

Health and Happiness

Under these head lines will be continued a series of articles begun November 10. They have been compiled and edited with a view to progressive study and thought on subjects affecting our personal well-being.

Number 16.

DIPHTHERIA: ITS CAUSE AND PREVENTION.

(Continued from last week.)

IMMUNITY AND SUSCEPTIBILITY.

"By immunity we understand that condition in which an individual or a species of animals exhibits unusual or complete resistance to an infection for which other individuals or other species show a greater or less degree of susceptibility. Immune is from the Latin immunis, meaning exempt from tribute or free.

Immunity may be: (1) acquired, as when an attack of an infectious disease brings about some kind of change in the patient's tissues which protects him or renders him immune against further attacks of the same disease. (2) natural, when resistance has occurred naturally, and not through having the disease; this is for the most part, an inherited condition.

(1)—Acquired immunity may be of two varieties: (a) active, which results from an infection and is due to the production through an active process on the part of the one injected, of immunizing substances. (b) passive, which is established in an individual through the introduction of ready-made immunizing substances (such as diphtheria antitoxin.)"

IMMUNITY TO DIPHTHERIA.

Very young children are resistant to diphtheria. This may be due to substances transmitted through the milk of the mother and which may disappear after the period of nursing. From the second to the eighth or ninth year children usually are very susceptible after which susceptibility grows less, the greatest percentage of deaths occurring under five years old. After the fifteenth year the disease is relatively rare.

Why one person may have diphtheria and another, under the same conditions, escape is not definitely known. The presence of bacilli of low virulence in the throats of the latter may cause the development of antitoxin sufficient to protect, or it may be that in the former there is a lowered state of resistance to disease. It is also probable that the germs must be present in sufficient numbers before the disease is caused.

Diseased conditions of the nose and throat such as adenoids and enlarged tonsils appear to be predisposing causes in children. Spontaneous recovery (active immunity) is due to the formation of the specific antitoxin by the tissues of the patient. The duration of active immunity varies. Usually an individual has diphtheria but once yet second and even third attacks are known.

Temporary immunity may be given by an injection of diphtheria antitoxin. The immunity given in this way cannot be relied upon to last longer than three weeks after the injection. It is useful to prevent attacks after exposure to the disease.

DIPHTHERIA ANTITOXIN.

Animals injected with slowly increasing doses of diphtheria toxin or toxin gradually become immune to its effects so that they stand without harm what would be a many times fatal dose when first injected. This is due to the fact that the body of the animal produces an antitoxin which neutralizes the introduced toxin making it harmless.

Diphtheria antitoxin is made from the blood serum of horses, because the horse has a high degree of natural immunity to diphtheria toxin, reacts to this toxin by producing a very large amount of antitoxin in its blood and can be bled in large amounts without permanent injury.

A healthy horse is treated to small doses of toxin. The treatment goes on for six months or longer and when tested the serum of the horse is found to have a large amount of antitoxin; a gallon or more of blood is drawn from the jugular vein under the most rigid asepsis, allowed to clot and the serum bottled aseptically and preserved in a dark, cool place. This serum when injected into another animal or human being will protect it from the effects of diphtheria.

The antitoxin is standardized so that dosage may be controlled accurately. Its curative power or potency is measured in "antitoxin units" and is essentially the power of a certain amount of a standard diphtheria antitoxin to neutralize diphtheria toxin. A strong diphtheria antitoxin should contain from 800 to 1200 of these units to each cubic centimetre (1 cubic centimetre equals 15 drops approximately). The efficiency of diphtheria antitoxin is so well known that there should be no prejudice against its administration. It has caused a reduction of more than 50 per cent. in the mortality of the disease. That the fatality is not still further reduced is due either to the fact that not every case of diphtheria receives the antitoxin treatment, or that it is not employed soon enough, or that the dose has been insufficient. For protecting persons who have been exposed to diphtheria infection 500-1000 units is the average dose recommended.

For curative purposes the amount actually required depends on the virulence of the infection and the duration of the disease; 3000 units is the average dose recommended but 50,000 to 100,000 units have been given in grave cases with resulting recovery. The United States Public Health Service advises that the first curative dose be not less than 10,000 units. The physician, however, must be guided by the conditions in the individual case. Antitoxin is usually administered by an injection under the skin (subcutaneous) but about eight hours in time may be saved if it is injected directly into a vein (intravenous). In-

jection into the muscles, instead of under the skin, is also a time saver.

