

Afternoon

Geo. H. Freeman, M. D., Superintendent, St. Peter State Hospital: I think we will start this meeting by just going down the list of questions which we received and asking somebody to discuss them. I think some of them were wonderful questions, and should bring out a real discussion.

The first question that we have—I do not know who submitted it—is: What is the most satisfactory and effective disinfectant to use on terrazzo floors?

W. L. Patterson, M. D., Superintendent, Fergus Falls State Hospital: We have been using a lot of hypochlorite. I do not know how effective it is, but they make it in the laundry. There is plenty of it. If it was not used on the floors it would probably be wasted. It is as cheap as anything and possibly it may be as good as anything.

Dr. Freeman: I might ask you, Doctor, how long you have used it and if hypochlorite, having free chlorine in it, would not eventually have a bad effect on the floors?

Dr. Patterson: The tile manufacturers claim it won't hurt the cement and won't hurt the tile. We use it on terrazzo floors. We have used it five years.

Dr. Freeman: Do you know what per cent you use?

Dr. Patterson: No; I do not. We do not use it full strength. It is made in the laundry, where of course they have to have it. That was the reason we began to use it because we could get it so cheap.

Dr. Freeman: Has anyone else any suggestions on this?

B. F. Smith, M. D., Superintendent, Willmar State Asylum: There are a number of different preparations for use on terrazzo floors, which I think have a paraffin oil base. After that has been used I think perhaps the hypochlorite would not affect the floors.

For ordinary cleansing and disinfecting purposes, I think plenty of soapsuds is as good a disinfectant as one can use. If plenty of soapsuds are used, one should not need any disinfectant solution for the floors.

A terrazzo floor, even if it has not received a coating, will, after it has been laid some time, gradually take on a polish of oils that makes it impervious to these disinfectants, no matter what you use. I think all terrazzo floors should be treated with a commercial preparation.

G. A. Merrill, Superintendent, State Public School: That should be done when they are first laid.

A. F. Kilbourne, M. D., Superintendent, Rochester State Hospital: I should think soap and water was as good as anything. Floors, after laying, are treated with a hardener.

M. R. Verle, Superintendent, School for the Blind: Don't you find that when you wash the floor with soapsuds it leaves a soap film on the floor which eventually makes it rather dark and unattractive?

Elizabeth McGregor, Superintendent, Gillette State Hospital: Not if properly rinsed. Soap is the best cleaner for a marble base, soap and elbow grease. We wash our floors with soapsuds and rinse them in clear water.

Mr. Vevele: There are certain powders that can be used that have stronger cleansing properties than soap and will give better results, especially if you do not have an ample supply of elbow grease. There are a number of these powders under different trade names, which leave the floor clean and bright. I believe that when soap is used constantly it has a tendency to leave a film of soap and to darken the floor unless the floor is carefully rinsed with clear water. To secure this rinsing requires constant attention and supervision.

Dr. Freeman: The second question evidently comes from a prison or correctional institution. What methods are used to clean woolen clothing of prisoners? I shall have to ask Mr. Whittier to answer that.

H. B. Whittier, Acting Superintendent, State Reformatory: That was my question.

We use an old washing machine, which seems to do fairly good work, but it takes so much gasoline that I wondered if there was not some other way of cleaning woolen clothing.

What do you do at your institution?

Dr. Freeman: I have been interested in that question myself. I have had the feeling that our laundry service should be supplemented by some means for cleaning woolen clothing. While the institution clothing is made of cotton materials, the patients are constantly getting clothes from home, and naturally they are made of wool.

I have been looking into the matter somewhat and have found that for \$1700 a small unit can be installed which will provide for the cleaning of woolen clothing at a great saving in gasoline. It is a continuous-flow affair. You are using clean gasoline all the time. It is constantly running through the machine. We are considering enlarging our laundry in some way to take care of it with the installation of a small unit. It will take just about a quart of gasoline for a vest, coat and pair of trousers. The unit is enclosed and fireproof.

L. G. Foley, Member, State Board of Control: With the new schedule of prices I think they are around \$1,000 to \$1,200. It is a complete cleaning unit.

Mr. Whittier: Would it require a separate building?

Dr. Freeman: I think it would.

Mr. Foley: I think there would not be much danger with it because other precautions are taken with this machine. The Blank Department Store has one in its building. I think it would be well to look into this.

Dr. Freeman: We are paying thirty-five cents to have a suit dry-cleaned; that is, if they are not spotted. It is the spotting that costs the money.

We find that a good part of the institutional smell is in old woolen clothing that people have worn too long. Washing in gasoline gets rid of the odor.

Miss McGregor: Another method would be to wash the clothing as you would a blanket. Of course a great deal of care would have to be used to keep it from shrinking, especially with regard to control of the heat. The washing machine would have to be slowed down so that the action would be much slower than for the general wash. You would also have to be careful in the selection of your soap.

Dr. Freeman: If Mr. Whittier is satisfied with the little donation we have received, we will drop that question and proceed to the next.

Is it necessary or required by law to have a qualified civilian engineer on duty and actively present in the engine room at all times?

Doctor Smith, will you answer that question?

Dr. Smith: I didn't know that law required the presence of a civilian engineer. I know it is customary to have an engineer on duty who has a first-class license.

Dr. Freeman: It is not only customary, but it is the law.

Dr. Smith: It is being done at our institution. He also serves as fireman.

Dr. Freeman: The question is, Is it necessary aside from the law?

Dr. Smith: I think it is necessary. I think the engineer should be a man qualified to meet any emergency. I think he is not so qualified if he does not have a first-class license.

Dr. Freeman: Do you approve of having one qualified man in charge?

