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T H E S I S

on

INSTALLATION AND EQUIPMENT

of a

SCHOOL KITCHEN

Submitted to the Faculty

of the

O R E G O N A G R I C U L T U R A L C O L L E G E

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by

Minnie Price

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Dean School of Domestic Science and Art.

INSTALLATION AND EQUIPMENT
of a
SCHOOL KITCHEN

Outline

Introduction:

Awakening of women to their need
Object of domestic science training
Place of domestic science in training

Discussion:

General

Results to be obtained
Highest development of individual
Right attitude toward life
Means to end desired
Conditions are determining factors
Influence of good conditions

Detail:

Kitchen

Situation
Shape
Size
Ventilation
Lighting
Windows
Doors
Color Scheme
Finish for walls
Covering for floor

Equipment

Work tables--individual
Arrangement
Description
Material

Stools

Desk and chair--teacher's
Ranges
Gas
Wood
Gas burners--individual

Fireless cooker

Sinks

Number

Position

Material

Size

Drainboards

Hand basins

Refrigerator

Supply tables

Zinc-covered table

Cupboard

Miscellaneous articles

Cookery utensils

Discussion

List

Conclusion:

A well equipped kitchen

Results to the community

Installation and Equipment of a School Kitchen.

In recent years there has been a great awakening among women as to their own attributes and functions and capabilities. Women all over the land are interested in a consideration of the things that will give them the greatest and noblest development. They are awake to opportunities and are looking eagerly ahead to see wherein their training for their life is inadequate.

This awakening on the part of woman, accompanied with a desire to conquer whatever problem she may meet, has brought forth a demand for training in domestic economy. This demand for training is not made because the woman of the future is to be limited to the work of the home, but in order that woman - no matter what position she may occupy - will know and understand the things which it is the inborn right and paramount duty of every woman to know. Woman may pursue any path in life she may see fit, but above all, she should be able to fill one of the most important positions possible for a woman to fill - that of mother in the home. If woman is to fill this position, she must receive such training as will enable her to give birth to stronger children, to give proper nutrition to the members of her household, to know how to clothe her children, to be able to instruct in morals and conduct, and above all, to be the central figure in a home where

love, health, cheerfulness, and culture abound. In order to be successful in this home she must have primarily, a knowledge of foods and how to prepare them and if she is not to be a drudge, she must know how to equip her kitchen with labor-saving devices and modern conveniences, enabling her to prepare with ease the necessities of life.

A woman inherits capabilities of becoming such an helpmeet, but she stands sadly in need of training for the development of these capacities and for the acquirement of skill in doing these tasks after she realizes her ability. Education does not consist of facts stored away in the brain, there must be power to systematize and to apply these facts. The women of our land need an education preparing them to live and to do. In response to this need the states of the Union have established colleges which teach domestic science and art, but still the demand is not met. The work must be installed into our high schools. Investigation reveals the fact that nearly ninety per cent of our school children leave school before the age of fifteen. Since so many cannot go to the colleges or special schools for this training, the training must be placed where they may receive it. In every part of the United States, in the countries of Europe, and even in many of the isolated islands, courses in domestic science are being in-

troduced into the schools, and the institutions of higher learning are offering courses so complete that women graduated from these institutions are able to formulate plans for the successful installation and equipment of a high school kitchen.

The purpose of this thesis is to present a plan for the installation and equipment of a high school kitchen with a discussion of the principles involved and with explanations offered for decisions with regard to apparatus and its arrangement.

Sir F. Browne says, "Whoever enjoys not life, I count him but an apparition, though he wear about him the visible affections of flesh". Every one will admit that we should endeavor to contribute as much as possible to the happiness of others. It is a duty and a privilege. "God made all men to be happy" and inasmuch as we contribute to the gaining of this end do we do our duty as servants of the Master. Yet we cannot contribute to the happiness of others without being happy ourselves. Pure, bubbling water does not come from a stagnant pond. Whether considered as a duty or as a privilege, a desire to bring happiness to one's fellow creatures should be present in every individual. Aristotle says, "Every man speaks of happiness as his end of ends" and we should each contribute to the gaining of this end.

Psychologists agree that people are happy in doing

what they can do well. It follows then that if the women of our land are to be happy and contented in doing the work which nature has intended them to do and which, almost without exception, they will at some time be called upon to do, they must be trained to do this work well. Results are usually dependent upon the conditions under which the student receives training. Good conditions are followed by satisfying results. Interest can seldom be maintained nor ability developed under unsatisfactory conditions. The statement holds true in many lines of work. The agricultural student with crude implements, in poor soil, with inadequate instruction becomes dissatisfied with the work and feels that his time is ill-spent. With improved implements, average soil, good instruction, this same student becomes interested and takes advantage of every opportunity in the course to gain knowledge and skill. And so it is with the student of domestic science. With crude cooking utensils, a kitchen inconveniently arranged and inadequately equipped, interest is apt to be lost and an antipathy toward the work created. But with a kitchen planned to economize in labor and time by having labor-saving devices and planned to give training in ability, the student carries valuable lessons into her home and what is often termed "drudgery" becomes delight. The demand to-day is for accurate and direct results without loss in time and labor. It is exceedingly import-

ant, therefore, that the kitchen be well-equipped and equipped.

