for they are rooted in the ground and can't move around to carry their pollen to the other plants. And this pollen must be carried, you remember, for that is the way, and the only way, in which little ones are made to be born. So the flower has the honey in order to pay the insect for marrying it. But animals can move around. They can go to each other and carry their own pollen, so they do not need honey or anything but themselves to attract each other. In animals there is love instead of honey. They love each other, in their way, and

so come together and mingle their eggs and pollen. Only it is not called pollen in animals, as I said before. It is called *zoösperms,* pronounced 'zoo-o-sperms.' That is another name that you must not forget, for it is to the animal what pollen is to the plant. And in order that little animals may be born it is quite as necessary that the zoösperms cover or fertilize the eggs, as, with the plants, it is for the pollen to fertilize the seeds."

"But, mamma," said Elsie, wonderingly, "you said, I think, that every plant had an ovary—"

"No, darling, I said that every *female* plant had an ovary."

"Oh, yes, female plant! That has an ovary, and every male plant has a stamen, and I think you said that they must have, didn't you?"

"Yes, dear, in order to reproduce their kind they must have—why?"

"Well, then, does every male animal have a stamen and every female an ovary?"

"Certainly darling! And let me repeat that the products of the two must be mingled in order to bring forth little animals. That is just what I am going to tell you about today."

"And do you mean, mamma, that honey in the plants grows into love in the animals?" Elsie asked, her eyes very wide.

"Oh, that is a very beautiful thought for my little girl to have!" Mrs. Edson exclaimed, smoothing Elsie's hair lovingly. "And, yes, that is the truth, put very poetically. Love is sweet, like the honey that it replaces—at least

it is for us human beings. Probably with the animals it is not of just the same quality that it is with us, for they do not act as if it were, but at least the animals are an improvement on the plants in this respect, and the love that they feel for each other finally evolves, in us, to become the sweet thing that we find it to be."

"Isn't that lovely—and so strange!" exclaimed Elsie.

"Yes, darling, it is lovely, and very strange. There are various kinds of love, as well as various degrees of the same kind, but this is a subject a little too deep for us to take up just yet. What I wish now is to teach you how the animals marry. And I will begin by saying that all forms of reproduction, which is the name given to having chil-

dren, follow the same principle. The animals marry in a way that is only a variation of the plant way, and men and women marry in a way that is a variation of the plant and animal ways. But let us begin right, with the first appearance of life on earth."

"Yes, mamma," Elsie cried eagerly. "But the *first* life! That must have been very, very long ago, wasn't it?"

"It was so far back in the history of the world that we can scarcely more than guess how long ago it must have been. We do not even know where it first appeared or just how it came to be. Some scientists believe that it occurred at the mouth of the Nile River, in Africa, in the rich soil that the river deposits there when it overflows its banks. Others think it was in the sea, or along

the shores of some ocean in a tropical country. But we need not go into that here. What we do know is that the hot sun, shining on a certain spot on the earth or sea, which was just in the right condition, produced the first body containing life that the globe ever had, and that this body was only a little speck of jelly-like substance, which we call protoplasm, pro-to-plas-m. The word means 'first growth', for it was the first thing that ever appeared that was capable of growing. We also call it a cell. Now there was only one cell in the world. It had no companions. And what do you suppose happened?"

"It must have been very lonesome," suggested Elsie, sympathetically.

"Yes, it must have been—certainly it must if it could feel or think. But,

at all events, whether or not it did feel lonely, it began right away to make companions. Of course you can't think how it did that, can you, dear?"

"I—I am afraid not," Elsie hesitated.

"Yet it was the very simplest way imaginable. It merely divided itself into two parts, each of which was just like the other."

"Oh!" exclaimed Elsie. "But, then, mamma, who could tell which was the father or mother, and which was the child? Or were they just brother and sister, or two brothers?"

"There was not then what we now call 'sex', for that was only the beginning of families, so to say, and it was very crude, as all things are when they are first started. But perhaps we might call one cell the mother of the other,

since it is always the female, and not the male, that brings forth children, though nobody could tell which was the mother and which was the child."

"Well," said Elsie, "*that* is the strangest thing yet!"

"It seems so to us, because it is so different from our way of reproducing, but it was the natural way, and the same process is going on to this day. Even little girls are born in a manner which, though it appears very different, is the same in principle, as we shall see."

"But, mamma, I thought that all living beings were obliged to have a stamen or an ovary!"