Dr. Smith: It seems to me there should be one man in charge of the power house unless it is constructed in such a manner that he cannot supervise both the engine room and the boiler room. At our institution, you will recall, a man can supervise both very nicely. I think there should be one man in charge of the entire department. He should have sufficient help, of course, to take charge of the boiler room.

Dr. Freeman: Do you think it is proper to leave a modern, efficient, high-grade generating unit alone while the man goes down to the boiler room?

Dr. Smith: I think the generating unit can be left alone for the period of a few minutes. I don't think it should be left alone for any length of time.

Dr. Freeman: Do you think a 150-lb. boiler should be left alone?

Dr. Smith: No.

Dr. Freeman: Do you think a man can divide his time between the two places in your power plant?

Dr. Smith: Yes; I think he can with a good fireman who can call his attention to anything that might be going wrong in the boiler room.

Dr. Freeman: Do all of your men hold first-class licenses?

Dr. Smith: They have second-class licenses, but are preparing to take examination for first-class licenses. Some of them have held first-class licenses but during the War or before they were allowed to lapse.

Dr. Freeman: How many hold chief's licenses?

Dr. Smith: Two. We use patient help as firemen.

Dr. Freeman: You have a licensed first-class engineer in charge of that plant. Who is down in the boiler room?

Dr. Smith: A patient does most of that work in the boiler room. There is always one employe on duty in the power plant who has a second-class license.

C. R. Carlgren, Member, State Board of Control: Do not all institutions have a man who has a first-class license on duty night and day?

Dr. Freeman: Yes. I think I am to blame for starting this. I think one qualified man could run the plant at Willmar because it is a modern plant. At St. Peter we would not dare to leave our old plant. We always have a qualified engineer in charge of our engine room and one in charge of our boiler plant, two qualified men on duty always. The question is, Is that necessary? What do you think, Dr. Patterson?

Dr. Patterson: It happens that we have one chief engineer and five assistant engineers, so it is an easy matter to arrange to have at all times one in the room where the dynamos are and one in the boiler room. It just happens there are always two there.

Inez B. Patterson, Superintendent, Home School for Girls: We do not have even a first-class man on at night; we have a fireman. Of course we haven't a power plant, just a fire in the small boilers.

Dr. Freeman: Does the law require you to have a licensed man?

Miss Patterson: Yes; the chief engineer. I think the Industrial Commission told us to have one.

Mr. Carlgren: Do you have a low-pressure steam plant?

Miss Patterson: Yes; I imagine it would be. There is a boiler in each cottage.

Mr. Carlgren: Any plant would require a man with at least a second-grade license.

Miss Patterson: If the engineer were licensed but the firemen under him were not, and if they were on duty at night and he was not, would they have to be licensed? There are eighteen boilers at our institution. Twenty-five inmates to a cottage.

Dr. Freeman: I think they are small, low-pressure steam boilers, such a plant as you would have in a large house. I suppose there are two firemen who just go around and check the drafts and let it go at that.

Mr. Carlgren: It would be well to ascertain the legal provisions in reference to licenses required, and I can call an expert from the Boiler Division of the Industrial Commission, who undoubtedly will be glad to give us the information.

Mr. Foley: I think it would be a good plan to know just what is what.

Mr. Carlgren: I called the Boiler Division, but the Chief had left the office for the afternoon.

Dr. Freeman: The next question is, What is the normal life of a sheet?

I think Miss McGregor knows more about the normal life of a sheet and how long a tub of butter should last than anybody else.

Miss McGregor: In the first place we should have the right material to put into the sheet. That depends upon the length of the thread and the number of threads to the square inch. For a medium weight there are 76 by 80 threads to the square inch. The weight of a sheet is about one pound to 4¼ yards for the average sized sheet with long threads, evenly woven.

There is a difference of opinion as to whether a sheet should be washed and put back on the bed the same day or whether a day or two should elapse so as to allow the sheet to dry thoroughly before it is put back on the bed.

With normal use a sheet should wear between two and a half and three years; that is, if there are no appliances or splints or things of that sort used. Of course they wear a sheet out.

In the first place a test should be made of the material which is to go into the sheet. The threads should be counted, so many to the square inch; the material should be weighed and should be submitted to a washing test to find out what the percentage of shrinkage is. If it is at all possible, that test should be made by the purchasing department. Then it should be tested when it gets to the institution. One sheet should be washed and mangled in the laundry over and over again to test its wearing qualities.

When the sheet is put into circulation, the year, the month and the day should be stamped on that sheet so that we will have something to check by when it is discarded.

We use unbleached sheeting.

Dr. Freeman: Will somebody add something to the very accurate discussion Miss McGregor has given us on the life of a sheet?

J. M. Murdoch, M. D., Superintendent, School for Feeble-Minded: We opened up a building 3½ years ago, in which we care for 110 rather helpless children, most of whom are untidy. All of the sheets supplying that building were marked at the time the building was opened. The first year we discarded about five per cent, mostly on account of tearing. A few dis-

appeared some way or other. In the second year we lost about forty per cent, and we still have about twenty per cent. We calculate the life of a sheet is about 2½ years. They are made of unbleached muslin.

Those sheets are put to hard usage. They are collected every morning from practically every bed. Many of those sheets travel through the laundry at least three or four times a week. We have enough sheets so that they do not all have to go right back onto the beds. There is about one day between. With us the life of a sheet in active use is about 2½ years.

Dr. Freeman: Will someone else add something to this discussion on the life of sheets? If not, we will proceed to the next question.

What are the best marking inks on the market? I should like to change the question to read, What is the best marking ink on the market?

I am going to speak right up because I am interested in inks. I think the last thing that is left of a garment should be the mark on it. In other words, mark a garment once and be through.

