ther operations. Two of the folded pieces that are to form a fan leaf are taken, and one is laid face downward upon a piece of wood and well pasted. The sticks are then laid accurately upon the pasted surface so that each one occupies the center of each alternate radiating division, and with a brush the artisan pastes the woodwork which is to be covered with the remaining piece of paper. The latter he now applies accurately, crease against crease, and after firmly pressing the entire surface so that it may adhere to the pasted paper, he folds the fan up again, pressing it to see that it takes the proper form. After several foldings and unfoldings, and sundry pressings where there may be imperfect contact between the papers, the fan so far completed is set aside to dry. The finishing processes consist in trimming the outer edge, applying the outside pieces, or "panaches," and riveting the whole together at the handle. The panaches are sometimes most tastefully decorated with incrustated and inlaid work and with carving or lacquer; but in the cheaper fans they are either of plain bamboo or are finished with lacquer of different colors.

Generally speaking, the Japanese fan leaves are not so elaborately or richly decorated as those of the Chinese or other nations. For the most part, they are covered with some simple and graphically delineated figure subject or with birds and flowers. The common fans have usually contrasts of color dashed across them, with the moon, the sun, a bird, or a flower, cleverly represented. Landscapes, sometimes expressive of the seasons, are to be seen on both wood and paper fans, painted with considerable force and delicacy.

Origin of the Names of Fabrics.—About the year 1329, the woolen trade of England became located at Worsted, about fifteen miles from Norwich, and it was at this place that the manufacture of the twisted double thread of woolen, afterward called worsted, was first made, if not invented. Linsey-wolsey was first made at Linsey, and was for a long time a very popular fabric. Kerseymer takes its name from the village of Kersey and the mere close by it, in the county of Suffolk. We have to thank Gaza, in Palestine, the gates of which Samson carried away, for gauze or gauze. Gaza means "treasure," and precious to the fair is the tissue which covers without concealing their charms. Voltaire, wishing to describe some intellectual but perhaps dressy woman, said, "She is an eagle in a cage of gauze." Muslin owes its name to Mossoul, a fortified town in Turkey in Asia. Tulle obtains its name from that of a city in the south of France. Travelers by rail in Brittany often glide past Guingamp without remembering that it was here that was first produced that useful fabric gingham. Damask derives its name from the city of Damascus; calico from Calicut, a town in India formerly celebrated for its cotton cloth, and where also calico was printed; cambric, from Cambray, a town in Flanders where it was first made; and tweed from a fabric worn by fishermen upon the river Tweed.

Though modern lace bears many titles, and, from the names of the varieties, seems to come from many countries, yet Belgium chiefly monopolizes the industry, and the town of Ypres gives the greatest annual yield. It is there that what is called "Valenciennes" is exclusively made, and 25,000 men are employed at an industry which returns a million of money annually to the country. Valenciennes is supposed to be so called from the town, which now no longer produces it. On the other hand, "baptiste" bears the name of its original inventor, Baptiste Cambrai, who lived and worked at his loom more than five centuries ago. The texture which he constructed differed greatly from the present fabric, and, by a curious coincidence, it is Valenciennes that chiefly supplies the world with baptiste.

The Bast Industry.—The preparation of the inner bark or bast of the lime or linden tree for matting and other purposes forms an important branch of Russian industry, more especially in the governments of Wiotka, Kostroma, Kasan, and Nischni-Novogorod. A large amount is exported to England and Germany, and some of the inland uses to which the material is put is the manufacture of grain sacks, box covers, wagon covers, carpets, sieves, sails for canal boats, and shoes.

In May and June, when the flow of sap facilitates the separation of the bark, the peasants repair, with their wives and children, to the forests to obtain the material. The lower part of the bark is generally prepared for roofing purposes, being heated and pressed into the form of plates. The bark of the upper stem and the branches is bound in bundles and put in water, where it is left till September. Then it is dried by heat, divided into thin bands, and woven into mats of various strengths, weighing from two to six pounds. The strongest of these are sold in Nischni-Novogorod at about \$24 a hundred. The yearly production of mats is estimated at 14,000,000, representing value of \$1,600,000. Adding other articles made of linden bark, we have a sum of \$2,400,000. For this, no fewer than 1,000,000 linden trees are hewn annually—a fact rather unpromising for Russian forests.