"So they are obliged, dear! This cell grew until it was too large and heavy to be supported by its structure, or lack of structure, and then it fell apart.

Force, or growth, was the stamen here, and the cell itself was the ovary."

"Oh, then force or growth was the first stamen, mamma?"

"No, darling, it was not, unless we should call growth the stamen of today—which we might do, in a way. But the first stamen was, in form, a ray of the sun, and the first ovary was the earth, soil. For don't you recall that this cell, which was the first life-form, was produced by the sun shining on the earth or sea?"

Elsie pondered on this a moment. Then her face brightened.

"Oh, now I see!" she exclaimed. "And what a beautiful set of changes, like real poetry! The stamen in a flower, and growth, and a ray of sunlight are all one at bottom!"

"Yes, darling, it is beautiful poetry, when one comes thoroughly to understand it. And when we find that love is the source of all these different forms and processes it becomes more beautiful than ever. Now let us go on a little further and you will see how that is."

"Please hurry, mamma!" said Elsie. "I wish to find out where I came from, and you are going to tell me that, aren't you?"

"Certainly, darling! That is what I have been leading up to all this time. Now we will speak of a number of higher growths than the single cells are, for there are several things yet to be made plain before you will be able to understand the highest growth of all, which is that of a human being like yourself."

VI

WHERE BABY ANIMALS COME FROM

AT that moment there sounded a hoarse noise near by, which was followed by a splash, as if some body had tumbled into the pond. Elsie looked at her mother roguishly and said:

"Old Croaky!"

Old Croaky was a granddaddy bull-frog with whom they were very well acquainted, for he sang for them every evening.

"I am glad that he spoke just as he did," Mrs. Edson smiled, "for he reminds me that frogs are as good an example as I can take next. He belongs to one of the lower classes of animals, not so

very much higher than the plants. Now, in the plants, you will remember, it was necessary for the pollen to enter the ovary in order to reach and fertilize the seeds. But with the frog it is not so. The female lays the eggs first, and just as she is doing so the male places himself in such a position towards her that he can mingle his zoösperms with her eggs as they come out. That fertilizes them and they immediately begin to grow. First they become tadpoles, and then little frogs."

"What, was Old Croaky ever a little tadpole, mumsey?"

"Yes, darling, he was. Every frog was once. And before that he was an egg, one of many, in his mother's ovary, and it is so with all animals. They all of them have eggs and zoösperms, just

as the plants have pollen and seeds. Only, with most of the animals, the zoösperms must enter the ovary in order to fertilize the eggs, as is the way of the plants. And it is the same with the birds. They are higher, that is later, in the scale of life than the frogs are. Now the higher the creature the more complicated becomes the process of reproduction, even though the principle is always the same. It is always growth, always the life within, forcing itself out to take form, and it is only the forms that change. The life and force within are the same that the first single cell had."

"It is very wonderful, mamma," Elsie said, awed by the mystery, even though she was very far from grasping the whole of it. "And the birds, mamma,

have they stamens, and eggs inside? I thought their eggs were outside, in a little nest. And some of them are, mumsey, because, you know, I have seen them lots of times."

"Yes, the eggs come out where you can see them, in time, as the frog's do, but at first they are inside the mother bird, as they are with the frogs and all animals. Only, it is not with the birds as it is with the frogs, for the bird's eggs must be fertilized by the male zoösperms while they are still within the mother bird. The zoösperms must enter the ovary as the pollen must enter the ovary of the plant. So the male bird, like most male animals, has a stamen which is a repetition of that of the flower, made of such a shape that it can reach the eggs in the mother bird's ovary and

fertilize them there. Then they come out, they are 'laid' as we say, and we see them in the nest which the mother and father birds have prepared for them. And just as the seeds need to be covered and kept warm, when they have fallen from the ripe pods to the ground, in order that they may live and grow into baby plants, so the bird's eggs must be covered and kept warm and safe in order that they may grow into birdies. It is just here that you may see where the honey of the plants begins to become love in the higher species. For instead of leaving the eggs to be protected or not, according to chance, as is the way of the plants, the mother bird covers and warms and protects them herself. She sits on the nest and keeps them safe with her own body and feathers. Isn't

that lovely! And the father bird goes to market in the woods and fields and brings her the daintiest and best food he can find."

"Isn't he *nice!*" said Elsie appreciatively.