There are occasional accidents from administration of antitoxin, i. e., a child occasionally dies after inoculation but this is due to the fact that it is in the last stages of the disease, heart weak, etc., and the shock due to inoculation may have only hastened death a few minutes or hours. In other cases, a patient may show the same idiosyncrasies to administration of antitoxin that occasional patients do to ether or chloroform resulting in death. Some deaths are directly attributable to the fact that the serum of the horse is fatal to certain types of patients. The belief that antitoxin favors the development of diphtheria paralysis is no longer held; on the contrary liberal doses of antitoxin given early in the illness influence favorably the subsequent paralysis. Severe cases of diphtheria are likely to be followed by some paralysis in spite of even large doses of antitoxin. As has before been said, the time element in the antitoxin treatment cannot be too strongly emphasized. No time is so precious as that lost at the outset, in the treatment of diphtheria. If conditions are such that a positive diagnosis cannot be made early enough and diphtheria is suspected antitoxin should be administered anyway. For no harm has been done, should it not be diphtheria while, if the illness is diphtheria, time and possibly a life has been saved.

It is not to be forgotten that antitoxin does not destroy the bacilli but acts only on the toxin and its use justifies no relaxation in protective measures such as isolation of the diseased, quarantine and disinfection. The communicability of diphtheria and the fact that "carriers" of the germ result from contact with persons sick of the disease makes imperative the strict isolation of the patient.

A patient should not be considered harmless until his mouth, nose and throat are free from bacilli, a condition for which repeated bacteriologic examinations are necessary. A second, sometimes a third, negative examination is required by the Board of Health in certain places before the patient may be released from quarantine.

If it were possible to diagnose early every case of diphtheria, and to secure the strict isolation until throat cultures are negative, the number of "carriers" in a community would be greatly reduced. To accomplish this the co-operation of each individual is necessary and that no one may be ignorant of specific measures, rules issued by the United States Public Health Service will be published in the next issue of the "Watchman," April 20.

Business and Amity in South America. A high Brazilian official, speaking recently in Rio de Janeiro of the means of fostering cordial relations between Brazil and the United States, said that the will and spirit of a people were quite as important to understand as their methods of buying steel and shoes, remarks an editorial writer in the Christian Science Monitor. The student of South American conditions and people becomes conscious of an important racial quality lying below commercial and economic appearances. This quality is pervaded by sentiment and a regard for friendship. While it is true that the milrles and the peso "talk" in the southern countries often quite as plainly as does the dollar in the United States, it is also true that feeling and the regard for friends bulk much larger in business than they do in the North American Republic. Having a "friend at court" is almost equivalent to a certainty of securing what one desires, and in no part of the world is friendliness more to be lamented. Things go largely by favor, and one succeeds because he is liked quite as often for his friendly and cordial manner as for efficiency, or because of the quality of his merchandise. An editor of a large newspaper said that for years he had received invitations to buy paper in the United States; he had refused because he had been satisfied with the paper he had bought in Europe, which was suited to his French presses. Last year a son of an old friend entered the paper business in New York and asked him for his order. "Of course," said the publisher, "I could not refuse the son of an old friend. I am using his paper, though with considerable inconvenience and additional expense." A South American business man, who was in need of a certain machine, examined machines from two importers. One was ostensibly superior, and also cheaper, but much to the surprise of the importer of United States machinery, he bought the inferior and more expensive article. When asked the reason for this decision he frankly admitted the excellence of the goods from the United States, but added, "The agent of the French house is a friend of mine. I like that man, and the agent of the other company is not 'simpatico.'"

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Not one would advocate sentiment rather than achievement as a motto to be written on our banners of industry. Yet there is something humanly attractive about the South American's loyalty to friends as this loyalty is revealed in business affairs. If he loses in effectiveness he certainly gains in those elements of agreeableness which the Northern temperament sacrifices. The traveler in the Southern countries is prone to wish for these people greater attention to utilitarian and practical arts, but he dislikes to think of their losing entirely those qualities of sentiment which are so engaging and that gentleness which so often goes to make men great.

A Good Match.

A portly colored man entered the drugstore and looked around uncertainly. "Young man," he said to the clerk confidentially, "has you got any letter-paper and envelopes with flesh-colored borders?"

"Was it mourning-paper you wished for, sir?" inquired the clever clerk.

"You struck it disackly! But I disremembered the name. Gib me a box of it, if you please, sah."—Everybody's.

FARM NOTES.

The question of where the potato is indigenous and where introduced by man has never been strictly answered. It seems sure, however, that the potato is a native of the mountainous districts of tropical and subtropical America, from Chile to Mexico and even as far north as the southern part of Colorado.

Data concerning the known use of the potato for food is not very definite. It probably was first taken to Europe from Peru by Spaniards early in the sixteenth century and spread from Spain to Holland, Burgundy and Italy, though cultivated only as a curiosity in a few gardens and little known or thought of. In "The Complete Gardener," published in 1719, it is not mentioned.

