

EASY ENOUGH TO BE PLEASANT

It is easy enough to be pleasant. While life flows by like a song, But the man worth while is the one who will smile. When everything goes dead wrong. For the test of the heart is trouble. And it always comes with the years. And the smile that is worth the praises of earth.

THANKS TO LUCIA.

One really hasn't the right to be surprised at anything nowadays, especially as regards sudden departures from the conventional in the conduct of young girls. So I was entirely to blame for being startled when there walked into the smoking-room of the hotel, where I was sitting alone, a young and very pretty girl who threw me a careless and rather friendly glance, then began, apparently to undress.

"Taken thus off my guard, I stared at her for a moment, then looked round for the camera-man, for this was down in the moving picture country. But there was no camera-man. In fact, there was nobody at all around, and, being of a wary nature, I was about to retire when the girl extracted a pin which had been sticking into some part of her, reassembled again, and, turning to me with a smile, remarked:

"Clothes are a great bother, aren't they? I don't see why people want to wear so many of them."

"It is one of the foolish customs of the country," I answered.

"Perhaps they are more sensible where you come from." For, in noticing the ivory tan of her clear skin, it struck me that perhaps she was a Pacific Islander, though in general type she was Anglo-Saxon.

She shook her head and tumbled down a bale of insecurely fastened ruddy hair.

"Bother!" said she impatiently. "It's just the same with your hair. So many silly little pins and things! I don't know how to make it stay. Do you?"

"I never tried," I answered; "so the chances are I should make a mess of it. If you go in the ladies' dressing-room, the maid might fix it for you."

She ignored the advice and fastened me with a pair of large eyes which were of a pale but very soft shade of gray, doubly fringed with long black lashes. I saw immediately, from their expression, that I had to do with some sort of a primitive. No sophisticated girl, however artful, could have given an absolute stranger such an unconscious, inquiring stare.

"You look very nice," said she. "Do you know my father?"

"Thank you," I answered. "What is your father's name?"

"Elliot Fiske. We have just got here from a long way off. I never saw any people before. Father says I must not speak to strangers, but I'm sure he wouldn't mind my speaking to you."

But I was hardly listening. Elliot Fiske—Elliot Fiske. The name was entirely familiar. Sometime or other, I had known one Elliot Fiske, and the vague association impressed me as having been a pleasant one. The girl interrupted my effort at recollection.

"What is your name?" she asked. "Mine is Lucia."

"And mine is Arthur Brown," she answered, at which she clapped her hands.

Then suddenly I remembered Elliot Fiske as one of the American art students at Julian's paint-school when I had studied there nearly twenty-five years ago, and one of the wildest of that rollicking crowd. It seemed to me also that I had heard something of his having been lost at sea on a voyage round the Horn on one of his uncle's ships.

"Of course," I said, and as I spoke, Fiske himself came in. I doubt if I should have known him for the gay, debonaire friend of my youth. He did not look to have aged so much, though his hair and Van Dyck had whitened, but his handsome face was tanned and weather-roughened as if from many years of exposure, and had a strong, virile intensity of expression utterly lacking in the Elliot Fiske whom I remembered. His body, too, gave a suggestion of splendid muscular strength and nervous tenacity.

"Here you are again!" he snapped to Lucia. "How many times must I tell you to keep out of the smoking-room and not to bother strangers?"

"Hello, Fiske," I interrupted. "Where have you been all these years?"

He recognized me at once. Then some woman acquaintance looked in and called to Lucia, who went out with a rush, her hair tumbling on her shoulders. Fiske dropped into a chair with a sigh.

"Now what the deuce am I to do with a young savage like that?" he demanded helplessly. "Just think of it, Brown; until a week ago she'd never seen a living person but her mother and old Andre and myself."

"Where in the world have you been?" I asked.