These students will not always be able to have the best of equipment and the most satisfactory arrangement of equipment in their own home kitchens, but having been brought into contact with satisfactory conditions in the school kitchen and having been made to understand the practical benefit accruing from such conditions, they will have a standard toward which to work. If the school kitchen places the standard low, the standard of each student is made to correspond. It falls upon the one who plans and equips a school kitchen to see that these conditions, which are to be an example to the hundreds of pupils, are the very best possible for investigation reveals the fact that students equipping their own kitchens, either consciously or unconsciously follow to a noticeable extent the equipment of the kitchen in which they received their training. Since the plans of these kitchens are often followed, every item concerning the equipment must receive careful consideration. The school kitchen should be the embodiment of cleanliness, refinement and beauty, combined with utility. The apparatus should be arranged conveniently and with consideration of cost and of the general appearance of the room. Utensils should be chosen which are necessary and which will be labor-saving, thus giv-

ing the women of our land an opportunity to become acquainted with the improved cooking utensils, teaching at the same time which ones may be omitted from the home kitchen if funds are lacking, but emphasizing the fact that such an omission would be a loss to the housekeeper in time and energy.

The classes in cookery should have the use of four rooms: kitchen, store-room, dining-room, and locker-room and an additional room, equipped as a laundry is of much value. The store-room is a necessity. Staple articles should be bought in large quantities for the sake of economy and there must be a place for their safe storage. Perishable articles need to be kept in a room where the temperature may be regulated. The dining-room is valuable in connection with the teaching of cookery. Lessons in serving should be included and these cannot be properly taught outside of a dining room. By having use of a dining room, the instructor can instill into the lives of her pupils the feeling of sacredness and privateness that should at all times prevail in the home dining-room, both of which are in many cases, entirely lacking. The locker-room is needed that the pupils may have a room, convenient to the kitchen, where their costumes may be left in safety between classes. These rooms are of such importance in connection with the school-kitchen that they are mentioned here although their equipment is not planned.

Experienced teachers of cookery agree that the best situation for a school kitchen is the top floor in the building. Numerous facts may be given in support of this decision. A kitchen should be so arranged that the temperature can be regulated. If the kitchen be placed upon one of the lower floors, it will be necessary that pipes for heating the rooms above be passed through the kitchen. Such a condition would make it impossible for the temperature of the school kitchen to be regulated. The position on the top floor eliminates this difficulty. Then, too, odors from the kitchen rise. If other rooms are above the kitchen, these odors prove disagreeable. The highest floor also offers excellent lighting and ventilating possibilities for nothing could be more simple for both additional lighting and efficient ventilation than the use of skylights. A corner room having a northern and eastern exposure is to be preferred as it avoids the glare of light that would enter the room from a southern exposure.

The room chosen for a school kitchen should be longer than it is wide. Such a room may be arranged more advantageously and also seems more pleasing. The kitchen described here has been planned for twenty pupils. The dimensions are 29'4" x 37'4" x 13'6".

With skylights present, the problem of ventilation need not be considered separately except that there should be hoods over the range to carry the odors and

products of combustion from the room. The pipe from the hood must enter the flue above the pipe from the range and must extend upward inside of the flue for a short distance to prevent trouble from drafts.

The artificial lighting fixtures should be so situated that the things in the ovens may easily be seen and that the work at desks and at sinks be done with the best possible light. Five windows are planned, each being 4'0" x 7'6" and being 4'0" from the floor.

The attractiveness of the kitchen and its power to interest children both depend to a great extent upon its appearance of cleanliness and beauty. A kitchen, by exercising a little care, may be made as pleasing as any other room in the house. Above all things else in striving for attractiveness in a kitchen, we strive for cleanliness; and not only must the kitchen be clean, it must be of material that shows that it is clean. Yet if the kitchen is to affect the community it must be such that it may be recopied in homes of the pupils, for often where funds are not lacking, knowledge of suitable materials is lacking. The kitchen, then, ordinarily should be equipped as a model in keeping with homes from which the majority of pupils come.

The colors used in the school-kitchen should be light and restful, not gloomy and depressing. While white is the preferable color for all kitchens, the work of most homes makes this impracticable. Light

tan and creams are excellent, and these colors - tan for the wainscoting and cream for the walls above with the woodwork of the room stained to harmonize - form the basis of the color scheme for this kitchen.

Various materials may be used for kitchen walls, but the following plan is one which gives cleanliness combined with an appearance of neatness and beauty. Tiling extends from the floor six feet in height with the remainder of the wall finished with enamel paint. The tiling is non-absorbent and anything spattered or spilled upon it may be easily removed, leaving the tiling in as clean condition as before the accident. Such a finish is attractive as well, lending a clean and pleasing appearance to the room. The enamel paint is chosen for the remainder of the wall because of the glazed surface which it gives, allowing the walls to be washed without injury to the finish. Any kind of calcimine could not be so satisfactory. Merely knowing that the walls are finished in such a way that water may be applied without proving detrimental gives to the workers in the room the feeling of cleanliness which must prevail in the kitchen.

Cork carpet is chosen as the covering for the floor. This is durable, pleasing to the eye, uninjured by moisture and does not prove tiresome to the feet. A coat of varnish applied to the carpet renders it more attrac-

tive and more easily cleaned.

With these general questions decided, a discussion of the stationary articles to be found in this kitchen follows, accompanied by drawings showing the pieces individually and also their position in the room in relation to each other.

