JOHN HARVEY KELLOGG (1352-1943)

Lectures, Speeches, Notes, and Articles, ca. 1890-ca. 1943
(undated by topic)

Women's Work/Housekeeping
PROGRAM FOR WINDOW WASHING.

1. Remove all dust from the windows with a cloth.
2. Clean the wood work if needed.
3. Wash the glass, using clean water to which has been added a little ammonia, kerosene, or fine soap. Use a wooden skewer and cloth to get the dirt out of all corners. Never have the cloth wet enough to drip. Rinse the cloth of ten.
4. After all the dirt has been removed dry with a clean cloth.
5. Polish with soft crumpled paper. Newspapers answer very well.
6. Remember that thoroughness and care is the secret of thorough work.
Quiz.

1. Is dust always visible?
2. What is dust?
3. What often accompanies dust?
4. What common micro-organism are found in dust?
5. Are they harmless?
6. What conditions are necessary for their growth?
7. How do they become scattered about, and what harm may result?
8. Where are they least?
9. How modified?
10. Describe experiments made in a city hospital.

11. What suggestions may we get from these experiments as to how to keep rooms free from dust?
12. What is cleanliness?
13. Where will dust be found?
14. What is the disadvantage of carpets?
15. Will letting the air blow through a room from open doors and windows cleanse it of dust?
16. What effect upon dust will sweeping have?
17. What is likely to be the condition of a room after an ordinary sweeping?
18. What is likely to be the result of the use of a broom upon a carpeted floor?
19. What is the best broom for a carpeted floor?
20. What are the chief sources of dust in the house?
21. What is the advantage of hard wood floors?
22. As a sanitary measure, what is the value of sweeping a carpeted floor?
23. How then shall floors be kept clean?
24. Make or it a program of preparation for sweeping a carpeted floor?
25. What outfit is desirable?
26. Describe a model method of sweeping a room.
27. Make out a program with directions for dusting a room.
28. How should air be swept?
29. What is better than a morning sweeping?
30. What is the best way of cleaning an uncarpeted floor?
31. Give some points about brooms.
32. How should furniture be dusted?
33. What measures may be employed to prevent the storage of dust in our rooms?
34. Study of Program---
35. What does the Bible say about dust?

Note--It is suggested that pupils be drilled on making programs of sweeping such rooms as they daily come in contact with to impress points in mind.
DUST.

1. PRELUDE:-- Who that has watched the strong sunlight streaming through the half closed shutters of a darkened room with the myriads of tiny atoms dancing in the bright beam has not wondered where the dust comes from, and if the air is all thus full of it?

2. DUST, WHAT IS IT?-- Dust is such a common thing, one is apt to give it little consideration save when it accumulates enough to be conspicuous within doors or becomes a source of annoyance out of doors; yet often the things that are accounted most trivial are of greatest importance in the hygienic welfare of the household. Scientific research has made it plain that so common a thing as dust is frequently instrumental in causing serious diseases. Ever since creation, when the earth was formed of dust, various natural forces have been at work wearing its substance away and mingling the atoms with those of the vegetable and animal waste everywhere present upon its surface. These dust atoms wafted by the breezes or borne by the stronger winds, find their way into our dwellings, the bane of the tidy housekeeper, filling the air indoors and out to a greater or less degree, dependant upon varying conditions of soil, climate, and the occupations of mankind.

3. COMPANIONS OF DUST: -- Besides the inert particles which constitute the larger proportion of ordinary dust, there are living elements--tiny organisms so minute that even millions massed together would not cover the head of a pin.

4. MICROORGANISM FOUND IN DUST:-- Of these micro-organisms there are three common kinds found in dust--molds, yeast, and bacteria.

5. These last are the most minute, simple, and numerous of all forms of life, and while most of them are harmless to man, serving nature as aids in her vast laboratory, a few species are the active cause of some of the most contagious and widespread diseases.
6. FAVORABLE CONDITIONS OF GROWTH:—The special soil in which these forms of life thrive best is the moist surface of all decaying matter, both animal and vegetable,—garbage, sewerage, human sputum. Having become rooted, so to speak, in any soil, they do not, with the exception of certain molds, become detached, even when the soil in which they are grown becomes dried, pulverized, and is swept along as part of the dust in the air.

7. Clinging thus to other dust particles which are heavier than air, they are continually settling upon the lowest available resting place, some of them to be whirled about again by the next air current; others, having fallen upon some moist substance, like seed upon good ground, begin at once to germinate and multiply. These living atoms of dust require warmth and moisture for their growth, and if they find their proper soil, whether it be on the foods exposed for sale along the dusty streets, in the refuse pail at the back door, or the air inhaled in the lungs, they readily take root, and propagate their kind.

8. WHERE ARE THEY LEAST?—The atmosphere, except upon high mountains or over large bodies of water, is seldom free from these germ-laden dust particles, although they are fewer just after a rainfall or snow-storm or strong wind.

9. HOW MODIFIED?—The number is also greatly by conditions of cleanliness.

Once inside our dwellings, dust has come to stay unless removed by painstaking labor. A system of ventilation of efficiency sufficient to keep the indoor air pure is of little value in ridding it of dust.

10. A LESSON FROM EXPERIMENTS:—Experiments carried on in the wards of the Boston city hospital to ascertain the number of micro-organisms in a given volume of air showed that during the day, while the people were moving to and fro, the air contained large numbers of bacteria and molds. At midnight, when for several hours the ward had been quiet, the air of the room was practically free from dust and its micro-organisms, they having settled upon the floor, furniture, and other surfaces. This
affords a suggestion of practical value to the housewife, demonstrating how by taking advantage of this tendency of dust and dust-germs to settle in still air, it is possible for her, under proper conditions and care, to keep the air of her living rooms largely dust free.

11. WHAT IS CLEANLINESS? -- We are accustomed to consider the appearance to the eye as the test of the cleanliness of our living-room, and make vigorous efforts to remove the large dirt particles. It is, however, the less visible dust, the "motes in the air" to be inhaled with every breath which is the real menace to life and health.

12. WHERE WILL DUST BE FOUND? -- Since the lowest and broadcast level surface in a room is the floor, it is evident that the greatest quantity of dust will settle upon it. If the floor is a smooth surface of hard wood, or of stone, tile, or one covered with linoleum, or wood carpeting, the dust may easily be wiped up, and carried away.

13. WHAT IS THE DISADVANTAGE OF A CARPET? -- If, however, as is too generally the case, a carpet covers the floor, it not only presents the disadvantage of hiding the dust in its meshes, but also of holding it there. Dust clings tenaciously to wool fabrics, particularly to such as have a thick nap or a rough surface, as do carpets and portieres.

14. ANOTHER LESSON FROM EXPERIMENTS. -- Experiments carried on for the purpose of cleansing the indoor air of dust particles, by allowing strong currents of fresh air to sweep through the room, resulted in removing only such articles as were suspended in the air, having but little effect upon those which had become attached to carpets and hangings.

15. CUSTOMARY PROCEDURES FOR REMOVAL OF DUST. -- The usual procedure for the removal of dust, that of dusting and sweeping as it is generally accomplished, is more a dust spreading and dust-stirring-up procedure than anything else. Sweeping removes little dust save that which clings to the larger particles of household dirt or to the nap which the broom wears from the carpet. The experiments before referred to showed that the ordinary routine work of sweeping and putting to rights the ward of
hospital which presumably was an uncarpeted apartment increased the number of bacteria in the air of the room about seventy times.

16. CONDITION OF CARPETED ROOMS. — What, then, must be the condition of the air of a room, after sweeping, the carpet upon the floor of which is not taken up oftener than during the semi-annual house cleaning?

17-18 A DUST SCATTERING PROCEDURE. — The frequent sweeping of carpeted floors is not only a dust-scattering process, but the vigorous strokes, of the broom drive the dust particles through the meshes of the carpet, forming an accumulation underneath it from which some dust atoms must rise again with every movement upon the floor. Of course something depends upon the manner in which the carpet is cleaned and cared for. The custom of some housekeepers of sprinkling moist tea leaves, coarse salt, or dampened corn-meal upon the carpet before sweeping aids in keeping down the invisible "cloud of dust" from the air, and in removing more of it from the floor than a dry sweeping. The use of a good carpet-sweeper is also effective in gathering the dust without diffusing it through the air.

19. SOURCE OF DUST IN THE HOUSE. — The chief source of the introduction of dust into the house is the mud and filth on the shoes and garments of those who walk upon the carpet. At best, a carpet is a veritable dust collector, which, when we take into consideration the significance of dust in its relation to health, is better dispensed with.

20. ADVANTAGE OF HARD WOOD FLOORS. — A hardwood floor, painted, stained, varnished, or waxed, with removable rugs which may be carried out of doors to be freed from dust, makes possible a state of cleanliness unobtainable when a carpet is used.

21. DUSTING MORE IMPORTANT THAN SWEEPING. — Sweeping is looked upon as a necessary operation for cleanliness, and it may be required for the removal of large dirt particles; but as a sanitary measure, dusting is far more important, and floor dusting the most essential.
22. FLOOR DUSTING.--If the floor is a painted one, this may easily be accomplished by wiping it over with lightly dampened clean cheese-cloth. This can be most thoroughly done by hand but a cloth fastened over a clean broom may be used. For a varnished, waxed or otherwise polished floor, a broom covered with heavy cotton flannel serves the purpose very well. Even a carpeted floor may be rendered much more sanitary by being wiped daily with a moist, not wet, cloth. When the dusting is completed the cloths should be well washed with soap, boiled, and dried before being used again.

23. HOW TO SWEEP A CARPET:--The cleaning of a room should result in the removal of dust. This, if to be attempted in a carpeted room with the aid of an ordinary broom, must be managed very carefully.

Prepare the room for the operation by first thoroughly dusting, and then removing to some other quarters, all light articles of furnishing. The heavy pieces should be as carefully dusted, even the steam coils between which so much dust is wont to accumulate, and then covered with large sheets of unbleached cotton or print kept for the purpose.

Close all bookcases, drawers, and cupboards securely. Shake and fasten up from the floor all curtains and draperies. Brush off and roll the window shades as high as possible, both for the purpose of keeping them from becoming covered with dust and to admit more light to the room during the process of cleaning. In case there are many pictures with ornamental frames to retain dust, it may be well to cover them also with cloth or newspapers. The rugs should be taken out of doors and shaken.

24. SWEEPER'S OUTFIT.--The sweeper's personal outfit may well consist of some covering for the head, and if the dress is one of wool, to which dust clings tenaciously, an apron of cotton to cover it entirely should be worn. In case there is a probability of the existence of disease germs in connection with the dust, as in rooms where invalids are confined, it is a wise precaution to cover the nose and mouth with a pad
made from some antiseptic material which will admit air but not dust.

25. TO SWEEP A ROOM.--Sprinkle the carpet well with moistened salt, or
wet some newspapers slightly, and tear in small pieces, and strew thickly
over the floor. Open the window on one side of the room only, so that
there will be no draft, and beginning at one end of the room sweep each side to-
ward the center, using especial care to clean the dust from out all cor-
ners and from under all pieces of furniture. Move the arms and not the
trunk in sweeping, making short, even strokes without lifting the broom
from the floor.

26. DUSTING.--Then with a long-handled broom covered with a soft, clean
cloth, wipe the dust from walls and moldings. The rule in dusting should
be to work from top downward. A lightly dampened cloth will be needed
for window sashes and sill and the tops and panels of doors. When the
room is clean to the floor, wring a large cloth as dry as possible,
from warm water, to which a small quantity of salt has been added, and go
over the entire carpet, breadth by breadth, removing all dust possible.
Remove the covers from furniture, giving them a thorough shaking out of
doors, and the room is ready for rearrangement and restoration to order.

27. STAIR SWEEPING.--For stair sweeping use a hand whisk-broom, sweeping
each stair separately, catching the dust and dirt in a dust pan held
close to the edge of each step. A skewer and cloth are most serviceable
for removing the dust from unprotected corners.

When the sweeping is completed a strong current of air allowed to
blow through the room from open doors and windows, to drive out some of
the floating dust atoms is desirable after which the room should be
closed for an hour or two to allow the dust to settle.

28. SWEEPING OVER NIGHT.--It is excellent plan to sweep over night such
rooms as are not occupied during the evening since there is no time when
the dust can so well settle as during the night. An early morning dusting
can then take place of the usual morning sweeping, which, instead of mak-
ing the room more sanitary, starts the dust in motion to continue thus
till quiet comes again. Particularly is this overnight sweeping and early
morning removal of dust an important factor in the care of dining-room,
kitchen, and other food rooms.
29. - SWEEPING WAXED FLOORS. -- For sweeping an uncarpeted floor of hardwood oiled or waxed, or the more common stained or painted floor, a broom encased in a Canton flannel cover, made like a bag, with a stout drawstring run through the top to tie around the handle just above the brush, is desirable. The dust will cling to the top of the broom cover and is thus easily removed without becoming scattered. A more thorough cleaning of a polished floor may be accomplished by folding a crash floor-cloth, which has been very carefully wrung from clean water, into a convenient shape for pinning around a long-handled scrubbing brush. With this go over the entire floor, changing the cloth if necessary. Most of the dust will cling to this damp cloth, and what does not will lie upon the floor in rolls, which may be easily removed with a hair broom and dust pan.

By the way, the hair broom should always be used for polished floors when an uncovered broom is required. Ordinary brooms very quickly dull the polish and wear off the wax. If the floor to be cleaned is a wax one, it must afterward be polished with the weighted brush, and to make sure that no dampness remains after the use of the floor cloth, it is well to keep a folded piece of clean, soft Canton flannel under the brush while using.

20. BROOHS. -- The broom in some form figures in every land. Rushes, twigs, hair, fiber of plants, whalebone fiber, as well as the more commonly used broom corn furnish material from which it is made. The ancient broom, and the kind still in use in some countries, was simply a bundle of rushes tied together. No doubt it served its purpose quite as well as does its more elaborate and convenient successor. It was not designed for such dust-provoking business as is the modern broom, because the old-time floors of mosaic, stone, and wood did not collect and hold dust from month to month as do our modern carpets.
31. DUSTING FURNITURE.--The dusting of surfaces and furniture should be done with slightly moistened cloths, preferable cheese-cloth or gauze. A brush or feather duster is of no service whatever in ridding a room of dust. Anything requiring brushing or beating should be taken in to the open air; or, if this is not practicable, it should be brushed before the dust is settled in the room.

32. SIMPLE FURNISHINGS MOST HYGIENIC.--The labor of keeping a room dust free is greatly lessened and the sanitary conditions are equally increased by simple furnishings and finish. Intricately molded or carved woodwork upon walls or furniture, upholstered furniture, tasseled and tufted, heavy curtains, portiers, and other hangings, while giving to a room an air of ease and elegance, are veritable dust depositories. To forego these luxurious appointments does not necessitate the sacrifice of either comfort or beauty. There are possibilities of rare beauty in an unornamented, natural-wood finish. Hangings of silk, linen, or muslin, furniture covered with leather, linen, or other smooth-surfaced fabrics, with polished, hard wood floors, and rugs, make possible a rich and dainty room both esthetic and sanitary.
DAILY PROGRAM FOR CLEANING A ROOM WITH A CARPET.

1. Dust all pieces of furniture and steam coils.
2. Remove all light articles to another room and carefully cover, with a cloth kept for the purpose, all heavy articles, the steam coils and also the picture frames, likely to hold dust.
3. Close all cases securely, roll the shades high, fasten up all draperies, take small rugs out of doors and shake them.
4. Scatter over the carpet some moistened material that will aid in keeping down the dust.
5. Sweep from each side of the room toward the center.
6. Keep erect in correct physical poise, moving the arms instead of the body in the use of the broom, making short strokes, without lifting the broom.
7. When the sweeping is completed, close the room for an hour to let the dust settle.
8. Sweep carpeted stairs with a whisk broom and dust pan,
PROGRAM FOR DUSTING A ROOM AFTER SWEEPING.

1. Begin at the top, wipe dust from the walls with soft cloth over a long-handled broom. A patent duster is also excellent.
2. Use lightly dampened cloth for removing dust from woodwork.
3. Dust the carpet with dampened cloth.
4. Remove swarms from furniture and rearrange.
DAILY PROGRAM FOR CLEANING A ROOM WITH RUG.

1. Dust all furnishings.

2. Remove and shake out of doors all small rugs and sweep the large one with a closed sweeper. At least once a month the large rug should be taken out of doors and dusted. An easy way is to spread it out upon the grass and sweep it well on both sides.

3. Wipe entire floor with a covered broom.

4. If more than one dusting is needed, sweep first with a hair broom then wipe with a soft cloth very lightly dampened, then with a dry one, and polish.

5. Remove dust from walls and furniture.

6. Rearrange.
Every woman needs information about everything pertaining to motherhood.

Her most sacred function.

Criminal neglect. Left to get information from undependable sources.

See doctor early, not because of danger.

Normal savage women.

Prevent complications. Rare but always possible.

(Later tell about complications. Give statistics).

Signs of pregnancy.

Usually diagnosis clear.

Sometimes disguised. Women find selves well advanced before aware. Even doctors sometimes mistaken.

Child itself gives most positive signs.

Presumptive signs.

Arrest of menstrual function a preparation for conception.

Under influence of ovum blood supply of uterus increased, lining membrane thickens and uterus enlarges; prepares to receive ovum.

If no ovum, membrane softens, blood vessels open, bleeding. Return to normal size.

Other Things Cause Cessation of Menstruation

Age. Change of life may occur early from disease of ovaries or menstruation may stop from other causes.

Anemia.

Nerve shock.

(Look up other causes.)
Nursing

In case of amenorrhea from anemia, pregnancy may advance several months before being suspected.

Pseudo menstruation during pregnancy may be caused by disease, by tendency to abort, not real menstruation.

Changes in breasts.

Enlarged and tender. Uncertain. May occur at menstruation (an abbreviated reproductive cycle.)
Sensations of fullness, tingling, throbbing.
Nipples at end of second month larger, erectile, rosy.
Areola larger. More noticeable in women with dark complexion.
A dozen or more elevations which become prominent after two months.

Toward third month can squeeze clear fluid from nipples, not milk, colostrum, a secretion which precedes milk.
Gets yellowish later.

Signs in breast not so evident in women who have been pregnant before.

Morning sickness (mention earlier in order)

Majority of women suffer (especially first pregnancy)
Nausea, sometimes vomiting on morning rising.
Begins after missing first period.
Stops after third or fourth month.
Sometimes occurs later in day.
Most likely first pregnancy.
Bladder symptoms

Pain or frequency in urination caused by w. pressing on bladder, heavy and falls forward. Disappears after fourth month when it rises. Reappears later when it settles.

Thyroid

Fullness in neck. Thyroid also in many women enlarges at mens. Other glands, especially pituitary. Corpus luteum (yellow body) forms each mens. that of preg. is double size.

Positive signs

1. Quickening—motion of the fetus. 18th week to 20th week.
First gentle tapping, later stronger.
Strong movements no worry.
Stoppage—report to doctor.
Must not mistake gas movement.
Can be felt by doctor.
2. Soon after quickening, doctor may hear heart beat over lower abdomen. Beats twice as fast as mother's.
3. Late preg. may outline child.

Summary

Mens stopped after being regular.

Breasts enlarge.
Nipples darken.
Colostrum.
Quickening
Position of uterus.
Duration of pregnancy

39 weeks, or 273 days, 9 calendar months from conception

From 1st day of last period. Duration 40 weeks, 280 days.

Duration differs in individuals

Mouse, 3 weeks.
Elephant, 2 years.
Rabbit, 30 days.
Cow, 285.

Cows may vary 2 months.

Human beings vary (look up).

Calculations not exact. Approximate in half cases. Likely to overrun the time estimated.

Earlier
Position of uterus

Not felt till after fourth month.

Top at umbilicus sixth month.

Ribs at 9th month.

2 or 3 weeks before confinement sinks several inches.

Visible change.

Prolonged Pregnancy

Usually week or two over time calculated.

Confinement likely to come about time 10th mens. due.

If long mens. cycle, long pregnancy.

2nd and 3rd and later preg. longer.

Need not worry if two or three weeks delay, if all goes well.

Shortened Preg.

(Look up)
Ovaries and ovum

Describe ovaries

Ovum in ovary at birth, 20,000 in each. Only 500 needed for men. One good as two for reproduction.

Ovum when impregnated by male element becomes human being.

Size of ovum \( \frac{1}{125} \) inch.

Ova remain dormant till ripe or mature. This begins 12-15th year.

Placenta

Amniotic fluid

Umbilical cord

Embryo fetus

Sex determined by cell. Two kinds of. In equal nos. 105 boys born to 100 girls.

Sex not distinguishable before death

Female 144

Male 129 Not reliable

Age of fetus

Case of miscarriage. Find month of development that is age of fetus by dividing height in inches by 2

Weight of fetus

At end of 5th mo. 9-10 oz.