"On a weird outer rim of hell in Magellan Land. Old uncle Saltonstall stuck me on one of his wind-jammers for a voyage round the Horn to cure me of the liquor habit. This ship had taken a cargo of California wine to Bordeaux, got it good and agitated, then bottled and shipped back with a

French label. She was homeward bound full of empty casks which were worth more than the blooming wine, and uncle said to me: 'Nephew, here's a chance to make a man of yourself. Captain Simms runs a dry ship, and you can't get a drink for at least three months. Now you can go and overcome your vice or never expect another cent from me.' So I went."

"Did you get cured?" I asked.

"You bet! I was cured before we crossed the Line, but it wasn't the dryness of the ship that did it. The skipper was a secret drinker, and he was taking out the niece of a French winegrower in California. Her name was Renee Duffroy, and she was a beauty. I fell in love with her, of course, and so did that darned psalm-singing, rum-soaking skipper, and I had to keep sober to protect her. Oh, it was a beastly cruise, and kept getting worse the nearer we got to the Horn. Down there off old Cape Stiff, everything went glimmering. The mate was swept overboard one night, and the second mate fell from aloft, and smashed himself to pieces, and just then the old man blew up in a raging attack of d. t.'s and saw prospects and things tearing over the waves and crashing their jaws. The crew got at the liquor, and with all hands drunk and I standing guard over Renee with a gun, we got caught aback and dismayed. Before this, we'd been swept repeatedly, and all of our boats and most of the hands. Then the weather cleared, and we found ourselves wallowing crazily in the backwash from the foot of great, jagged, towering cliffs, and finally slewed into a bight and fetched up in a lagoon, a basin of these big prongs of rock. We jammed down on them with the tide at full flood, and there we stuck like a piece of junk on a fork."

"How many of you were there?" I asked.

"Six of us. Renee and the skipper and Andre, the cook, two of the hands, and myself. It was a terrific sort of place—huge, heaped-up, jagged cliffs full of caverns and grottoes, and farther inland there were high plateaus and deep gorges and valleys with boiling springs and geysers and things. The sea roared over it, and part was frozen and foggy and, and there were seals and myriads of birds and a good many wild goats. It was an island, I think, though in twenty years' time I never got all the way across it to see. In the basin where the ship fetched up there were places where the water boiled up hot and fresh in big, flat eddies, and in one of the little valleys the vegetation was tropical. You can't imagine such a mixed-up place, and it had a sort of fantastic beauty of the Turnereseque school. A few miles away, a miniature volcano got semicircular once in a while and turned the atmosphere a ruddy saffron. It was an awful place for thunder-storms, too."

"And you've just come from there?" I asked incredulously.

"Yes. After about eighteen months of it without ever sighting so much as smoke, we built a pinnace, and the skipper and two hands left, but they must have been lost. Before the skipper left, he married Renee and me, and about a year later, Lucia was born. Andre preferred to stay with us than take a chance in that little boat in those awful waters with the swift tides and fog and terrific, sudden squalls. The climate wasn't really so bad, as you could have any kind you liked at almost any time of year, the place being steam-heated, as you might say, or full of furnaces. There would be a steeple of rock sheathed in ice, and mushrooms growing round a hot spring at the foot of it. The big cavern we lived in was always comfortably warm. Taking it full and by, we weren't so badly off. We had everything a big ship carries to start with, and the seeds we planted in the warm, fertile spots grew amazingly. I suppose the ground was rich in phosphates and nitrates and things. We had peas and beans and onions and potatoes and corn, and we'd saved a few chickens that soon increased and multiplied. Then there were the goats and seals and all sorts of sea-food. Fact is, when we began to get used to it a little, Renee and I were perfectly happy. She loved me, and I loved her.

"Je t'aime; je t'adore; Que veux tu encore?"

"A paradis a deux," I murmured.

"Quite so. Good old Andre was a sort of Caliban. He got a little dippy, I think, but being a Breton, that was natural. As I said, the place has a wild, eerie beauty about it. I investigated the north pole and the tropics striped up roughly together and then suddenly solidified. Ice crystals on the beach and a couple of hundred yards away fruit and flowers growing round the edges of a steaming pool. As soon as we gave up the idea of rescue and began to make ourselves at home for the rest of our lives, I started in to paint."

"Using the ship's paint when your colors gave out?" I asked.

