

The Conservation of Rural Health

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This paper is a health message for people in the country and small towns. It is based on information gathered by persons who have had opportunity to study rural conditions in Nebraska, visiting thousands of homes in different parts of the state. Among those who have contributed are: State food inspectors, commissioners of public health, city health commissioners, several physicians with country practice, many farmers and rural teachers, and the dean of the medical college of the University of Nebraska. As a result of these observations and experience therewith, certain specific things that should prove helpful in improving rural life are herein recited. They are given without bias and should be so considered.

The striking thing in the development of public health in the United States, and apparently so in Nebraska, is that the country is not keeping pace with the city.

It is evident, also, that the country presumes too much on its healthful conditions, and fails to develop certain advantages which it has over the city. Let it be understood that Nebraskans have better than average health, a fact worthy of praise, but that our pride should not serve to prevent the best possible conservation of life. It should not be our purpose, therefore, to lead other states, but to become as healthy as possible, knowing that human health and life are the state's greatest resources. Let the ideal be the development of the largest possible number of healthy persons capable of rendering efficient service, physically and otherwise, and fit to bear the new generation. Viewed in the light of conservation, bad health is not a resource but the opposite; good health, the normal condition, is always at a premium.

Most attention first given to conservation was to the physical resources, then to the betterment of strains and breeds of crops and farm animals. This bore fruit in many lessons concerning life which are now known to apply in some measure to the conservation of people. Today more than usual consideration is manifest for the development of public health and ability to work. Health is promoted by many popular and scientific organizations. State departments deal directly or indirectly with the conservation of most vital resources, including man. The federal government is about to establish a department of public health. The new turn in conservation is in order and timely, for reliable authority places the number of dangerously sick persons in the United States at about 3,000,000 and the annual deaths at about 1,500,000, of which more than 600,000 are by disease nearly wholly preventable. The economic loss from negligence resulting in such a death rate represents a vast sum. Good authority has placed the national loss from preventable sickness, preventable death, and the necessary care demanded therewith at about two billion dollars a year. It is plainly evident that too many people are sick in the United States, causing such an expense and requiring so much time in the way of care and medical treatment.

The way to check a part of this loss of time and life is being found. Students of the subject say that sickness is reduced, the death rate decreased, and the average length of life prolonged about in proportion as individuals and the public practice the principles of personal hygiene and sanitation. So, it appears that the great need of this time is a more definite and reliable knowledge of the cause and prevention of disease.

CAUSE OF DISEASE

Only a short time back in history law-giving, religious ceremony, and healing were practiced by one and the same individual. Then practically nothing was known of the cause, and consequently very little of the prevention and treatment of disease. During the past century, and the past twenty-five years especially, scientists have given much time to the investigation of diseases as produced by natural causes. The microscope made it possible to study the minute forms of life and determine their relations to higher life. Such investigation gave a new conception of many diseases, in which the cause is found to be in the lower forms of life, such as bacteria and minute animal parasites, that gain access to the body and feed upon it when and where conditions are favorable. Not all bacteria are of the disease-producing kind; in fact

many of them do a beneficial work, especially in the field of agriculture. Most diseases that spread from person to person are said to be contagious because they are catching. Society finds it necessary to guard against the spread of such by the use of disinfectants, in which the germs are killed, and by quarantine, in which the sick are isolated for a safe period of time.

Though there are many disease-producing organisms, not all of them have been studied in detail. Certain ones are known to cause specific diseases such as cholera, yellow fever, scarlet fever, diphtheria, measles, chicken-pox, whooping-cough, tonsillitis, mumps, syphilis, tuberculosis, etc. Put in a simple way, it may be said that our bodies represent the soil or ground and the germs the seed, which, if it finds a suitable place to grow and multiply in the body, does so, thereby causing a particular kind of disease.

The following, if done, would assist in reducing the amount of sickness and death by contagious diseases:

1. Cleaning up the farmstead and thus destroying filth, the home of specific germs.
2. Preventing the spread of germs from host to host.
3. Increasing the resistance of the body to germ infection through proper attention to diet and elimination.

A knowledge of contagious disease is giving rise to public sanitation which is rapidly gaining prominence in the various civilized countries. The United States succeeded with its wars in Cuba and the Philippines, and with the Panama canal chiefly because of sanitation. Yellow fever and malaria especially were stamped out by the use of scientific knowledge. No one will deny the wisdom of cleaning up Cuba and the Philippines; but why not apply sanitary knowledge of such importance to our own situation in the interior of the United States, especially in the rural districts? It would make the people healthier, and prolong their lives from ten to fifteen years.

It is important to know how disease gets into our bodies, or, in other words, how it is transmitted.

MEANS OF TRANSMISSION

Transmission or spread of disease-producing organisms is mainly through air, water, food, and by insects. The fly and mosquito play a large part in spreading tuberculosis, typhoid, and malaria. In some diseases transmission is mainly by contact of persons; to be more exact, by the contact of parts of their bodies. Some diseases are transmitted more in one way than another; consequently they are known as airborne, water-borne, or food-borne diseases, etc. Knowing this, one should guard against infection from the different sources.