At term 7 lbs.

At 7th mo. 4 lbs.
Testimonials for the Home Hand Book from the state of Indiana.

Fort Wayne, Ind.

The "Home Hand Book of Rational Medicine" is undoubtedly a valuable book. Children and adults will read it by the hour with pleasure and profit. Read with attention, and administered with good common sense, I have no doubt its precepts will save the value of the book in a few months by making the physician's visits less frequent.

E. Yocum,
Pres of M. E. College.

Fort Wayne, Ind.

Having examined Dr. Kellogg's "Home Hand Book" I take pleasure in expressing my belief that it is decidedly the best book of the kind that has come under my notice. So many books of this class are written by irresponsible, uneducated, and unscrupulous charlatans, that it is really refreshing to see a volume from the pen of a man standing so high in his profession as Dr. Kellogg does. It deserves a wide circulation.

G. W. McCaskey, Ph.D., M.D
Prof. of Physiology and Microscopy in Ft. Wayne College of Medicine.
It is seldom that a popular work of this kind appears that a regular physician can endorse; but I can heartily recommend Dr. Kellogg's "Home Hand Book" and am sure that it will be a public service to commend it to all families, as the Doctor has treated these important subjects in a plain, sincere, and earnest manner and I would wish that every family in the land possessed a copy of it.

Dr. W. A. Neal, Elkhart, Ind.

Mt. Wayne, Ind.

After having been disgusted for many years with the usual literature which has been thrust upon us an indiscriminating and too confiding public, in the shape of popular treatises upon the subject of disease and their treatment, most of which has been designed to advertise some charlatan or quack nostrum, it is really gratifying to find a meritorious work concisely written and methodically arranged and adapted to popular instruction, and that, too, written by a profound scholar and an indefatigable and conscientious laborer for the dissemination of useful knowledge among the people. Having recently examined the Home Hand Book, and knowing as we do personally, the author, J. N. Kellogg, we are prepared to give it as our opinion that it is such a work as the above, and that placed in every family it would prove of immense value in the promotion of health and morals, the prevention of disease, and in the protection of the people from the imposition of quacks and quack nostrums; and we take pleasure in recommending it to the public.  J. S. Groce, M. D., Prof. Surgery; Mt. WayneCol- O. S. Steiner, M. D., Prof. Anatomy, Physiology
I have examined the work entitled "The Home Hand Book" and am satisfied that it is the book for everybody. It should be in every home in the land. The advise it contains will, in a short time, save many times its cost, since it shows how to prevent as well as to cure disease.

H. E. Brown,
Prin. Normal School,
Valparaiso, Ind.

Rochester, Ind.

Having carefully examined the "Home Hand Book" by Dr. Kellogg, I cheerfully recommend it to all as a work of rare excellence, and the best domestic work now in print; and if its teachings are carefully studied and put in practice, a great amount of unnecessary suffering will be prevented. The chapters on the adulteration of foods is especially valuable and timely at present. No family desirous of preserving health can afford to be without it.

Wm. Hill, M. D.

Goshen, Ind.

There is no question but what Dr. Kellogg's "Home Hand Book" is destined to become the peoples' favorite, and do great service in carrying valuable information concerning health to thousands of families needing it.

W. O. Pierce, D. D.,
Pastor M. E. Church.
I certify that I have given Dr. J. H. Kellogg's "Home Hand Book of Domestic Hygiene" an examination and can heartily recommend it to the laity as a work of great merit for the prevention of disease and the preservation of health.

Dr. C. Hector,

Goshen, Ind.

Indianapolis, Ind.

A vast number of subjects briefly and intelligently discussed are presented in the work entitles "Home Hand Book of Domestic Hygiene and Medicine."

There are no mysteries in true science, and this work can safely be consulted, not necessarily to supplant the physician, but rather to assist you in a just estimate of the treatment of disease on rational and common sense principles.

John M. Kitchen, M. D.

Indianapolis, Ind.

Having examined the "Home Hand Book of Rational Medicine" by J. H. Kellogg, M. D., Battle Creek, Mich., I find it a good practical treatise upon the subject embraced within its scope. As a means of awakening the interests of non-professional persons in relation to such subjects it can be recommended.

Thad. M. Stevens,

Sec., State Board of Health
Roanoke, Ind.

I consider the "Home Hand Book" the best of the kind ever published, and earnestly wish that the good volume was in the book-case of every man in this township.

A. J. Salts, M. D.,

Late House Physician to City Hospital, Ft. Wayne.

Indianapolis, Ind.

I have examined Dr. Kellogg's "Home Hand Book of Domestic Hygiene," and believe it to be an exhaustive work on the subjects of which it treats. I regard it as a valuable book for the family.

D. W. Grubbs, Mayor.

Indianapolis, Ind.

I have examined Dr. Kellogg's "Home Hand Book" and in my opinion it by far excels anything of the kind I have ever seen in print, being compact and containing nothing but useful information to all, and in language easy of comprehension to any one.

Respectfully,

IL N. Patterson,

City Treasurer.

Indianapolis, Ind.

I have examined Dr. Kellogg's "Home Hand Book," and unhesitatingly pronounce it by far the most comprehensively, systematically, and thoroughly developed work of its character that I have seen. Throughout the entire work great stress is put upon the laws of health and the methods of preventing disease. The language used is such that any one can understand it. I think it is
the best family medical work I have ever examined.

Capt. W. E. Wiles.

Indianapolis, Ind.

I have hastily examined the Home Hand Book of Domestic Hygiene by Dr. Kellogg, but enough to see that it is a carefully prepared compendium of scientific knowledge upon those subjects, written in plain and common sense style. The plates are valuable. The whole constitutes a very useful work to those who know a little of those vital matters of the preservation of the health and the prevention and removal of disease.


Indianapolis, Ind.

I have been much interested in Kellogg's "Home Hand Book of Domestic Hygiene and Rational Medicine". I think it an improvement on most medical books, in this, that it has much to say on hygiene, and for both the prevention and cure of disease. I have found there is more help in careful living than in drugs. Any dyspeptic can well afford to buy the book if he read only the chapters on foods and those that treat of disordered digestion. The book is a valuable one, and marks a step forward in the prevention and treatment of diseased conditions.

Hon. A. P. Stanton.
Indianapolis, Ind.

I have hastily examined the "Home Hand Book", by J. H. Kellogg M. D., and think it an excellent compilation of the barrenness named. It is replete with practical suggestions with regard to every-day life; and if faithfully studied and appreciated, it may be the means of driving impostors from the professional field, thereby protecting the people from the imposition so successfully practiced by this class of medical sharks. If it does this it will do a great work.

J. A. Cumingor, M. D.

Indianapolis, Ind.

Having examined Dr. Kellogg's "Home Hand Book", I take pleasure in expressing my belief that it is the best work of the kind that has come under my notice. So many books of this kind are written by irresponsible, uneducated charlatans, that it is really refreshing to see a volume from the pen of a man standing so high in his profession as Dr. Kellogg does and I take pleasure in recommending it to the public.

W. A. Cochran, M. D.

Forest, Ind.

I have carefully examined a prospectus of Dr. Kellogg's "Home Hand Book". I regard it as a scientific work. The facts are stated in such language that any person can understand them. In fact it is one of the most elaborate and practical Family Guides I have ever seen.

J. Richards, M. D.
Testimonials for Home Hand Book.

Coesee, Ind.

I think it is one of the best works of the kind, especially for domestic use.

N. R. Wenger, M. D.

Indianapolis, Ind.

Having examined Dr. J. H. Kellogg’s “Hand Book of Hygiene,” I think I can justly say it is a good and useful book in which there is much to approve and little that is censurable. If it were in the hands of every intelligent household in the land, it would serve as a reliable guide in relation to hygiene and the treatment of many of the milder and incipient forms of disease, and thus, in all probability, prevent much suffering and sickness. The style is peculiarly happy.

P. H. Jameson, M. D.
Testimonials for Home Hand Book.

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P. H. Jameson, M.D.
Indianapolis, Ind.

We have examined the "Home Hand Book of Domestic Hygiene and Rational Medicine" by Dr. J. H. Kellogg, and think it well adapted to the wants of the non-professional reader, and of special value to the farmer, and those distant from a physician. The truths of physiology and hygiene are clothed in a language at once plain beautiful, and attractive, and the department of Treatment is sufficiently elaborate for all emergencies and light ills not requiring the services of a trained mind. The work is especially valuable for the advice given and the thorough manner in which the evils of the society of today are pointed out. In a word, it is a work worthy of perusal by all, and will do much good in this country at this time.

Dr. W. Clinton Thompson

Dr. P. J. Watters.
613

Hygiene

5. Bedding hygiene
   1. Mattress a catch-all for germs

4. Chamber a condenser of household stuff

1. Material for bedding pillows

3. Carpets - mats
   wallpaper

2. Chairs - night

1. Wicker chairs

Table chairs

Work study tables

Dust - 2

Hunters - flies, bugs

Hunting - flies, bugs, bugs

(1) Mosquitoes, remedies, dangers.
1. Climate
2. Location and
3. Marine materials
4. Heating, ventilation, and cooling
5. Water supply
6. Sewage and etc.
7. Furnishing
8. Bedbugs
Have construction
Walls
Arrangement
under house

Cellars + basements
Windows + Roaches
mosquitoes

Size + rooms
Med chambers

Households
Ventilation

Heating - grates - Mexico
Open fires
Gas stove + cinders

Furnaces

Lighting
Window blinds
Value - sunlight, health

Glass house

V lights
Gas lamps

Good light
Chairs - rocking, easy, sofa
Tables - stands
Mats - bedding, blankets, mattresses, bolsters, sheets, not underbrides, sheathing
Carpet - mats
Wallpaper, Alabastine or
White bedding
Sewer drains
cesspool
valets
water closets
sewer closets
backyard
s几位
well barrel
main yard
hollies
COURSE OF INSTRUCTION FOR MOTHERS' HELPERS.

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Mothers' Meetings.

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1st Lesson.— How to Organize and Conduct Mothers' Meetings.

2nd Lesson.— A model Mothers' Meeting in which all the workers participate. The topic to be studied at this meeting to be, The Responsibility of Motherhood, or the Mother's Privilege.

3rd Lesson.— Model Mothers' Meeting. Topic—The Sympathy Between Parent and Child.

4th Lesson.— Model Mothers' Meeting. Topic—Training of the Appetite.

This subject will be an excellent introduction for the organization of a Cooking School.

The three model meetings will be sufficient to show how such meetings should be conducted. If more are desirable the following subjects may be studied:

5. Obedience and How to Promote it.

6. Physical Care of the Baby in Health.

7. The Clothing of Children.

8. Care of Children in Illness.


11. The Question of Rewards.

12. Toys and Amusements for Little Children.

13. Truthfulness and Its Cultivation.

14. The Little Foxes or Overcoming Bad Habits.

15. Foes of the Household.

17. Pure Air.

18. Work as an element in Character Building.
   (This topic will be an excellent introduction to a course of
   instruction in Sewing Sloyd and Kitchen Garden.)


20. The Question of Dress.
   (This will introduce a class in dressmaking.)
As it is much easier for a child to handle knitting needles than a sewing needle, the first instruction is given with a knitting needle.


Lesson 7. — Beginning the second model, a button bag. Instruction in seam stitch knitting.

Lesson 8. — Combination of the seam stitch and the plain stitch. The story of the knitting needles. Song.

Lesson 9. —

Lesson 10. — To complete second model with suitable stories and illustrations, and songs.

Lesson 11. —

Lesson 12. — Crocheting of the edge and the handle of the bag. A talk about color with this lesson.

Lesson 13. — Begin the third model. Story of Mary’s Little Lamb. Song. — The Lambs.

For the children some six to ten lessons will be required to finish this model which is a pair of reins knit of colored wool. Stories about wool. Uses of wool with the song of the Lambs will make the lesson interesting. Blackboard pictures of cotton boll, negro with basket, flax plant, &c., for the various lessons are important.

The workers ought to have become expert enough to knit at home and finish this model, so the next lesson, No. 14, may be model No. 4, a slate dryer.
Lesson 15.-- Is a model including all the various stitches learned and
designed for learning darning.

Lesson 16.-- Darning right side out.
Lesson 17.-- Darning wrong side out.
Lesson 18.-- Knitting a wristlet.
Lesson 19.-- Knitting a stocking.

KITCHEN GARDEN

May be given in six or twelve lessons.

PAPER SLOYD.

There are fourteen models requiring fourteen separate lessons.

Names of Models:--
Wall pocket.
Windmill.
Match safe. Cubical.
String holder.
Cone case.
Square box.
Square box with rounded edges.
Triangular wall pocket.
Quadrangular wall pocket.
Six sided box.
Eight sided box.
Conical wall pocket.
Tooth brush holder.
Card receiver.
PASTE BOARD SLOYD.

There are twenty-one models each requiring a separate lesson:—

1. Cube.
2. Right square prism.
3. Triangular prism.
4. Quadrangular **mm**mm Pyramid.
5. Triangular Pyramid.
8. Rhombus.
11. Pentagonal Pyramid.
15. Texsadron.
16. Truncated Pyramid.
17. Steps.
18. Dodecaeadron.
21. Cone.
COOKING SCHOOL.

Lesson 1. Simple Every Day Dishes. (Grains).
Lesson 2. Fermented Bread. (White and Graham).
Lesson 3. Unfermented Batter Breads. (Graham, Whole Wheat, Corn)
Lesson 4. Unfermented Dough Breads. (Rolls, Crisps.)
Lesson 5. Vegetables.
Lesson 6. Soups.

If further instruction is desirable another course of six lessons, as follows:—

1. Legumes.
2. Breakfast Dishes.
3. Fruits and some ways to Use them.
4. Special Breads. (Sticks, Beaten Biscuit, Crackers, &c.)
5. Simple Desserts.
HOUSEKEEPING.
Lesson 1.
Quiz.

1. What were the first houses like?
2. Of what are houses constructed?
3. What is housekeeping?
4. Describe a model housekeeper.*
5. What does such demand of woman?
6. What does the Bible say about this calling?
7. How do you account for the common distaste for housework?
8. What makes labor distasteful?
9. Is preparation for business a matter of importance for good housekeeping?
10. What lines of knowledge are necessary to sanitary housekeeping?

* Ans. A model housekeeper would be a woman of highest intelligence, with the broadest conception of human needs, one who could do practical things in a scientific manner.
Prelude—Mistress Eve in her beautiful garden home, lived untroubled and untrammelled with the cares of housekeeping. Nature was her cook and maid-of-all-work. The morning breezes did her sweeping and dusting, the dews of heaven daily freshened the flower-bedecked sward which doubtless served for both carpet and couch, while the new-born sun, moon, and stars furnished light and heat "without money and without price."

1. The peopling of the earth necessitated the construction of some sort of dwelling for family seclusion and shelter. Just what the first homes were like is unknown. It is conjectured that they may have been fashioned by binding together the tops of young supple trees, thus forming the framework of an arched-shaped bower, rendered more substantial and serviceable by intertwining with twigs and stems, or by covering with skins of animals. *

* Have the pupils give or write out descriptions of these and other dwellings of mankind, as much as in detail as time will permit.
2. Under the varying conditions of different ages and localities, tents, wigwams, huts, cabins, structures built of mud, sod, brick, logs, bark, stone, and numerous other materials, of various sizes and diverse styles of architecture, have supplied the need of dwellings for mankind, and brought into requisition those occupations in the management of domestic affairs of the household which we are wont to call housekeeping.

3. This term is a most comprehensive one. Among some races of people it includes the making as well as the care of the dwelling; as, the setting up of the tent, or the construction of the wigwam; the collecting of fuel, the grinding of grain, and preparation of other raw food materials, in addition to its cooking; the weaving of clothing for bedding clothing and coverings of various sorts; in short, the home production and manufacture of nearly all material things needed by the household.※

※ It is suggested that the pupils should be requested to make drawings representing primitive houses.
4. Much labor of a similar character came within the province of the housekeeper of our own land scarcely more than a half a century ago. Conditions have changed, however, with the increase of commerce, and the generally accepted idea of the model housekeeper in this twentieth century is the one who takes the entire charge of the house and its furnishings, attends to the purchasing, and, if need be, to the making of the necessary articles, as well as their preservation and repair; looks after the details indispensable for the physical well-being and comfort of the household in relation to food, clothing, warmth, sleep, etc; endeavoring to maintain throughout her domain everywhere the conditions essential for the health and happiness of the inmates of the house. In short it is the keeping, in its broadest sense, of both the house and the household, and, whether the labor devolves as it so generally does upon one member of the family, or is a charge assumed by one assisted by a retinue of helpers, the fact remains the same, that it is one of the most weighty and responsible positions in life's great field of action.

5. For the faithful and efficient performance of its duties, it demands a woman of superior ability, judgment, and knowledge, and the possession of such qualities as neatness, orderliness, punctuality, diligence, tact. The successful housekeeper must be a good financier, planner, supervisor, caterer, cook; she must be systematic, tasteful economical, a woman of broad ideas yet understanding details. She must
know how to do everything in her line and be able if necessary to teach others, not merely the routine duties, but the principles which underlie them, with the reason why certain ways are better than others.

5. In the thirty-first chapter of Proverbs, the wise man in his exquisite picture of a perfect woman, lays much stress upon her qualifications as a good housekeeper. Her dexterity and skill in useful handicraft are apparent, as we read, "She seeketh wool and flax and worketh willingly with her hands," for the purpose doubtless of providing material for garments for her household, which, farther along in the chapter, we ascertain are so well clothed that "she is not afraid of the snow" for them. That she is thorough and capable alike, we may infer from the fact that since she wrought willingly, she must have enjoyed her task, and as everyone knows, there is no pleasure in the doing of careless and slipshod work. We catch a glimpse of her, energetic, prompt, and thrifty ways, as we read, "She riseth while it is yet night, and giveth meat to her household, and their tasks to her maidsens." That she exercises wise economy and is prudent in her management we learn since "she looketh well unto the ways of her household," and that "she eateth not the bread of idleness," indicates that she is diligent and industrious.

Strength and dignity are her clothing." What a wonderful portrayal of true womanliness! We know her duties will be performed with faithfulness; for honor is one of the attributes of her character. She realizes that the trust imposed
upon her is no sinecure. She considers that she holds in her keeping the key to much of the success in life of those who make up the household, that the health and character of those in charge is in a great measure dependant upon the cleanliness of their surroundings, the wholesomeness of their food, together with many other conditions belong to her special province as a housekeeper; she feels that the household labor done with thought and conscience is a grand and noble calling, so with firmness and purpose and dignity of bearing, girded with strength, she cheerfully and willingly takes up the day's tasks performing even the most trivial in the best possible manner, remembering that 'he that is faithful in that which is least is faithful also in much.

7. In these days so many avenues are opening for women there is a tendency to belittle the plain and homely tasks of everyday life, and look with seeming aversion upon what is generally termed housework. This distaste for domestic duties no doubt arises from a feeling that they are a mere drudgery, needing only physical exertion, and to be associated with weariness and tiresome routine. It is true there are prosaic details in connection with household labor, but there are such necessarily connected with any line of work. When we look beyond the narrow confines of mere manual effort, it appears plain that no sphere of usefulness is larger or more productive of praiseworthy results than the doing of those
things within the domestic realm which minister to the needs of the household, promoting the peace, comfort, and physical prosperity of each individual, thus aiding him to develop his powers to the utmost, and helping him to make the most of life.

S. Lack of knowing how to do it well, makes labor distasteful and wearisome. Much of the dislike of household tasks would vanish, were women to make a careful study of the best ways of doing work, applying scientific principles to each process, thus making of every department of housework what in reality it should be, both an art and a science. Says James Freeman Clarke, "The least least thing thoroughly well done becomes artistic. Anything, complete, rounded, full, exact, gives pleasure; anything slovenly, slipshod, unfinished, is discouraging." This is true of sweeping, dusting, bed-making, and other household operations as of any other course of action. Great enthusiasm is generally manifested in learning at the cooking school the method of concocting some new or delectable or dainty dish; but this eagerness rarely extends to a desire to obtain the knowledge of how to do such a common thing as cleaning the cooking utensils in the best and most skillful way. Washing dishes is considered a menial task, so simple in character that one needs no instruction for its proper performance; yet it is the doing of these commonplace duties in the nicest and most perfect way that makes of household labor a philosophic study replete with interest, "a joy and a song" to the worker.
9. The road to success in other occupations lies along years of study and training. Housekeeping, with comprises more than a dozen different occupations, is undertaken with no study and but little training. The consequence can be readily foreseen. Not knowing how to carry on any one of the various occupations, the work in all departments is more or less bunglingly done, with the result of discouragement to the worker and distaste for the work.