"Not a bit of it. I never touched that mud. There were some wonderful pigments in that volcanic formation, and I ground them up and mixed them with various tempers until I got what I wanted—gums and egg albumen and amber and all that stuff. Do you know, Brown, I really learned to paint in that place. I cut my canvases from the sails and used the cabin-panels, and that some wonderful things, if I do say it myself. Then, about three years ago Renee was killed." His face twitched. "She was struck by lightning in one of those hideous storms. The place fairly shook with them. Renee got careless and started to come to the 'studio,' as I called the grotto where Lucia and I were at work.

"Well, it was unbearable without Renee, so we decided to try to get away. Andre was getting old, and any day some accident might have happened me and left Lucia there alone. It took the three of us two years to build our boat, and she was nearly finished when there came an earthquake which killed Andre and destroyed all of my paintings except two which I had stuck up in our cavern. I had painted them for Renee. So Lucia and I put to sea, and here we are."

"Good Lord!" I exclaimed. "Where did you get?"

"We were picked up by a steamer off the entrance to the Straits of Magellan and taken to San Francisco. I landed there after twenty years of ex-

ile with about five hundred dollars and a grown-up daughter whose knowledge of this world is purely theoretical. But let me tell you she is very far from being the young savage you might think. Her mother was convent-educated, and gave her lessons in everything which she thought she ought to know, while she has learned a good deal that she may some day have to know from me. I'm no believer in the protection-of-innocence idea. Lucia inherits her mother's beauty and temperament and a good deal of her father's dandy-folly, and she's not on any desert island now."

"I don't think you need worry about Lucia," said I. "She'll soon learn the ropes. What is more important just at this minute is how you are going to provide for her with what is left of your five hundred dollars. Have you no other resources?"

He shook his head.

"None whatever—barring, of course, my painting. Renee had no dot, and I learn that uncle Saltonstall took it for granted that I must be drowned when sailing to cede on him for a year or two and his fortune was no provision for my turning-up. I came here hoping to find an old chum, but he's dead, too. So I'm going to see if I can't get a job with these 'movie' people for the time being."

"Nonsense!" I said. "You come to my house and stay as long as you like. I've got a nice bungalow down the beach with a big studio, and my household consists of a Chinese cook, a French valet, a Swiss chauffeur, and a Portuguese boatman. Draw on me for what you need until you get on your feet again. I've done pretty well since we last met, and just now I'm at work on a big order to paint the mural decorations in the palace of a millionaire. So just you pack up your dunnage and move in."

Fiske protested a little, but finally gave in; so, as soon as Lucia came back, I loaded them and their scant luggage into the car and took them to my place, which was about five miles away. Fiske sat in front with the chauffeur and was tremendously interested and excited in the running of the car, but Lucia seemed entirely at her ease. I asked her presently what she found most curious about her new surroundings.

"Men," she answered promptly. "They are not at all what I thought they would be like. All that I have talked to were very nice, but, of course, some are nicer than others. Father must be quite wrong about them. Money is very interesting, too. It seems to me that if one wants to be happy here, the first thing to do is to make friends with some man who has plenty of money."

"Why not a woman?" I asked.

"I think a woman would probably want it for herself," said she. "The hope of getting money in return, do you know, is to have plenty of money, Mr. Brown."

"Fortunately I have as much as we are apt to need," I answered. "What would you like to have first?"

She reflected for a moment while I watched her in amused curiosity. If I had been twenty years younger, Lucia's profile would have aroused a much warmer emotion.

"I think I should like to have a goat," said she. "I had to leave my goat, and I have missed it a great deal. Later on, I should like to have a husband who was good-looking and has plenty of money."

"Those are both very reasonable things to want, and I don't think there should be any great difficulty about getting them," I answered. "I shall buy you a kid this very afternoon. But you had better look round a little before you choose the husband, as you might pick the wrong one, and they are sometimes difficult to get rid of."

She nodded.

"So father has told me. But I can't wait very long, because we haven't any money, and it would not be right for us to keep on spending yours without giving you the wrong return."