I think we have found the best ink on the market. It costs four dollars a pound against a dollar to \$1.75, and it is not made in the state of Minnesota, but when we mark with this ink—it is an ink that requires heat—we stay marked; we are through. We very seldom have to remark. It gives a very intense black mark, and shows up on clothes that are a bit dark. It is called Blank's Indelible. It costs four dollars a pound. I think it is a silver ink because it requires heat.

We tried some other inks a short time ago. After the garments had been washed six times they had to be remarked. On some of the checked cloths, where there is a kind of gray check, you could not tell what the mark was after one washing, while Blank's Indelible stood out very clearly, when we compared the two.

While Blank's ink costs two or three times as much as other inks, the saving in the amount used will make it just as cheap as other inks. We mark by pen and a hot iron.

We have insisted on having that ink. We have always had it until last time when we were persuaded to try another kind. In order to compare the two inks, we took a foot square of sheeting, marked it and put it through the washing machine and mangle a given number of times. When the test was finished, Blank's Indelible was dead black, while the other ink had faded out.

We get a lot of clothing for the patients from their homes—we have a thousand men—so that we use about eight quarts of marking ink a year.

Wm. J. Yanz, Superintendent, Hastings State Asylum: Is this ink sort of red before it is burned in?

Dr. Freeman: Yes; it is on that shade. I think it is a silver-nitrate ink. Unless we can find some other that is as satisfactory, we hope that we can keep it. You pay \$1.50 for the other; Blank's Indelible is \$4.50 a pound.

Mr. Yanz: I think the ink you speak of is one that will last. If you do not have your clothes marked with an ink that lasts, you are out and that is all.

We have a marking machine with which we mark everything except the bath towels and blankets.

We used——'s (another brand) ink until this last lot was bought.

Dr. Freeman: How satisfactory was ——'s?

Mr. Yanz: It lasts for years. The mark is quite plain after six or seven years. The price is about the same as Blank's, four dollars.

Dr. Freeman: We have bought Blank's Indelible for ten or fifteen years. If we cannot get it, we shall have to experiment in the laboratory and make up an ink for ourselves. We should be able to do that, I think. There is just the cost of the silver.

Ruth T. Devney, Superintendent, State Reformatory for Women: What would you recommend where there is not the possibility of using heat, and where the inmates mark their own clothes?

Dr. Freeman: Have the inmates mark their clothes up in their room and have the clothes brought down to have them heated with the iron.

We mark woolen clothes. We place the mark on the inside of a man's coat. We use more ink than just on the laundry stuff.

Your inmates could be supplied with ink, allowed to mark their clothes, wrap them up and send them to the laundry. The ink does not have to be heated immediately.

Dr. Murdoch: You could heat them on the radiator.

Dr. Freeman: Or on an electric globe. It does not require much heat. As soon as it becomes jet black the heating process is through.

If there is nothing more about ink, I think Dr. Burns can answer our next question, because certainly they use cod liver oil at the Sanatorium. Somebody wants to know how the stains of cod liver oil can be removed from clothing and linen.

H. A. Burns, M. D., Superintendent, State Sanatorium: Stain from cod liver oil does not vary from stain from other oils and can be removed in the same manner.

Miss McGregor: Use capsules and you won't have any stains.

Dr. Freeman: I think you can remove them ordinarily with gasoline, but what can you do after they have gone through the laundry?

Miss McGregor: In our laundry they use a detergent. They treat them just the same as grease stains. The fact that they have gone through the laundry will not make any difference. You can use —— or Javelle water or anything that will take out grease, but be sure that the water is not too hot.

Dr. Freeman: How can we prevent starch from sticking to the iron?

Miss McGregor: Buy a better starch.

Dr. Freeman: Is it a question of quality or a question of preparation?

Miss McGregor: Poor quality will stick even if it is properly prepared.

Dr. Freeman: The question reads: Some starch sticks very badly to the iron no matter how long the starch has been cooked. What can be done to prevent this?

Will paraffin on the iron prevent it?

Eda M. Ferbert, Dietitian, State Board of Control: In home preparations we put in a little paraffin. That would keep it from sticking.

Miss McGregor: Not if it is a poor quality of starch.

Miss Ferbert: I haven't had any experience with laundry starches. We used paraffin at home.

Dr. Freeman: Can somebody answer it further than Miss McGregor who has told us about starches?

QUESTION No. 8: What kind or brand of blankets are satisfactory in an institution when they have to be washed more or less frequently?

I presume this comes down to the question of quality, whether it should be 100 per cent wool or fifty or eighty.

Will somebody who has to wash a great many blankets in the institution answer that question?

Miss McGregor: Eighty per cent wool for general use but 100 per cent wool for special cases such as many of our patients are who have had infantile paralysis and who have to get a maximum amount of warmth with a minimum amount of weight. We need 100 per cent wool for a good many, for practically all of our polio cases.

In washing, the greatest care should be taken to keep the water from being too hot, also the air in the tumbler from being too hot.

I took a course at Dunwoody on how to wash woolen blankets. I found we had to slow down the washing machine to fifty per cent of the normal revolution; that a good quality of soap in liquid form should be used. Have plenty of suds in your washing machine before the blanket is put in. Don't put too many blankets in the machine at the same time. Don't run the blankets in the machine too long. Just a few minutes is the limit. Rinse twice. The temperature of the water should be ninety degrees—under no circumstances over a hundred—and the drier should be the same, ninety degrees. That gives you the minimum amount of shrinkage.

There must be plenty of water in the machine. The blanket must not be squeezed or handled by hand. It should not be pulled.

Dr. Murdoch: We recently received a card from one of the laundry companies which gave the instructions for washing blankets about as I understood Miss McGregor to give them. It was of considerable help to our laundry people.