"Yes, he is nice, and so is his wife, the mother bird. Just think! A bird is the most energetic and tireless creature in all animated nature. It is always on the move, urged by the force and overflowing life within its body, and to sit there quietly all alone on the eggs day after day and night after night—oh, it must be hard, so hard that we can scarcely realize the extent of the sacrifice she is making for her little children. That is what love is like. And the higher a creature is in the scale of life the more love it has, until, in men and women,

the acme is reached and they not only give up their comfort for each other, and especially for their children, but even their lives themselves. With human beings one can tell how high a given one is in the scale of humanity by the amount of love he has. Some persons have very little, and they are nearer the animal plane: some have a great deal, and the more they have, the less selfish they are, the higher they have risen. For love is the real stamen that fertilizes the world and makes it grow, and the more one has of it the more life one gives to the universe."

Elsie felt very grave for some moments, thinking out this deep matter. It was too complex for her to realize wholly, but she caught glimpses of the immortal beauty of the ideas and she was awed

by it. Suddenly she threw her arms around her mother's neck and kissed her passionately. It had occurred to her all at once how much her mother loved her and how much she must have sacrificed for her sake during all the years of her little life, and though she had no conception of the full extent of the sacrifice she saw enough to make her feel like crying for very love of that dear and sweet mamma. Her mother understood her and taking her in her arms hugged her closely, sitting in silence with her for a long time, both of them too full of love for each other to speak. And so the lesson for the day ended.

VII

WHERE BABY GIRLS COME FROM

NOW, mumsey," cried Elsie the next day, running to her mother at the hour set aside for their baby-talks, "I know what comes next—it's I, isn't it?"

"Yes, darling, it's you. And it's I, too. Isn't that a beautiful thought, that you and I held the same relation to each other that the mother bird holds to the egg from which the birdies come! For once you were a tiny, tiny egg inside mamma just as it was with the birds."

"Oh-h!" gasped Elsie, gazing at her mother in bewilderment. She could not

realize such an astounding thing at once.

"Yes, darling," Mrs. Edson went on, "every female human being has an ovary, just as every female flower has, and just as every female bird has; and, also like them, she has seeds or eggs in this ovary. And she has a great many of them. They have been growing within her ever since she was a baby, and when she is about twelve years old they begin to ripen, one at a time, and pass from the ovary into a nest that is all ready for them inside the female body. This nest we call the womb. At first, while she is so young, the womb is not strong enough to hold the egg while it grows, so the egg soon leaves its nest to come into the world and be lost, as so very many seeds of the plant are. As it

does so it acts in such a way on the young girl that, when she first becomes aware that something which seems strange is happening to her, she is frightened and does not know what to do. And as you, darling, are now at the age when this must come to you very soon, I am going to prepare you for it, so that you may know that it is natural, coming to all girls of about your age, and that there is nothing to be alarmed over. All the talks that we have had were intended as a kind of introduction to this event and its consequences, for it is the greatest that enters a girl's life before she has grown fully to be a woman. And you were once one of these tiny eggs. More than that, you now have within your body, a great number of that very kind of eggs from which you sprang."

Elsie sat with her eyes in breathless interest on her mother, so filled with wonder and speculation that she could not ask a single question. Mrs. Edson proceeded:

"I must repeat dear, because it is so very important for you to remember, that every woman has an ovary which contains many seeds or eggs, just as the female flower has. These eggs, if left unfertilized, will pass from the body and never grow any more. But each one, if fertilized by the papa, as the bird's eggs were, and as the flower seeds were, will stay in a little nook inside the mother's body, where it will grow and grow until the time comes for it to burst forth into the world, following the same principle that the first cell followed in reproducing, and which all living things

follow always. The life within forces it away from the parent, to become a separate growth. Then it will come forth, and behold, the tiny seed or egg has grown to be a baby girl or boy, weighing several pounds!"

"Oh-h!" Elsie gasped again. "And that is how—how—I—came to be born, mamma!"

"Yes, darlingest, it is the way in which every living person was born. There is not, and there cannot be, any other way. Each child is a part both of its father and mother. The egg in the mother would never grow into a baby unless it had first been fertilized by the father, who does so through his great love for the mamma, just as with the birds and animals, though his love is of a higher kind than that of the lower orders."

"And does the mother-woman warm the eggs as the bird in the nest does, mamma, while the papa-man brings her nice things to eat?"

"Yes, dearie, only the mother-woman has the nest inside her body, as I have said, and she keeps the little one safe and warm there much longer than the bird sits on her nest. And think of all the years after the baby is born that she waits on and cares for it! There is no other love that equals in devotion that of the mother."