Individual work-tables are planed for the pupil in order that the conditions under which each one works may be as nearly like home conditions as possible. This plan enables the pupil to do her own cooking at her own work-table just as she would do her own cooking at her own work-table at home. The work-tables are arranged end to end in the room in the form of an open square, as shown in drawing number 7. This simplifies the arrangement of gas pipes for the individual burners and enables the instructor to pass easily and quickly from one pupil to another as she superintends and instructs. The opening in the square opposite the instructor's desk is obviously necessary as a passage way from one part of the room to another.

The individual work-table consists of a flat top, beneath which is inserted a molding board, and beneath this is a drawer of two compartments one for the individual supplies such as salt and pepper and for the small individual utensils, the other compartment being smaller and used for the few larger individual utensils. A box-like compartment is built at one side of the table

beneath the drawer for the pupil's note-books, pencils, etc., the other side being left vacant so that the stool may be placed under the work-table when not in use. An iron sheet extends along the back of desk at a height of eight inches above the desk for the support of utensils over the gas flames. This sheet of iron is eight inches wide and is continuous from one desk to another.

Dimensions

desk

height 34"

depth 22"

width 30"

moulding board

28" x 20" x $\frac{3}{4}$ "

drawer

vertical depth

5"

horizontal depth

16"

width 28 $\frac{1}{2}$ "

Drawing number 1.

The ideal work-table is one of a good quality of material, easy to clean, non-absorbent, durable and attractive. Desks made of hardwood and finished with a stain are satisfactory. The hard wood is durable, does not splinter as soft wood is apt to do and the finish

gives the desk an attractive appearance, rendering it also non-absorbent. The top of the work-table requires especial attention. A tiled top has been found to be most satisfactory. Hot dishes do not affect it and it remains in good condition through years of use.

A limited amount of time is given in the school-kitchen to recitation, yet seats of some kind should be provided. A stool is an inexpensive form of seat, may be pushed out of the way under desk when not in use and, considering the short time in which a seat is needed, is very acceptable. The stool should be high enough that, when seated upon it, the pupil may use the desk to write upon or that when she is serving what has been prepared in class, she is seated comfortably as at a dining table. A stool this height usually brings the pupil's feet from the floor, and to overcome this difficulty - giving a support for the feet - a wooden bar extends between the legs of the stool. The legs of the stools should not spread apart as such a style of stool is inconvenient in a room where much walking about is necessary. The legs of stool should be tipped with rubber to lessen noise. A back is unnecessary since the seats are used so little.

Dimensions of stool

height 22 $\frac{3}{4}$ "

length 14"

width 10 $\frac{3}{4}$ "

Height of top of cross bar from floor 8".

Drawing number 2

The teacher's desk and chair may be any such as are commonly used in class rooms. A desk having several drawers should be chosen if the instructor has no office.

In addition to the wood range, a gas range should be in the school-kitchen. Gas is being used so extensively for cooking purposes that the pupils should become acquainted with it in the school-room. The fact that wood is still used to a great extent here in Oregon makes it almost necessary to have the wood range. The gas stove is one made of cast iron, having four burners so constructed that they may easily be removed. The range has a broiler and oven above the burners. Dimensions of oven are 20" x 20" x 12". Any wood range of recognized value may be chosen. One easily kept clean and having a 30" oven should be chosen. In addition to these two ranges, each desk is supplied with two gas burners. The gas-pipe extends under the top of desks and is connected with the gas-burners by means of extensions from the gas-pipes which pass through tight fitting holes in the top of the work-table, this gives a neat appearance to the desks and makes the work of cleaning less difficult.

The fireless cooker should be in the school-

kitchen. Many styles are placed upon the market. A choice is difficult for numerous fireless cookers are satisfactory. The interior except the packing should be constructed of solid aluminum. The cooking vessels, supplied with it, should be of aluminum without seams or joints. Any hard wood is satisfactory for the outer case. The fireless cooker has a place in the school-kitchen because of the numerous advantages it gives. It economizes in fuel, gives off no heat and no objectionable odors, and the flavor of food cooked in a fireless cooker is an improvement on that cooked on a range.

Two sinks are considered sufficient for a kitchen planned for twenty pupils. Sinks connected with the individual tables are sometimes urged, but such a condition is not always found in the home-kitchen and the expense of installation and expense of care of such a number of sinks is not compensated by the advantage to be gained over having only two sinks. With these sinks placed on opposite sides of the room, the pupils need not be greatly inconvenienced by working at a slight distance from sink. The best material for sinks is porcelain. Nickel plate is preferred for sink attachments. Plumbing should be open and traps back-vented. The strainer over the waste pipe should be fine. Dimensions of sinks are 18" x 30" and 7" in

depth. Porcelain drain boards 30" x 18" extend on each side of the sinks. These drain boards have rubber mats to prevent the dishes from slipping and breaking.

Hand-basins are provided for the pupils, thus avoiding washing hands at the sink.

A class of twenty pupils requires a large refrigerator. For the sake of cleanliness, it should be supported from the floor. The one chosen stands upon a support which is 10" in height. The height above this support (outside measurements) is 56 $\frac{1}{4}$ " , width 46 $\frac{3}{4}$ " depth 24 $\frac{1}{4}$ ". The ice compartment (inside measurement) is 46" high, 15" wide, 18 $\frac{3}{4}$ " deep. The ice capacity is 225 pounds. There are two food compartments each (inside measurement) 26" high, 24" wide, 18 $\frac{3}{4}$ " deep. The shelf area of the two food compartments is 15 $\frac{5}{8}$ square feet. The cabinet of refrigerator is of oak and the lining of opal glass. Shipping weight is 880 pounds.