Miss McGregor: We have been using woolen blankets for a number of years. They have to be washed frequently. Over half of our beds have 100 per cent wool blankets. Those blankets still cover the beds.

Dr. Freeman: Do you use woolen blankets continuously the year round?

Miss McGregor: Of course, during the summer when the temperature is up to ninety in the daytime, they do not have a woolen blanket on them, but at night they do because the polio cases have to be kept warm.

Dr. Freeman: Do you use any other blankets besides the 100 per cent wool?

Miss McGregor: Yes. We have eighty per cent wool blankets for other cases.

Dr. Freeman: Between these two blankets, the 100 per cent wool and the eighty per cent, do you find any lessening of the cost in using the eighty per cent? If you didn't have any polio cases which would you use?

Miss McGregor: The eighty per cent. They probably last longer than the 100 per cent wool blanket. People generally know how to take care of the 80 per cent blanket better than they do the 100 per cent.

Dr. Murdoch: There is no better blanket made than the eighty per cent wool.

Dr. Freeman: Dr. Murdoch, can you tell us how to keep blankets from walking off the grounds?

Dr. Murdoch: We have a policeman who looks into all packages that go in and off the grounds. It does prevent it.

Mr. Carlgren: Is that a problem?

Dr. Freeman: It is a problem. I should like to have somebody suggest what we can do about it when we haven't a policeman.

Mr. Carlgren: I should think the first thing to do would be to appoint one.

Miss McGregor: I would suggest, when we buy blankets, that "State of Minnesota" be woven into them. I think that could apply to more than blankets. It shouldn't be very expensive to have that included.

Dr. Freeman: In what would you include it, Miss McGregor, if you were appointed a committee of one to have the name "Minnesota" put on state property?

Miss McGregor: Blankets, on linen that is made up—it might be woven into yardage goods. The different state institutions buy enough to have the manufacturers pay some attention to it without any special increase in cost. I do not know what it would cost. Similar markings certainly make a difference with people who have private institutions. We would not need the institution name, just the words "State of Minnesota." People would think twice before they would put a blanket on a bed away from the institution if it had "State of Minnesota" woven into it.

Dr. Freeman: I would have the letters in red so that they would catch the eye.

Dr. Burns: I would suggest that the words "State of Minnesota" be put on electric light bulbs.

Dr. Freeman: We have the word "Minnesota" on our electric light bulbs. We bought a little rubber marker, and we mark every bulb with hydrofluoric acid. It makes a little mark on the side of the bulb. That has lessened the number of bulbs that burn out. I think the same thing would apply to sheeting, towels, blankets, etc. We had to take linen towels out of our public lavatory because we couldn't get them in there fast enough and put in paper ones.

While we are on the blanket question, what weight of blanket is preferable for general use?

Miss McGregor: Four and a half pounds.

Mr. Veyle: Can you get a 4½ lb. blanket in eighty per cent wool? Isn't that light for an eighty per cent blanket?

Miss McGregor: That used to be the specification for the eighty per cent blanket.

Mr. Veyle: Isn't the eighty per cent heavier than the all wool?

Miss McGregor: Oh, yes.

Dr. Freeman: This relates very closely to another question. The question is, Shall hot-air driers or paper towels replace other material? Another part of the question reads: Should liquid soap in containers be substituted for bar soap?

Will someone say something about the use of hot-air driers or paper towels as a replacement for the ordinary small towel?

Miss McGregor: I do not like to use paper towels and believe that fully fifty per cent of the people who use them feel the same way. I suppose it depends somewhat on the kind of paper towel.

Dr. Freeman: Has anybody had experience in the use of the hot-air drier?

Dr. Kilbourne: Is that used extensively?

Dr. Freeman: There is more use of it now than there used to be. They have made them reasonably noiseless now.

Dr. Kilbourne: I think the towel question is one of the most important in an institution. Roller towels are bad and should not be used if you can help it. Then comes up the question of individual towels, either cotton or paper. It looks to me as though we ought to look into the expense of paper towels. If you cannot keep patients in our hospitals from rolling them off and wasting them, it seems to me that either the hot-air drier, which I think would be a very excellent thing, or the paper towels should be substituted for cloth towels.

Dr. Patterson: I think it depends somewhat on the nature of the ward where you use them. Our experience with paper towels and liquid soap on some wards is extremely unsatisfactory. Paper towels are wasted at a terrific rate. Liquid soap is far more wasteful than bar soap and paper towels are far more wasteful than cotton towels. About the most satisfactory thing is one of those endless roller towels that you can pull around for a long time and the bar of soap. Unless people are somewhat near normal and have some natural cleanliness it isn't much use to buy some of the newer, fancier things for washing the hands and drying them. It has to be fitted to the type of individual you are trying to take care of. Most of them understand the old-fashioned way of washing and wiping their hands, and they don't know anything about the newer ways and they won't cooperate. There are types of institutions where paper towels and liquid soap would be very satisfactory, but I do not believe they are satisfactory in most institutions for mental patients.

Dr. Kilbourne: I can't imagine anything dirtier than a roller towel and a bar of soap. Where the patients can take care of towels, we can distribute individual towels, but it is one of the great problems of an institution where they have such patients as most of us have.

I should think that if that hot-air machine would work properly it would be an excellent thing. I do not know anything about its use in an institution.

Dr. Murdoch: The only experience I have had with a hot-air drier has been in a hotel, but I understand it has a tendency to cause excessive dryness of the skin, a tendency for the skin to crack and roughen. I think we ought to know more about hot-air driers before installing them in institutions.

Dr. Kilbourne: In our bakery all the men who touch the dough use individual paper towels.

Dr. Freeman: I have arranged these questions in rather a jumbled manner. We are going back to the washing and sterilization of dishes and table cutlery. I think here we might include methods of sterilization and the wisdom of the installation of washing machines for dishes. There is another question regarding the type of soap or washing powder to be used in dish-washing machines.