As a food it was first used for pigs and cattle. Then, on account of its great yield, it was suggested that it might be useful for the poor and prevent famine, due to the failure of the grain crops.

As early as 1663 the Royal Society of London adopted measures to encourage its cultivation in England. It spread quickly in Ireland, but not until the middle of the eighteenth century did it acquire any real importance on the Continent of Europe. Of its first cultivation as a crop in North America even less is known.—New York Times.

—Treat Seed Potatoes.—The disinfection of seed potatoes by soaking in corrosive sublimate or in formaldehyde is recommended by the United States Department of Agriculture as a measure that will tend to improve the germination and lessen the danger of scab.

Such treatment is, on the whole, profitable, but has several limitations which should be clearly recognized to prevent disappointment. The object of disinfecting seed potatoes is to destroy the germs of scab and other surface parasites which might otherwise be planted with the seed and infect the new crop. Only surface infections are reached by this method. It is only effective against deep pits of common scab. Neither corrosive sublimate nor formaldehyde, as ordinarily used, will destroy silver scurf. Either one kill surface infections of black leg, but neither will reach the internal infections common in tubers from blackleg hills. Neither Fusarium nor late blight infection in potato tubers can be reached by any seed treatment, nor can any of the non-parasitic diseases of potatoes, such as mosaic, leaf roll, and curly dwarf, thus be prevented.

Clearly, therefore, the most important precaution against these diseases is to select clean, disease-free seed potatoes from healthy, vigorous plants, as determined by field inspection during the growing season and at harvest. Seed treatment should then be applied as an additional precaution. It will not be effective, however, if the soil where the potatoes are to be planted is already full of disease.

Soil conditions have an important relation to potato tuber disease, and many of these are widely spread throughout the country, and perhaps native to some soils. Common scab is favored by a neutral or slightly alkaline soil, and seldom gives trouble in acid soils. It, therefore, is increased by liming and by fresh stable manure, wood ashes, and alkaline fertilizers, such as nitrate of soda and ground, or poorly drained soils. Blackleg, on the other hand, is carried by infective seed. No potatoes showing a deep brown discoloration at the stem end should be planted.

Sulphur tends to prevent common scab. It is not a substitute for corrosive sublimate or formaldehyde, but is a good dryer for cut seed. Applied to scab-infected soils at the rate of 500 pounds per acre, it reduces the scab, but such heavy applications can not generally be recommended as profitable. Preliminary experimental trials are advised.

It is considered better to treat potatoes before they are cut into seed, especially if the cut seed is to be very small. Put into the solution all the potatoes it will cover and keep the batch covered by the solution for the period named under the treatment being used.

The formaldehyde treatment consists in soaking the potatoes for corrosive sublimate or formaldehyde, but is a good dryer for cut seed. Applied to scab-infected soils at the rate of 500 pounds per acre, it reduces the scab, but such heavy applications can not generally be recommended as profitable. Preliminary experimental trials are advised.

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The corrosive-sublimate treatment is more effective than formaldehyde, particularly against Rhizoctonia, or russet scab, and powdery scab. Corrosive sublimate is used at the rate of 1-1,000 for one and one-half to two hours. Dissolve 2 ounces of the salt in hot water and dilute to 15 gallons. This is a deadly poison. Use with great care. It must be kept in wood, porcelain, or glass vessels, as it attacks metal. Seed so treated, must not be used in the household or left where animals can reach it.

In using the corrosive-sublimate dip, it has been found that the solution becomes weaker each time it is used. The degree to which the disinfectant is taken out of the solution varies according to the amount of dirt on the potatoes, the character of the water, and the kind of container. For practical purposes it will be sufficient to add 1 ounce of dissolved corrosive sublimate to each 30 gallons of solution after each batch of potatoes has been treated. When this has been done four times throw away the old solution and prepare new solution.

To treat large quantities of potatoes set several barrels on a slightly elevated platform. Fit plug in a hole in the bottom of each barrel, fill with potatoes, cover with solution, let stand two hours, draw off solution, and pour into another barrel. Increase the number of barrels in proportion to the quantity to be treated.

Another method is to use a large wooden vat or trough, into which the potatoes in sacks are lowered by a rope and pulley and later hauled out, drained, and dried on slatted racks.

Seed potatoes may be treated several weeks before planting, provided they are not reinfected by storing in old containers or storage bins. Sprouted potatoes are injured by treatment, but will throw out new sprouts. In general, however, potatoes will not be injured by following the above directions. Many growers believe germination is improved by treatment.

FOR AND ABOUT WOMEN.