Two tables for supplies are best to avoid congestion. By placing these on opposite sides of the room the pupils do not have opportunity to mass themselves about one table. These tables may be made of same material as pupil's work-tables and may receive the same finish. The tables should be narrow so that pupils may reach to the farther edge if placed against wall.

Dimensions

length 6'0"

width 2'4"

height 2'10"

Two drawers 20" x 28" x 9" are placed in each supply table. These drawers are divided into compartments and contain small articles as can-opener, ice-picks, and nut-crackers. Drawing number 3.

One small zinc covered table 3' x 2'4" and 2'6" high is placed beside each range to receive hot dishes from the stove. Drawing number 4.

A cupboard opening into the kitchen for the storing of staple articles as sugar, flour, salt, pepper, and also for the storing of utensils is needed. Care must always be taken not to have the cupboards too deep and not to have them too high. The appearance of a kitchen is improved by having the cupboards built into the wall instead of projecting into the kitchen. Sufficient cupboard space is furnished for a class of twenty pupils by a cupboard with the following dimensions

width 9'0"

height 5'10"

depth 2'0"

The cupboard is divided into 6 compartments. Drawing number 5.

Shelf space 96 square feet.

Drawer space 12 1/2 cubic feet. Drawing number 6.

Other fittings for the school room are briefly
enumerated:

Blackboard 19'0"

Clock (eight-day)

Window-shades

Plate-warmers, these will also serve as bread-
raisers and may be built over radiator by
plumber or may be supplied by radiator
company.

Food charts and other illustrative material

Reference books

Towel racks two, on opposite sides of room

Hooks on back of desk for hanging of dish pan.

Cloth

Ice-bag

Jelly-bag

Cheese-cloth

Bandaging

Towels

dish crash

hand

Cloths

dish

sink

floor

mop

String

Aseptic cotton

Miscellaneous

Broom

Floor-brush

Dust-pan

Wrapping paper

Oiled paper

Paper plates

Pins

Compound microscope

Thermometers

Labels of different sizes

Cooking utensils

The selection of the cookery utensils for a school-kitchen should be carefully made. The success of the work depends to a great extent upon having suitable utensils with which to do the work. Not only must the utensils fitted for the work be selected, but these utensils must be well made of suitable material. Aluminum, because of its lightness and because of its enduring qualities is the best material and should be chosen whenever possible. Other materials are often used instead for the sake of economy. Enamel ware stands next in preference after aluminum. Frying pans and such utensils as are subjected to great heat should be of steel. Utensils having seams, angles, and cracks where food particles may collect should be avoided.

List of Utensils

Individual Work-table Equipment.

Article	Size	Material
Dover egg beater-----	medium-----	steel
Egg whip-----	" -----	wire
Fork-----	" -----	steel, wooden handle
Knife-----	" -----	" " "
Paring knife-----	" -----	" " "
Mixing spoon-----	" -----	wooden
1 teaspoon-----	" -----	silver
1 tablespoon-----	" -----	"
1 sauce pan with cover--	1 qt-----	aluminum
1 salt shaker-----		glass
1 pepper-----		"
Sieve-----	small-----	wire
Measuring cup(seamless)-----		aluminum
1 plate-----	8" diameter-----	china
1 " -----	6" " -----	"
1 mushbowl-----	4" " -----	"
Utensil plate-----	10" jelly cake tin-----	tin
White oval baker(for soap and matches)---		china or porcelaine

General Equipment.

Tinware.

Article	Size	Number
Bread-tin-----	small-----	24
Bread-tin-----	medium-----	6

Biscuit cutter-----	2"-----	24
Cookie "-----	3"-----	12
Graters-----	small-----	12
Nutmeg graters-----	medium-----	2
Funnels		
small-----		2
medium-----		2
Colanders-----	medium-----	8
Apple corers-----		12
Soap-shakers-----		4
Steamer-----	large-----	1

Iron Ware

Kettle with basket for deep fat-----		2
Meat grinders-----		2
Lemon squeezers-----		2
Potato ricers-----		2
Nut crackers-----		12
Can openers-----		2
Cork screws-----		2
Omelet pans-----	6" in diameter-----	20
Skewers-----	2"-6"-----	12
Griddle-----		1
Waffle iron-----		1
Ice pick-----		1
Ice chisel-----		1
Hammer-----		1
Hatchet-----		1

Steel Ware.

Knives

butcher-----	4
bread-----	2
chopping-----	10
Shears-----	2
Griddle cake turners-----	4

Aluminum

Teakettle---	2
Coffee percolator-----	1
Sugar scoop-----	2
Flour " -----	2
Covered roaster-----	2
Coffee pots (individual)-----	20
Sauce pan-----1 pt.-----	12
" " -----2 " -----	20
Kettle-----4"-----	4
Kettle-----8 " -----	2
Double boiler-----1 " -----	24
" " -----2 " -----	12
Spoons (long) -----	4

Crockery Ware.