Will somebody discuss sterilization and washing of dishes, including the use of machines and the type of machines?

Dr. Kilbourne: Most people wash their dishes, sterilize them with boiling water, then take a sterilized tumbler or plate and contaminate it with a cloth. I have always contended that dishes should not be washed in that way. That not only holds true in the private home but in the institution as well. Dishes should be sterilized and not touched until they are dry. It has been shown that in certain industrial communities they had many more cases of influenza than certain other communities of the same size and kind had on account of the way they washed dishes. I think dishes ought to be washed in very hot water, sterilized with steam, stacked up and never wiped.

Dr. Murdoch: I agree with what Dr. Kilbourne says. We generally use washing machines throughout our institution, where the dishes are boiled in hot water, steamed, put on racks, and never touched.

Dr. Freeman: Never touched? I am going to visit your institution sometime around dinner time.

Dr. Kilbourne: That involves, of course, the purchase of proper machines, which would be the traveling machine, the one where the dishes go in at one end and come out the other.

Dr. Murdoch: Ours are put in baskets.

Dr. Kilbourne: I have two of them. They last just a short time and then require repairs.

Dr. Murdoch: I think the traveling machine is a better type but more expensive.

Mr. Whittier: With the machine that we have the dishes do not come out dry. We wipe them afterwards.

Dr. Freeman: If the water is hot enough at the end they will dry.

I have found that you have to take all the towels away, even if the water is hot. They seem bound to get at the dishes with a towel.

Miss Ferbert: With the single-tank washing machine, if you are going to have the water hot enough so that the dishes will dry without being wiped the water is going to be so hot that it is going to cook the food on the dishes. However, a certain firm has put out a double-tank machine which costs about \$2500. The dishes are washed in one tank and then put in the other to scald.

I think the machine to which Doctor Kilbourne referred has a traveling belt which carries the dishes from one end of the tank to the other. Often the dishes have to be taken back to be washed over because the food is cooked on them, the water is so hot.

If you want to sterilize your dishes you really have to wash them before they go into the washing machine.

Dr. Murdoch: It is better to have the food cooked on the dishes than to have them wiped with a towel.

Miss Ferbert: Why should your dish towels be any dirtier than napkins if you wash them? You have towels enough so that they should not be dirty.

You really have to let your dishes dry before you can stack them. If the dishes are not thoroughly dry when you do stack them, the steam is going to condense and you will have drops of water on them.

Dr. Kilbourne: I would rather have a little water on the dishes than have them wiped with a towel.

Miss Ferbert: If I went to a hotel or restaurant and had a plate served wet, I should object.

Dr. Kilbourne: I have a remedy. Carry a little bottle of alcohol with you, a bottle that has a wide mouth. I would dip all the cutlery in that bottle of alcohol. I would pour a little alcohol on the plate and swab it around. It wouldn't hurt a bit if it did season your food a little. People handle forks by the tines, spoons by the bowl, and knives by the blade.

You want to eat an apple. You think: "There may be germs on this apple. I will peel it." You peel it, then, without washing your hands, you clasp that apple in your fingers. You have contaminated the apple.

You have got to be careful if you want to live a long time.

Dr. Freeman: I knew a gentleman who, when he went to a hotel, used to put papers over the doorknobs and paper down on the floor to walk on, but he got tired of doing that and he is living like the rest of us, taking his chances.

Dr. Murdoch: Is he living with you, Doctor?

Dr. Freeman: He might be if he hadn't given it up.

Is it necessary to have a washing machine that does sterilize dishes?

D. E. McBroom, M. D., Superintendent, Colony for Epileptics: At our institution we employ both methods. On the female side we wash by hand, the old-fashioned method, with dish towel and all. I think the finished product looks better than those that are washed in the machine.

I think Miss Ferbert is right when she says that no machine will wash dishes satisfactorily unless the water temperatures are regulated. In the wash water the most satisfactory temperature is in the neighborhood of 115 to 120 degrees. If higher than that the food is cooked and baked on the dishes. The rinse water should be at least 180 degrees.

We adopted the Blank machine for several reasons. It is the cheapest and I believe the most satisfactory, but the chief reason for adopting it was that it is a double-tank machine. You can wash the dishes at a low temperature in one tank and have the rinse water in the other tank at a higher temperature. The circulating system of hot water at our institution is at a low temperature. We piped live steam in order to have the water in the rinse tank sufficiently hot to get the dishes out dry and in good shape. At times when we have found food particles on the dishes we have learned that the wash water was too hot.

Personally I am in favor of dish-washing machines, but the only object of having them is that it means the elimination of an occupation. On the girls' side there are plenty of workers and they have plenty of leisure so that we do not need them there.

Dr. Freeman: The next question relates to water softeners. Does it pay to have a water softener in the institution? If so, what type and how much does it cost?

Doctor Patterson, can you tell us something about water softeners? I think you have one.

Dr. Patterson: We did have one, and it is still standing there. It cost a good many thousand dollars. I think it cost around \$20,000. It was

built too small for the institution, too small for the amount of water which we use, which is around 450,000 gallons daily. As a result, instead of softening the water it made it harder. It almost ruined all the plumbing throughout the institution. There were deposits of lime in all the pipes there. It all had to be taken down and chiseled out by hand. If we had kept on using the softener a year or two more, all the plumbing in the institution would have had to be removed. We quit it just in time.

Whether or not it is advisable to have a water softener depends on the hardness of the water. I think that the water we are using is something like five grains of hardness. I may be wrong about that. It is a pretty soft water. We really don't need a water softener for the whole institution. We use one in the laundry where we get absolute softness, but it isn't necessary to soften water for the whole of that institution. I imagine there are places where it is an absolute necessity and where it is a tremendous saving.