The Flower Industry of the Scilly Islands.—The inhabitants of the Scilly Islands have had many occupations. At one time they lived as wreckers and at another period they sold early potatoes at a great profit. When this latter trade was killed by the competition of the Channel Islands, they betook themselves to the flower industry. For the last ten or fifteen years the cultivation of flowers, chiefly narcissi, has ousted almost every other occupation in the five islands. In St. Mary's alone, nearly a quarter of the cultivated area of the island is devoted to flower growing. In the month of February of last year 322 tons of flowers were exported from this one island. About 200 boxes go to the ton, and each box contains from three to twelve spikes of flowers.

In St. Mary's there are about twenty-five glass houses, which vary in size from 210 by 20 feet downward. The forcing is generally over early in March, when the outdoor crop of flowers is sufficiently large for export purposes. As soon as the forcing of the narcissi is over, the houses are filled with tomato plants, and for months there is a continuous supply of this popular fruit. One of the most curious experiments in the way of forcing houses is that of a movable glass structure, about 40 feet long by 12 feet wide, on rails and with a heating apparatus attached to it. This house is moved from one end of the field to the other and the beds are

so arranged as to fit the house. Two or three weeks in one position force a very large percentage of narcissi into flower, and after the flowers are cut, the house is easily shifted to another bed, and so on.

To such an extent has the cultivation of the narcissus monopolized the attention of the islanders that nearly all of the vegetables now consumed in Scilly have to be imported from the mainland. It is estimated that the islanders, despite the high cost of transportation, now make \$50,000 per annum as profit from the flowers; moreover, the trade has more than quadrupled during the last five years.

HOW TO PREVENT TYPHOID FEVER IN RURAL DISTRICTS.*

By HARVEY B. BASHORE, M.D., West Fairview, Pa.

TYPHOID fever is the plague of the country districts. In a certain locality in Michigan where accurate statistics were kept it was found that in an area in which the people used well water there were just twenty-six times as many cases in proportion as there were in a city district all of whose inhabitants used a Lake Superior water. In Pennsylvania I think that the average is fully as high, at least it would reach ten to fifteen times more for the country than for the cities.

There is no longer a question that the prevalence of this rural typhoid arises from the fact that the population depends upon polluted well water, and that the wells are infected from privies which at one time or another have held typhoid excreta and infected the surrounding ground water.

Wells might not be so bad were it not for the fact that the ground water infected with typhoid purifies very slowly.

To eliminate this disease it is plain that we have to eliminate one or the other means of infection, either the well or the privy vaults which have poisoned the waters.

It will be a hard and thankless task to get people to give up their privy vaults and use earth closets, and it will be a matter of many years' teaching before they do it.

On the other hand, changing the water supply is comparatively easy, and meets with more general approval. A good many of the small villages are already working in this direction by attempting to procure a public supply from some neighboring spring, and by this means they hope to meet the difficulty; but a public supply, such as is generally furnished to small towns, very often becomes polluted, and the danger is worse than ever. Then, too, a public supply is comparatively costly.

There is another way, however, to bridge the difficulty successfully and cheaply, and that is by substituting cisterns for the old wells. By this means typhoid fever may be eliminated more quickly and more thoroughly from rural districts than by any other method.

The problem of using cistern water has been carefully studied, and we are able to tell just exactly the size of the cistern, the amount of collecting surface, etc., necessary for any given family, calculated for the known rainfall of the district. For example, if the roof surface contains one thousand square feet and if the rainfall is thirty-seven inches, about twenty thousand gallons will be collectible annually, which at ten gallons a head daily is more than sufficient for the wants of an ordinary family. For a yearly yield of this amount the cistern need not be excessively large, for the rain does not all come down at once. A cistern five feet deep and ten feet in diameter will hold about two thousand gallons. This will probably last more than a month, and before it is exhausted there will likely be more rain to add to the supply, for it is rare that a month passes without some precipitation.