Bowls yellow-----6"-----	14
10"-----	24
14"-----	8
18"-----	6

Pitchers-----	3 qt.-----	4
	2 qt.-----	4

Plates

breakfast-----		6
dinner-----		6
Jars-----	6 qt.-----	2
Jars (for supply cupboard)-----	1 gal.-----	8
	2 gal.-----	4
Casserole-----		2
Baking dish-----		2
Popover cups-----		24

Wooden

Meat board-----		2
Knife-scouring boards-----		4
Vegetable brushes-----		12
Rolling pins-----		20
Potato masher-----		10
Chopping bowls-----		12

Spoons

Cake-----		6
larger size-----		12
Ice mallet-----		1
Ice cream freezer-----	4 qt.-----	1
" " "-----	individual-----	20

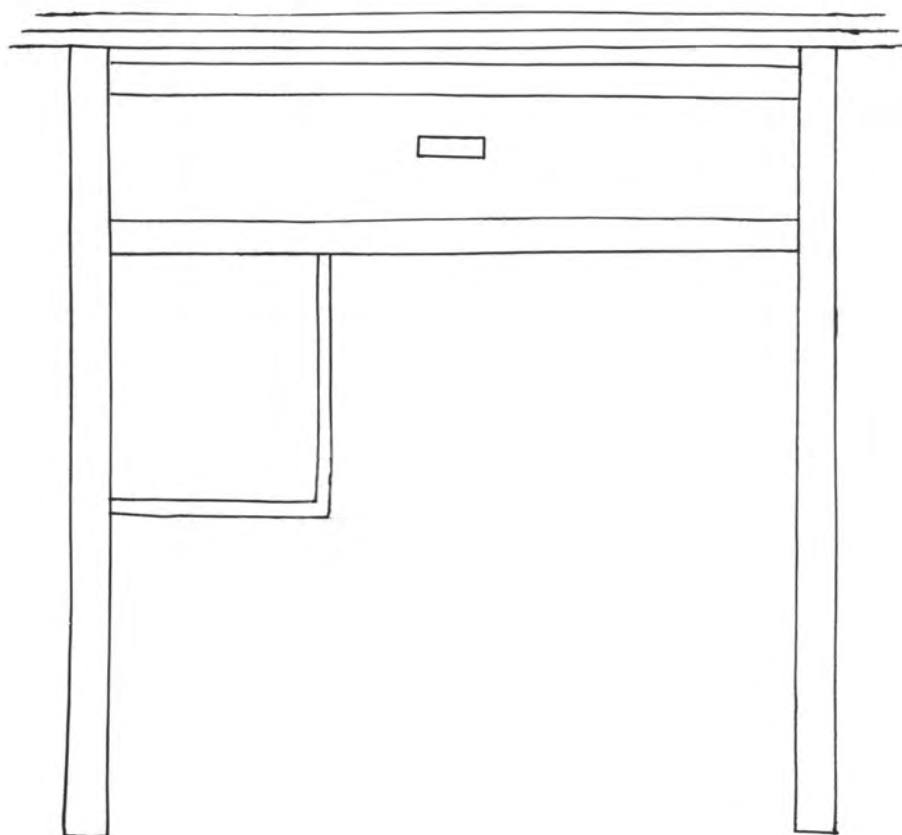
Granite ware

Pudding cups-----		24
Dish pans-----		20

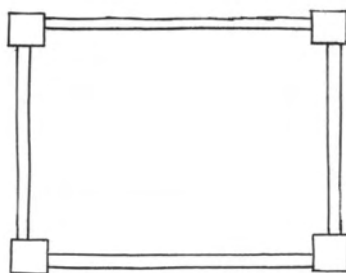
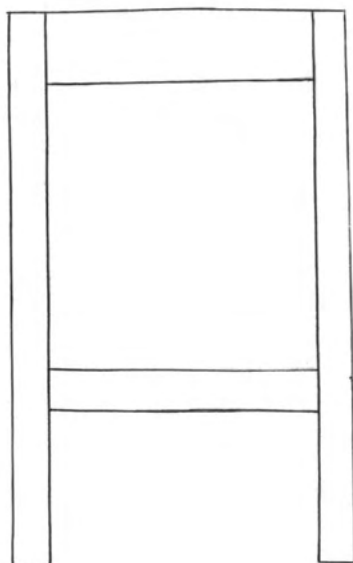
Glass ware for supply cupboard.

Individual sugar bowls-----	12
Candy jars-----2 qt.-----	4
" " -----4 " -----	4
" " -----1 " -----	12
Economy fruit jars-----1 " -----	12
" " " -----2 " -----	6
Jelly glasses-----	12