We are instructed, "Whosoever thineth that and findeth to do, do it with thy might." Does not this certainly pertain to the work needing to be done in the kitchen, laundry, the cellar, as to any other line of the world's work? To do with one's might, that is, to do with ability, necessitates the keeping as close as possible to the perfect standard. It must mean a progress, a constant working toward that which is highest and best of its kind, whether that be the scoring of tim- ware or the editing of a newspaper.

To qualify for business is essential for good housekeeping. This is a point becoming more universally conceded with each year. Many of the colleges where young women are educated have introduced into their curriculum either complete courses in domestic science, or studies pertaining there- to. The time is past when an education can be looked upon as unnecessary for the woman whose work in life is largely devoted to the care and maintenance of a home.

10. The requirements of her profession demand the knowledge scientific principles which govern the processes, chem-
ical and mechanical, in constant daily use; an understanding of physical laws; of house sanitation—heating, ventilating, plumbing, disinfection, and cleanliness—food combinations, preservation, and preparation; methods and details of practical work in all departments; economical buying and using, as well as household art. There is, in fact, scarcely a branch of knowledge which may not be made to contribute valuable aid in the care of the house, and the health and comfort of its inmates. Yet proficiency in knowledge and skill, commensurate with the interests at stake, be acquired by those who assume the direction of the home, thus securing for themselves a perfect control of the machinery in their charge, and making plain the wonderful possibilities within their reach; then the higher purposes in the life in the home will dominate over the common feeling that domestic duties are petty and degrading. Housekeeping, rightly conducted, will be recognized as the important factor which it should be in the physical, intellectual, and moral advancement of the race. Work in the household will be chosen as a profession rather than accepted because it is the only thing available. Progress will be the housekeeper's constant motto, and her standard will be the perfection of individual health and character; the product of her own work, the best developed men and women.
AFTER MEAL TIME.

Quiz.

1. What is the first thing to be done in table clearing?

2. What shall be done with the crumbs?

3. In what order would you remove articles from the table?

4. How is silver ware often marred?

5. What is necessary in order that no crumbs accumulate in the dish water?

6. What advantage is there in piling each kind of dish by itself for washing?

7. How should salts and sugar bowls be treated?

8. What care should be taken of the table napkins?

9. What care should be taken of the table cloth?

10. Write a program for table clearing.

DISH WASHING.

1. What are the essentials necessary for washing dishes?

2. What about changes of water?

3. In what order should the dishes be washed?

4. What are the advantages of washing each kind of itself?

5. What shall be done when it is necessary to wait before washing the dishes?

6. What about the temperature of the water?

7. How should dishes used for milk be washed?

8. What is a good way to clean pitchers?
9. How shall articles used for eggs be cleaned?
10. How shall grain boilers be cleaned?
11. How shall iron pots be cleaned?
12. How may the outside of cooking utensils be cleaned?
13. How may kettles to which food has burned on be cleaned?
14. How may porcelain to which food has burned on be cleaned?
15. How shall wooden ware be cleaned?
16. Why is it important to dry tin and iron ware?
17. How would you drain dishes?
18. What points are important regarding dish towels?
19. What are good materials and sizes for dish and wiping cloths?
20. What evils may result from lack of care of dish towels?
21. Is it desirable to iron dish towels?
22. How may silver be cleaned and kept clean?
23. How may tin ware be cleaned?
24. How would you clean cut glass?
25. How may faucets and other brasses be kept bright?
26. What care should be given ivory-handled knives?
27. What care should be given Japaned ware?
28. What disposal may be made of garbage?
29. What care of garbage receptacle?
AFTER MEAL TIME

To no other department of domestic work perhaps is so little thought given or so little science applied as to the routine work of clearing the table and washing the dishes after mealtime. Any way to accomplish the object, seems to be the motto in very many households. But even for these prosaic tasks there is a best way, which, if employed, may make of an otherwise irksome service a really pleasant one.

CLEARING THE TABLE.—First of all, put back the chairs, and brush up the crumbs from the floor around the table, in order that none shall be trampled under foot while clearing the table; then collect all untouched foods and store them away in clean dishes; next gather the silver, place it handles upward in pitchers or other deep dishes, and pour warm water over it. For gathering the silver a compartment tray in which knives, forks, and spoons may be placed separately is desirable. Many of the scratches and marks on their silverware, which housekeepers deplore, come from the careless handling together of forks, knives, and spoons. Have two deep basins upon a tray, collect all the refuse and partly eaten foods, into one basin put all the dry scraps, into the other all liquids, carefully emptying cups, glasses, finger bowls, etc., and scraping all dishes which contained food as clean as possible; for no crumbs or particles of food should be introduced into the dishwater. Pile the dishes as fast as cleaned upon a second tray in readiness for washing. It saves much liability of breakage in transferring from the dining room to the kitchen, if each kind of soiled dishes is packed by itself.

Wipe carefully, if not needing to be washed, and replenish
all salts, granola cups, and sugar bowls before putting away. Gather the soiled napkins for the laundry, and put those clean enough to be used again in their proper places. Especial care must be taken, however, so to designate those reserved for future use that each shall receive the same again, as nothing is more disgusting to a sensitive person than to be tendered a napkin which has been used by some one else. Some form of napkin holder should be considered an essential part of the table furnishing. If rings cannot be afforded, ordinary clothes pins, gilded and decorated with a bit of ribbon, makes very pretty substitutes.

Brush the tablecloth, fold in its creases, also the sub-cover and lay both away until again needed.

WASHING THE DISHES.—Plenty of hot water and clean towels are the essential requisites for expeditions and thorough dish-washing. A few drops of crude ammonia, added to the water will soften it and add to the luster of the silver and china. Soap may be used or not according to circumstances; all greasy dishes require a good strong suds. There should also be provided two dish drainers or trays, unless there is a stationary sink with tray on which to drain the dishes. For washing glassware and fine china, papier-mache tubs are preferable to anything else, as they are less liable to occasion breakage of the ware. If many dishes are to be washed, frequent changes of water will be necessary as the first becomes either cold or dirty. Perfectly sweet, clean dishes are not evolved from dirty dishwater.

Neatness and order in the pantry depends in a great measure upon the way the housekeeper clears her table and stores her left overs. If the pantry serves merely as a dumping place for things edible then dirt and disorder will inevitably reign there. In the pantry as every where else about the house hold domains
there should be a special place for every thing and everything in its place. If the table dishes and silver as well as food supplies are kept there then this is all the more imperative.

Many housekeepers cover their shelves with oilcloth or paper. While this adds to the appearance of tidiness, such covering makes a possible hiding place for roaches or other vermin. An excellent plan is to give the shelves a coat of white enamel, they can then be wiped clean as easily as a dish and provide no harborage for vermin.

The general rule to be followed is always to wash the dishes least soiled first, and all of one kind together. The latter item is specially important, since much of the nicking of dishes and breaking of handles from cups, covers, and pitchers is the result of piling dishes promiscuously together while washing.

It is quite as easy to finish washing one kind before beginning another as to do it in any less safe and systematic way, and if wiped in the same order, it does away with the need of sorting when putting the dishes away.

If for any reason the dishes must wait for a time before being washed, the best plan is to pack them carefully into large pans, cover with warm water, and let them soak. When ready to wash them, prepare fresh hot suds and clear water for rinsing in additional pans. Do not use too hot water, as a high temperature milk will break glass and "check" the enamel of ordinary ware. The law of expansion holds good with both china and glassware; and all glass and glazed wares should be dipped into hot water in such a manner that all its surfaces may receive the heat and expand together.

All dishes used for milk should be first thoroughly rinsed in cold water before being washed in hot water or suds.
Be sure that the inside of all cups and pitchers is thoroughly clean. A mop made by fastening finger-lengths of coarse cotton twine to a suitable handle, is serviceable for washing the inside of pitchers.

In cleaning forks, spoons, or cups, which have been employed in beating or eating eggs, rinse them in cold water before putting them into hot suds, as hot water cooks the egg and causes it to adhere. Common table salt is said to be excellent for removing the egg tarnish from silver. Clean Dover egg beaters by beating a dish of cold water, or by holding under a stream of cold water from the faucet, then carefully rinse and wope perfectly dry. Do not put the upper part of the beater into hot water, as it will remove the oil from the wheels so that they will not work easily.

Grain-boilers and mush-kettles should be allowed to cool, then filled with cold water and allowed to soak during the meal hour, when they can be easily cleaned.

Tin dishes should be washed with hot suds as soon as possible after using.

For cleaning iron pots, use soft water and soap or washing-soda with a wire dishcloth or kettle scraper. If the food adheres to the sides, fill with cold water and soak. Kettles and all dishes placed over a fire should be cleaned on the outside as well as the inside. To remove the soot, rub first with pieces of dry paper and afterward with damp paper; then wash with hot suds and a cloth. Kettles and saucepans burned on the inside may be cleaned by putting a little cold water and ashes in them and allowing them to soak on the range until the water is warm. Porcelain-lined and granite-ware utensils stained from food burning on, may be cleaned after soaking for a time in a solution
of sal soda, which may be prepared by pouring boiling water over the soda in the proportion of two pints of water to one pound of sal soda, and stirring until dissolved. It may be prepared in quantity and stored in a stone jar until needed.

Wash wooden ware and bread boards with cold water and sand soap. In scraping dough from the bread board, always scrap with the grain of the wood and be careful not to roughen the surface.

Steel knives and forks with ivory or wooden handles should not be put into dishwater. Hot water will expand the steel and cause the handles to crack. Wash them thoroughly with the dishcloth, scour with bath brick, and wipe dry.

All tin and iron dishes should be thoroughly dried before putting away, to prevent rusting.

If draining is considered preferable to wiping dishes, a good plan, if one has not a patent dish drainer, is to fold an old tablecloth in several thicknesses and spread upon the table. Wash the dishes carefully and rinse in hot water. Place a cup or bowl bottom upward, lay a plate on each side, then one between and above them, with two more on the outside, and so on, not permitting them to touch more than necessary. A very serviceable dish drainer may be arranged by making a wooden frame the size of one's sink and tacking to it on the under side, a piece of wire netting.

DISHCLOTHS AND TOWELS.—No dishes or utensils can be well cared for without good, clean dishcloths and towels, and plenty of them. An excellent dishcloth may be either knit or crocheted in some solid stitch of coarse cotton yarn. Ten or twelve inches square is a good size. Several thicknesses of cheese-cloth basted together make good dishcloths, as do also pieces of old knitted garments and Turkish toweling. Vegetable fibre, soft for washing
and hard for scouring is excellent for cleaning dishes. Tie it in bundles with a stout string before using. If a dish mop is needed it may be made as follows: Cut a groove an inch from the end of a stick about a foot in length and of suitable shape for a handle; cut a ball of coarse twine into mini-inch lengths, and ligate around the stick with the middle of the strands against the groove; wind a fine wire or cord around the twine to fasten it in the groove; then shake down the twine, so it will lie all one way like a mop, and fasten it to the handle by tying a second cord around it on the outside. Such a mop must receive the greatest of care as regards cleanliness, and it is advisable that it be exposed to sun dried as frequently as possible as a precaution against germs.

Towels for drying dishes should be of three different grades -- fine ones without lint for glass, silver, and fine china; coarser ones for the ordinary table ware, and still another quality for pans, kettles, and other kitchen ware. The right size is a yard in length and half as wide, with the ends hemmed. As to material, fine checked linen is usually employed for glass and silver towels, and crash for ordinary dishes, for iron and tinware, towels which have become somewhat worn, or a coarse bag opened and hemmed, may be used. Old, half-worn table cloths may be cut into excellent dish towels.

It is of the greatest importance that all dishcloths, mops, and towels be kept perfectly sweet and clean. Greasy dishcloths and sour towels are neither neat nor wholesome and are a most fertile source of germs, often breeding disease and death. After each dish washing, the dishcloth, towels, and mops should be thoroughly washed in hot water with plenty of soap, well rinsed and hung up to dry either upon a line out of doors or a rack made for the purpose near the kitchen range. If badly soiled they
should be boiled. If care is always taken to clean the dishes as much as possible before washing and to change the suds as much as possible often as they become dirty, the towels will not be hard to keep clean and sweet-smelling. Those used during the week should go into the wash as regularly as other household articles. Some housekeepers recommend the plan of wiping dishes first after the washing with a clean dampened towel, and afterward with a dry one maintaining that fewer towels are needed and a better polish secured.

THE CARE OF SILVER, GLASS, ETC.-- If silver is well washed in hot water containing a few drops of ammonia, and carefully dried with a fine, soft towel, it will keep bright for a long time without other cleaning. If special cleaning is necessary, try the following: Place the silver in a pan of hot water, then with a soft cloth, soaped and sprinkled with powdered borax, scour the silver well; afterward rinse in clear cold water, and dry with a clean cloth. If a more thorough cleaning is needed, apply moistened Spanish whiting with a silver brush and soft flannel, afterward polishing with dry whiting and chamois skin. Frequent scouring should be avoided by careful washing, as too much rubbing wears out plated ware and dulls the best of silver. Silver ware and plate which is not in ordinary use can be kept from tarnishing by varnishing with collodion, a solution of gun-cotton in ether. The articles should be carefully brushed in this colorless varnish with an elastic brush, taking care that the entire surface is covered. The film of collodion will protect the underlying metal from the action of the sulphurous vapors to which is due the blackening of silver.

Tinware which has become blackened may be made to look bright and shining again by rubbing with a damp cloth dipped in sal soda. Afterward wipe dry. Sand soap or capolic may be used
SIX IMPORTANT POINTS, to be borne in mind by dishwashers may be summed up as follows:

1. Well scraped and carefully sorted dishes.
2. A plentiful supply of clean hot water, changed as often as needed.
3. Wash each sort by itself, and handle all carefully.
4. Wash thoroughly, scour all portions needing it.
5. Dry with clean, sweet towels.
6. Finish your work, by cleaning all utensils including the dish cloths and towels.
for the same purpose.

Cut-glass ware which has become in any way blurred or tarnished can be restored by polishing it with a soft piece of newspaper. First rub well with a piece slightly moistened and afterward repeat the process with dry paper. Rubbing with a soft brush dipped in fine, soft whiting is another method often employed for the same purpose. Cut-glass water-bottles dim or stained on the inside are best cleaned by rinsing with dilute muriatic acid, then carefully rinsing several times in clear cold water to remove all trace of the acid, which is a poison. Hand painted pieces should be washed without soap or chemicals. Such articles should not be soaked or rubbed hard, as careless usage will be likely to mar the decorations.

All fine china should be handled carefully in washing and drying. There will be less danger of breakage if the china is gradually heated by allowing it to stand in a pan of warm water before being put into hot water. The same is true of all table ware, and is of especial importance in cold weather.

Brass faucets and other brass or copper articles may be cleaned by rubbing with whiting wet with aqua ammonia.

Yellowed ivory handles may be restored to their original whiteness by rubbing with sand paper and emery; mineral soap or pumice stone may be used for the same purpose. Nice table cutlery packed away for a season may be kept from rusting by covering the metal portion with a thin coating of paraffine. Rust may be removed from steel by scouring with emery and oil; but if there is much corrosion, some weak muriatic acid will be needed. This, however, will take some of the metal with the rust, and must be washed off quickly.

Trays and japanned goods should never have boiling water poured over them, as it will make the varnish crack and peel.
If a tray is badly soiled, wet with a sponge moistened in warm water and soap and rub with a dry cloth; if it looks smeary, dust on a little flour and rub again. Marks and scratches may sometimes be removed by rubbing with a flannel cloth dipped in sweet oil.

CARE OF THE TABLE LINEN.—Much of the attractiveness of the table depends upon the linen used; if this is not well cared for, the finest table ware cannot make up for the defect.

In washing table linen, housekeepers should remember that hard rubbing is the worst wear which it can receive. If soaked over night, a gentle squeezing will usually be quite sufficient to remove all soil, or if a little borax (a handful to ten gallons of water) or household ammonia in the proportion of two tablespoonsfuls to a pail of water be added, two or three hours' soaking will suffice. Care should also be taken in hanging and fastening properly upon the line. Fold the cloth over the line six or eight times inches at least, and in such a manner as to keep the thread straight, and fasten with three or more clothes pins. Table linen is often sadly frayed at the corners by being pinned so that all strain comes upon the corners, and if left to whip in the wind, is soon ruined.

Colored table linen should be washed in tepid water containing a little powdered borax, which serves to set the color. Very little, if any, soap should be used. Rinse in tepid water, containing a small quantity of boiled starch; dry in the shade, and iron while yet damp.

Table linen should be carefully darned at once when it begins to wear and become thin, and may thus be preserved for a long time. When new, it should be washed before being made up, and the threads raveled or drawn, so as to make the ends exactly
straight. Napkins should be washed before being cut apart. When not required for regular use, the linen should be folded loosely, and laid away without ironing in some place where it will not be subjected to pressure. When needed, it can be quickly dampened and ironed.

THE GARBAGE.—What to do with the waste accumulating from preparation of foods is a question of no small importance. The too frequent disposition of such material is to dump it into a waste-barrel or garbage box near the back door, to await the rounds of the scavenger. Unless more than ordinary precautions in regard to cleanliness are observed, such a proceeding is fraught with great danger. The bits of moist food, scraps of meat, vegetables, and other refuse, very quickly set up a fermentative process, which, under the sun's rays, soon breeds miasm and germs; especially is this true if the receptacle into which the garbage is thrown is not carefully cleaned after each emptying.

A foul-smelling waste-barrel ought never to be permitted under any circumstances. The best plan is to burn all leavings and table refuse as fast as made, which may be done without smell or smoke by opening all back drafts of the kitchen range, and placing them on the hot coals to dry and burn. Some housekeepers keep in one end of the sink a wire dish drainer into which all fruit and vegetable parings are put. If wet, the water quickly drains from them, and they are ready to be put into the stove, where a very little fire soon reduces them to ashes. All waste products which cannot well be burned, may be buried at a distance from the house, but not too much in one spot, and the earth should be carefully covered over afterward. Under no circumstances should it be scattered about on the surface of the ground near the back.
door, as heedless people are apt to do.

If the table refuse must be saved and fed to animals, it should be carefully sorted, kept free from all dishwater, sour milk, etc., and used as promptly as possible. It is a good plan to have two tightly covered waste pails of heavy tin to be used on alternate days. When one is emptied, it may be thoroughly cleansed and left to purify in the air and sunshine while the other is in use. Any receptacle for waste should be entirely emptied and thoroughly disinfected each day with boiling suds and an old broom. This is especially imperative if the refuse is to be used as food for cows, since the quality of the milk is more or less affected by that of the food.

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TABLE TOPICS.

A woman cannot work at dressmaking, tailoring, or any other sedentary employment, ten hours a day, year in and out, without enfeebling her constitution, impairing her eyesight, and bringing on a complication of complaints; but she can sweep, cook, wash, and do the duties of a well-ordered house, with modern arrangements, and grow healthier every year. The times in New England when all women did housework a part of every day, were the times when all women were healthy.—Harriet Beecher Stowe.

The best ways are commonly the easiest ways and those that give most comfort to the household. **Know how** is a great labor-saving invention, on which there is no patent.—Sel.

Who sweeps a room as for God's law
Makes that and th' action fine.—George Herbert.
THE DINING ROOM.

Quiz.

1. What kind of a room is best for a dining room?
2. What kind of furnishings?
3. For what is it important to air the room?
4. Give program of morning work.
5. Describe a well appointed table.
6. Is it important that the table should at all times be well ordered and attractive?
7. Of what import is the meal hour as an education?
8. Give the directions for setting a table.
9. What points are to be remembered?
10. Is it well to set a table over night?
11. Program for table setting.
12. Suggestions for waiters.
THE DINING ROOM? ITS CARE AND APPOINTMENTS.

Human nature is so susceptible to externals, and good digestion so dependent upon conditions surrounding us that all the accessories of pleasant environments,—neatness, cheeriness, and good breeding—should be brought into requisition for the daily gathering of the family at mealtime.

The dining room should be one of the airiest, choicest rooms in the house, with a pleasant outlook, and, if possible, with east windows, that the morning sun may gladden the breakfast hour with its cheering rays. Let plants, flowers and picture have a place in its appointments, that the association with bright and beautiful may help to set the keynote of our own lives in cheerful accord.

A dark, gloomy, ill-ventilated room brings depression of spirits, and will make the most elaborate meal unsatisfactory; while the plainest meal may seem almost a feast when served amid attractive surroundings. Neatness is an important essential; any home, however humble, may possess cleanliness and order, and without these, all charms of wealth and art are of little account.

The furnishing may be simple and inexpensive,—beauty in a home is not dependent upon expense,—but let it be substantial, tasteful, harmonious in color and soft in tone, nothing gaudy or showy. Use no heavy draperies, and have no excess of ornament and bric-a-brac to catch dust and germs. A hard-finished wood floor is far superior to a carpet in point of healthfulness, and quite as economical and easy to keep clean. The general furnishing of the room, besides the dining table and chairs, should include a sideboard, upon which may be arranged the plate and glassware, with drawers for cutlery and table linen; also a side table for extra dishes needed during the service of a meal.
An open fireplace, when it can be afforded, aids in ventilation as well as increases the cheerful aspect of the room.