If we rely on the cistern to eliminate typhoid fever, we must pay some attention to its construction, for only on its ability to keep out soil water rests the superiority of the cistern over the well. If carefully made of bricks and thoroughly cemented, it will be proof in most cases against this contamination from the soil. I know personally of such a cistern which was made twenty-five years ago and is still as good as ever.

Cistern water generally has a peculiar flavor arising from the decomposition of vegetable materials which get into the water from the collecting surface. This may be avoided in a great measure by keeping the cistern clean and by a "cutoff," so arranged that the first washings from the roof are turned into the street; or, if thought necessary, the water may be filtered.

In order to filter cistern water all we have to do is to build a partition in the cistern, with several holes at the bottom, connecting the two sides. Into the one side is placed the filter, consisting simply of three or four feet of coarse sand or of layers of gravel, polarite and sand. Into this side the roof leader empties and into the other dips the pump. By this means cistern water may be made as palatable as any other water, and obtained at much less expense.

That the use of cistern water will prevent typhoid fever in rural districts is not hypothetical, but a fact proved by experience. In a certain county in Pennsylvania, on account of an underlying limestone formation, there is a great inability to get good well water, and as a consequence the greater part of the community uses cisterns. In this region a careful study of the records of the resident physicians has been made, and it was found that there was a marked absence of typhoid fever. One of the towns in this place, well known to the author, will serve as an example of all the rest. This town of twenty-two hundred inhabitants has for many years depended almost exclusively on cistern water, and as a result typhoid fever is practically an unknown disease. In the last twenty years, so the oldest resident physician tells me, there has not occurred one case of typhoid fever among those exclusively using cistern water. In all this time, moreover, there have been very few cases of fever in the whole town, and every one has been traced to the use of well or spring water. The exact record for the last five years is three cases of fever, which the attending physician would not call "true" typhoid. Taking these cases, however, to be typhoid, and counting one death for every twenty sick, it would make the death

rate of this community something like one per ten thousand—probably the lowest, at least one of the lowest, typhoid death rates ever attained.

Here, then, is a town where the typhoid sick rate is hardly worth considering and where the death rate is almost nil.

If all rural dwellers would give up their wells and resort to the cistern, the story of this one town would be repeated everywhere and rural typhoid would become an unknown disease.

SOME QUESTIONS OFTEN ASKED ABOUT DRINKING WATER, AND THEIR ANSWERS.*

By B. C. LOVELAND, M.D., Clifton Springs, N. Y.

IN the routine of a doctor's life a great portion of his time is taken up in answering questions, and sometimes it requires much patience and the exercise of the greatest tact and ingenuity to give answers which will either satisfy the patient's curiosity or convince him of the wisdom of the order that may be the subject of his inquiries. In the present day, when the practice of medicine has become so far removed from the old time practice of "physic," and the physician has to depend on his knowledge of physiological law, and the thoroughness with which he enforces obedience to physiological law among his patients marks his degree of success, the questions elicited by the regulations he may impose may be of great importance, for the patient to-day is a rare one who will go ahead and unquestioningly obey the advice of the physician, and who will not, like the proverbial boy, always have his mouth set for "Why?" In trying to induce my patients to drink the amount of water, nine or ten glasses a day, regarded as a physiological necessity by the medical profession, I have been met with a host of questions, mostly raised as objections, some samples of which, with their answers, will comprise this paper, and my hope is that they will help some one who is trying to secure obedience to this part of nature's requirements.

"Will not water make me fat?" It is a well-known fact that most people dread becoming unduly fat, and this question is a very common one. The answer is yes and no. Water will make you fat if it increase your ability to assimilate food, if by drinking more water you are enabled to take into the system more of the food that you eat. In no other way will it make you fat. There is evidently no fat in water. It will not make you fat if your digestion is perfect already, and you do not eat a great abundance of such foods as produce fat. In fact, I have often seen people reduce fat, who needed to do so, by drinking a large quantity of water and using a properly regulated diet.