With water the degree of hardness that we have, they say they would not advise a water softener for the boilers.

Dr. Kilbourne: We have a new softener that can reduce the water to zero. It makes a great difference in the boilers and in the laundry. We only soften the hot water.

Leonard M. Elstad, Superintendent, School for the Deaf: That is not lime?

Dr. Kilbourne: It is zeolite.

Mr. Elstad: We still have lime and have to clean out the pipes every four years.

Dr. Freeman: I lived with a lime-soda softener for about ten or fifteen years, and I had constant trouble and turmoil. Finally I got to living with a zeolite softener, and found life a comfort.

Before we installed the zeolite softener we had a crew of four men going around the institution taking out hot water pipes. We had a lime-soda softener. I had to take it out. Four men could not have gotten around with that in use. It was a constant running around to hot-water lines, taking them down, knocking scale out, and putting them back. Finally we tried to use a softener just for the engine room. Then we installed a zeolite softener.

We soften all of our hot water and all of the cold water which is used in the laundry, 125,000 gallons daily, at a cost of seven to seven and a half cents a thousand gallons.

We have laid off the crew of four men taking care of the pipes and put them at other work.

There is only one thing to worry about and that is the quality of salt. If they hand you a salt with considerable white sand in it we are in considerable danger. If you don't get that, your troubles are over.

We have a water which approximates 26 grains, which is five times as hard as the water Dr. Patterson speaks about, rated 30,000 gallons and we

get as good as 70,000 gallons. It uses natural grain salt instead of artificial zeolite. We would not be without it.

Dr. Kilbourne: It is quite necessary to have the water hot. Otherwise they will drain off gallons and gallons waiting for the hot water to come. I think this is one of the greatest water wastes in an institution.

Mr. Veyle: What temperature do you recommend?

Dr. Kilbourne: Probably up to 100 or 110 for toilet purposes; higher for dishes.

Mr. Veyle: We maintain 150 on our hot water tank constantly.

Dr. Kilbourne: How hot is it when it comes out of the farthest faucet?

Mr. Veyle: It is reduced some, but not a great deal. Probably 140 to 145.

Dr. Kilbourne: Don't you find that is a great saving of water but too high to be safe for our patients?

Mr. Veyle: Yes; I know it is.

Dr. Freeman: We kept it that way until a patient hung his head under it and was scalded.

I should like some discussion on how to keep an institution free from vermin.

What methods have been found satisfactory to keep institutions free from cockroaches, water bugs and mice?

Mr. Yanz, you haven't been discussing any of these questions. We know you haven't any of those things, but how do you keep from having them?

Mr. Yanz: We are getting them now.

Dr. Freeman: What are you going to do?

Mr. Yanz: We are using a good roach powder. You can't buy it for thirty cents. To get a good roach powder it costs around seventy-five to eighty cents. That will keep the roaches out. Spray it in the cracks and leave it there. We have a powder gun. We use the powder. We put it in the cracks at night.

Miss McGregor: Scrub the places where the roaches may congregate.

Dr. Freeman: Will you tell me how to scrub a keyhole?

Miss McGregor: I would put powder in a keyhole.

Dr. Freeman: We can do as Mr. Yanz does, go at it thoroughly with a roach powder of good quality and a powder gun, but you have to think of all the places where there might be a crack. Tip all your tables upside down, put it in the keyholes, in the door hinges, around the baseboards, any place where there is a crack.

Miss Ferbert: Why pay seventy-five cents to the manufacturers when you can buy sodium chloride for twenty to twenty-five cents a pound? Two-thirds sodium chloride and one-third flour makes a good food for cockroaches.

Dr. Patterson: We have started making our own. We were paying \$2.40 a gallon for ———, which we can make up for thirty cents.

If there is a pharmacist at the institution there is no use paying those prices to the manufacturers for kerosene and a few other ingredients. It is unnecessary, for I feel sure a pharmacist can make up just about as good a preparation as they can.

I don't believe it is possible to rid an old institution permanently of cockroaches. You can get rid of them for a time, but they will be back. They come in on freight-car packages and in many ways they will get another start. You can get rid of them for a time, but not permanently. It is a matter of always fighting and keeping down the number.

Dr. Freeman: Do you find it best to use powder guns?

Dr. Patterson: We use the guns. We find it best to put a bait on the shelves where the cockroaches are going to congregate and then leave the powder around for a while.

Dr. Freeman: What about water bugs? They look something like cockroaches only they are about twice as big. What are we to do about them? Cockroach powder won't kill them.

Miss Patterson: We have a grayish bug with many legs which the University calls a water bug. For that we use Dalmatian powder.

I think Dr. Patterson gave the key to the whole thing when he said it is vigilance that is needed.

They feed on the starch of bindings of books if they can get at them. They would even eat the pasty covering of cards.

Dr. Freeman: What about the big black bug?

Miss Ferbert: I have some bulletins which I got from the library.

Pettit of Michigan prepared a poison bait as follows: Make a thin gruel of cottonseed meal sweetened with a little molasses. Prepare this by cooking in a steam cooker. When cool add a cake of yeast to start fermentation. When fermentation has started, stir in a small quantity of powdered arsenate of lead. Put the bait on plates and place where convenient for the roaches to reach it. It dries out and it would have to be moistened occasionally.

Dr. Patterson: What if some of the patients should get hold of it?

Miss Ferbert: It would take quite a large quantity of it to be poisonous to a human being.

For the thousand legged bug it really has some use, but it is food principally for house flies, roaches and other insects in the house.