It should be more generally understood that a person suffering from a contagious disease, such as tuberculosis, typhoid, or syphilis, may become a menace to society unless the necessary safeguards are observed. He is unclean, and therefore a probable source of danger.

SANITARY WATER

Drinking water of the farmstead should be guarded with extreme care, for it may become the leading medium through which disease is carried to the body. Attention is paid to the kind of water supplied to farm animals, for a good quality is necessary to produce health and a rapid growth. Some farmers argue against pond water and polluted stream water for stock. Much of this is well-founded, for it is good business. Be that as it may, we are sure that farmers should consider the water problem as having great importance as a factor in human health. As a rule, the domestic water supplies of Nebraska are obtained from wells. It is purer than that from streams, lakes, and most other sources. Furthermore, the well water supply of our state is one of the best to be found in any country. Notwithstanding this fact, there is need for improvement at many places. A considerable number of wells are located on either alkali or hard-water formations whereas near by, and sometimes on the same farm, supplies could be secured of better quality. It is the duty, therefore, of the farmer to seek out the best possible supply of water, getting that which is most ideal from the standpoint of health. The leading thing to guard against in most wells is organic pollution from slops, garbage, barnyards and privies. A better knowledge of the nature and source of well water would serve to show the cause of such pollution. Briefly stated, the rain water, except which runs off, soaks into

the ground and percolates downward to the water table. Below this the subsoil is completely saturated, and the water moves slowly in the direction of the lower land, where it may come to the surface in the form of seepage or springs. During its percolation and slow underflow in the ground, the water gathers up more or less organic matter, including germs of disease, if they are present, and may carry them to the well. The well is an artificial opening in the ground extending down to and below the water table. The more water used therefrom the greater the movement to it by underflow. The following statements are intended to be of use in making well water more sanitary:

1. The privy or cesspool should not be placed too close to the well. The distance can not be definitely given because of differences in the texture and structure of the ground. In many places privies and wells are not more than twenty-five to fifty feet apart. Such situations should be regarded as positively dangerous unless the well is deep and the subsoil very close textured. The only safe practice is to widely separate the well or sources of water from the place in which is placed the most dangerous of matter, namely, the excreta of the human body. The deeper the well the less the danger from this source, as a rule.

2. Wells should be placed on higher ground than farm buildings, lots, and privies, especially, if possible. This gives surface drainage away from the well and not to it. A better rule than this, since many farm homes are on valley and upland plains, is to locate the well up-valley or up-plain from the house, lots and privy. In this way the underflow, extending with the general slope of the land, comes to the well before being polluted. To meet this condition, most wells in the state should be west or northwest of the house and outbuildings. This is because the general slope and drainage, both surface and underground, is eastward or south-eastward. The water, if polluted while passing under the outbuildings and lots, has ample time to purify before reaching the next farmstead on the plain. Often the general unqualified statement is made that wells should be placed on higher ground than the rest of the improvements of the farmstead. Such a rule would not hold good at all points on valley sides, as along the Republican and Niobrara valleys, where such a location would not prove feasible because of a lack of water at some places.

3. Open wells should be cleaned frequently for the purpose of removing any dangerous matter that may have fallen into them or blown into them. Closed wells are safer than open wells.

4. The ground should be graded up around the well to carry the surface drainage away from it. Furthermore, the opening should be tightly covered to prevent the intake of excreta from birds, chickens, etc. This will also guard against the entry of mice, rats, frogs, and rabbits, and the unsanitary effects resulting therefrom.

5. In most parts of the state the water is in sand beds called first, second, and third water, etc., and separated by thin clay layers. The first water at places is more alkali than the second or third water. It is also apt to contain more organic pollution, being on that account less desirable for drinking purposes. It is recommended, therefore, that the second, third, or lower water be used when available.

It is positively known from many examinations that too little care is given to the conservation of healthful water supplies. In many instances farmers are using water from wells in which are remains of dead animals. In some cases the hair from these being brought to the surface by pumping or in the bucket is apparently not sufficient evidence to indicate the possible presence of an animal in the well. Chickens and geese on some farms have access to the covering of the well in which the boards lie loosely. Many wells are not graded, thus receiving a portion of the surface drainage from yards and lots, as the case may be. In a few places this drainage is from manure piles on which have been thrown human excreta, making a dangerous situation.

Disease is also spread by careless methods of using drinking water supplied from sanitary sources. Germs of the sick are carried to new hosts by drinking in common from buckets, dippers, cups, etc. Most communities have patients suffering from tuberculosis, and the contact of their lips with the cup or other vessel is apt to leave germs thereon. The next person using the cup may receive the germs into his body. A knowledge of hygiene and sanitation should be sufficient to cause us to refuse to accept this risk or chance of becoming infected. The "old oaken bucket" from which tramps and all others could drink to their mutual danger has no virtue