"Will not so much water strain my kidneys?" is another question which is asked almost as frequently as the preceding one. The answer is simple. Water does not strain the kidneys any more than more help in building a house strains the workmen. The excretion of the kidneys is twofold—water and certain other materials which are the result of the wear on the tissues. This water is the vehicle in which are carried in solution all the ingredients of waste tissue which the system is trying to get rid of. The flow of water through the kidneys to the bladder simply furnishes a current in which to carry off the dissolved detritus; therefore the drinking of a physiological amount of water cannot strain the kidneys.

"If water will thin my blood when it is too thick, will it not make it too thin if I continue to drink so much?" This question is often asked by patients of plethoric habit and lithæmic tendencies whom I am trying to impress with the necessity of getting the system thoroughly washed out, and the question seems a logical one. The answer, however, makes it plain. The blood craves a certain percentage of water; that certain percentage it will take up and hold, provided a continual supply is being added; but with the blood pressure and circulation automatically regulated by the mechanism which is called the sympathetic nervous system, and with the ready outlet afforded by the kidneys, all water taken in above the amount required to keep the blood at its normal proportion of fluid and solid is passed on, through, and out, and does its duty simply by washing the system of its impurities. It is often the case that water given in free quantity to a patient suffering from anemia so assists the digestion that it will help thicken the blood, while in a person of plethoric habit the action is quite the reverse.

"Will drinking a large amount of water continuously produce catarrh of the bowels or bladder?" This question has been seriously asked by patients, from the fact that a person unaccustomed to drinking the physiological amount of water finds the first effect of drinking such an amount to be the necessity of a frequent evacuation of the bladder, and not infrequently it may also cause looseness of the bowels. But we find by experience as well as by logic that the use of such an amount of water as is a physiological necessity does not produce catarrh of the bladder, but rather helps such troubles by so diluting the urine as to render it less irritating, thus giving nature a chance to cure the trouble. And not infrequently catarrh of the bowels may be due to an insufficient elimination by the kidneys, in which case the bowels attempt to take up work left undone by the kidneys, and the expression of this effort is indicated by the catarrh, which will be relieved by drinking a sufficiently large quantity of water.

"Will not drinking water make me perspire unduly?" Drinking water up to the physiological amount in the case of a person who has not perspired for years, owing to a lack of sufficient water, may temporarily produce excessive perspiration, such perspiration lasting only, like the flushing of the kidneys, until the system has been relieved of the poisons that can be excreted in that way. In other words, free action of the kidneys and skin, following the use of a normal amount of water when the patient has been for a long time deprived of that amount, is only Nature's expression of joy at having once received her deserts.

"Will not cold water chill my stomach and thereby cause harm?" The reply to this question is, Unduly cold water might: ice water, for instance; but water at a temperature making it pleasant to drink, say from 45° to 60° F., will not chill the stomach. An illustration from nature is shown in the fact that nearly all our

* Read by title at the Philadelphia meeting of the American Public Health Association and published in the Medical Record.

* Medical Record.

springs are cold, very few hot. Most of the water we drink should be cold; hot water should be used for other purposes than to supply the system with the necessary fluid.

But my patient says: "Water drinking gives me gas on the stomach, and if it does so I should not drink it, should I?" Why not? There is no gas in water. If gas appears in the stomach, or is noticed in the stomach after drinking water, it simply shows that gas was there before, and the water, displacing the gas, causes more or less eructation, and is frequently one of the best methods to relieve the stomach of gas.

"Doctor, if water turns sour on my stomach, I suppose it is a sign that water disagrees with me, isn't it?" Water does not turn sour in any one's stomach. It may bring to the knowledge of the patient the fact that an acid condition exists in the stomach, in the same way that it brings to him the knowledge of the presence of gas in the stomach, but it will not produce acidity any more than it will produce gas, and if acid is in the stomach, it was there before, and instead of making it worse, water will manifestly make it better. The more water we put into vinegar the less acid it is, and the more water we put into the stomach the less concentrated will be the acid, be it fermentation acid or not. Consequently, the answer to this question is that it is not a sign that water disagrees with a person, but a sign that something else needs attention, and the water is not contraindicated.