"That is done between friends," I said. "Besides, you do give me something in return. You give me the pleasure of your company. And as long as I am satisfied with the arrangement, there is no reason why you should not be."

Lucia turned and looked at me intently, then smiled, and a shade of color glowed through her clear ivory skin. Her face was of the sort which is intensely attractive to men, not precisely beautiful or entirely regular of feature, the mouth being wide and set slightly on the side with very mobile lips and a nose of which the tip left plenty of clearance for their activity. It was, on the whole, the face of a thoughtful but potentially mischievous nymph.

"What are you thinking about?" I asked.

"Of what you just said," she answered. "Of course it is very nice to have a friend who gives you things, but I should want to give more than the pleasure of my company in return. Now, if I were your wife, I would be yours, just the same as my goat, and I think it would be all right for you to take care of me. I think that you would be a very nice husband, Mr. Brown, but I suppose that if you wanted a wife you would have got one a long time ago."

Fortunately Fiske was plying the chauffeur with questions about the machine, which the latter was answering in detail, so that this tentative proposal was not overheard.

"The only woman I ever wanted to marry did not want to marry me," I said to Lucia. "Perhaps at that time I did not have money enough. So she married a man who she did not love but who had a great deal, and afterward he went and lost it, and then she had nothing at all. You see, my dear, money is not everything."

"No," Lucia agreed; "especially as you might lose it all. But you might lose all your love, too, and then it would be just as bad if not worse."

"You have undoubtedly inherited some good French common sense," I observed. "I do not think that your father need worry about you. To change the subject, what do you think about this place? Do you like it?"

"I like seeing all the funny people and the pretty houses and gardens and riding in automobiles and going to the 'movies'!" she answered; "but I wish that Thunder Island were not so far away." She looked at me with a wistful expression in her light-gray eyes. "Sometimes I think about

where we lived and mother and Andre and the seals and rocks and my goat, and it gives me a bad feeling in my stomach, but father says I shall soon get over that."

I saw her suddenly in a different light, which was that of a pitiful, homesick little girl torn like a limpet from her rough rocks and caught up in our strange social conglomerate. But I felt this even more strongly when after we had arrived and I had got them settled, Fiske and I went into the studio. He had the only two canvases which he had saved, and seemed impatient to get my opinion of them. I rather dreaded this, as Fiske had never shown any talent in the paint-school, and most of us had been inclined to regard his dabbling in colors rather in the light as a pretext for not going to work.

But I might have spared myself anxiety, as the first picture which he placed upon the easel showed at a glance the mastertouch and that his claim that he had learned to paint on Thunder Island, as he had named the place, was a perfectly valid one. The subject was the bulk of the old Pompeii in the moonlight, and the problem about as difficult technically as he could have chosen, being a study in the values of the lunar rainbow with those from the crater of a small active volcano reflected against the sky and thrown down upon the still water of the bay.

The two pictures, the comparative treatment of these two wholly different qualities of light was enough to puzzle criticism without the effect produced by the extraordinary medium, or tempora, which he had employed, and which suggested a picture of the background. The contrastive thing were possible. Like the place, as he had verbally described it, one seemed to feel the combination of heat and cold. It was really an amazing, outrageous impression.

"You've got it, Elliot!" I said. "I don't know what the deuce it is, but you've got it, and it's something big."

He laughed.

"I thought it would puzzle you," said he. "The other's in a different key." And he replaced the first by the second. This was even more astonishing. The subject was a splendid girl, standing in the center of a strange, weird, glowing growth, with a fantastic valley sloping down to the sea in the background. The whole place was filled with brilliant, multi-colored vapor which tempered what one felt must have been the violent tones in the contorted rocks with their curious tentacles and the gurgling stream which flowed down through a formation which suggested molten lead thrown into water, such as we used to make on All-hallow-e'en.