A moveable china closet with glass encasements for keeping the daintier china, glass, or silver ware not in common use is often a desirable article of furniture in small homes; or a shallow closet may be built in the wall of the dining-room for this purpose. A good size for such a closet is twelve inches deep and three feet wide. Four shelves, with one or more drawers below, in which may be kept the best table napery, afford ample space in general. The appearance of the whole may be made very pleasing by using doors of glass, and filling in the back and sides of the shelves with velvet paper in dark-brown, dull-red, or any shade suitable for background, harmonizing with the general furnishing of the room. The shelves should be of the same material and have the same finish as the woodwork of the room. Artistic taste displayed in the arrangement of the china may make the closet ornamental as well as convenient.

THE TABLE—None will deny that the appearance of the table affects one's enjoyment of the food upon it. A well-appointed table with its cloth, though coarse in texture, perfectly clean and neatly laid, its glass and china bright and shining, and the silver showing by its glistening surface, evidence of frequent polishings, gives far more comfort and enjoyment than one where little attention is given to neatness, order or taste. In many families, effort is made to secure all these important accessories when guests have been invited; but for common use, anything is considered "good enough for just one's own folks." This ought not to be, and mothers who permit such a course, need not be surprised if their children exhibit a lack of self-respect and genuineness as well as awkwardness and neglect of manners.
The table around which the family meals are taken, ought to be at all times the model of what it should be when surrounded by guests. As a writer has well said, "There is no silent educator in the household that has higher rank than the table. Surrounded each day by the family who are eager for refreshment of body and spirit, its impressions sink deep; and its influences for good or ill form no mean part of the warp and woof of our lives. Its fresh damask, bright silver, glass, and china give beautiful lessons in neatness, order, and taste; its damask soiled, rumpled, and torn, its silver dingy, its glass cloudy, and china nicked, annoy and vex us at first, and then instill their lessons of carelessness and disorder. An attractive, well-ordered table is an incentive to good manners, and reminds one being a place where one is incited to linger, it tends to control the bad habits of fast eating; while, on the contrary, an uninviting, disorderly table gives license to bad manners, and encourages the haste which is proverbial among Americans. The woman, then, who looks after her table in these particulars, is not doing trivial work, for it rests with her to give silently these good or bad lessons in manners and morals to her household as they surround the daily board."

A well-appointed table requires very little time and labor. No pretense or ostentation is necessary; neatness and simplicity are far more pleasing.

A "silence cloth" is desirable as first covering for the table. It not only lessens the noise in the changing of courses but also the likelihood of injury to the table from hot dishes placed thereon. It may be of felt or of double-faced Canton flannel, and should be of a width to require no seams. Even coarse napery presents a much better appearance with such a sub cover than if spread directly upon the table.
LAYING THE TABLE.-- See that the sub cover is perfectly smooth then lay the table cloth evenly and smoothly over it and so that the center fold shall be exactly in the middle, parallel with the sides of the table.

Place the plates in position, right side up, at even distances from each other (at least twenty inches apart) and straight with the cloth and the edge of the table.

Next arrange the centerpiece then place the glass and silver. Put the knives and spoons at the right of the plates, those for the first course farthest from the plate on the outside; the sharp edge of knives toward the plate and the bowl of spoons turned up. Place forks at the left with the tines upward. The number and kind of each must be determined by the number of courses and the method of service. At the right of the plate and just above the point of the knife place the glasses.

Lay the napkins on or at the left of the plate. Individual salt, cream cups, etc., are properly placed at the top of the plates. Bread and butter plates at the side of individual plates.

If the service is to be done from the table by members of the family, large spoons should be placed near dishes to be served, also the proper number and kind of separate dishes for the purpose. When fruit is to be served a plate on which is a finger bowl, two thirds full of water with a fruit knife and spoon should be placed for each person. The soup ladle should be placed in front of the ladle of the house who usually serves the soup. The carving knife and fork when needed, must of course be put before the place of the one who is to carve.

If the service is by course, the extra dishes, and silver ware needed, finger bowls, water service and cold foods in reserve for a renewed supply or for other course, should be made ready and arranged upon the side board. Such relishes as celery,
olives, salted nuts, etc. are customarily placed upon the table. The necessary dishes for each course should be brought on with the food, those for the first course being placed upon the table just a moment before the meal is announced.

For breakfast the fruit plates, with finger bowls and silver necessary for the fruit service are customarily placed before the meal; the hot foods being brought in when the fruit plates are removed.

The arrangement of all dishes and foods upon the table should be uniform, regular, and tasteful so as to give an orderly appearance to the whole. The "dishing up" and arranging of the food are matters of no small importance, as a dull appetite will often be sharpened at the sight of a daintily arranged dish while the keenest one may have its edge dulled by the appearance of a shapeless mass piled up with no regard for looks. Even the simplest food is capable of looking its best, and the greatest care should be taken to have all dishes served neatly and tastefully.

The table should not be set for breakfast the night before nor kept so from one meal to another, unless carefully covered with a cover thick enough to prevent the dust from accumulating upon the dishes. The plates and glasses should then be placed bottom-side up and turned just before meal time. No food of any kind should ever be allowed to remain uncovered upon the table from one meal to another. The cloth for covering the table should be carefully shaken each time before using, and always used the same side up until washed. To save the frequent washing of large table cloths many housekeepers use "protectors" over the cloth at each individual place. These are oblong pieces of linen fine or medium quality according to choice, made plain or fancy
as preferred, hemstitched, embroidered or finished in any desirable way. Simplicity is a desirable characteristic of all meal service.

A center piece consisting of a vase of fresh cut flowers, a basket of ferns or a small blooming plant in a jardiniere, or a dish of lovely fruit will add a touch of beauty and attractiveness. While the center piece should be artistically arranged, it should have nothing of the "made to order" air about it. The careless grace of Nature's own arrangement should be followed as closely as possible.

If one has a polished table, luncheon and even breakfast if desired may be served without a table cloth. An embroidered or otherwise decorated square for the center of the table, a small square under each plate and another on which to place individual dishes will be needed. If hot dishes are to be placed on the table, mats or protectors of some suitable kind must be an INDEMXXX invariably accompaniment or the table will be injured.

Dishes in which hot foods are to be served ought to be warmed especially in winter, but great care should be taken that no dish becomes hot, as that not only makes it troublesome to handle but is ruinous to the dishes especially if heated in the oven or otherwise by dry heat. A good way is to wipe the dishes from a pan of hot water, just before using, if one has no warming closet.

If the table be used uncovered it is customary to leave the side board without cover. If a table cloth is used a suitable cloth must be laid on the side board. A cover is always used on the side table, the purpose of which is to furnish a place for the hot dishes and the trays for use in placing and removing the food and dishes. It is desirable to have at hand always on this table
one or two clean emergency towels, for use in any accidental overturning or spilling of a dish during the meal service.

THE SERVICE OF MEALS.—There are few invariable rules for either table-setting or service. Each family must needs have an individual way of its own for the performance of these domestic offices in accord with its own circumstances. Here are a few suggestions, though doubtless other ways are equally good. A capital idea for the ordinary home meal, when no servant is kept, especially if in the family there are older children, is to make different members of the family responsible for the proper service of some dish or course. The fruit, which, if the first course at breakfast, may be prepared and placed upon fruit plates with the proper utensils for eating—napkins and finger bowls at each place before the meal is announced. If apples, peaches or bananas are the fruit served, one or two wafers placed upon each plate to be eaten in connection with the fruit may be found an aid to the proper Fletcherizing. Oranges, melons, grapes and other fruit of which only the juice is partaken are preferably eaten along. When the fruit is eaten, some member of the family may remove the fruit plates, and bring the hot grains, toasts, and other foods, placing them, together with the necessary individual dishes, before those who have their serving in charge. One member may be selected to pass the bread, another to dish the sauce, etc.; and thus each child, whether boy or girl—even those quite-young—may contribute to the service and none be overburdened, while at the same time it will be a means of teaching a due regard for the comfort and enjoyment of others.

If the meal is dinner, usually consisting of three courses, after the soup has been eaten, it may be the duty of some
member of the family to remove the soup plates and place the vegetables, salad entrees, and other hot dishes before those chosen to serve them. At the close of this course, another may remove the dishes and food, crumb the cloth and place the dessert, which may have been previously arranged on the side board. Or the dessert with proper dishes for serving may be placed before the lady of the house or the oldest daughter one of whom usually serves it. A pretty and convenient custom, particularly if fruit is the dessert, for the home table is to place, when setting the table, a decorated dessert plate just beyond the individual plate. After the dishes of the previous course are removed, all that is required is to draw the dessert plate forward into its proper place.

If a servant is employed, the following is an excellent plan of service: The soup plates or bowls being placed hot upon the table, with the tureen of soup before the lady of the house, and the glasses filled before the dinner is announced.

Grace having been said, the servant removes the cover of the soup tureen, and standing at the left of the lady, takes up with her left hand a soup plate, which she changes to the palm of her right hand and holds at the edge of the soup tureen until the lady has filled it, then carries it, still holding it upon the palm of the hand, and places it before the head of the table. In the same manner all are served to soup. If bowls instead of plates are used, a small silver or lacquered tray may be used on which to carry the bowl. It is also quite proper and somewhat customary to have the soup already in the bowls steaming hot, when the family taken their places. While the soup is being eaten, the servant goes to the kitchen and brings in the hot dishes and foods for the next course, and places them upon the side table. When the soup has been finished, beginning with the
one who sits at the head of the table, the servant places before each person in turn a hot dinner plate, at the same time removing his soup in turn a plate to the sideboard or pantry. After changing all the plates, she removes the soup tureen, and if meat or a substitute, is to be served, places that before the carver with the individual plates, which, when he has placed a portion thereon, she serves to each in turn; then she takes the potato and other vegetables upon her tray, and serves them, going to the left of each person when passing them a dish, but placing individual dishes at the right; next she passes the bread, refills the glasses, if needed, taking each one separately to the sideboard; and serves the grains, salad, and other articles making up the menu.

When every one has finished the course, she begins the clearing of the table by first removing all large dishes of food; after that the plates and all soiled dishes, mats, and all table furniture except the glasses, napkin rings, and centerpiece. Lastly she removes all crumbs with a brush or napkin. When done, she places in front of each person a plate with a doily and finger bowl upon it, and then brings the dessert and dessert dishes, placing them before the lady of the house, and passes these for her as in the other courses. If the dessert is pudding a spoon or fork should be placed on the plate at one side of the finger bowl. If the dessert is fruit, a fruit napkin may be used in place of the doily, the real purpose of which is to prevent the bowl from sliding about the plate in moving it. A fork and silver knife, or knife and spoon as the fruit may require, should be served with it.

GENERAL SUGGESTIONS FOR WAITERS.—In serving a dish from which people are expected to help themselves, always go to the left side.
Soup, food in individual dishes, clean plates, and finger bowls, should be set down before people at their right hand.

When removing soiled dishes after a course, always exchange them for clean ones, remembering that the only time when it is allowable to leave the table without plates is when it is being cleared for the dessert.

Pour all beverages on the side table; fill only three fourths full, and serve the same as anything else in individual dishes, placing the glass at each person's right hand. Everything relating only to one course should be removed before serving another course.

Waiters should be noiseless and prompt, and neatly attired in dress suitable to their occupation.
QUICK.

UNDERNEATH AND BEHIND THE HOUSE.

1. Upon what does a healthy home depend?
2. What are the most attractive harboring places for germs?
3. Are cellars desirable storage places for food stuffs?
4. Describe the construction of a sanitary cellar.
5. Why are light and ventilation essential? How shall such be secured?
6. What about dust? How avoided?
7. How often does the provision cellar need cleaning?
8. What care should be taken respecting the use of water?
9. What care should be given at this time to the fruit and vegetable supply
10. What precautions should be taken against the introduction of dirt into cellars?
11. How thorough should be the cleaning in the autumn and spring?
12. For what should mustiness be a signal?
UNDERNEATH AND BEHIND THE HOUSE.

PRELUDE:— There is a trite old saying, "out of sight, out of mind," sometimes pertinent unto matters pertaining to housekeeping. In all the affairs of life the tendency is quite too common to give the most thought to the things that appear most prominent to the eye, to spend time and money in beautifying the front lawn while the back yard is inconsideredly devoted to garbage heaps and piles of debris and waste of many sorts. There are but few housekeepers but would rise in self-condemnation were they to omit the daily cleaning of their living rooms, but there are many who are wont to leave with only an annual cleaning the cellar that is just beneath their same living rooms, the germ-laden air from which may permeate and pollute the whole house.

1. When our sanitary conscience has become fully awakened, we shall realize that a healthy home depends upon absolute cleanliness of the entire premises and surroundings, that germs generated in the woodshed are just as dangerous as if propagated at the front door, and that a semblance of purity will not pass for the genuine article in matters of health.

2. It is the things least observable, the dark corners, the clutter places, indoors and out of doors, which serve as most attractive harbor-age for germs. Here they are least likely to be disturbed; here they most frequently find the warmth and moisture which, together with absence of light, are the favorable conditions for their growth. Some of these minute organisms are more than likely to be of those sorts which breed disease.

People would often wonder less why sickness is so frequent in their households if they would inspect their woodshed and back yard, and turn to light the contents of some closet underneath the stairs. The picture of a village home comes to memory which no doubt is representative of scores of other country homes, where the fuel storage is a shed opening
from the kitchen, without flooring other than the damp ground, and where the wood for the kitchen stove has been sawn and cut for years, the chips and loosened bark have decomposed upon the moist earth, and the wood forming the bottom of the piles has rotted and molded in the water that has found entrance during the heavy rains and freshets, until the entire surface is a reeking mass of decomposing wood. Near by this shed is a flight of breakneck stairs down which one must grope in darkness unless provided with an artificial light, leads to the cellar, a mere excavation in the earth bordered with a wall of stones from which the mortar that once held them together has in many places fallen, and through which the water filters into the cellar at times of heavy rains and thaws. There are two windows of three panes each, curtains with cobwebs, which filters into the cellar by dint of much effort may be taken out, but not otherwise opened, to let in fresh air. A shelf hangs near the center, covered with fragments of food some of which have grown gray with age, or more correctly speaking, with mold; boxes and bins and barrels the contents of which include vegetables, fuel, rubbish, food stuffs, soft soap, et cetera, line the walls on all sides.

3. Cellars under dwelling houses are very undesirable storage places for food stuffs, and the common custom of using the same place for the storing of fuels and innumerable other things is almost unsanitary. Improper construction and neglect as to care makes a cellar under living rooms a veritable death trap to those who dwell above it.

If a cellar is considered essential, it should be constructed and kept in accord with the principles of proper sanitation. It should have thorough drainage, that there be no source of dampness, but should be impervious to moisture. An ordinary brick or stone wall is insufficient unless covered with good Portland cement polished smooth and kept fresh and
sweet by frequent coats of whitewash. The floors should likewise be covered with cement, otherwise the cellar is likely to be filled with impure air derived from the soil, commonly spoken of as "ground air," which affords a constant menace to the health of those who live over cellars with unceament walls and floors.

5. Light and ventilation are quite as essential to the healthfulness of a cellar as to other rooms of a dwelling, and plenty of windows on opposite sides should admit of a free interchange of air. It should be borne in mind, however, that in the summer season during the daytime the air in the cellar is much cooler than that outside, and as the warmer out-of-doors air enters the cool atmosphere of the cellar, the moisture it contains condenses, and makes the cellar damp. It is for this reason that many housekeepers keep the windows closed during the daytime and open at night during warm weather. During the cold season at least once a day the windows should be thrown open for a complete change of air. The same care and attention is necessary in regard to cleanliness in the cellar as in other parts of the dwelling.

6. Dust, the vehicle by which germs so commonly enter the house, is apt to abound in cellars and basements because they are usually more dark and less frequented than other rooms. But dust and dirt in these quarters is no less a danger signal than elsewhere.

7. Once a week, at least, a cellar where provisions are kept should be cleaned. The walls and ceilings should be brushed, the floor well wiped with a damp cloth, or even scrubbed if necessary, shelves and cupboards cleaned, and as much as possible of the dust everywhere gotten rid of.

8. Whenever water is freely used, special pains must be taken to dry and air the apartment thoroughly after cleansing, that no dampness be
left to foster mold. All fruits and vegetables stored in the cellar should be carefully looked over, and all decaying ones at once removed. Those of an especially perishable nature should be given more frequent inspection. No decaying vegetable or animal matter should be permitted to remain for a day in the cellar to pollute the air and contents of the room. This is a matter of the greatest import, since the germs and foul gases arising from decomposing food stuffs form a deadly source of contamination, not only to the contents of the cellar, but to the air of the living rooms above, to which it ascends through every crack and crevice.

10. At the harvest season of the year, when cellars are being filled with the provisions for winter, the utmost pains should be taken to provide against the introduction of unnecessary dirt and decaying substances. Tubers to be stored in the food cellar should first be either brushed or washed, that no necessary dirt be introduced into the room. Everything should be so placed and arranged as to facilitate frequent cleanings and to prevent the accumulation of dust and dirt in nooks and corners.

11. In the autumn and spring, the entire contents of the cellar should be literally "turned out of doors" and every portion of the room thoroughly disinfected with soap and water, fresh whitewash, or in some other practicable way.

12. An odor of mustiness in the cellar at any time should be considered a signal of danger to be attended to at once. If a careful cleaning and airing does not remove it, more vigorous measures should be employed. Examine the drainage and the contents of the cellar, and remove the cause if possible. If the cause is not discernible, the whole room should be disinfected, or, as may be needed in some cases, reconstructed.
Cockroaches. Quiz.

1. What points of interest can you mention concerning cockroaches?
2. To what modern conveniences are we indebted for their entrance to houses?
3. What are their habits?
4. Describe their appearance?
5. What is their metamorphosis?
6. Describe the eggs, and the process of development.
7. Name the different species found in houses. Describe each.
8. What are their habits of feeding?
9. What measures should be used to prevent their depredations?
10. If they have taken possession how shall they be dislodged?

B. 2 - 1 - 1 - 2
COCKROACHES.

Cockroaches belong to a family among the most anciently known of all insects. They fossils are abundant in the early coal formations. Their family is likewise the most numerous of the insect world; though it is quite probable that many have become extinct, it is estimated that there are nearly five thousand species still in existence. Fortunately, however, the majority of these live out of doors and feed upon plants and other vegetation. They are indigenous to tropical countries. A few species readily adapt themselves to indoor life in houses which furnish the right conditions of warmth in almost any climate, and as they are good sailors, finding the moisture and heat of steamships just suited to their needs, they have "taken up a claim" in nearly every portion of the globe.

2. In this country, the water, steam, and hot air pipes, which make possible so many modern conveniences, passing in between walls and floors of our dwelling's afford excellent lurking places for these insects which besides seeking warmth show such preference for darkness that they were called by the ancient on this account lucifuga. Water pipes seem to be their favorite highway, and where ever these are most in evidence, as in the bathroom, kitchen, and laundry there are these insects most likely to be found.

3. They may put in no appearance whatever during daylight, yet when at night one suddenly turns on the light, a regular army of them may be seen scurrying away to places of concealment so fast as to make it almost impossible to capture a single one.

4. Their bodies are flat, and it is not difficult for them to readily hide in small cracks and crevices; their dark black or brown color also facilitates their concealment. Although they have a
semblance of wings, they prefer to trust for safety to their legs, which are formed for swift running and long leaps.

5. The metamorphosis of these insects is an incomplete or direct one, the young differing chiefly in size, color and the absence of wings. During all stages of its development it does harm.

6. Development. The eggs are not laid singly but all at one time, encased in an oval capsule which has its surface so marked as to appear as if made up of rings or segments. When the insect first issues from the egg, its color is a whitish-brown; its eyes conspicuous for their blackness. The insect secures room for its enlargement during growth by casting its skin, some as many as seven times during the transformation to the adult stage. Each time it thus molts, it becomes darker in color, though when first emerging from its old skin it appears very pale for a few hours. The cast skin frequently remains so perfect even to the long antennae which sometimes has as many as one hundred joints, that were it not for the slit down the back from which the pupae emerged, it would be mistaken for the insect itself. The wings of which they have four, make their appearance after the next to the last casting of the skin, being perfected at the final molting. The insect's head, which is bent under the body, has well developed mouth parts provided with strong biting jaws. Its digestive apparatus makes up the greater bulk of its entire body.

