Science Bulletin

Volume 2 | Number 6 Article 3

2-1930

Health and Cleanliness

H. Earl Rath
Iowa State Teachers College

SCIENCE BULLETIN

A Service Bulletin for Teachers of High School Science. Published Monthly by the Extension Division and Edited by the Departments of Natural and Physical Science.

IOWA STATE TEACHERS COLLEGE

Editor-in-Chief: Dr. C. W. Lantz. Advisory Board: Dr. L. Begeman, Head, Department of Physical Science; Dr. E. J. Cable, Head Department of Natural Science.

VOLUME II FEBRUARY, 1930 NUMBER 6.

HEALTH AND CLEANLINESS

Health

A short time ago there was presented in the columns of this paper an article dealing with the methods of motivating a health program. This article dealt with the methods of gaining an interest in the subject of health. Once having gained this interest a program of education must be brought forward. Such a program may not be elaborate, in fact probably should not be. It is the opinion of the writer that most programs of health attempt to cover too wide a field and do not leave sufficient definite impressions. After all there are not many requirements that a person must meet in order to maintain a condition of health. Exercise, fresh air, sleep, proper diet, desirable mental habits, cleanliness, and a few others just about make up the list.

It is probably better to attack each of these separately, and with this in mind and with the vision of a very dirty neck and dirty ears, the property of a freshman girl seen on the street car last evening, it will be the purpose of this article to discuss some possible means of stimulating an interest in better methods of cleanliness.

One of the first things that seems to be essential is to make individuals conscious of the condition of their hands, teeth, hair, and clothing. Probably the best way to accomplish this is by means of a poster campaign. As I write, a group of posters lies on my desk. One of them appears to be outstanding. It merely shows a pair of dirty hands on a clean paper with the title, —"Are These Yours". This one poster hung for a short time in the school room will cause considerable interest in soap and water. Most of them will be effective if not used too long at one time. Here is one that seems effective. A carefully groomed boy with clean clothes and well combed hair is sitting on a bench outside an office beside a slovenly appearing individual. The title is "Who Gets the Job." The supply of new ideas on cleanliness is inexhaustible and one should not want for a new poster as often as he feels the need for one. The important thing is to have the poster suggest something that will seem desirable to the student, rather than to suggest something that will try to frighten him into being clean.

When students have become conscious of dirt from the standpoint of appearance, it might be well to show what dirt really is and what it contains. An interesting demonstration of this can be made by using media on which bacteria will grow readily. The most common medium of this sort is known as nutrient agar. This may be prepared in the following way:—Add three grams of beef extract, five grams of peptone, and fifteen grams of agar to 1000 cc. of distilled water. Boil until all the agar is dissolved. Make up the lost weight with hot distilled water and strain through a layer of cotton while hot. Pour into a flask which should be stoppered with a cotton plug and place in the autoclave to sterilize. If there is no autoclave available, a steam pressure cooker will give good service. The medium should be sterilized for 15 minutes at a temperature of 120° C. which can be secured by having a pressure of 15 lbs. in the sterilizer. Sterilization may also be accomplished by steaming media for one hour periods on three successive days in a

closed chamber where a temperature of 100° C. can be secured.

Probably the best way to secure media is to buy a small quantity of prepared dehydrated media which only needs dissolving and dilution before being sterilized. Lacking other media a baked potato will give good service in a pinch. Whatever is used, it must be completely sterilized if it is to prove satisfactory as a demonstration.

With the medium prepared and sterilized it should be placed in sterile containers. Any sort of a covered dish, such as a pyrex dish that will stand baking may be sterilized by heating in an ordinary oven for one hour at 160°C to 190° C. The sterile medium is then poured into them or the medium may be placed in the dishes before the sterilization in the autoclave or pressure cooker. Be sure that all dishes are well covered and that none are exposed to the air until the time comes for their use. When cooled the agar will harden in the bottom of the dishes making a suitable medium for the growth of bacteria.

With the medium prepared in several dishes, bring the dishes before the student body some day and ask some student to touch one of the surfaces with the tips of his fingers. Draw a coin over the surface of another and allow a fly to crawl across the surface of still another.

Many variations may be obtained such as touching a lead pencil to one, rubbing a clean cloth across a window sill and shaking it over the open dish, or leaving a dish exposed to the air for a minute. At least one dish should remain untreated as a check on the remainder. If no bacterial growth appears on the check it is evident that the growth on the other dishes is the result of their treatment.

These dishes may be kept in any place that is moderately warm, although a temperature of 37° C. is most desirable. If some of the dishes are kept at a temperature of 20° C. it is possible that various colored pigments will show in some of the colonies. This will be true only in case pigment producing bacteria have gotten into the culture, but they are rather common. In about 24 hours a large number of small dots or colonies will appear and soon spread over the entire surface of the medium. Each colony represents the place where one bacterium was originally lodged. Thus the number of bacteria in each culture can be estimated.

If possible, a mount of bacteria from the culture should be prepared by making a thin smear on a glass slide, fixing it by drying over a flame, and staining with some simple stain such as gentian violet. If no stains are available, the bacteria can be made to show up well under a microscope if the lights are properly adjusted. Seeing the bacteria on a slide under the microscope is always an interesting object lesson. Whether the microscope is available or not, the mere display of the culture dishes with their mass of bacterial growth is usually a vital lesson as to the advisability of keeping fingers, coins, lead pencils, and other foreign objects out of the mouth.

Another important means of encouraging cleanliness is to secure charts showing the nature of the sweat glands and the sebaceous glands. When people realize the extent and nature of the secretions that are found on the surface of the body, they will hardly fail to be impressed with the necessity for regular bathing as an aid to cleanliness and decency.

Along with the idea of cleanliness, must be shown the importance of cleanliness as an aid to health, and likewise we must not forget the economic and social advantages of clean clothes, clean surroundings, and a clean body. Here is a good opportunity for the physical director to impress upon the students the value of a cold shower, not as a cleansing agent but as a stimulant to more rapid metabolism and the formation of white blood corpuscles, and as an agent to give tone and beauty to the skin.

It is not possible to go into details as to the many ways in which cleanliness is an aid to health, but people will find these out for themselves once they have developed the consciousness of wishing to be clean.

H. Earl Rath.