The whole place fairly vibrated with color through an atmosphere equally intense. Blue icicles hung from the eroded lips of grottoes, while strange fungoid growths, with blossoms weirdly hued, bloomed from the pool's edge and the pink feet of the girl, who stood looking down into the saffron water, the stem issuing from between her parted lips and we heard her limbs and body. One could almost feel the frosty air on her fresh skin, and the fissured rocks in the background held ice crystals and snow-filled seams. The everted lip of the basin was edged with sulphur and vitriol and sparkling with pyrites.

"A study in heat and cold," said Fiske. "I have not exaggerated a bit. That is our bathtub, and precisely as it looked on a frosty morning. The figure is not posed, of course."

"The thing is a wonder, Elliot," I said. "What a catastrophe that all your work in twenty years should have been lost! But you don't need worry about your future when you can paint like that. Did you bring away plenty of pigments?"

"No, unfortunately," he answered; "but I think I can manage with ordinary colors. After all, this sort of thing really belongs to the frosty time of the year, when the whole scene was violent and ferocious and prehistoric. People here at home wouldn't understand it, and by the time I got 'em educated, I'd be dead. The main thing is that I learned a lesson. One couldn't help it, they were so pronounced. Diagrammatic, as one might say. They hit you in the eye."

We went out after Fiske had politely admired some specimens of my own work, for all its success, looked, I must say, very thin and anemic in comparison with his vivid intemperance. But he was unquestionably right in saying that it could not hope to find popular interpretation any more than Thunder Island could have been a popular seaside resort. It was too savagely elemental. But it made a deep impression upon me, and I have never since the time was not in quest of Lucia's baby goat, marveling at the sweetness and gentleness of a girl born and bred in such raw surrounding conditions as might have existed at the very dawn of our race.

(Continued next week.)

Have Your Seed Tested.

Under the provisions of the Pennsylvania seed law farmers can have seeds tested for purity by the Department of Agriculture at Harrisburg.

This test shows the value of the seed from the standpoint of purity and weed seed content. The statement of purity on a percentage basis is useful in indicating how much of the represented sample actually contains. The report in reference to the weed seed content is a safeguard against the production of weed-infested crops. A special statement in regard to the occurrence of dodder and Canada thistle seeds is also made.

The department tests the seeds of red and crimson clovers, alfalfa, timothy, barley, spelt, wheat, buckwheat, oats, rye, alsike clover, perennial ryegrass, German and Hungarian millets, white clover, redtop and Canadian and Kentucky blue grasses.

To have test made send two to four ounces (about one-half cupful) of the sample, carefully secured and representative of the whole lot, to the Bureau of Chemistry, Pennsylvania Department of Agriculture, Harrisburg. A fee of 25 cents for each test is required and this fee should be submitted with the sample in the form of a certified check, money order or cash.

Found It High.

"How did you find the medicines I prescribed for you yesterday?"

"Rather expensive, doctor."

BEAU BRUMMEL AND MISS VANITY, PAY ATTENTION.

Uncle Sam is still playing the role of elevator man, so far as prices are concerned, and luxurious garb and accessories in the clothing line, will hear Uncle say, "Going Up," again on May first.

This new law, unless repealed by a Congress that has finished its regular session, will be drastic in its scope and is called the "luxury tax." Furs, silk hosiery, footwear, nighties, lingerie, millinery, parasols, traveling bags, toilet cases, purses, fans, pajamas, silk shirts, cravats, house coats and bath-ropes are affected.

JEWELRY TAXED APRIL 1. And the luxury tax is not to be included in the sale price. It is to be paid plus the selling cost. It amounts to ten per cent. on the value of the article, over a fixed amount. Should a woman buy a hat costing \$20, the tax applies to \$5, or the excess over \$15, bringing the total price to \$20.50.

Beginning April 1st, jewelry is taxed five per cent. of its total value. This law will not be felt so severely as the patrons of clothing stores and shops will feel the chief luxury tax, which becomes effective one month later, under present plans. A full schedule, showing the list of taxable luxuries as provided for in Section 904 of the new law, is appended:

NEARLY EVERYTHING HIT. The statute reads that on and after May 1st, 1919, a tax equivalent to ten per cent. of so much of the amount paid for any article specified as in excess of the prices named when such article is sold by or for a dealer or his estate, for consumption or use, shall be levied, assessed, collected and paid.