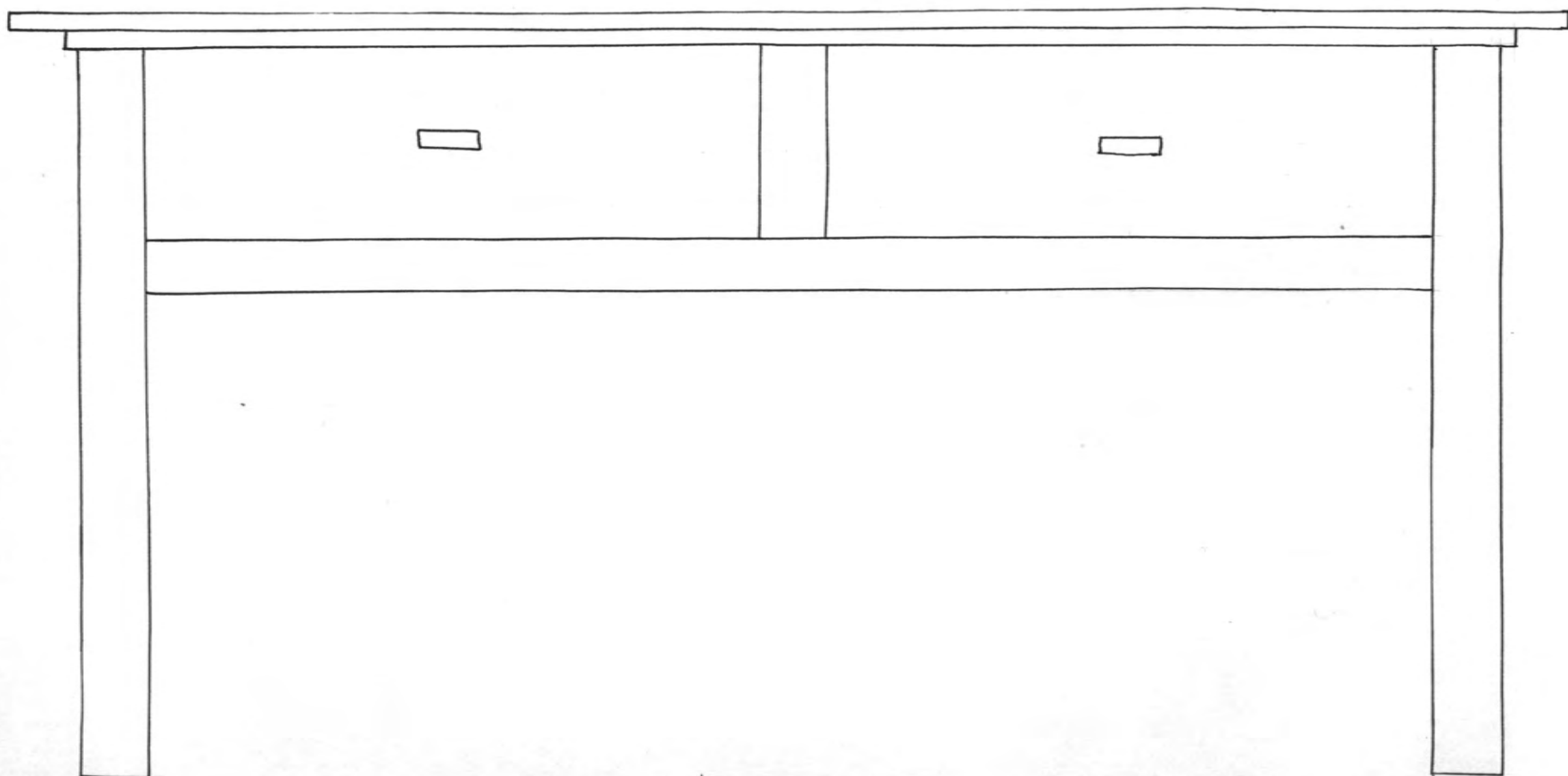
The kitchen with equipment, presented here, is more nearly an ideal kitchen than is possible in most cases, but one installing a school kitchen should keep the ideal in mind and strive toward it, substituting only where necessary, less expensive equipment. Wherever possible, however, the best equipment and most modern utensils should be introduced. By so doing, a love for the work will be aroused among the pupils and, ultimately, among the women of our land. Drudgery will no longer exist. Labor-saving devices will be found in every home and the home-keeper, having received a training in systematic work with a knowledge of the best methods, will have leisure for social affairs and for home festivities, and happiness-"the end of ends"-will be secured.



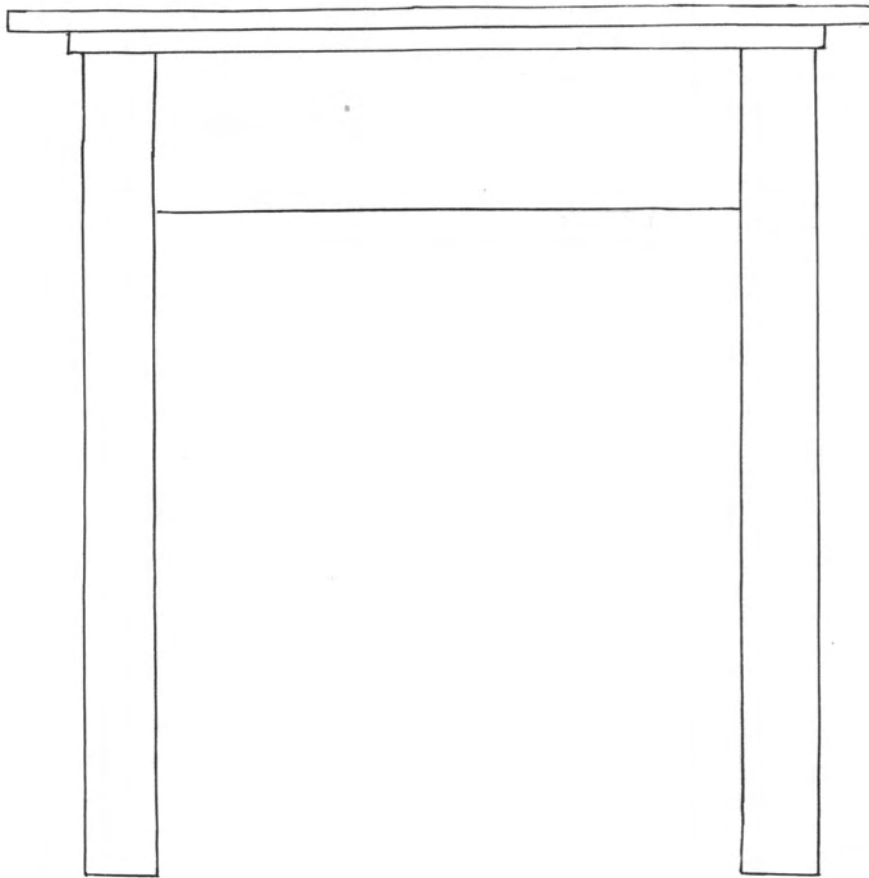
drawing 1.