There are also other powders such as pyrethrum. It is the feverfew. There is possibly some tansy in it. I remember we had a tansy bed in our yard and if we had any ants we found the tansy was quite effective in getting rid of them.

Dr. Freeman: The next question is, What is the best way to clean linoleum floors?

Miss McGregor: The floor men say you should never use even a mild soap on them; that you should have a polish or wax, which we cannot have because it makes them slippery for the patients walking with crutches.

We wash them with a mild soap and then rinse them immediately with clear water. Our floors have stood up pretty well. But it is contrary to the recommendation of the floor people.

The floor men say not to use a floor powder with oil in it because the oil breaks down the linoleum.

The soap should be of linseed-oil base if you are going to use it.

Dr. Freeman: I am going to combine the next three questions, although each question is important enough to stand by itself, but our time is getting a bit limited.

The first question would be as to the advisability of employing an expert laundryman to check up on the laundry methods at the various institutions, and, secondly, is there some method of speeding up laundry operations so that linens could remain on the wards instead of in the laundry and thus avoid a large inventory, and, third, is it best to have each ward have its own linen, or is it better to have a central linen room where they can go for replacements for the soiled linens that are taken to the laundry?

Dr. Burns, will you open the discussion?

Dr. Burns: I am very much in favor of having a check-up by an experienced laundryman, so far as my institution is concerned, and I am wondering if that should be desultory or a series of check-ups.

Our linens are allocated to buildings and floors, and we try to keep supplies as near as possible to the particular ward or floors they were originally assigned to.

Dr. Kilbourne: In some of the institutions, with all the different classes of patients, I think it is quite important to keep the linen for the individual wards separate.

Dr. Murdoch: We keep each ward's linen separate. Each ward has its own linen.

Dr. Freeman: Will someone say something about the advisability of a check-up?

Mr. Carlgren: Has such a check-up ever been made?

Dr. Freeman: Some of the institutions have tried to find out if there is a man who would make such a check-up. I believe Miss McGregor looked into the matter somewhat.

The laundrymen are like cooks, they all have their own particular way of doing things.

Dr. Murdoch: Can't you get a man from some laundry machinery company?

Miss McGregor: About four or five years ago I decided we were going to have a more efficiently run laundry, and I tried to get someone

who ran a commercial laundry to come in and go with me and observe and tell me what our weak points were. I worked on this for over six months, and the only advice I ever got from any of them was to build the laundry over. The laundry was not large enough; it did not have the right kind of machinery; it was not properly placed. You would have to start from the ground up.

I decided then that I would go to the other laundries and I would do the thing that I was trying to get them to do for me, go into the laundry and see what I thought we could put in our laundry that would give us more efficient service.

Maybe there are experts somewhere, but I don't think they are in St. Paul or Minneapolis.

Dr. Murdoch: Did you get anything out of your visit to the laundries?

Miss McGregor: Yes. There were a great many things we couldn't use in our laundry. But if you take the head of your laundry with you, you can always get something.

Dr. Patterson: I don't think you can expect the average institutional laundry to measure up to commercial laundries. The reasons are obvious. In the first place there is no competition. In the commercial field there is keen competition. They have got to get those clothes out properly. They have got to look clean. Commercial laundries are under constant pressure to do that thing. The employes of the institutional laundries are paid for simply doing the work; they are not under pressure of the public at all. I think you will find that very few institutional laundries measure up to the standard of the best commercial laundries.

I have seen one. It cost \$150,000. It had the very latest, most modern machinery, and they had the best laundryman they could get. We can do the same thing if the state of Minnesota wants to give us enough money with which to build new laundries, purchase new machinery, and pay the salaries of a high-priced laundryman and his assistants. It can be done in that way but in no other way.

We have had two or three men look over our laundry, and no two agree. One wants new machinery; one wants a different soap; another wants different chemicals.

What we can do is to observe and try to improve things here and there.

Dr. Freeman: I think the one thing we can learn is how much work you can get through a machine if it is pushed.

No one has touched upon the third part of the question, whether we could speed up the laundry so as to avoid a large inventory.

I think we have succeeded at St. Peter in some measure in doing this, in avoiding a large inventory. I don't know whether it would be satisfactory to others, but it is to us. We insist that the sheets that go to the laundry in the morning come back to the beds at night. We do not have a change. The beds are left open during the day and the sheets are back that night and the beds are made up. We start at about four-fifteen to make the beds.

We do the same thing with the sheets from our sick rooms and the filthy wards. They go out in the morning and come back at night, so we do not have a large inventory of bed linen. Ordinarily a ward will have only an extra supply of eighteen or twenty or twenty-five sheets instead of enough sheets to make the beds twice. A number of wards send their sheets on Monday; others, on Tuesday; others, on Wednesday; and so on. The filthy sheets, of course, go every day. We wash 5,000 sheets a week, I suppose.

You can speed up things in the laundry by seeing that your presses, etc., have the pressure of steam that they should have, so that you can run your mangle at full speed; so that you can run your presses at full speed.

Is there anyone who has some particular method of handling the linen for the individual wards or who has a central linen supply place?

Mr. Yanz: Our wards and cottages are all handled separately. Each ward and cottage has its linen marked.

They have sheets and pillow cases enough so that they can carry on if they do not get back by night what they have sent to the laundry in the morning. They have a full double supply.

We do not replace anything during the month unless a piece has been destroyed.

Everything that is not marked goes back to the supervisor from the laundry and is re-issued by the supervisor on the first of the month.

Everything that is condemned they get a credit for, and then, on the first of the following month, we requisition what was condemned to each department for the month, but we make no requisition during the year for any supplies.

✓ **Dr. Freeman:** You, I think, have about the lowest inventory, the smallest loss, of any institution.