(1) Carpets and rugs, including rugs, except imported and American rugs made principally of wool, on the amount in excess of \$5 per square yard;

(2) Picture frames, on the amount in excess of \$10 each;

(3) Trunks, on the amount in excess of \$50 each;

(4) Valises, traveling bags, suit cases, hat boxes used by travelers, and fitted toilet cases, on the amount in excess of \$25 each;

(5) Purses, pocketbooks, shopping and handbags, on the amount in excess of \$7.50;

(6) Portable lighting fixtures, including lamps of all kinds and lamp shades, on the amount in excess of \$25 each;

(7) Umbrellas, parasols, and sun shades, on the amount in excess of \$4 each;

(8) Fans, on the amount in excess of \$5 each;

(9) House or smoking coats or jackets, and bath or lounging robes, on the amount in excess of \$7.50 each;

(10) Men's waistcoats, sold separately from suits, on the amounts in excess of \$5 each;

(11) Women's and Misses' hats, bonnets, and hoods, on the amount in excess of \$15 each;

(12) Men's and boys' hats, on the amount in excess of \$5 each;

FURS TAXED TOO. (13) Men's and boys' caps, on the amount in excess of \$2 each;

(14) Men's women's, Misses' and boys' boots, shoes, pumps and slippers, not including shoes or appliances made to order for any person having a crippled or deformed foot or ankle, on the amount in excess of \$10 per pair;

(15) Men's and boys' neckties and neckwear, on the amount in excess of \$2 each;

(16) Men's and boys' silk stockings or hose, on the amount in excess of \$1 per pair;

(17) Women's and Misses' silk stockings or hose, on the amount in excess of \$2 per pair;

(18) Men's shirts on the amount in excess of \$3 each;

(19) Men's, women's, Misses' and boys' pajamas, nightgowns, and underwear, on the amount in excess of \$5 each;

(20) Kimonos, petticoats, and waists, on the amount in excess of \$15 each;

Title 9, section 900, imposes a tax of 10 per cent, payable by the manufacturer, importer, or producer, on sporting goods and games, liveries, hunting, shooting and riding garments and furs; a five per cent. tax on thermosatic containers; and a three per cent. tax on toilet soaps.

Section 902 puts a ten per cent. tax on works of art when not sold by the artist. Section 905 puts a five per cent. tax on the sale of jewelry, watches, and binoculars when sold for consumption or use.

General Lee's Kindness.

A humble countryman was driving a loaded wagon over a muddy road in Virginia. His team was light and progress was slow and difficult. At last his wagon sank in a deep rut and his struggling horses stopped. He had "stalled," hard and fast. Nothing he could do—yelling at his horses, whipping them, prying at his wagon wheels—would extricate him.

Meantime there were passers by in plenty. But it was war-time and most of them had on hand difficulties of their own. Underling officers pushed ahead of the luckless wagoner; cavalrymen rode by without apparent concern; and even privates afoot were too much engrossed to lend a helping hand.

But just then rode up an elderly gentleman of soldierly bearing and kindly face who proved to be "the noblest Roman of them all." At once he saw the difficulty and at once he dismounted, gave some suggestions, put his shoulder to the muddy wheels and helped the driver out to solid earth and sent him on his way.

Not until later did the grateful beneficiary learn that he had been aided by no less a personage than the Commander-in-chief of the Confederate army.—Kind Words.

In Trouble Again.

"Well, Henry," said the judge, "I see you are in trouble again!"

"Yessuh," replied the negro. "De las' time, Jedge, you rec'lect, you was mah lawyuh."

"Where is your lawyer this time?"

"I want got no lawyuh dis time," said Henry. "Ah's gwine to tell de troof."

—Subscribe for the "Watchman." —Subscribe for the "Watchman."

FARM NOTES.

—The success of a gardener largely depends upon his experience in handling garden soil, and his knowledge of what the soil contains. For a good garden the soil must be deep, mellow and friable, so that it will be crumbly when it is plowed or hoed.

