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Household Care and Cleaning



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(This circular replaces Circular 416.)

Household Care and Cleaning

By GLADYS J. WARD and DOROTHY J. IWIG¹

EFFICIENT CLEANING MATERIALS and methods will save a homemaker not only much time and energy but substantial amounts of money also. Cost records kept by 472 Illinois farm families in 1939 showed an average of \$25 a family, about 48 cents a week, spent for soap, wax, polish, scouring powders, brushes, and brooms.² A large share of this can be saved by preparing some of the cleaning materials at home. Buying supplies in bulk will also help to keep costs down.

When rainwater or other natural soft water is not available, a good water-softening agent is one of the most important items to the homemaker, for soft water adds greatly to the ease of many different cleaning jobs and reduces the amount of soap or other cleaning agent required. A family of five using water of average hardness for Illinois loses or wastes at least 70 pounds of soap a year besides suffering the inconveniences and discomforts which are the results of the use of hard water, according to Dr. A. M. Buswell, Chief of the Illinois State Water Survey.

As a water softener, a trisodium-phosphate (*page 21*) or a washing-soda solution (*page 22*) is much more effective and economical than soap. However, in some parts of Illinois where the water is extremely hard, neither will be wholly effective in softening it. Some newer types of phosphate water softeners and nonsoap cleaners may solve the problem. One such softener is sodium hexametaphosphate, which prevents the formation of scum when soap is used alone in hard water. When none of these are effective, a mechanical water softener may be the only means of removing the calcium and magnesium salts from the water.³

The other supplies which are most necessary for the efficient cleaning of fabrics, metals, walls, and wood surfaces are soap, ammonia, paraffin oil, boiled or raw linseed oil, wax, kerosene, carbon tetrachlorid, and whiting powder.

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²From "Illinois Home Account Records" (1939), analyzed by Ruth C. Freeman and Irene Crouch.

³See Illinois Circular 393, "Soft Water for the Home."

CARE OF EQUIPMENT

To do a good job of cleaning, brooms, brushes, sponges, dust mops, carpet sweepers, vacuum cleaners, and cleaning and polishing cloths must be kept in good condition.

To clean a broom wash it in warm soapy water, rinse well, shake briskly, and hang it up by the handle high enough so that the straw does not rest on the floor. Do not place brooms in the hot sun to dry or in freezing temperatures because the fibers will be weakened.

To clean a brush wash it in warm soapy water, rinse, shake briskly, and hang it up to dry at room temperature. Like broom fibers, brush fibers will be weakened if allowed to dry in extreme temperatures.

To remove paint from brush fibers use a cleaner recommended for the kind of paint used. To remove oil paint, use raw linseed oil; to remove flat finish paint, use kerosene oil, sometimes called "coal oil"; for varnish removal, use turpentine; for shellac, use denatured alcohol; for calcimine or whitewash, use water. Then wash the brush in soapy water and dry on a flat surface. Wrap in paper and store.

Cloths for polishing furniture should be free from lint. Sponges and dust mops for cleaning should be soft. When they become soiled, wash them in warm soapy water, rinse, and dry thoroly. Synthetic sponges are now replacing rubber ones.

To clean a carpet sweeper, release the lever to remove the dust, clean the brush thoroly, removing all material adhering to it.

To clean a vacuum sweeper remove dirt regularly from the bag in order to prevent reduced efficiency in operating the machine. Follow the manufacturer's directions.

WALLS

Unpainted Plaster Walls

Smooth-plaster walls that have not been painted can be cleaned with a chemically treated sponge, a soft cloth such as a terry bath towel, a soft brush, or a vacuum-attachment brush. Begin at the bottom and work upward with overlapping strokes.

Rough-plaster walls, especially if they have a very rough texture, are somewhat more difficult to clean than smooth walls. For ordinary cleaning use a wall brush, a vacuum-cleaner attachment, or a chemically treated sponge. Rub the wall with light overlapping strokes and work from the top down.

A newly plastered wall should be thoroly dry before any surface finish is applied.

Painted Rough-Plaster Walls

Ordinary soil on painted walls that are rough plaster can be removed with soap jelly and a dampened sponge or a soft cloth. Rinse with cloth wrung out of lukewarm water. When such walls are badly soiled, they can be cleaned with soap jelly and a stiff brush. Rinse thoroly with sponge or cloth wrung out of clear lukewarm water.

Painted Smooth-Plaster Walls

The supplies for cleaning painted smooth-plaster walls are very simple: wall brush, sponge or soft cloths, and soap jelly or a wall-cleaning solution (*page 22*).

For general dusting use wall brush, with light overlapping strokes (heavy strokes rub the dirt in). Shake the brush frequently so the soil will not become imbedded and streak the plaster.

Oil-painted walls. Such walls not badly soiled can be shampooed with soap jelly. Wring a soft cloth or sponge out of water, apply jelly, and wash the walls with even overlapping strokes, using an up-and-down motion. Beginning at the top and working downward, rinse the wall with a sponge or soft cloth wrung out of clear, soft water that is lukewarm.

Oil-painted walls coated with grease or soot can be cleaned with the wall-cleaning solution given on *page 22*.

Oil-painted walls to be repainted should first be washed as directed above. Cracks should be repaired with patching plaster and allowed to dry thoroly before a coat of paint is applied.

Enameled walls. An enameled wall that is coated with grease or soot can be cleaned with the wall-cleaning solution given on *page 22*. Before re-enameled a plaster wall, apply a coat of flat paint and let it dry thoroly in order that the new enamel can adhere to the wall. Follow printed directions on the container for thinning paint.