7. There are but few domestic species, and these are known by different names in different localities, croton bug, water bug, red reach, are names given in this country to the German cockroach. These are a reddish brown color with two dark stripes on the thorax. They increase more rapidly than other species, are smaller in size, and seemingly more alert. The common species in Europe is known as "black beetle" although it does not belong to the order of beetles. There
is also an Australian species and the American house species. This is a native of tropical America, of a light-brown color and larger than the other domestic species. The wings are strong, long, and well developed. These insects are most common in the Middle and Western States.

The Australian cockroach is known for certain yellow markings on its body and wings. It is found in this country in the Gulf and other Southern states.

8. Habits of Feeding. Domestic cockroaches are omnivorous. Food supplies of all sorts, refuse leather, fabrics, paper woolens, blacking, in fact almost any dead organic matter suits their appetite. It is said they "even devour their own cast skins, and enjoy a cannibal feast on the corpses of their own relations." They frequently do much damage to books and clothing. The quantity of food supplies which they consume is generally of less account than the amount that is spoiled by their contact. From their mouth and certain other glands is emitted a dark colored fluid, which together with their excrement produces a peculiar and disgusting odor that is readily imparted to foods, cooking utensils, clothing, etc. This odor often discloses the fact that they have taken possession when not a roach is to be seen. Nothing is so effectual as soap and boiling water for the removal of this "roachy" smell. Wherever these insects have obtained a vantage ground, frequent scrubbing of shelves, drawers, and cupboards becomes a necessity and all food supplies must be kept tightly covered.

It is said that the different species of these insects will not dwell together in harmony, a very fortunate thing for the housekeeper, and that ordinarily the stronger party drives out the weaker. These insects have at least one redeeming trait, that of destroying bedbugs.
9. Preventive Measures. House cockroaches are not easily gotten rid of, and like all other evils prevention serves better than cure. As a preventive or remedial measure perfect cleanliness is all important, and if one lives in a flat or one of a row of apartment houses where there are connecting pipes, constant vigilance is likewise essential.

Fill all cracks along the baseboards and around pipes, sinks, and other places where warmth and moisture are likely to afford allurement and the crack a ways of ingress for these pests. A crack in a shelf over or near a steam coil or in the floor near by will often serve as a day lodging for roaches, wholly unsuspected by the uninitiated. Cracks catch and hold dust, dirt, fragments of food, and as they are dark if also warm, they meet the need exactly.

Again "Leave no signs out," no invitation in the way of food-refuse, crumbs, and scraps, on sinks and other places where roaches would be likely to congregate. They are least apt to stay where there is danger of starvation. Have all plumbing open to sight. The dark, damp cupboards under sinks are excellent lodging and breeding places for roaches.

10/ If after all precautions they yet succeed in gaining entrance, vigorous measure should be employed to rid the premises as soon as possible of their unwelcome presence, since the longer they are borne with, the more difficult becomes the matter of their extermination.

If the quarters infested are such as can be fumigated, this is perhaps the quickest method of solving the roach problem. However this is often inconvenient because of the necessity of keeping the rooms sealed for a number of hours. Experiments conducted in the Department of Agriculture at Washington show success following the use of a phosphorus paste spread on bits of paper and placed where the insects are likely to roam. Reach powder, liberally applied to cracks, spaces around
base-boards, crevices of shelves, backs of sinks, and other probable places by which roaches can enter or where they can conceal themselves, and left over night will be found serviceable. It does not kill but so stupefies the insect that one can in the morning easily brush up both insects and powder and burn them.

Sulphur and molasses mixed to a paste is said to drive them away, so is also a mixture of borax and white sugar. Turpentine freely used about their haunts is likewise destructive to them but its disagreeable odor and its inflammability makes its use less desirable. Insect powder burned on a red hot shovel is considered an excellent measure. This should be undertaken at night, and the room carefully closed so that the fumes of the powder may be retained in the atmosphere as long as possible.

In food closets where the use of powders and poisonous pastes are unsafe, traps of various sorts are effectual. Whatever method is employed, it must be thorough and followed by continued vigilance for a longer or shorter period depending upon the surrounding conditions.
The House Fly.

Quiz.

1. To what class of insects does it belong?
2. Describe the manner of its growth and development.
3. What other species sometimes come within doors?
4. What preventive measures are serviceable in keeping out flies?
5. What remedial measures?
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ANTS.

Quiz.

1. What points of interest may be mentioned about ants?

2. Of how many kinds of individuals do an insect colony differ? How do they differ?

3. Describe their growth and development.

4. What two species are most common indoor pests?

5. How may they be destroyed?

6. What preventive measures are of use?
ANTS.

Quiz.

1. What points of interest may be mentioned about ants?
2. Of how many kinds of individuals do any colony? Ansect. How do they differ?
3. Describe their growth and development.
4. What two species are most common indoor pests?
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CARPET BEETLES.

Quiz.

1. From what does it derive its name?
2. What is the appearance?
3. What are its habits? Its favorite food?
4. Describe the process of its growth and development.
5. Wherein does it do harm?
6. What measures of prevention are useful?
7. What remedial measures?
8. What other beetle sometimes attacks carpets?
9. How may it be destroyed?
CARPET BEETLES.

Prelude. Among other imports from Europe there was brought to our country in some manner, about thirty years ago what has since been familiarly known as the Buffalo bug, or Buffalo moth. The insect however is not a moth at all but a beetle. Probably the fact that it undergoes a complete metamorphosis and that the depredation which it commits to carpets and other fabrics is done during the larval period as is that done by the clothes moth has favored the supposition that it is a moth.

1. It made its appearance in several Eastern cities at about the same time but is said to have been named "Buffalo" bug when discovered making havoc among the carpets in that city, although the peculiar woolly-like larva might have gained for it the name "Buffalo."

2. In appearance the full grown beetle resembles the well known "lady bug" except in coloring. The carpet beetle being mottled black and white, and having a red stripe widening into projections at three points running down the center of its back. Though the warmer portions of the year, particularly the autumn months seems most favorable for development, is well heated houses it may be found the year around. It is able to live under very diverse circumstances, and is sometimes found in houses that have been unoccupied for months.

3. It is a day flyer and seems attracted by light, being frequently found upon windows. If opportunity is afforded it flies out of doors in search of certain plants, the pellenn of which is a favorite food. The white spiraeas is said to be its special choice. This beetle has the peculiar characteristic of feigning to be dead when disturbed.

4. The eggs which are laid soon after maturity is reached and always deposited in dark places, hatch under favorable conditions in a few days. There are probable two annual broods. The larva, a
queer fuzzy looking creature with a plainly segmented body, each segment tufted with stiff brown hairs on both sides with a larger tuft finishing the body at each end, is about a quarter of an inch long.

With plenty of food and warmth it grows rapidly and eats voraciously of whatever woolen stuffs it has access to. It is said to favor red flannels and carpets. If food is lacking, with the warmth needed for normal development the larva may exist for a long time in a dry atmosphere by feeding upon its own skin which it sheds very frequently. Under normal conditions it molts about six times during the change from larva to pupa. Their cast skins found about the house is a sure indication of their presence. They do not cling to the fabric as do the larva of clothes moths and can be shaken out of infected articles when discovered.

5. Ordinarily their favorite lodging, feeding and breeding places are the woolen carpets fitten and tacked to the floor through the meshes of which the dust and germs fall and are held confined for a whole season. Sometimes they follow the cracks of the floor, cutting long slits in the carpet and sometimes eat irregular shaped holes at various points, working from the underside. They appear to care nothing for muslin, but furs and silk as well as woolens are subject to their depredations.

When the larva has completed its growth its last larval skin becomes the case within which the yellowish pupa is formed and from which a little later the full grown beetle emerges.

6. As is the case with other household pests, preventive measures are of the greatest importance. The fact that the larva spins no web to attach itself to, the material it selects as its lodging place makes it possible to keep articles that are shaken and beaten frequently out of doors from the pests. Where rugs have superceded
all over carpets as floor covering there is little to be feared from
the Buffalo beetles, and if because of their ragages they shall aid
in bringing about the general adoption of rugs in place of the less
sanitary carpets, they may even prove a blessing in disguise. Smaller
articles may be preserved from their infestation by being done up
in old sheets or pillow slips.

7. Infested articles and carpets should be shaken and hung
out of doors in strong sunlight, and while in the open air sprayed
with benzine or naptha. If carpets are to relaid in a room once
infested the floors should be thoroughly scrubbed and then sprayed
with turpentine or kerosene and every crack filled with plaster of
Paris, after which the entire floor should be covered with tarred
roofing paper before placing the carpet. It is well then to tack
the carpet only lightly that it may be frequently examined around the
edges. If after all these precautions, signs of the larva are found,
cover the places where they appear to be with wet clothes and iron over
them with a very hot iron thus producing a hot steam which penetrating
the carpet if hot enough and continued long enough will destroy the
larva.

8. There is also another carpet beetle, black in color that
is destructive to carpets. Its habits and work, except that it does
not follow the floor cracks, cutting long slits in carpets, resembles
that of the Buffalo Beetle. It is a museum pest in some localities.
It destroys not only carpets and other woolens, but feathers and books.
It is frequently found in seeds and other vegetable products, and its
larva are known to have developed in flour and meal. The larva is of
a light brown color somewhat over a quarter of an inch in length covered
with close short hairs terminating at the anal end in a wisp of longer
hair. The larva is exceedingly active and plys its trade at all sea-
9. The same measures for its prevention and extermination as for the Buffalo beetle may be employed. To dislodge either beetle when once it has taken up its abode is a task only accomplished through the utmost painstaking and vigilance.
BED BUGS. Quiz.

1. Has this insect wings? What is its shape? Draw a picture of this insect.
2. What are its habits? Its color?
4. What is the length of period of development?
5. What are its habits as to feeding?
6. Enumerate ways in which it gains entrance to houses.
7. What measures for prevention may be employed?
8. What medical measures?
THE CIMICIDAE OR BED BUG.

*Prelude:* These bugs, the very name of which brings with a feeling of repulsiveness may find entrance into the best and cleanest of homes in many unexpected ways, and it behooves every housekeeper to understand their habits of life, their modes of travel and how to remedy what it is not always possible to prevent.

1. These insects have for so long a time lived the life of a parasite that they have lost nearly all trace of wings for which fact the housekeeper may be truly grateful. The body which is mostly abdomen is oval, flattened vertically, and when not distended with blood of almost paper-like thinness, a provision doubtless for its life preservation, making it possible for it to hide in cracks and corners out of sight when sought for by a would-be destroyer.

2. It is nocturnal in habits, concealing itself during the day. It has a characteristic odor which often aids in the housekeeper to discover it. In color, the adult is reddish brown and is covered with little hairs. Its head which is small is provided with two hairy antennae, two eyes, and a short pointed beak.

3. The metamorphosis is incomplete and the young resemble the adults except in size and color which is an almost transparent yellow white, changing to brown. These insects hibernate during the winter months, resuming activity in April or May. Their eggs are tiny, whitish and oblong, having a small aperture through which the larva comes out, and are sufficiently sticky to adhere to whatever they are laid on. The bug is exceedingly prolific laying from six to fifty at one time and repeating the process several times during one season.

4. The period of development from egg to adult has been found by experiments conducted at the United States Department of Agriculture
to vary greatly, depending upon the conditions of warmth and food supply. In some cases under favorable conditions complete development requiring only about seven weeks, while under other conditions it was greatly prolonged.

5. Its preferred diet is warm, fresh blood, but if this is unobtainable it will accept the paste on papered walls and the dust and dirt to be found in cracks and corners as food. Figuier says, "The bug is not a gluttonous insect, always blood thirsty; on the contrary, its sobriety is remarkable. It is only after a prolonged fast that it bites animals." It is difficult for one who has had a night's experience with these pests to agree with the learned naturalist, but experiments have proven that it is able to live a year or even longer without food. Specimens kept in sealed vials in laboratories for more than a year continued active.

6. It gains entrance into the houses in a variety of ways. It may be brought in on clothing, in valises and trunks, and even in baskets of clean laundered clothing. New furniture, particularly that from second hand stores though we have known even that fresh from the warehouse to be the medium, or they may migrate from one house to another in closely settled districts travelling along walls and pipes. If an infested house is left untenanted, the insects are very apt to leave too, and woe to the neighbors next door, who may without warning be suddenly overrun with these pests.

7. In keeping a house free from bedbugs, preventive measures are not to be overlooked. When returning from travelling on cars or stopping over night at hotels, it is well to thoroughly brush and shake one's garments. Parcels coming from infested places, and new furniture, particularly tufted pieces, and wood bedsteads, should be carefully inspected. Beds and bedding should be carefully scrutinized on weekly cleanings days for any deposits of eggs or signs of the insects.
When change of residence is necessary, a careful inspection of rooms should be made before occupation. Iron or other metal bedsteads are less likely to harbor insects than those of wood, hence it is wiser in furnishing the bedroom to choose such. For the same reason it is safer to have hard finished rather than papered walls and to do away entirely with all dark closets and clutter places in or about the bedroom. Cleanliness everywhere is of the utmost importance.

8. If in spite of all the enemy be encountered, let a daily warfare be commenced and unceasingly kept up until the foe is vanquished. Boiling water will destroy both the bug and its eggs if it touches them, and the method in vogue with our grandmothers was to take the bedsteads apart and out upon the ground and with a tea-kettle of boiling water thoroughly scald every crack and crevice of the "four posts." This is an excellent way to destroy the insect, but is liable to greatly damage the finely polished furniture common in these days. Kerosene carefully applied to all places likely to be infested will prove destructive to both the insect and its eggs. It may sometimes stain fabrics. Whatever liquid is used, it should be poured freely into every crack or possible hiding place, and the corners, tufting and seams of pillows, mattresses, etc. saturated. Naphtha, which is also death to the insect, may be used to saturate infested upholstery or bedding likely to be damaged by kerosene. It should be borne in mind, however, that naphtha is of extreme inflammability and should be used out of doors never in a room with a fire or light, and articles saturated with it must also be left out of doors for several days, until all the naphtha has evaporated. Corrosive sublimate is another remedy often used, while it is usually effectual it should be employed with caution, as it is deadly poison to man as well as to bedbugs. Liquids are more
efficacious than powders in most cases. It is said, however, that a plentiful springling of powder between the sheets will make it possible to sleep in peace, if one meets with such a misfortune as an infested bed in one's travels. If the walls of a room become the harborage and breeding place for these insects, we know of no better method for their destruction than a thorough fumigation with sulphur fumes. A careful cleaning, kalsomining of walls, and varnishing of wood work will often accomplish the same purpose.
HOUSEHOLD INSECTS.

Quiz.

1. What characteristic members belong to all insects?
2. How is the head furnished? The thorax? The abdomen?
3. Where are the stigmata? What is the effect of insect powders?
4. What can you say of insects' eyes? Antimae?
5. Mouth?
6. What special characteristic belongs to all insects?
7. How many distinct stages of growth are there and how known?
8. During what stage is the insect most harmful?
9. What is the shape of the larvae? Describe the process of moulting, and change from pupa to insect.
10. What is meant by complete transformation? What is meant by practical transformation?
11. What is the length of time for development of insects?
12. Were insects originally indoor dwellers? What was their original food?
HOUSEHOLD INSECTS.

Prelude. Were that high standard of cleanliness, requisite for healthfulness maintained within every home and upon the premises around about there would be little need for a consideration of this subject. It is because in some households dirt, and dust, and garbage furnish harborage and breeding places for vermin, and such abound, and, just as the germs which cause disease may be communicated from neighbor to neighbor or brought into a home by a thoughtless vizit or a harmless looking package, so in unexpected ways these household pests are scattered and it behooves every housekeeper to know their habits, their haunts and such measures as serve to prevent their introduction and their depredations if by any means they gain an entrance into her domain. A study of insects as a class is a pre-requisite to the understanding of these particular kinds which may so greatly disturb the peace of the household.

1. Characteristics. It is marvelous fact that God has made the little things of His creation as wonderfully perfect in form and part and of as great adaptability to use as are His works of greater magnitude. In nothing is this more readily apparent than in the study of those tiny living creatures we term insects. Each have the body divided into three segments or parts (though these are sometimes so closely united as to be hard to distinguish) the head, the thorax, or chest, and the abdomen.

2. The head is furnished with eyes, mouth, and antennae or feelers: to the thorax are appended the six legs which all true insects have and the wings when such exist; the abdomen contains the principal digestive organs that other viscera and may or may not be provided with certain appendages for protection or for aid in locomotion or for use in digging, such as stings, saws, piercers, etc.
3. On each side of the body are nine breathing holes or stigmata as they are termed. Anything which partly or completely fills these stigmata impedes or stops entirely the respiration of the insect and stuperifies or kills it. It is for this reason that various powders, oils, etc., are effective in their destruction.

4. Nearly all insects are provided with a pair of compound eyes in their size and form being variable. The antennae serve as organs of touch and also as an instrument for the transmission of sound-waves, the organs of hearing being situated at their base on many insects; others have these organs on the wings.

5. The mouth of insects is formed after two general types depending upon the character of their food, one being suited to the purpose of cutting or biting, the other for sucking.

6. The special characteristic of insects is their metamorphosis or change during growth.

7. There are four distinct stages: the egg, from which a very insect is produced, the larva more commonly known as caterpillar, worm, grub, maggot, wriggler, etc., the pupa or chrysalis and the imago or perfect state.

8. During the larval stage which is the period of the insect's infancy and much the longest of its life it is generally a voracious eater and grows very rapidly. During this rapid growth most larva casts its skin one or many times the body having become too large for its covering, and a new, soft skin being already formed underneath the old one. This process is called moulting, and is Nature's own method of providing a new dress for her children.

9. The body of most larva is elongated in form and consists of fourteen segments, including the head. When it has attained its full growth as a larva (the length of time being determined largely by the condition of food and warmth around it) it crawls to some secluded spot
and encloses itself in a case of some sort, often it spins for itself a silken covering or cocoon, casts its skin, and appears an apparently lifeless object, oblong, oval, or conical in shape. This transition stage is a period of sleep or quiescence. No food is taken and if left undisturbed there is no movement, nevertheless great changes are taking place in both the internal organization and the outward appearance. The crawling creature is being changed into a winged one, and when the full period of this stage is past it comes forth from its case of life, the laying of eggs which shall serve to perpetrate its kind is accomplished, it soon dies.

10. All insects whose life history accords with this description are said to undergo and indirect or complete transformation. When between the egg and the perfected insect these changes are wanting the insect passing by more or less insensible gradations from the stage to another being all the while active the transformation is said to be partial or direct. Under these conditions the young may differ but little from the perfect insect except in size. Some, however, like the grasshopper have no wings in the larval stage. All stages feed.

11. The time intervening between the egg and the imago varies greatly with differing insects, with some the time is but a few days while with one kind of locust it is seventeen years.

12. With this brief outline of the characteristics of insect life in general we are better able to understand the habits of specific groups. It goes without question that all insects were originally of door forms and would never have become the pests of the housekeeper had not favorable conditions for food and breeding been found indoors. Their food was primarily the juice of vegetable products but like man himself they have fallen from their first estate until some have become such lovers of animal diet as to be blood-sucking human parasites.
CLOSETS AND CLUTTER PLACES.

QUIZ.

1. What affords excellent lodging place for germs, and why?
2. What objections to ordinary clothes presses and closets?
3. Enumerate the contents of some clothes closet you have seen.
4. Why may garments and shoes that have been worn be a source of pollution to the air?
5. What can you say of the dangers from dust likely to accumulate in closets?
6. Describe a sanitary clothes press.
7. What care of garments is necessary from a sanitary standpoint?
8. How may the articles stored on shelves be protected?
9. What should be done with the clothing out of season?
10. How often should clothing be aired?
11. What shall be done with cast off clothing? With old boots and shoes? With soiled linen?
12. What care should be given other closets?
CLOSETS AND CLUTTER PLACES.

Prelude:— It is said that every home has its skeleton; perhaps not such a gruesome assemblage of human bones as the poor women in the old tale was compelled to keep hanging in her closet, but something concealed from public gaze, which mars the happiness or impairs the physical, mental, or moral health of its inmates. The closet is the proverbial hiding place for this disagreeable object, and from a sanitary point of view, there are few closets in modern houses which might not with advantage be searched for something of this character.

2. Germs in the closets:— Those little living atoms, the invisible bacteria which so often endanger the health of the household, find in the closets and clutter places of the house a most desirable lodging place. In most homes there are to be found two kinds of closets—those large enough to be entered, and those built in small recesses accessible only from a door occupying a part of one side. Both kinds are usually arranged to fill the spaces not available for other purposes, and are generally dark and unventilated, so that with other conditions supplied, they form excellent breeding places for germs as well as moths and other undesirable tenants.

3. A Catch All:— The original purpose of most closets is the keeping of wearing apparel and the storage of articles not in constant demand. In many instances, however, their use far exceeds their legitimate end, and the reality as seen is a picture of general confusion—shelves piled with boxes, bundles, bottles, papers, and all sorts of odds and ends; hooks with a double or triple layer of garments; while on the floor, boots, shoes, slippers, and rubbers lie about promiscuously, the place seemingly having become a "catch all" for anything found lying loosely about in other rooms which required to be put elsewhere.