"Will not water, drunk at meals, retard digestion?" In a majority of cases the answer will be, No. It does not retard digestion unless it is drunk in undue quantity, and used as a means of washing the food down, to save the labor of properly masticating it and mixing it with saliva. A moderate quantity of water in most cases aids digestion by increasing the fluidity of the contents of the stomach, and thereby favoring the admixture of the gastric fluid with the food.

"Shall I drink hot or cold water?" The use of hot water is valuable when there is pain or distress in the stomach, and should be then favored. In the case of a delicate, sensitive stomach, when the patient cannot be induced to drink the necessary amount of cold water, it is often easier to get him to take it hot, but for general purposes most of the water drunk should be used cold, or cool, for the tonic effect of cool water on the stomach is greater than that of hot, just as its tonic effect on the skin is greater.

"I should not drink water, should I, unless I am thirsty?" The reply to this question is that the lack of thirst in a grown person is no indication of his need of water or not. A child is always thirsty, and we should be thirsty at proper intervals, so that the appetite would be a guide, if we did not, from preoccupation or some other cause which makes us inattentive to the impulse, neglect it, until we find it often absent altogether. When such a condition exists, manifestly thirst is not to be regarded as an indication of the patient's need, for many patients say they are never thirsty.

Several of the questions asked and answered in this paper owe their origin to theories that have come down from our ancestors in medicine, and perhaps from our grandmothers, who were not our ancestors in medicine. The absurdity of the old time notions about water may be well illustrated by the following extract, on the medical view of the use of water about three centuries ago, taken from *The Hospital*:

"It needed a very bold man to resist the medical testimony of threecenturies ago against water drinking. Few writers can be found to say a good word for it. One or two only are concerned to maintain that 'when begun in early life it may be pretty freely drunk with impunity,' and they quote the curious instance given by Sir Thomas Elyot in his 'Castle of Health,' 1541, of the Cornishmen: 'Many of the poorer sort, which never, or very seldom, drink any other drink, be, notwithstanding, strong of body and like and live well until they be of great age.'

"Thomas Cogan, the medical schoolmaster of Manchester fame, confessed in his 'Haven of Health,' 1589, designed for the use of students, that he knew some who drank cold water at night or fasting in the morning without hurt; and Dr. James Hart, writing about fifty years later, could even claim among his acquaintance 'some honorable and worshipful ladies who drink little other drink, and yet enjoy more perfect health than most of them that drink of the strongest.' The phenomenon was undeniable, but the natural inference was none the less to be resisted.

"Sir Thomas Elyot himself is very certain, in spite of the Cornishmen, that 'there be in water causes of divers diseases, as of swelling of the spleen and liver.' He complains oddly also that 'it flitteth and swimmeth,' and concludes that 'to young men, and them that be of hot complexions, it doeth less harm, and sometimes it profiteth, but to them that are feeble, old, and melancholy, it is not convenient.'

"'Water is not wholesome cool by itself for an Englishman,' was the version of Andrew Borde—monk, physician, bishop, ambassador, and writer on sanitation—as the result of a life's experience. And to quote the 'Englishman's Doctor':

"Are enemies to health and good digestion,
Both water and small beer, we make no question."

"But the most formal indictment against water is that of Venner, who, writing in 1622, ponderously pronounces: 'To dwellers in cold countries, it doth very greatly deject their appetites, destroy the natural heat, and overthrow the strength of the stomach, and consequently, confounding the concoction, is the cause of crudities, fluctuations and windiness in the body.'

Capt. McCullagh, chief of the New York police, according to *The Electrical Engineer*, of New York, has submitted to the police commissioners a complete system of police inter-communication by means of telephonic posts connected to the police stations. He proposes to erect, in every fifth street running from east to west, at every street corner where an avenue crosses, an ornamental iron booth containing a telephone in connection with the police station. The policeman patrolling the streets from east to west would in that manner always be within three blocks of a telephone post, and thus be able to communicate easily with the station, either to transmit reports or to receive instructions.

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