Elsie, without a word, her eyes swimming in tears, kissed her mother affectionately. She had realized a little more of what she owed to her.

"Now," said Mrs. Edson, "I must tell you how to care for this nest in which, by and by, when you have grown up

and have a husband and are strong enough, you will be keeping a little baby of your own. Because many girls who become married do not know these things there is a dreadful amount of sickness and misery in the world, all needless. And it does seem too bad—when merely a few words at the right time would have saved it all!"

Of course Elsie was not old enough to understand how this could be, so she said nothing, but sat looking earnestly at her mother as she went on:

"In the first place, dear, you must know that the little baby's nest, which we call the womb, is placed in the lower portion of the woman's body, just above the 'private parts'. Perhaps it is put there because it is the safest place for it in the whole body—for the eggs and

womb are very delicate, and must not be exposed to any danger of injury. So it grows in the interior of the trunk, where outside dangers would be less likely to reach and spoil it, so that the woman would be sick all her life and never have any children. Many hopeless female complaints, ending with premature and painful death, are caused by lack of proper care of the womb and its entrance. That care consists chiefly in preventing the womb from being touched by anything, and keeping the entrance clean. It is very simple—just keep the entrance clean and the womb untouched by anything. An observance of such slight rules as these would have saved many and many a poor soul from a life of continual misery and suffering.

"I have told you, dear, long ago how to keep the entrance clean. And now that you will soon begin to menstruate, as the passing out of the eggs is called, I shall have but little to add to what you already know, but I will repeat it from the beginning in order that you may have it all clear in your mind.

"First, bathe the entrance every time you bathe the rest of your body, and at such other times as you may feel the need of doing so. Never neglect this. It may have evil consequences. Just keep it clean, and never touch it for any other purpose. And be careful to use only your own towels, for disease is easily communicated to these parts by cloths that are not clean, and you never can be too careful in this respect. It is plain enough, and easy enough to do,

isn't it darling—and you will always remember about it, won't you?"

"Oh, yes, mamma, that is easy enough!" Elsie said quickly. "I could remember a lot more than that, I'm sure."

"It would have been so infinitely much better for so many poor sick creatures if they had known and remembered even that!" Mrs. Edson sighed, holding her little daughter closely, as if she would protect her from not only that harm but all others. "But," she continued, "I must now tell you what you may be expecting to come to you before long, when it will be harder to keep the entrance clean than it has been so far, and when to keep it clean will be more necessary than ever.

"Every twenty-eight days, dearie, beginning with you very soon now, there

will be a flow of blood into the little baby's nest, the womb, and this will come out of your body through this entrance to the womb. As soon as you see any signs of it on your body or clothing you must come right and tell me, as you would if you had cut your finger or stubbed your toe on a stone. It is something to be very proud of for it shows the possibility of motherhood, and it must be given the very best care, which is, as I have said, chiefly to keep the parts clean. By and by when you are grown old enough and strong enough, and have a husband, who will fertilize the eggs, one of them will grow into a little baby, but it will be a long time yet before that can be, and until then you will have this flow every twenty-eight days, for the sake of your health. This

brings more work for the womb to do, while the menses, as they are called, continue, and therefore you may feel out of sorts both mentally and bodily for two or three days. But this will pass away when the flow ceases, and if proper care is taken of the womb and passages you will never feel anything worse than this. Some women feel great pain at this time, but almost always the reason is that some of their internal parts have been injured in one way or another. Sometimes lack of proper food, sufficient fresh air and sun, or not enough exercise and clean water are responsible for a portion of the pain. In order to have strong reproductive organs a woman should be healthy in all bodily ways, and anything that she can do to improve her general health will be favorable to

her at the time of the menses as well as at all times. Do you think you understand all this, darling, and can remember it?"

"I don't know, mamma," said Elsie hesitatingly. "There is a lot to it, but I'll try."

"That is my dear little girl! To try is the next thing to doing. Only remember that when you don't know what to do, and have tried, come to mamma. That is one great reason why mammas are—to help little girls who have tried."

Elsie kissed her mother warmly, and then sat looking dreamily out towards the woods. She had learned many strange things and was thinking them over. Suddenly she spoke, as if unconsciously, saying:

"Who would ever have thought that so much could come out of it!"

"Out of what?" her mother asked.

"Why, out of a bee trying to step on my nose!" said Elsie.

(The End.)