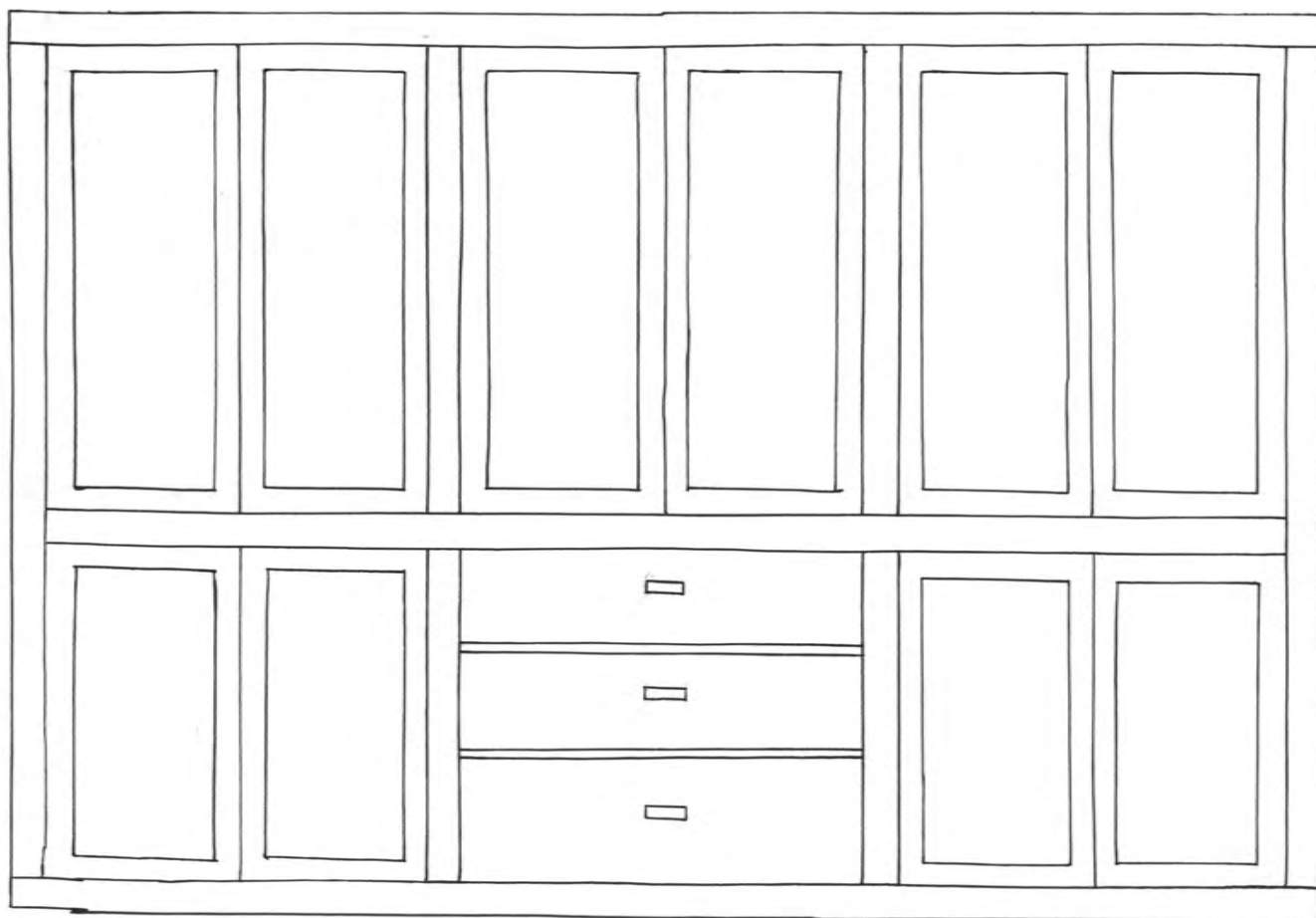
drawing 2



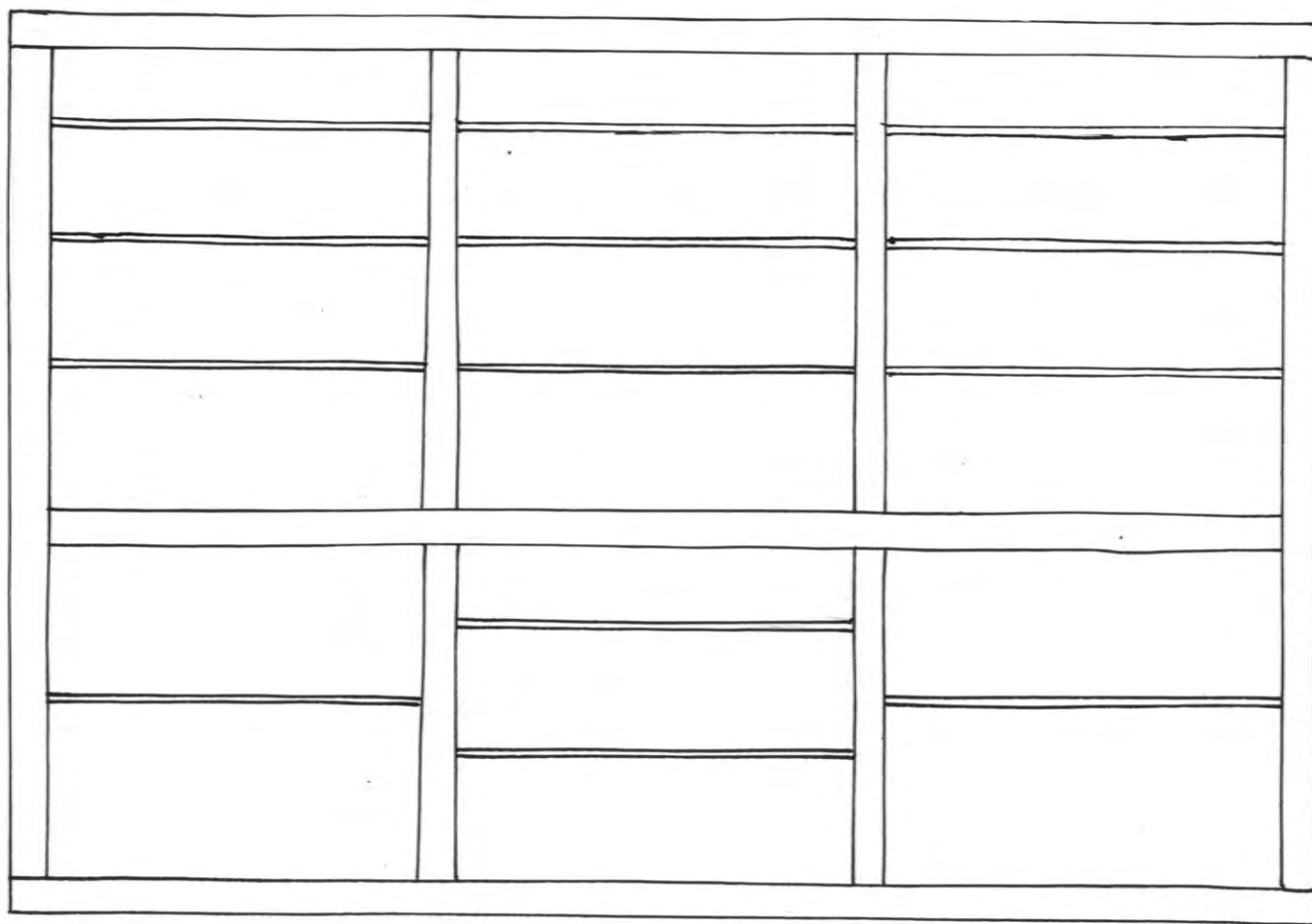