In other words, the minute particles of soil must be granular, each holding its form and consistency. When such soil is wet, each particle is enveloped by a film of water which is retained for some time. The plant food is thus dissolved and this water-laden plant food is taken by the roots of the plants. The film-moisture around the soil particles may be better understood by dropping a marble in water. When taken out it will be seen that the marble is surrounded by film-moisture. This is what takes place when soil particles are wet. The finer the particles the more pore space between for air, and the better it will hold moisture, other conditions being favorable.

—The importance of a large per cent. of vegetable matter cannot be too strongly emphasized. There must be plenty of humus in garden soil—decayed vegetable and animal matter that makes up that dark, "springy" part of the soil. Where soil is low in humus manure must be applied, and green crops turned under. Or leaves, straw and rubbish may be applied to decompose and furnish the organic matter.

On the majority of soils commercial fertilizers may be used to good advantage. On many soils acid phosphate is especially beneficial. More phosphate is needed for beans, peas, turnips, melons, etc., under conditions prevailing on most soils where a heavy yield is expected. Nitrate of soda may be used to increase the supply of nitrogen; wood ashes or potash salts to supply the potash, in case it is required. Early preparation is necessary for best results in making the mechanical condition what it should be.

Rotating crops saves labor. For instance, after the crop of early potatoes is gathered the land will be already broken and in good tilth, and can be planted to corn, making two crops with one breaking of the land.

The destruction of insect life can be better accomplished by planting different crops each year. In fact, it is absolutely necessary to rotate crops in order to control insects and fungus diseases.

By planting different crops each year the humus supply is kept up on the different fields. As one kind of plant uses only certain food substances, it is obvious that rotation keeps the food substances on a balance. Growing the same crop on the same land year after year poisons the land, but by rotation the toxic substances are destroyed, thereby keeping the soil from becoming worn out.

Another reason given for the rotation of crops, is the advantage it affords to control weeds. A cultivated crop may follow a grazing crop or a grazing crop a row crop. But probably the most important reason for rotation is to conserve fertility. Some crops take all the fertility they use from the soil, others take a large part of their nitrogen from the atmosphere, the latter belong to the legume family, such as clovers, alfalfa, peas, beans, vetches, etc.

Still another good reason for rotation is that it helps to supply the plant with a regular income. The crops planted may be for stock. The man grazed the land may be planted in another crop. The animals may produce the income in milk, butter, pork, beef, mutton, wool, poultry, eggs, etc. Or a short crop, such as sweet corn, Irish potatoes, radishes, lettuce, etc., may be planted as a money crop, to be followed by a grain crop.

It has been estimated that a crop of red clover one year old contains from 20 to 30 pounds of nitrogen per acre in the roots. A crop of cowpeas is reported to have furnished 100 pounds of nitrogen per acre. It will readily be seen that a crop affording so much nitrogen is worth considerable consideration in a rotation.

As most of the nitrogen in the roots of the plants, the tops may in many instances be cut for hay or grazed and the roots turned for fertility, making such a crop of much value.

As an example of nitrogen in growing, non-legumes it may be well to mention an experiment at the Minnesota Experiment Station. That station found that there was a loss of 2000 pounds of nitrogen per acre when wheat, barley, corn and oats were grown for twelve consecutive years; two-thirds to three-fourths of this was the nitrogen used by the crops, but lost in other ways. The Ohio station also found that 300 pounds of nitrogen were gained per acre in excess of what the crop used when clover was included in a five-year rotation covering a period of ten years. When timothy, a non-legume, was used instead of the clover, nitrogen was lost from the soil even more than that removed by the crop.

It is a well-known fact that plants differ as to their habits of growth, type of root system, etc. Some plants have long, deep tap-roots, such as the clovers, peas, soy-beans, etc.; others have fibrous roots, as corn, wheat, oats, grasses; still others are tuberous, as the potato; the sweet potato, beets, turnips, etc., have bulbs or fleshy roots. There is advantage in rotation to follow a tap-rooted plant with a fibrous-rooted plant, and a fibrous-root