4. Soiled Clothing contaminate the Air:— If only things clean and wholesome were stored in the closets, one need be less concerned about the matter but too often soiled...
but so often soiled aprons, dresses, and other garments are mixed among
the mass of clothing hanging upon the hooks or accumulated in a heap upon
the floor in one corner, waiting for the weekly washing. All garments dur-
ing wear necessarily absorb more or less of the effete matter constantly
given off by the body. Thus they retain in a greater or less degree,
according to the fabric and its texture, until cleansed by washing or by
some other method. Left in this soiled condition, they become a source of
pollution to the air of the place in which they are kept; particularly
so if it is a small, unventilated closet.

5. Dangerous Dust: Not only may clothing become a source of air con-
tamination through having been worn, but also from its retention of the
dust with which it comes in contact. This is not difficult to realize
when we consider that dust is a compound of nearly every conceivable thing
that falls upon the ground and is trodden under the foot of man or beast,
-fragments of wood, of plants, foods, wool, feathers, hairs, mucus from
the nose and the mouth of man and animals; indeed, every possible sort of
offensive matter, not a little of which comes from infected sources, mingled
with the fine earth. This dust, in dry form or mixed with water as mud,
adhering to unclean footwear and clinging to the clothing, is brought into
our dwellings. The long skirts worn at the present day, sweeping the
floors and even the streets, raise clouds of dust, which settle upon the
hose and undergarments, or find lodgement within the folds and between
the linings of the dress, or cling tenaciously to its fabric. A dust-
laden garment is a dangerous as well as an untidy thing. The closet in
which such are kept is likely to be a veritable nest of germs, which ad-
here to the dust atoms, to be sent whirling and dancing into the air
of adjoining rooms every time the door is opened, or a movement of any
sort sets them in motion. The larger rooms of the dwelling may be kept
free from every appearance of dirt, but if there be "bottled up" dust and
germs in the closets, there is an ever-present, possible source of disease
and death in the household.
6. Sanitary clothes closet:—It is cleanliness in the little things that makes up the sum of healthfulness in a home. Storing places are a necessity in every well-ordered household, but all such should be light, that the dust may be easily seen and removed. If possible, they should be lighted by a window through which at some time during each day the sun's disinfecting rays may shine freely. The ideal clothes closet should be not less than two and a half feet in width, and of greater proportionate length, and provided with some means for the entrance of both air and sunlight.

7. Sanitary Care of Clothing:—All clothing of wool or other rough surfaced fabrics should be well shaken out of doors and brushed free from dust before being hung in the closet. All footwear should likewise be carefully wiped and cleaned. Pockets of linen or other washable material, which can be hung on the closet door, form a convenience for keeping shoes and rubbers, and are in a measure a preventive against their being put away in an untidy condition; for while some may carelessly thrust their footwear, besmeared with mud, on the floor in the dark corner of the wardrobe, there are few who would venture to put soiled shoes in a cloth receptacle, and even if they did, the dirt falling off would collect in the bottom of the pockets, which could be taken down and emptied with little or no contamination to the other contents of the closet. Such pockets should be frequently washed.

8. Arrangement of articles on shelves:—All articles to be stored on shelves should be sorted, classified, and protected from dust by being put in closely covered boxes of wood or pasteboard. Rather large size boxes are preferable, several small ones being, if necessary, placed within a larger one, so that the spaces for the collection of dust may be as few as possible. From the surface of such large packages the dust can with little trouble be removed each day with a slightly dampened cloth, and if, as should be when the closet is made in common use, the dust is
also daily wiped from the floor, there will be needed only a occasional
cleaning and dusting of the contents of the boxes.
9. Clothing out of season: Clothing out of season should be cleaned,
wrapped, and put away in some place secure from dust until needed.
10. Airing of clothing: At least once each month all garments kept in
the closet should be given a thorough airing out of doors. A good way
to do this is to pin them firmly to the clothes-line on a fair day when
there is a good breeze stirring. If the closet is a dark, unventilated
one, it is well at the same time to turn its entire contents out of door
doors," so to speak, and clean and air the room. "Oh, but," says some
one, "it requires too much time to pay so much attention to the closets."
True, but it is far easier in the end to keep the skeleton (disease) out
by sanitary painstaking than to rout it out when it has gained a foothold.
but it need not mean so much trouble, after all, if the things stored are
reduced to some form in which they can be easily kept clean and in order.
Let nothing be stored without a purpose. Cast-off clothing suitable for
further use should at once be given away to those in need. Garments too
too much worn for this should be ripped up, and all good and clean portions
rolled together, put away in boxes or drawers for mending, cleaning, or
other purposes, and the remainder disposed of to the ragman.
11. Old Shoes and Rubbers: - Boots, shoes, rubbers unfit for
further use, should be promptly burned or otherwise disposed of, and not
left to mold and breed germs. Allow no rubbish of any sort to accumulate
and do not get into the habit of pushing things into the closet to get
them out of the way where, out of sight, they will likewise be out of
mind.
12. Soiled Linen: - For soiled linen a separate closet should be provided
unconnected with any sleeping or living-room. A long narrow room near
the laundry, with light on one side and good ventilation, is the most de-
sirable for this purpose. As a recompense for the care thus given the
closet and its contents, the clothing will be likely to wear longer and
and keep in better appearance, the health of the household will be more secure, and the atmosphere of the house purer, and untainted by the stale smells which accompany old and soiled clothing; neither will frequently aired garments in a well-kept closet be likely to be infested with moths. These household pests do not thrive in the light. It is the darkness and the fact that the contents of a closet are left undisturbed for a long period that gives them an opportunity to do their mischief.

Care of Other Closets:—To the other closets of the house,—the linen closet, the broom closets, the tuckaway places under the stairs, or in the attic or basement, the mop and pail closets of the kitchen,—the principles already stated apply with equal force. These small places where it is possible to put things out of sight requires the greatest of care and cleanliness that they do not become harbors for dust, dirt, mold, or decomposing organic matter of any sort, and thus of germs and disease.
Cloths Moths:— It is in these storage places that the clothes moths usually ply their trade, and it may not be amiss to study in this connection the habits of these insect pests. That these insects have multiplied the housewives care for ages may be inferred from the mention made of them in the sacred word as well as the fact that Pliny in his writings gives an excellent description of one species. There are said to be three distinct species of house moths in this country, all laying pale yellow eggs on the stuffs which they attack, and bearing a close resemblance during their larva and pupa states, but differing slightly in the moth state. As moths, they begin to appear in May, and are occasionally seen flitting about during the entire summer. They choose the least conspicuous portions of a garment as the place to deposit their eggs, which, if left undisturbed, hatch into white, soft-bodied larvae, each of which begins at once to form for itself, out of the substances upon which it has settled, a habitation of some sort,—a case, a gallery, or a comon. Here it lives, during the entire summer, if undisturbed, destroying the material of the garment for food or for the enlargement of its nest, reaching its full growth towards winter, when with its house upon its back, it crawls into the most secluded place it can find,—dark corners, cracks in the floor, or crevices in the wall, and remains torpid during the cold season. The changes from larva to pupa and from pupa to moth occur in the springs. It is entirely in the larval stages that its work of destruction is carried on. The little winged creatures flitting here and there which we know as moth millers are themselves perfectly harmless. It is only through the fulfilling of its life purpose—which is to lay eggs to perpetuate their species—that their invasion is to be dreaded. Knowing its habits, one can readily see that preventive measures lie along the way of cleanliness and sanitary care. Sunlight destroys the eggs of the moth, and since these are deposited during the spring months, special care is needed that the contents of the closets likely to be infested by these pests be exposed to strong sunlight for some
hours, several times during May and June.

Preventive measures: As moths show a decided preference for soiled garments, the first step towards insuring the safety of winter clothing to be packed away during the summer is thorough and careful cleaning with exposure to sunlight. For the safe keeping of garments, nothing is better than the pasteboard boxes used by tailors to deliver suits, which, after being filled, should have a strip of paper so pasted around the joining of the cover and box as to leave no crack, since the moth miller always makes its entrance through some aperture, never gnawing a hole for the purpose. Bags of seersucker stitched with the French or double seam, clean paper flour sacks, or an receptacle which can be so closed as to leave no possible entrance for the moth miller, are quite as serviceable as the famed cedar chests for the preservation of clothing.

The various so-called moth preventives, such as camphor, lavender, tobacco, etc., are of little value. Their only virtue consists in being slightly repellant to the moth millers, but they have no effect whatever upon the eggs or larvae.

If clothing is put away clean and absolutely free from the moth eggs and perfectly protected from moth millers, nothing further is needed. To make sure there are no moth eggs, which are so small (not larger than a pin head) they are not easily seen, it is wise to clean and sun the garments, then tie them securely in paper bags, and leave in some place undisturbed for a week, then open the bag, and for three successive days carefully examine the garments. If no sign of moth are found, the garments may be safely stored for the season.

Remedial measures: For rooms and garments badly infested with moths, the most effectual remedy for destroying the insect in every stage is the free use of benzine applied as a spray with a hand atomizer at all floor and wall crevices and all creases and folds of garments. The greatest caution must, however, be observed in its use, as it is a very inflammable substance. It should not be used in a room where there is a
fire or a lamp, and no light should be brought into the room until a thorough airing has dissipated all odor of the benzine. Other remedies are often recommended, as fumigation with sulphur or camphor, but all have some drawback, and any who has had experience with these pests will be ready to admit that in the case of this, as all other evils, prevention is better than cure.
BEDROOM HYGIENE

Quiz.

1. Why is it imperative that the bedroom should present conditions the most sanitary?
2. Of what size should sleeping rooms be?
3. Why is there need of much window space? What influence is exerted by sunlight?
4. What is the harm of dark rooms? How many windows are desirable? Why?
5. What is the effect of a lack of fresh air in the sleeping room?
6. How shall an ample supply of fresh air be secured for the sleeping room? Name some good methods of ventilation.
7. Why should there be some means of heating? What is the best means? Why? What other means of heating and their relative value?
8. How should the bedding be treated if there be no means of heating the rooms?
9. What kind of wall finish is best for sleeping rooms?
10. What kind of floors? Of floor covering?
11. What kind of furnishings should be avoided?
12. Name the furnishings of a bedroom mentioned in the Bible?
13. In wardrobe desirable?
14. How should the clothing worn during the day be disposed of at night?
15. What provision for the storage of wearing apparel is most sanitary?
16. What about stationary wash basins?
17. What bedsteads are most sanitary?
18. What objection to feather beds and pillows?
19. What kind of mattress is best? How cared for?
20. What about pillows?
21. What bed coverings are most sanitary? What objections to quilts, etc?
22. What arrangements as regards position of bed is desirable?
23. Why are single beds better than double beds?
24. At what temperature should the sleeping room be kept?
25. What importance is attached to the airing of beds? What is the object to be attained, and how shall we attain it?
26. Give in detail a program of bedroom work.
BEDROOM HYGIENE.

PRELUDE.—Plenty of sound, refreshing sleep is a requisite for the maintenance of health in every condition of life. The child or youth, man or woman, deprived of necessary sleep soon becomes ailing and miserable. This is Nature's compensation for transgressed laws. From a physiological standpoint, the time spent in sleeping is the most important portion of our lives. It is during sleep that the processes of growth and repair chiefly take place. After fatigue and during illness sleep restores strength and energy as no other remedy can.

Since sleep is such an essential vital function, it is important to maintain those conditions which will be most conducive to it. One's daily habits in eating, exercise, work, and thought have largely to do with one's ability to secure good sleep; so likewise have one's environments during the period of sleep.

1. NEED OF SANITARY ENVIRONMENTS.—In no other one room of our dwellings do we spend so much consecutive time each twenty-four hours as in our sleeping-rooms. During the day the various activities of life keep us moving about, out of doors and indoors, from one room to another. Thus we are frequently experiencing change of atmosphere and conditions. But during the period for sleep one must accept his surroundings as they are; hence the need that these environments be the very best possible.

2. SIZE OF SLEEPING-ROOMS.—A sleeping-room should be large and well ventilated. Fifteen square feet is not too large a space to afford an adequate supply of air to maintain a healthy atmosphere during the hours of sleep if, as is customary, two persons occupy the room. Seldom, however, are such commodious quarters set apart for sleeping-rooms. The parlors and other day living rooms are chosen with a care for comfort and health, but the smallest and most inconvenient rooms on the shady side of the house are considered quite "good enough to sleep in," apparently as
summing that because during the time spent in sleep one is oblivious to the things around him, therefore it matters little what these surroundings be. Few people but would object to spending one third of their lives amid unwholesome surroundings during the daytime, and why should any one be willing to spend thus the same proportion of time while asleep?

Since it is during the hours of sleep and rest in bed that the process of growth and repair are most actively carried on. The more favorable the conditions, the more perfectly will nature be able to do this work.

3. NEED OF WINDOWS.--It may seem that because the sleeping-room is occupied at a time when the sun is absent, much window space is unnecessary, but the light, and particularly strong sunlight, exerts a purifying influence upon the air of a room, as may be experienced by any one upon going into an apartment from which the sunlight has been excluded for some days. Even though unoccupied so that the contained air is unpolluted by the products of respiration, there will be present a close, musty odor which will disappear after a good sun bath. Darkness and dirt may be considered almost synonymous in the household realm.

4. DANGER IN DARK ROOMS.--Dark rooms are proverbial for mustiness. Dark corners into which the light fails to penetrate, dark spaces under beds and other furniture, very quickly become a harbor of dust and germs. If there are windows that admit more light than is desired, it may be adjusted by means of shades and screens, but there is no remedy for the poorly lighted apartment.

The ideal sleeping-room should have windows upon both sides, one facing the east, that the morning sun with its disinfecting rays may freely enter to dry and purify the bedding as it is spread open for its daily airing, and to search out and disinfect any nook or corner where dust and germs may have found lodgment.

5. AIR CONTAMINATION.--In weight, oxygen makes up the greater proportion of nerve tissue and other bodily components. The workout portions
of the body cannot be repaired without the necessary building material at hand. To occupy during sleep a room which an inadequate supply of fresh air is but another attempt to "make bricks without straw." Whatever other luxury there may be lacking in the sleeping-room, it should not lack the luxury of fresh air. The rebreathing of air already contaminated by waste products from the lungs is undoubtedly the cause of many of the increasing ills to which flesh is heir, much oftener than it is so recognized.

6. VENTILATION.—The modern well-build house provides for a peltiful supply of fresh air indoors, through some efficient system of ventilation, but the ordinary village home, the far, house, the cottage, is dependent upon window ventilation. One window, if raised a little from the bottom and lowered slightly from the top, is better than no ventilation; but two windows, preferably on opposite sides of the room, the one opened at the top as a fresh air inlet, the other raised from the bottom as an outlet for foul air, will serve the purpose much more satisfactorily. The size of the openings must be dependent somewhat upon the condition of the weather and the number of occupants in the room. Under ordinary circum-
stances, lowering the window one inch for each occupant has been found sufficient for the requisite supply of fresh air in cold weather. When a strong wind is blowing or during very cold weather, a small opening will suffice.

There are several simple and ingenious devices within the reach of all, which may be attached to the sash to regulate the supply of air and prevent drafts.

7. HEATING.—Besides provision for an abundance of sunlight and fresh air, the sanitary sleeping-room should be supplied with some means of heating in cold weather, for while a cool atmosphere is the most conducive to good sleep, and much heat is undesirable at night, a room unprovided with some means for frequent warming in wet or cold weather is likely to
to collect so much dampness as to become a serious menace to health.

For this purpose an open fireplace is superior, as it not only affords an excellent means of heating, but when a fire is lighted, it becomes a simple and most efficient means by which the room may be ventilated. The best position for the fireplace is on the side opposite where the bed must stand. Bath steam and hot water heating have much to recommend them. The heat from fuel burned in stoves is regulated with so much difficulty as to make stove heating an undesirable way of warming bedrooms. Gas for either heating or lighting is objectionable in a bedroom, since its burning consumes much oxygen, thus deteriorating the air of the room. Furnace heat is good when the air heated is drawn directly from out of doors, but nothing should induce one to make use of such an unsanitary method as a register through the heated air of a lower room is admitted to warm a bedroom.

8. DAMP BEDS.—At all seasons the bed should be comfortably warm and thoroughly dry. A cold, damp bed is a deadly contrivance, by which many have lost their health and even their lives. If there are no arrangements for heating the bedroom, the bedding should be taken to some other room, and warmed each time before being slept in during cold and inclement weather.

9. WALL FINISH.—The walls of the room are best hard finished, and tinted some color which will be restful to the eye. Floors of hard wood, polished so that the dust can be readily seen and wiped up with as many or as few rugs of a size to be easily taken out of doors and shaken as may suit the taste and purse of the occupant, are the most hygienic arrangement.

10. FLOOR COVERINGS.—If the floor is to be covered, matting or fiber-carpeting is preferable to wool carpeting, from a sanitary standpoint, as it does not catch and retain so much dust. It is cold for unslippered
feet, but this objection may be done away with by using small warm rugs near the bed and dresser. If wool carpets are used in bedrooms, they should be so laid that they can be easily and frequently taken up and cleaned. Indeed, the same should be said of carpets in any room. An excellent plan is to fasten small, strong hooks in the lower edge of the baseboards and along the edge of the carpet put small brass rings just the size to slip over the hooks. A carpet properly fitted to the floor and thus arranged may be taken up and relaid with very little trouble.

11. BEDROOM FURNISHINGS.—Nothing that can not be easily dusted and cleaned should be allowed in a bedroom. Furniture and woodwork should present plain surface without much carving or ornamentation to catch and hold dust. Stuffed furnishings, heavy hangings, draperies of wool or other dust-retaining fabrics should also be excluded. Let curtains and canopies be of thin, washable material, silk, muslin, or linen, that can be easily and frequently cleaned.

13. THE WARDROBE.—A wardrobe, while a most convenient article of furniture, is hardly a desirable one for the sleeping-room. If built in the room, it is likely to contain dark corners, difficult to air and clean. If movable, its top presents a bread surface upon which the dust collects for weeks and even months, undisturbed by the housemaid's dust cloth, to be wafted down into the room with every passing breeze, while the space underneath is another dust repository. A receptacle, as it generally is, for night as well as day clothing as soon as removed, for shoes and rubbers, some of them perhaps old and moldy, linens waiting to be sent to the laundry, and various other odds and ends of wearing apparel. The inside of the ordinary wardrobe, or clothes press, is as unsanitary as it is convenient. Clothing that has been worn should be thoroughly aired outside the sleeping room, and soiled garments, especially underclothing saturated with perspiration, should not be allowed to remain in the room to taint the air that is to be breathed by the inmates. Rows of hooks upon
the wall, or a curtained corner, as substitutes for a wardrobe, are open to the same objections, at the same time adding to the stuffiness of the room.

14. DISPOSAL OF DAY GARMENTS.—A dressing-room adjoining or near the sleeping-room is a great desideratum. If this is out of the question, let at least the clothing worn during the day be aired at night in some other room. This is especially important as regards such outside garments as skirts, dresses, coats, etc., which cannot be laundered. The hose and shoes which are generally left in a heap on the floor should be aired at night. Turn the stockings and hang them over a chair, this will divest them of the perspiration that makes the hose so clammy after being worn a short time. If the hose or underclothing be of wool, care must be taken that it is not hung so near a window in damp or foggy weather as to absorb moisture from the atmosphere.

15. STORAGE FOR WEARING APPAREL.—For the keeping of wearing apparel let there be a large closet, lighted and ventilated by a window or at least a transom opening into the hall or some other room besides the bedroom. There may or may not be a door opening into the bedroom, but we feel sure that if there is no communicating door between the sleeping-room and the closet, but both open into the hall conveniently near for ready access, there will be a time of rejoicing if ever contagious disease enters the home, that the wearing apparel thus secure in a separate place need not ill be subjected to disinfection or be destroyed.

16. STATIONARY BASINS.—Never should a stationary washbasin connected with waste-pipes through which foul gases may arise to poison the air, be permitted in the sleeping-room. If there is not a separate dressing-room, a portable basin and pitcher will serve the purpose safely. No slope of any kind should be permitted to remain uncovered in the bedroom during either the day or the night, to pollute the atmosphere.