drawing 3



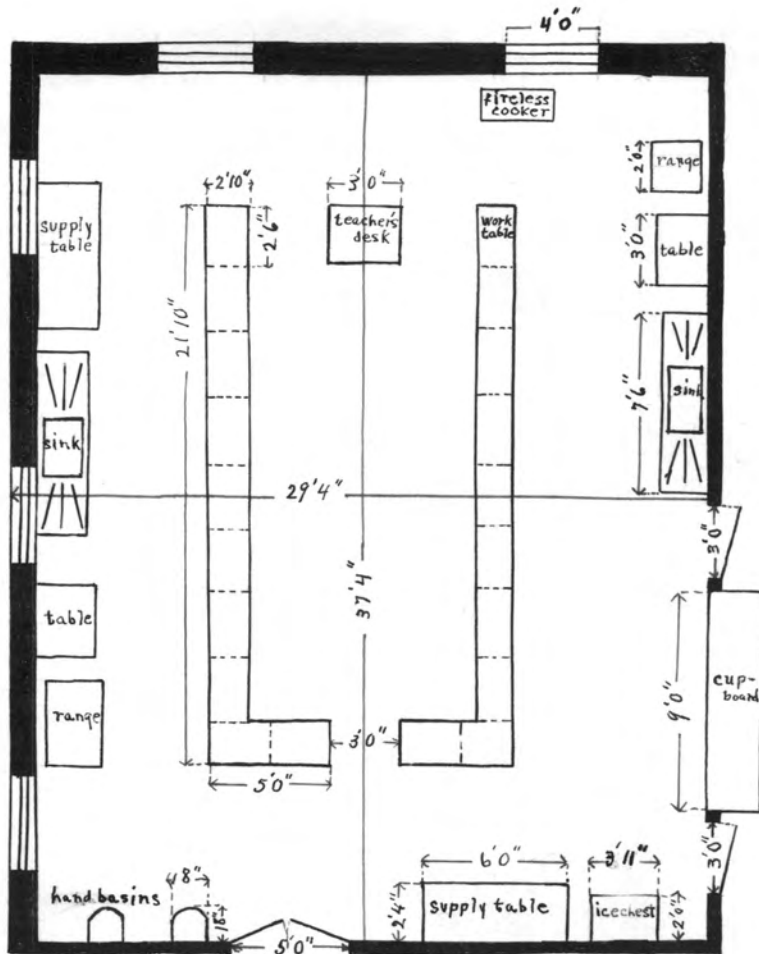
drawing 4



drawing 5



drawing 6



drawing 7