DAILY THOUGHT

Make it an invariable law to yourself never to mention your own mental distress. When you talk of them it is plain that you want either praise or pity; for praise there is no room, and pity will do you no good.—Johnson.

No feature of household decoration can do more to render a room attractive than the use of flowers. But the proper arrangement of flowers is an art, demanding study. The Japanese spend years in acquiring this art; but the average person gives to the arrangement of cut flowers no more thought than is given to the most unesthetic of household tasks.

In the first place, most people err in the matter of vases. A vase should be considered always in connection with flowers—not as an object of art by itself. Vases of distinctive colors should be used carefully; a neutral tint, green or glass vases are safest.

If you have vases of very positive shades, use them only for flowers with which they will harmonize. Yellow pottery, for example, is lovely if filled with yellow flowers or with a combination of blue and yellow flowers. Low yellow or purple bowls filled with pansies are a delight to the eye.

Do not hesitate to dispense with ornate vases and substitute for them the most inexpensive of flower holders. A gray ginger jar filled with dusty miller and sweet alyssum is a thing of beauty; the white of the blossoms harmonize perfectly with the soft gray jar. On the other hand, the most expensive of vases, in itself beautiful, may have its beauty nullified by an inharmonious arrangement of flowers.

Chianti bottles, ginger jars and gold fish globes make excellent vases. They are simple and good in their lines and furnish an attractive setting for almost any flower.

Another common mistake in arranging flowers is to overcrowd the vase. Never bunch flowers. Each should be put in the water separately to insure a good effect. A long strip of lead coiled to fit the bottom of the vases is the best device for keeping the flowers upright. It is not so expensive as the china or wire arrangements that can be purchased for the same purpose, and it has the further advantage of being malleable and easily squeezed into a vase of any size.

A pretty device for flowers is the Aaron's rod to hang on the wall. This is merely a stick of bamboo with holes cut between the joints. Water is poured into each opening and the flowers then set in. Trailing vines, clematis, honeysuckle, etc.—are exceedingly pretty in an Aaron's rod.

Hanging vases for the windows and corners of the room are very attractive, and are to be had in good colors and lines at small cost.

When mother makes her sugar cakes She lets me play at baking, to I roll the dough so smooth and nice, Then cut it neatly through and through With my own cutter—like a star Five little points, so sharp and straight, I think them mos' too good to eat.—Bye-Bye Cary Williams.

Many a good cook admits herself a failure when it comes to making an omelet. This simple dish is exceedingly difficult to make successfully, and unless one knows just how to proceed the omelet, instead of being light and fluffy, will be flat, heavy and unappetizing.

To make an omelet you must keep the pan for this purpose only. Do not wash it, but clean it out well with paper after use. If you need to make omelets of varying size keep a small and a large pan. It is more difficult to make a small omelet nicely in a large than in a small pan.

Have a fairly hot fire ready, melt some fat in the pan, just enough to grease it all over, draw it up, break the eggs one by one into a cup to be sure they are fresh; then place in a bowl and whip well. The mixing must be thorough or the white will set in streaks and not mingle with the yolk as it should do. The whites should be beaten separately, as is the custom of many cooks. This is only needed when making an omelet soufflé.

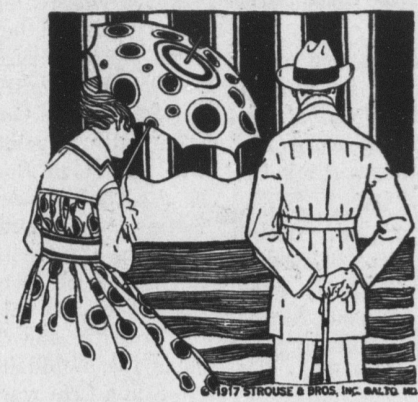
Add salt and pepper, and if liked a little chopped parsley, and should a taste of onion be liked a half teaspoonful (to two eggs) of onion juice. Now pour the mixture into the hot pan. It should cover it thinly. Shake about well over the fire. An experienced omelet cook will not need to use a fork, but will turn the omelet one half over the other by means of a shoving forward sort of shake of the pan.

The side of the egg mixture which touches the pan will cook quicker than the other, but when folded the inner heat will cook it still more in the few seconds which elapse between the cooking and serving of the dish. Place on a hot dish and serve immediately.

Some cooks roll the omelet into pancake form by means of shaking the pan; others merely fold it. The omelet should be flaky and moist inside and just set—not in the least hard on the outside. As a rule the fault of the making lies in inefficient mixing of the egg and over cooking. When a fancy omelet is needed dice of ham may be stirred in or mince, spinach puree, stewed mushrooms or kidneys, or cooked asparagus tops placed on one half and the second half folded over.

Miss Edith Benham, social secretary at the White House, is a born diplomat.

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