17. BEDSTEADS.—The special purpose of a bed is to secure an easy, re-
laxed condition for the body. It is a debatable question whether the soft
 cushioned resting places common in our homes are not a hindrance to re-
 freshening sleep. The custom in many other lands is to sleep upon a rug
 placed upon the ground or floor. We once visited a large Mexican hospital
 where for the sick and helpless a blanket spread upon boards was the bed
 in use. It is affirmed that the hard bed is a woe of sleep. Not all
 may be due to the hardness alone. It is undoubtedly a fact that the thick
 self mattress with which our beds are in general supplied has the effect
 to overheat the side of the body lying next to it, resulting in distur-
 bance of the circulation and nerve activity. The most healthful bed is
 undoubtedly some arrangement permitting of comfort and affording a bal-
 anced protection for the entire body. A fine mesh or canvas hammock so
 hung as to admit of ease and a horizontal position, with the same thick-
 ness of blanket or blankets, as the season might require, to spread under-
 neath and to cover the sleeper, might well serve the purpose. Most people,
 however, desire a stationary bed.

 Bedsteads of iron or brass are considered the most sanitary. They
 are less cumbersome than most wooden ones, less liable to harbor vermin,
 more easily kept free from dust, and in case of infectious diseases,
 more easily disinfected. The last few decades have witnessed many changes
 for the better in the appointments of the sleeping-room.

 18. RELIEF OF THE PAST.--The four-poster of our grandmothers, with canopy
 above, curtains around, and valances below, has been gradually discarded,
 and it may be hoped that its accompaniments, the feather bed, the quilted
 covers, and stuffed bolsters, will soon become wholly relegated to the
 past. Feathers, while soft and warm, are particularly unhealthful to
 sleep on, or under, as is the custom in some foreign countries. Being of
 animal origin, they undergo a continuous slow decomposition, evolving
 foul and poisonous gases. They are also possessed of more or less remark-
 able hygroscopic properties, on account of which they absorb the exhala-
tions from the body which are thrown off from the skin during sleep, re-
turning them from month to month, and even year to year, until the
feather bed becomes a most unsanitary resting-place.

19. THE MATTRESS.—A well-filled mattress of hair or elastic felt, corn
feathers, or of fine excelsior, moss, or straw, these being the materials
least absorbent of water and absorbable to organic matter, accompanied by
woven-wire springs, makes a comfortable and wholesome bed. The mattress
will be more convenient for turning if made in two squares. It should be
taken to pieces, cleaned and remade every year. It should be daily aired,
frequently turned, and once each week, or at least once two weeks, taken
out of doors to be sunned and well beaten. The dust, if any has collected
about the tuftings, may be best brushed away with a whisk broom. A cover
of double-faced canton flannel or heavy unbleached cloth, which can be
aired daily and laundered frequently, should protect the mattress, under-
neath the sheet.

20. PILLOWS.—Pillows, if used, may be made of hair, moss or cotton. If
they can be afforded, air pillows and mattresses are excellent. Feather
and down pillows are objectionable for reasons already stated; besides,
they are too soft and yielding, thus inducing too much heat about the
head. A pillow should be firm and not large, just high enough to bring
the head on a level with the body, never high enough to elevate the
shoulders. The real use of a pillow, if indeed there be use for one
which is a somewhat mooted question, is to support the head. Certain
Oriental and semicivilized nations seem to have attained this purpose
far better than we, in the notched block of wood, or rod of bamboo with
its tiny cushion placed under the neck at night as a pillow.

21. BED COVERINGS.—To cover the sleeper, the bed should be provided with
plenty of soft, fleecy blankets, of a quality which will be at the same
time light in weight yet warm and of such a nature as to allow the air
to pass through readily. These can and should be frequently laundered.
Heavy blankets are depressing, quilts and comfortables stuffed with cotton or other impermeable material, while they provide warmth, are objectionable from a sanitary standpoint, because, not being porous, the waste matter given off from the skin during sleep is retained under the covers, to be reabsorbed again by the body during the period of time it is thus protected.

The scientist puts cotton into his culture tube to keep the germ from entering and contaminating his cultures, the cock covers her glasses of jelly and preserves with a layer of cotton to exclude air and germs from their contents, and if it were intended to keep out all the fresh air and to keep all the poisonous matter exhaled during the night in the stratum of air surrounding the body, scarcely anything could serve the purpose better than the common bedquilt or tufted cotton comfortable. These impermeable covers are often the cause of the restless sleep at night and the tired feeling with which one awakens in the morning. In very cold weather, in lieu of many covers, it is better that one wear warm bed stockings and a blanket robe outside the ordinary night garment. One good double blanket will supply the warmth, minus and weight, of three under other conditions, with far more ease and comfort to the sleeper.

22. LOCATING BED.--In arranging the bed in the room, the position should be so chosen that if possible the windows shall be at right angles to its head, and should be so placed as to be easy of access on both sides the head only being against the wall, and even this should be far enough removed to allow a free circulation of air on all sides of the sleeper.

23. SINGLE BEDS.--If two persons occupy the same room, single beds afford the best conditions for health. An adult exhales, by lungs and skin, during every twenty-four hours, at least three pints of moisture loaded with impurities, and as this occurs during the night as well as the day, the bed atmosphere is likely to become densely foul from this waste matter, even when only one person occupies the bed, but with two occupants
the evil is greatly increased, particularly so in case one be at all feeble or diseased.

24. TEMPERATURE.--The temperature of the sleeping-room should be several degrees lower than that of the day-rooms. A thermometer hung in the room is the best guide to the temperature, which should not exceed 60 degrees, and is better at 50 degrees, or even lower. One sleeping in a cold room which has been well warmed and sunned during the day, and in which there is a free circulation of fresh air, is, if properly dressed and covered, likely to enjoy better health and to be less liable to contract colds, than if sleeping habitually in a warm atmosphere.

25. AIRING THE BED.--With all due attention to location, arrangement, and furnishings, a bedroom may still be a most unsanitary place unless the daily care of the room and bed be done with thoroughness and painstaking. One can scarcely conceive of a more unhygienic nest than a bed upon which the same mattress, pillows, and coverings have been used for years without receiving other attention than a weekly change of sheets, pillowslips and spread. The external appearance is clean and often beautiful, the bed is made without wrinkle or blemish, but, like the whitened sepulcher of which the Scriptures tell us, within it is full, if not of dead men's bones, of putrefying organic matter exhaled from the bodies of the occupants, and which has been absorbed by the bedding night after night until it has become literally saturated with impurities.

This evil is augmented in the majority of households through keeping to the old custom of making the beds as soon as possible after arising, that the morning work may be done up early.

Possibly this custom may have come down to us from primitive times when the bed was simply a skin or mat spread upon the ground or tent floor, and taken up at once after rising. In some countries still, the dwellings contain no sleeping-rooms, and the beds, whatever they consist of, are spread upon the floor at night, and must of necessity be removed
at an early hour in the morning, that they may not be in the way of the other household operations. But in the home where there is a room for sleeping, there should be no excuse for omitting that essential requisite of health,—a thorough, daily airing of all the bedding. This need not delay the consummation of the morning work; it simply necessitates arranging some plan whereby the bedmaking shall be last instead of first on the program.

The object to be attained in airing the bedding is not only to purify it, but to free it from the moisture it has absorbed, and both air and sunlight are desirable for this purpose. In every household it should be the daily custom of both old and young to arrange the bedding for airing before leaving their sleeping-room. A very good way to do this is to place two chairs near the foot of the bed, over which the covers are loosely thrown, each being taken off singly, beginning with the top one, care being taken to keep them off the floor. Hang the mattress cover over the foot of the bed, and place the pillows on another chair. This done, open the windows more or less, according to the season, but sufficiently at all times to allow a free interchange of air through the room and bedding, and leave it thus for two or three hours at the least. Once a week or oftener the bedding should be well sunned out of doors.

The same care should be given the furnishings of the folding bed, which is coming into such common use, and which, while it is a very convenient article of furniture where room is limited, bids fair to become a real menace to health from being "folded" too soon after occupancy.

If the round of other morning duties is completed before the bed is sufficiently aired, all or nearly all of the bedroom work may be done before the bed is made.

The slops, if any, required the first attention. Then the towels and other soiled articles being removed, and all the chamberware given its daily washing and scalding and drying with special cloths kept for the
purpose, the room may be tidied and put to rights. If only removable rugs are used on the floor, these may be taken out and shaken, then with a covered broom or floor cloth the dust can be wiped from the floor while the bed is airing, as such a cleaning should raise no dust.

When the room is thus in readiness, the bed may be made, the woodwork and furniture dusted, the rugs replaced, the pitchers refilled, and clean linen dispensed. If then the shades are left high, that the sun may continue to lend its purifying influence, the room may be left with a feeling of assurance that sleep will be more refreshing and health more sure for this sanitary painstaking.
GENERAL CLEANING.

1. What is dirt?
2. How shall this be avoided?
3. What may be done to lighten one's work?
4. What tools are essential for good work?
5. How shall the work be planned?
6. What needs to be done under the head of Daily work?
7. What is included in the Weekly cleaning of ordinary rooms? Of bedroom?
8. What is essential for rooms in constant use?
9. In special house renovation, what especially counts?
10. How may muscles be made the servant of the brain?
11. What is a good rule to follow?
12. What rooms are best cleaned first? Write out a program of order for cleaning an ordinary dwelling. A school house.
13. What preliminary work is essential for every room?
14. How would you take up a carpet? How treat a floor?
15. How clean the carpet of dust?
16. How prepare for repapering? How remove old paper?
17. How may painted walls be cleaned?
18. Give method of cleaning wood-work.
19. What is the best manner of cleaning grooves and corners?
20. Give a program in details for window cleaning.
21. How should stationary cupboards be treated? How would you clean library shelves?
22. What general rule applies to the entire house? What exceptions?
23. Give a resume of points to be remembered in housecleaning.
Dirt has been defined as "matter out of place," and certainly it is nowhere more out of place than in our dwelling houses. Dirt is the parent of disease, and the housekeeper who aims to reach right sanitary conditions must engage in a constant warfare against it. She may not shut her eyes to the dust underneath her carpet or that secluded in the closets and clutter-places about her domain; she can not ignore the germs in her cellar and back-yard, and dwell in sweet oblivion to the causes of illness among her household, awaiting the advance of springtime for that ominous upheaval, the semiannual housecleaning.

2. Prevention. She must constantly work along the line of prevention, and by daily aggressiveness and watch-care keep her premises healthfully clean.

3. Importance of System. "But," suggests one who has attempted it, "that is easier said than done." Undoubtedly, but the need remains for its being done; and in these days when science and invention have lent their aid to the housewife, the task need not prove such a laborious one after all, if undertaken in an intelligent and systematic manner. It is the lack of having and keeping in view some plan for our work that so often makes it hard.

When we learn so to gauge our work that the most can be accomplished in a given number of steps, so to think ahead and in mind arrange the details that the thing shall be done first upon which all the rest depends, so that all we do will count, we shall have gone a long way in solving the problems of making all necessary housework easy.

4. Utensils Needed. The utensils used will also largely determine the facility with which the work can be accomplished. The best work can be done only with good tools.

The housekeeper's accouterments for her contest with dirt, dust, and germs should include a closed sweeper for carpets and rugs, a soft
hair brush for polished floors, a long-handled broom for walls and ceilings, or an extension handle, besides the ordinary broom and dustpan. Broom-covers, too, there should be in abundance, made of Canton flannel, nap side out. Three and three-fourths yards of material are sufficient for a half dozen covers. They are invaluable for wiping walls and for dusting painted and polished floors. They should be regularly shaken out of doors after being used, and should be very frequently washed. For waxed and polished floors a weighted brush will also be required; for the removal of dust from furniture and woodwork, a furniture brush brush for tufted pieces, and a round brush such as painters use, for carved and ornamental surfaces. Whisk brooms, wooden skewers for corners, a window brush, and a rattan beater are also desirable. Floor cloths of softened crash and dusters of cheesecloths are essentials. There should be a sufficiently plentiful supply so that they may be frequently laundered. It is an advantage to have some assortment of sizes, and they will last longer if bemed. A chamois, to be dampened for glass doors and windows, is also serviceable. A dust cloth of soft old silk, eiderdown, or Canton flannel is best for the piano and other highly polished surfaces. A full assortment of scrub brushes, large and small, is a requisite, one with long handle for floors being desirable. Pails and hand tubs for water, with soap and drying cloths in plentiful, are not to be overlooked.

5. Planning the Work. Furnished with the necessary tools for action we may look the ground over and divide the work into "must be done daily" and "need be done only weekly."

6. Daily Work. The daily work must be directed toward the removal of dust which has settled upon floors and other surfaces, and of all coarse dirt, with a restoration to order of things out of place, and such replenishings as are needed for the daily comfort of the family.

7. Weekly Cleaning. The weekly cleaning should aim toward renewal of the condition of pristine cleanliness.
For the ordinary living room it may include, besides a thorough sweeping and a dusting of ceilings, walls and floors, a washing of windows, cleaning of chandeliers and globes, polishing of grates, and beating of rugs. For the bedroom, the change of bed-linen, sunning of bedding, dusting of springs and slats, straightening and cleaning of wardrobes and bureaus, are among the essentials for weekly cleaning day.

8. Rooms in Constant Use. Rooms in constant use require daily care, for much of the dirt is occasioned by the presence of people in the house; however, when proper care is given daily, but little is required, and much less energy is spent in the every-day brushing and wiping than must be expended when the cleaning is done in occasional spurts. With regular daily care, the extra cleaning weekly, and reasonable painstaking on the part of the occupants to keep clean, one's dwelling ought not to require on account of the dirt which has accumulated, a spring housecleaning after the orthodox fashion.

9. Special Housecleaning. The constant occupancy of a house must of necessity result in more or less wear and tear, so that an occasional renovation is indispensable. Spring, being Nature's own renovating time, seems most appropriate for freshening our dwellings and for making such changes in arrangement as are best suited to life during the warm season. As with all other housekeeping, method and system here count for a great deal.

10. Quick Calculation. Let muscle become the servant of the brain, and with pencil and notebook first go over the entire house, making a memorandum of things needing to be done, then sit down, to a quiet calculation of how and when it can best be accomplished.

11. A Good Rule. One thing at a time, one room only at a time, is considered a golden rule for such occasions.

The wise woman will husband her strength, and if dependent alone upon her own exertion, will devote only a portion of each day to the work, that there may be opportunity to recuperate the strength expended from the fatigue of the previous day.
day to day, lest by the continuous demand upon her physical resources she become bankrupt before the work is completed.

12. Order of Procedure. In the renovation of rooms, the method to be followed is to "begin at the top," treating first the ceiling, then the walls, and lastly the floor.

13. Preliminary Work. Of course there must be the preliminary work of removing everything portable from the room, sending the curtains, scarfs, and other washable furnishings to the laundry, carpets and rugs to be steam cleaned, furniture needing repairs to the upholsterer's. If one must do her own repairing, it is well to provide some unused room or corner where all articles needing attention may be collected, and then set apart a day or days for this purpose. A little ingenuity and skill, which many housekeepers possess and others may acquire, aided by the proper materials, will often accomplish wonders.

14. To take up Carpets. With carpets tacked to the floor, care should be exercised not to pull and tear the edge in raising them. Remove the tacks with a lifter for the purpose, fold the carpet carefully so as to take with it all the dust it contains and carry it to some place in the open air where it may be shaken. As carefully remove the paper lining and give it a thorough sweeping on both sides out of doors. Sprinkle the floor generously with moistened sand and sweep. If the sand is afterward well washed it may be used for the same purpose on another floor.

15. To Clean Carpets. If steam cleaning is not available for rugs and carpets, spread them face downward on grass plot, beat very thoroughly, then turn over and sweep well. If they contain a large amount of dust the process may need to be repeated, even several times. This is a less "back-breaking" way than the customary one of hanging the carpet on a line to beat, and quite as effectual in cleaning.

16. Re-Papering. If the walls are to be repapered, all the old paper should first be removed, as the fresh paste used in putting on the new
paper is liable, by its moisture, to cause the old paste to ferment and also to produce foul gases from the colors of the paper already on the wall. If the colors of the old paper contained arsenic, arsniured hydrogen is thus formed, one of the most deadly gases known.

The best way to remove old paper according to a writer in Good Housekeeping is "to give it a good soaking with hot water. Some papers such as cartridge papers, however, cannot be removed in this way, as the water will not penetrate. In such cases, give the paper a liberal coat of hot flour paste mixed to the consistency of cream. The water in the paste will then penetrate the paper, and it may be peeled off without difficulty. Use a square-bladed putty knife, and use it vigorously. Paste can be made antiseptic or a breeding place for disease disease germ.

17. Cleaning of Painted Walls. If the walls are repainted, they may be cleaned with pulverized pumice stone or whiting. From warm water wring a soft woolen cloth dry enough so that it will not drip. Dip this into the pulverized pumice stone and rub it with an upward and downward stroke well over the painted surface, then wipe thoroughly with a piece of soft Canton flannel. Papered and frescoed walls, when not badly soiled, can be cleaned with a covered broom by wiping from the top toward the base, never across, with an even pressure. Soiled marks and spots may often be removed by rubbing them carefully with pieces of dry bread. An application of moist fuller's earth will sometimes remove grease spots from wall paper.

18. Cleaning of Wood-Work. The wood-work will require especially care according to its character and finish. Soap and hot water are the means commonly employed for the cleaning, and quite as commonly spoil the finish and take off the paint. If soap is used, it should be dissolved in the water and not rubbed on the cloth. Varnished and painted surfaces, if requiring more than clean water, are better cleaned with pumice stone or whiting. Make a cold cream of whiting and cold water,
and apply with a soft flannel cloth wrung nearly dry from warm water, as directed for painted walls. Rinse it off with a second flannel cloth and clean water, drying, and rubbing to polish, with a soft cotton cloth. Renovate natural-wood finish by rubbing with a flannel cloth moistened in a mixture of equal parts turpentine (or if preferred wood-alcohol) and paraffin oil. Polish with a dry flannel cloth. Care should be taken in cleaning woodwork not to have enough water in the cloths to drip and stream down the wood; to wet only a small portion of surface at a time, and to dry it thoroughly as rapidly as possible, working from the top downward. In cleaning wainscoting, especial care must be taken not to disfigure the walls.

19. Grooves. Grooves in moldings and window frames should receive special attention, as it is in these places that insects are apt to lay their eggs. Doubtless one reason why flies appear in rooms so early in the spring is because these portions of the woodwork have escaped thorough cleaning. A wooden skewer, such as is used by butchers, is the most serviceable for cleaning corners and grooves.

20. Window Washing. If there are windows to be washed, choose a time when the sun is not on them, otherwise, when dry, they are likely to appear streaked. As a first step, brush the dust from both sides of the window. Use warm water to which a small quantity of liquid ammonia has been added. Wash with clean cloths wrung dry enough not to drip, dry by rubbing with other soft cloths, and polish with crumpled newspaper.

21. General Renovating. In planning for the renovation of the entire house, the "begin-at-the-top" method may well be followed, giving the upper rooms the first attention, with this exception, that when heated with a furnace located in the basement, a distributor of dust and ashes throughout the house, it will save work to attend to the basement as a preliminary procedure, cleaning the furnace, pipes, and flues, sweeping the chimneys, and disposing of the ash barrels. The attic and the least
used rooms, as linen and storage-rooms, may be put in order next; then closets and sleeping-rooms.

22. Cupboards and Cases. Before beginning the library, dining-room, or kitchen, if there are stationary cases or cupboards, have these first carefully cleaned, then so securely closed during the renovation of the room that no dust can enter them. If there are cracks or crevices around the doors of such cases, it is well to fill them with soft paper, particularly in the library, as books are very troublesome articles to retain the dust, and if not kept well cleaned, soon become ruined, dust being a rapid destroyer. To dust the book-cases, begin at the top, cleaning each shelf separately. Remove all the books from a shelf, take them to the open window, and beat together gently in pairs. Brush the edge of the leaves with a soft clothes-brush and wipe all over with a cheesecloth or some other material to which the dust will readily cling. If the shelves need other attention than dusting, pile the books so that they may be returned to their own places in order, and wash and thoroughly dry the shelves before replacing the books. If the books are wet returned before the shelves are thoroughly dry, they are likely to mold. The shelves of the kitchen cupboard and china closets, after being carefully scrubbed, may be sprinkled with spirits of turpentine as a preventative against the encroachment of insects. The chandeliers, grates, silver, and other household utensils needing scrubbing or renovating should be given attention before the room itself is attacked.

Living rooms, halls, vestibules, and verandas may well complete the list, not forgetting the back door and the back yard, for no matter how clean and fresh the dwelling, if there are any invitations out for germs to congregate, they will be sure to accept with haste and eagerness.

23. Resume. Throughout the whole undertaking, follow Nature's orderly example. Avoid confusion as much as possible. Study the best way of doing everything. Complete the work in one place before beginning the cleaning process in another. Undertake no more in a day than can be accomplished with ease and pleasure. It is because the work is made so burdensome that it is so commonly dreaded and looked up on as drudgery. It may be made to seem almost a delight when properly undertaken and allowed to usurp no more than a rational amount of time and strength.
ECONOMY.

Quiz.