Mr. Yanz: I don't know about that. During 1933 out of 19,000 pieces there were 421 that we could not account for. That was bed linen, sheets and pillow cases, blankets, towels, shirts, underwear, tablecloths and napkins.

Miss McGregor: You have some destructive patients?

Mr. Yanz: Yes. We have some that tear their things up outside. That was the whole amount that was not accounted for, 421 pieces. I think that was a mighty small loss.

Dr. Freeman: You don't need a policeman.

Mr. Yanz: I don't know. I have often wished there was somebody else who had the same kind of a check so that we might know whether or not we were losing too much.

I have no reason to think that anything has been carried away from the institution.

Dr. Freeman: How many live away from the institution?

Mr. Yanz: I think twenty-five per cent live in town.

Dr. Freeman: I have 150 living in town, and the percentage is constantly increasing. During the depression the percentage of married people has increased some fifty or sixty per cent.

Dr. Murdoch: Do you allow support to all who live outside the institution?

Dr. Freeman: They are allowed twenty dollars a month if they are the head of the family. "Head of the family" has been ruled to be someone who is the main support of the family. If a son is at home taking care of his mother, he is head of the family. A widow living at home gets \$20 a month beside her salary if she has persons dependent upon her.

I will answer the next two questions because we just finished the work last year.

What experience has other institutions had in calking windows?

Are there any inexpensive calking materials made especially for the purpose?

I do not know the exact cost, I did not have time to figure it, but it is less than ten cents a window. The amount you use depends on the size of the crack around the window. Sometimes the cracks are so large you have to put oakum in first. Just the calking gun will fill others. Since calking the windows we are much more comfortable. Wards which were uncomfortable when there was a cold, high wind, are now comfortable. I think we are saving on fuel cost. It cost about \$150 to calk all the windows. It was done by patient labor. We used Blank's calking compound. I think all windows in a brick building should be calked.

Mr. Merrill: That has been one of the CWA projects at our institution. We have gone over practically all of our windows. We used Blank's calking compound.

Dr. Freeman: Before we had the windows calked, when there was a cold high wind we could feel a draft across the wards. There has been a decided change in that without any increased radiation, even though the windows themselves are somewhat loose.

Dr. Patterson: I am very much interested. In fact, I asked that question because we just started to calk our windows last fall. I presume your windows are very much like ours. There is a space around the frame where the wind gets through. As the buildings got old the space has grown larger and the wind got through more easily.

Did you go over your main building?

Dr. Freeman: We went over all the buildings.

Dr. Patterson: How many windows did you calk?

Dr. Freeman: I do not know how many there were.

Dr. Patterson: A thousand?

Dr. Freeman: More than a thousand. We had 390 windows on one of the wings. It cost us less than ten cents a window.

Dr. Patterson: Do you have to take off the stops?

Dr. Freeman: No.

Dr. Patterson: Are those windows weather-stripped?

Dr. Freeman: If I had to choose between weather-stripping and calking, I would take the calking. I don't think weather-stripping without the calking is wise. There is too much leakage.

Dr. Patterson: I think calking is an absolute necessity at all institutions.

Mr. Carlgren: In all your comparatively new buildings, isn't calking included in the contract?

Dr. Freeman: Yes. Personally I would rather have weather-stripping than storm windows. Storm windows are left propped open. It is only when a high wind comes up and it begins to get cold that they close the storm windows.

Mr. Carlgren: In other words, weather-stripping is foolproof.

Dr. Freeman: The next question is, What are good finishes for kitchens to stand steam and heat?

Dr. Patterson: There is a varnish called Blank which sells for \$6.50 a gallon. It can be thinned out considerably. It will stand steam and it will stand heat.

Dr. Kilbourne: Will it turn brown?

Dr. Patterson: It hasn't so far. In the operating room, where there is considerable steam and the fumes of ether, every kind of paint and varnish we put on there cracked and came off, but Blank does stand up remarkably well.

Dr. Kilbourne: Did it turn brown in the bakery? It will stand up anywhere if it will stand up there.

Dr. Patterson: We have not used it in the bakery because it is an expensive product.

Dr. Freeman: Is it a paint or a varnish?

Dr. Patterson: It is a varnish. It is really an enamel. It is so hard you can put carbolic acid and alcohol on it and it leaves no mark.

Dr. Freeman: Is it transparent?

Dr. Patterson: Yes.

Dr. Freeman: Do you use it on the walls in the operating room?

Dr. Patterson: We use it on the ceiling. That is the worst place there is to keep anything on.

Dr. Freeman: When you used it on the ceiling, was any pigment added to it, or did you just paint the ceiling and put this varnish on over the paint?

Dr. Patterson: Exactly; put it right over the paint.

Miss McGregor: Why don't you use it on the walls of your operating room?

Dr. Patterson: The paint does not seem to peel there. The operating room is on the third floor, with a roof above it. Probably the frost from the outside, together with the steam in the room and the ether, has something to do with the peeling. Which of the three has the most to do with it, I do not know. There is no air space between the top of the room and the roof.

Dr. Freeman: We have two more questions. Will the life of a sheet be prolonged enough to warrant the making of them with same width hem at the top and bottom so that the top and bottom may be used interchangeably?

Miss McGregor: The American Hospital Association has done a lot of research with linen, and it is their recommendation and the recommendation of the standardization committee that hospitals have the same width of hem on each end. You can then use the other end if one becomes worn.

Dr. Freeman: The last question is, What are some desirable scouring powders?

Miss Ferbert: I should think that would depend on what you were going to scour. Fine white sand would do for certain things. Of course there are a lot of commercial scouring powders. Kerosene is good on bathtubs.

Miss Patterson: We are prohibited from having it around. I have been told that after the last cottage burned up at the Home School certain regulations were given to the institution and kerosene was prohibited in all of the cottages.