1. What is economy? To what does it pertain?
2. What is the difference between saving and economy?
3. Upon what does economy depend?
4. Define waste.
5. Why do some people accomplish more than others?
6. What steps are important in learning to economize time?
7. Name another help in economizing time.
8. How is time wasted?
9. What results from lack of system?
10. What good results from keeping things in order?
11. How may the establishment of habits of order be aided? (Let pupils write out programs for the work they may have in hand,—the cleaning of the class room, etc.,—for practice).
12. What may be used as an aid for memory?
13. Enumerate ways which will aid in economizing money.
14. In what does economy of food really consist?
15. Is it desirable to make use of large varieties of foods at a meal?
16. What lessons in economy are taught in the Scriptures?
17. Name ways in which waste is often propagated.
Economy Defined

Economy is one of the cardinal principles of success in good housekeeping, and consists in making advantageous use of time, strength, money, and material; it pertains to the littlest, the minutes, the pennies, the scraps,–even more than to the large amounts. We are apt to recognize the importance of careful consideration in regard to large outlays, but we let the fragments of time, money, and material slip through our fingers without thought of their value. And this is a matter of such common occurrence, and one which it requires such every-day vigilance to prevent, that it is well worth our while to study some of the ways in which we may avoid waste in housekeeping.

Many people have the idea that economy has only to do with saving; but that is a mistake. Real economy has quite as much to do with spending as with saving. Economy is largely a relative term; it is a matter which must correspond with surrounding circumstances and conditions. Sometimes money or material is really of less value than time or health; and what might in one case show the best and most prudent management, would in another instance be the poorest kind of economy. "Real waste of anything is lose without any equivalent gain."

All possess an equal amount of capital as regards time. There are only twenty-four hours of sixty minutes each in any one's day; yet there are those who accomplish far more than others in a day, because they squander less time, or make more advantageous use of it.

How to Learn to Economy

In order to learn how to economize one's time, it is necessary first to take an inventory of the use usually made of it. Keeping as careful an account of the expenditure of time as one does of money will readily serve to show the points at which retrenchment may be made.

"Sorting over" the work to be done and planning ahead for its achievement is a great help toward economy of time. To take a few minutes the evening previous or early in the morning to think over the day's work,
and formulate some practical plan for its accomplishment, will prevent much of the careless loitering on the one hand, and the aimless bustle and flurry on the other, by which time is so often wasted.

In some households time is wasted in superfluous work; in others, it is worse than thrown away in idle gossip; and sometimes an entire day is devoted to little unimportant things which ought to have been sandwiched in between the larger duties of life. Both time and strength are dissipated through want of method. Twice the amount of energy is expended by the unsystematic worker than would be needed for the same work by one who has mastered the art of so managing that the different duties of the day overlap and fit into each other.

Without system, one may work almost to the point of exhaustion and yet accomplish almost nothing, and then wonder, like the man jumping in and out of a bucket all day, "why a body don't get on far when he's kept going all day." Keeping things in order saves a great deal of time. A place for everything and everything in its place should be the rule in every home. Let shelves, drawers, cupboards, and closets each have its own appointed contents, which, when used, shall be returned with careful order. It takes no more time nor trouble to put things away at first in their right place than to lay them aside in some wrong place; while it does take time which soon accumulates into wasted hours and days to hunt for mislaid articles, and "straighten up" disordered receptacles.

The too common practice of taking what appears the easiest course at the moment, letting things go just as they happen, till there is a general clearing up time, is in the end a waste of both time and strength. Such spasmodic renovations avail but little. Orderly, systematic work is the great time saver in housekeeping, as in every other operation in life.

A written program, of which the following is suggestive, of the order in which the regular daily work is to be done, kept where it will serve as a constant reminder, will aid greatly in the establishment of habits of method in one's work.
Program of Daily Kitchen Work

1. Make the fire; fill the tea-kettle and reservoirs. Polish the stove, when needed.

2. Dust the kitchen, which should have been left clean and in good order the night before. Wash the hands preparatory to getting breakfast, as it is always essential to have the hands and finger nails clean before handling foods and cooking utensils.


4. Make any preparation for dinner which may require early attention.

5. Wash dishes, including dish-towels; clean sinks, hoppers, and garbage receptacles, if any.

6. Extras. Under this division may be arranged different duties for regular days; as, for example, one day each week may be devoted to extra cleaning of cupboards, reservoirs, ovens, etc.; two other days to washing and cleaning the refrigerator, extra scouring of utensils and faucets, cleaning of lights, woodwork, walls, windows, and cellar, all of which require more or less of the housekeeper's attention, though not always demanding daily care.

7. Put the kitchen to rights. This should be done after every meal before leaving the kitchen. At the close of the day's work, everything should be left in perfect order.

Weekly Work. It is desirable to have the housework so planned that work which must be done regularly each week, as baking, washing, and ironing, shall have its own appointed day arranged as best suits the needs and convenience of the household. There is always a best way of performing even the simplest of household details; seek out this most advantageous method and save time by employing it.

Most housekeepers will find it a great saving of time and vexation to consider the program of the meals by the week, rather than from day to day, or from meal to meal. We do not mean the arrangement of a weekly
routine dietary, but the planning of a week's meals ahead, at one time. The housekeeper can thus more easily arrange her work and her resources so as to make both ends meet, and can also provide a more varied fare: and if changes are needed, they can be easily made by substituting one article for another as circumstances may demand.

As one goes about the house engaging in various duties and notes little things that need attention or little lacks that must be supplied, it is a matter of economy to make a written record of such things. Have a slate in the kitchen upon which may be written the articles of food which are running low or are entirely out and consult the list before going to market. Keep other slates hanging in some convenient place in other departments upon which may be noted that thread is needed for the sewing, that pins, that buttons, pencils or brooms are wanted, that Harry's shoes must be taken to the repairer's, that the lock on the front door needs attention, or any and all of the numberless of the many little needs, needs that are confronting the keeper of a house at almost every turn. These slates may be as ornamental as desired, but it is a great saving of steps to have one handy to all parts of the house where work is centered, and a reference to them will often save hours of time.

Economize money by purchasing no unnecessary material, and by always buying that which will yield the best results, even though the first cost may be greater.

It is also essential to an economical use of money that purchases be planned ahead, calculation being made exactly as to how much may be spent for supplies, and a list prepared of things to be purchased and the amount of each needed before going to market. One should also be conversant with the market value of the supplies she desires to purchase, that she may know when she is getting a fair article at a reasonable price.

Strict account should be kept of all expenditures, balancing it every month with the portion of the income which should be devoted to
that purpose. If the balance is not on the right side, go over the items with care, and see how expenses could have been reduced. Well kept house-
hold accounts often save much argument when a question arises as to where the money goes. It is wisest to make cash payments; but if bills are unavoi-
dable they should be met by weekly or, at the longest monthly settlements.
Longer time bills not only prove troublesome, but wasteful.

Economy of Food

Food economists tell us that the majority of people make use of a needless amount of food; that half or more than half of their earnings are spent for food; and that in its selection much material is chosen in which the real nutrients are exceedingly costly, because the articles used to furnish them rank so low in nutritive value that much is consumed for but a little gain. Real economy comes only through the use of foods contain-
ing a proper proportion of the food elements, these being obtained at a moderate cost, and prepared in such a manner as to bring out their full nutritive value.

Much not only of money but of strength is wasted in the use of a great variety of a too quantity of foods at a single meal. We indulge ourselves and our families too much in what tastes good.

Christ's Lesson

On the occasion of the miracle of the loaves and the fishes Christ taught his disciples that economy is a Christian duty, when he bade them gather up the fragments that nothing be lost. We are to waste none of the resources which an Infinite power has placed within our hands to use for our own welfare or for the good of those around us. Our time, or strength, our money are all talents lent to us and should be used with the utmost care.

It may be well in this connection to think over some of the more common ways in which waste is propagated in households:

1. Scraps of food thrown away.
2. Left over foods left unused until sour and mouldy.
3. Canned goods opened and left in the tins.
4. Too large an amount of food cooked at a time.
5. Dried fruits not looked after and become wormy.
6. Apples and potatoes left to decay for want of sorting.
7. Foods stored left uncovered and dust, dirt or mice spoil them.
8. Soap left to dissolve in water.
9. Dish towels used for dish cloths. Dish towels used for holders.
10. Napkins used for dishcloths. Towels used for floor cloths.
11. Brooms and mops spoiled by not being hung up.
12. Dust pan lost, bent or broken from not being hung up.
13. Fuel wasted by not regulating the fire by damper.
14. Dishes burned through carelessness in cooking.
15. Lights left burning when not in use. Tin dishes rusted for lack of proper washing and drying.
16. Silver spoons used for scraping iron and tin ware.
17. Paper and strings, pieces of thread and cloth that could be used, thrown into waste basket.
18. Ironing sheets burned and soiled from lack of care to clean or try the irons before using.
19. Clothing or household linen becoming mildewed by being left damp when soiled, waiting to be laundered.
20. Coal dumped into the ashes and thrown away.
21. Little repairs needed not attended to, furnishings too worn to be mended.
22. Careless breakage of crockery.
23. Water left dripping from faucets to overflow in sinks or tubs.
24. Utensils used not put away in the right place and so lost or broken.
25. Rough or careless usage of furnishings.
26. Air-valve of steam coils left open for steam to injure walls or floors.
27. Windows left open for rain or wind brings damage.
EXAMINATION.

1. You will notice that the examination which we make here are most thoroughgoing and comprehensive. The study we make of a patient's case is not the ordinary medical examination but is such a thoroughgoing investigation as reveals the exact state of efficiency of every vital organ and every bodily function and is so thorough and complete that the causes are determined and exact indications obtained for the application of the needed remedies.

2. It would be impossible to give intelligent advice without opportunity for making a personal examination. We should advise by all means to visit us and if come, will, first of all, make a thorough study of case such as will doubtless reveal the exact nature and extent of the diseased conditions present and the causes. We trust then we should be prepared to remove the causes and to apply remedies that would afford prompt and thoroughgoing relief.

3. We find the X-ray examination by means of the barium meal most indispensable in these cases. This enables us to visualize the contents of the stomach and intestine and definitely to locate, diseased conditions of these parts. We are then prepared to apply the remedies indicated for relief.

4. From what say of case, we should advise by all means to visit us. If come we will make, first of all, a thoroughgoing investigation such as will doubtless reveal the exact nature and extent of the morbid conditions present in case and the causes. We trust then we should be prepared to remove the causes and to apply the remedies necessary to afford prompt and thoroughgoing relief.
5. If --- come for examination only, --- should come prepared to remain three or four days, as the thoroughgoing investigation which we make of patients here usually require this length of time.

6. Dr. Kellogg makes no charge for charge for consultation, but a charge of $10 is made for a personal general examination and if a bladder examination is required the charge for this is $15. --- will not that our rates include the services of a physician.

7. We should advise --- by all means to visit us even if --- could remain only long enough for a thorough examination. We trust this would enable us to locate the cause of --- trouble and the, that we should be able to get --- started on the right road and to give --- instruction which --- could follow with the best of results after leaving the institution.

8. We have a regular routine entrance examination which we make in all cases and for which no previous examination is a substitute but special examinations which may have been made before are not duplicated unless some reason appears for the duplication. We never require of anybody to have any unnecessary examination. However, we might mention that the investigations made in our laboratories are so much more thoroughgoing than in most laboratories that many persons come here to have examinations made elsewhere checked up.

9. Of course, you are at liberty to enter as a boarder only, if you wish and purchase tickets for such treatments as you wish to take. Our physicians cannot undertake the responsibility of prescribing for a patient without having at hand the detailed information which is obtainable only by the thorough examinations which we make.
EXAMINATION.

1. If ---- come here we will make, first of all, a thoroughgoing investigation such as will doubtless reveal the exact nature and extent of the morbid conditions present and the causes. We trust then we should be able to remove the causes and to apply remedies that would afford a prompt and thoroughgoing degree of relief. We have recently introduced a number of new measures which have proven exceedingly useful in the examination of stomach and intestinal troubles. The X-ray examination by means of the barium meal has proven valuable in these cases. This enables us to visualize the contents of the stomach and intestine and so to locate definitely, diseased conditions of these parts.

2. If ---- visit us, we will give ---- case prompt and thoroughgoing attention and after we have become fully acquainted with ---- condition, by means of the needed examination, we shall be prepared to give ---- such treatment and instruction as we trust will be the means of restoring ---- to health.

3. If ---- are in need of treatment we shall be very glad to have ---- visit us and feel sure ---- would find a stay here not only pleasant but very profitable. If ---- come, we will, first of all, make a thoroughgoing investigation such as will doubtless reveal the exact nature and extent of the morbid conditions present and ---- case and the causes. We trust then we should be prepared to remove the causes and to apply the remedies necessary to afford prompt and thoroughgoing relief.

4. As regards examination, our methods are most thoroughgoing and comprehensive. Refined methods of examining the human mechanism are in use in this institution more systematically and thoroughly than in any other place in the world. This is a strong statement but the fact that we have always with us a considerable number of physicians who have come here for the express purpose of having an exact diagnosis made is the best evidence of the truth of our claim.
5. The general examination which would receive here is not the ordinary medical examination but such an investigation as would furnish a complete inventory of all vital assets. Such an examination reveals the exact state of efficiency of every vital organ and every bodily function and is so thorough and complete that every physical defect is recognized and located and its cause determined, so that clear indications are obtained for the application of the needed remedies.

6. Our general entrance examination, including urinary, fecal and blood analyses, blood pressure, special blood examination, examination of the mouth and teeth, examination of the colon, tests of vision and range of accommodation, tonsil examination, alveolar CO2 tension, fluoroscopic x-ray examination of the heart and lungs, strength test and general physical examination, is covered by the one fee of $75.00.

We always make a charge for the entrance examination as we find these are necessary to give us the date we need for dealing intelligently with our patients. We need to know the condition of the stools and the condition of the blood at the time we begin treatment and these examinations are repeated from time to time to show us what progress is being made. We need to know just the condition of the patient at the time we take the case in hand in order to be able to deal with the case intelligently and in such a way as to secure the results expected.

7. If there has been a recent examination by competent medical men, we are glad to accept such examinations as far as they will go, but we always find it necessary to study each individual case from our own standpoint which is somewhat different from that of the average doctor.
American School of Household Economics

Mrs. Kelley
CLEANING WITH WATER.

Quiz.

1. May all surfaces be subjected to the same cleaning processes?
2. What utensils is the most serviceable for cleaning a tile floor?
3. Describe in detail the method of doing the work.
4. How many an unpainted hard wood floor be cleaned?
5. What sanitary objections to mops? Why?
6. What is the best way of cleaning painted surfaces? Should soap be used on painted surfaces? Why? If used, how applied?
7. What cleaning liquids are unsuited to painted surfaces? If by mistake such is spilled upon painted surfaces, what may be done to remedy the effect?
8. How are linoleums and oilcloths best cleaned?
9. By what method is matting best cared for?
CLEANING WITH WATER.

PREFLUDER:—The floor of rooms in which the regular, daily processes of housekeeping are carried on, as the kitchen, laundry, creamery, and pantry, usually require, besides sweeping and dusting, a frequent cleansing with water.

1. Different surfaces require different procedure.

2. A. Tile Floor. For cleaning a tile floor, nothing does so well as a scrubbing brush. At first thought this statement brings to mind an idea of aching backs, bedraggled clothing, and hard work not willingly chosen. But this is not necessarily the case. It is possible to do even floor scrubbing with comparative ease if the work is undertaken properly. When one assures herself that the best results are obtainable by certain procedures, the next step is to seek out the best and easiest method of doing this.

3. An Easy Procedure. Every kind of work connected with housekeeping is better accomplished in a dress suited to the occupation. The first step, then, should be to don some sort of regiments. A large apron made of denim or some fabric largely water proof which will cover the entire dress skirt and is kept in place by being buttoned down the back, serves the purpose very well, but a pair of overalls made like a little girl's protective overalls is even better.

A thin board, (covers of grape baskets serve the purpose very well if two are used), to kneel on, and two or three large clean cloths, (cheese cloth or portions of well worn out woolen underwear are the most desirable for the purpose) a scrubbing brush of bristles, not splints, to which is attached a long handle, and two pails or pans for the water are the tools best suited for the work. Make a good strong suds of soap and hot water, divide the floor into small portions, scrub each portion with suds and brush, then kneeling on the board, rinse with a cloth and clean water and dry with a dry cloth before
wetting another portion with of the floor. If the floor is very much soiled, a sand soap or sapoic will be needed instead of ordinary soap. To use this economically, it is well to moisten the cake lightly and rub it briskly over the portion to be cleaned, afterward scrubbing well with the brush, and then rinsing in clean water. If considerable water remains on the floor after scrubbing, brush it into a dust pan and turn into a third dish provided for the soiled matter. There is a dust pan with long handles well suited for this purpose.

If one has not a long handled scrubbing brush, a hand brush serves even a better purpose and if care is taken to kneel on the board, resting the weight of the body on one hand and scrubbing with the other, changing from time to time so as to use each arm alike, (remembering that such exercise is really good for the muscles and each arm should have an equal privilege of gaining strength) one will not find the process of cleaning the floor so laborious after all. Care must be taken with either method to keep the body in good position to avoid fatigue. The arms and not the back must be made to do the work.

Begin at one side of the room and work toward the center until one half has been thus cleaned; then begin at the opposite side of the room and again work toward the center, by which time the first half will have become dry that you can kneel on it to finish the second portion. Far better results are obtainable by thus cleaning the tile in sections than could be obtained by trying to wet it all over at once. Tile, like a dish, left long unwiped is likely to dry in streaks. If care is taken to give the tile thorough attention each day, a floor may be kept an unlimited number of years looking as fresh as when first laid.

4. A hard-wood floor, unpainted, to be kept looking fresh and clean, requires the same method for cleaning as the tile, using a thick, hot lather made of ivory soap. Careless washing will often leave a hard
wood floor looking dark and water streaked but a thorough scrubbing with the brush with careful drying will usually give satisfactory results.

5. Mopping. What is termed mopping as generally performed is not the most desirable way of cleaning floors. To do good work by this method one needs at least two mops for drying besides the one used to wet the floor, one pail of suds and one pail of clean water for rinsing. There are patent wringers which, attached to the pail, do away with the need of wringing by hand.

Mopping is not well suited to the cleaning of corners, and the careless worker is likely to leave marks and soil on the base-boards, while the article used is itself, unless taken entirely to pieces after each use and washed and dried with care, likely to become sour or musty a first-class breeder of germs, thus making of the mop as ordinarily used and cared for, a most unsanitary implement.

6. Painted Floors. Floors which are painted or varnished should be cleaned without the use of soap if possible. Soaps contain more or less alkali which in solution softens, and if strong enough, dissolves paint. If soap is needed, make a suds with it and use this, never rubbing soap directly upon the paint. Clean flannel cloths wrung out of hot water, will generally remove dirt from a painted surface if the same is cleaned daily. The paint fills and covers the wood so that the dirt does not penetrate it as it is apt to do an unpainted floor, so it is really the paint or varnish that needs the cleaning and not the wood. It will be plain, then, that a scrubbing brush and strong soaps are not suited to the purpose when cleaning a painted floor, as they would remove the paint as well as the dirt and spoil the floor.

7. The Use of Alkalis. It may be well for us to remember in this connection that amonia, sal-soda, and borax as well as soap are alkalis unsuited for use on painted surfaces. If, by some mishap, some strong alkaline solution is dropped or spilled on painted floors or woodwork,
its effect may be neutralized in many instances by dropping oil upon
the same surface as soon as possible. The stronger the alkali, the more
of the oil is required.

8. OILCLOTH, LINOLEUM, ETC.—Floors covered with oilcloth re-
quire as much care in cleaning as do painted floors. In fact, oilcloths
and linoleums are painted floors coverings, and for this reason should
not be subjected to the scrubbing brush and soap. Clean with old
flannel cloths and hot water, sopping the water up with the wash cloth
afterward wiping as dry as possible with clean soft cloths. When
thoroughly dry, apply a very little warm linseed oil and rub it in very
thoroughly. A flannel rag, moistened in the oil, is a good way to apply
it. Avoid washing when dry cleaning will do as well. Often to dust
the floor by wiping with clean dry cloths will serve just as well a pur-
pose. Milk in the wash water is often recommended for cleaning oilcloths.
Milk contains some fat and it is for this reason that it brightens the
cloth. Many washings will necessarily dull the lustre and wear the paint
off oilcloths.

9. TO CLEAN MATTING. Sweep matting with a covered broom as the
ordinary broom splints tear the fibre and make it rough. Remove the
dust by going over it with a dampened cloth. Soap and other alkalis
tend to discolor the matting. If there are soiled spots, rub with a
cloth wrung out of hot water. Do not allow water to stand on matting
or use so much as to wet the matting through. If through carelessness
this should happen, wipe up all possible and then, placing a dry cloth
upon the matting, rub it with a hot flat iron until dry.