Walls which have not been repainted for several years should be given a varnish sizing before repainting. This material may either be bought or prepared by following directions given by a paint dealer.

Water-painted walls. There are two types of water-color paint for walls—one type, calcimine and casein paint, is soluble in cold water, and the other is soluble in hot water. Apply paints according to directions given on the container.

Calcimine paint should not be applied until the old coat of paint has been removed and the wall is thoroly dry. To remove calcimine paint requires warm water, vinegar, soap jelly, sponge, metal scraper, and calcimine brush. Use a large brush moistened with warm water or

with a water-vinegar solution ($\frac{1}{2}$ cup vinegar to each gallon of water). Brush from left to right on the wall and work from the bottom upward.

When the calcimine is wet enough, scrape the wall. Rinse the surface with a sponge wrung out of clear soft water, working from the top downward.

Do not use casein or oil paint on a wall which has a calcimine finish unless all the old finish is first removed and the wall resized.

Casein cold-water paint generally has a buttermilk binder. Casein-painted walls that are only slightly soiled may be repainted with casein paint without first being washed. Very soiled walls should be washed with soap jelly before they are repainted.

Wash the walls with a sponge wrung out of water and soap jelly working from bottom upward. Rinse with a sponge or cloth wrung dry out of clear warm water that is soft, working from the top downward. Let wall dry thoroly before applying new coat of paint.

Oil paint can be used over a coat of casein paint, but casein paint should not be applied over calcimine.

Hot-water soluble paint can be washed by the same method as that described above for cold-water soluble paint. Follow directions on the container.

Other Smooth-Finished Walls

Canvas wall. Supplies needed are soap jelly or wall-paper cleaner (*page 22*) wall-paper paste (*page 23*) sponge or soft cloths, some firm muslin canvas.

Decorator's canvas is sometimes used on walls, and plain canvas is frequently used to reinforce an impaired wall, furnishing a base for the application of either paint or wallpaper. To apply canvas, first apply paste as for wallpaper.

Painted canvas is cleaned in the same way as painted walls (*page 5*). Wallpaper applied to canvas is cleaned in the same way as wallpaper placed directly on plaster.

Oilcloth wall. Wash oilcloth walls with soap jelly and a sponge or soft cloth, working from the bottom upward. Rinse thoroly with sponge or soft cloth wrung out of clear lukewarm soft water, working from the top down.

When *flat paint* is to be used on an oilcloth wall, wash the oilcloth and let the wall dry thoroly; then apply a color that blends with the furnishings. When *enamel paint* is to be used, wash the oilcloth, allow it to dry thoroly, and then apply a coat of flat paint. Let this coat dry thoroly; then follow with an enamel coat.

Linoleum wall. Wash the wall with a sponge or soft cloth and

soap jelly, using overlapping strokes. Rinse surface thoroly, using sponge or cloth wrung out of clear lukewarm soft water and wipe dry. If wax is desired, apply after the wall is thoroly dry and then polish.

Ceramic tile wall. Clean the soiled tile surface with a soft cloth or sponge wrung out of warm soapy water. Rinse wall thoroly with cloth wrung out of clear lukewarm soft water and wipe dry. Avoid strong washing and scouring powders.

Wallpaper. Remove dust with a soft wall brush or soft clean cloth, using light even strokes. Hard rubbing will streak and roughen the paper.

Ordinary soil can be removed by using homemade (*page 22*) or commercial cleaners. Work slowly, using even strokes.

Washable papers are cleaned satisfactorily by wiping them with a cloth wrung out of clear lukewarm soft water and drying with a clean cloth. Use water sparingly so that the paper will not absorb it.

Many washable papers of firm quality may be cleaned with soap jelly and a sponge or cloth. Use light even strokes. Rinse with sponge wrung out of clear warm soft water.

Fresh grease spots can sometimes be removed from wallpaper by using a thick paste made of water and either French chalk or powdered magnesium. Apply this paste to the grease spot, let it dry thoroly for 24 hours, and then carefully brush it off. More than one application of paste may be necessary to remove the spot.

Another paste, which is made of cornstarch and carbon tetrachlorid, can be used in the same manner as described above. When paste with carbon tetrachlorid is to be used, first test it on a small sample of the wallpaper to be sure that it will not affect the color.

In order to keep old grease stains from spotting new wallpaper, first apply such a seal as aluminum enamel or shellac over the stain.

WINDOWS AND LIGHTING FIXTURES

Window glass. Remove dust with soft paper and wash glass with warm soapy water, using squeegee, sponge, chamois, or cloth. Rinse with clear warm water and dry with lintless cloth, chamois, or squeegee (window scraper).

To clean off raindrop stains, dust window with soft paper. Apply glass polish according to directions on page 26. For a liquid window cleaner, see page 26 or use a commercial cleaner.

To clean off greasy soot, use 1 tablespoon of trisodium phosphate dissolved in 1 gallon of hot water, or 4 tablespoons of ammonia solution to 1 gallon of warm water, and apply with sponge, cloth, or squeegee. Rinse with clear water and dry with chamois, lintless cloth, or squeegee.

Care is necessary in applying trisodium-phosphate window cleaners to avoid getting any of the liquid on the window frame or furnishings, as it is likely to remove finish and color.

Nonwashable shade. Lay shade flat on a large table. Using a soft brush, wall-paper cleaner, or chemically treated sponge, clean the shade on both sides.

Washable shade. Lay shade flat on a large table. Dust with soft brush and then wash with a sponge or soft cloth and soap jelly, applying the jelly to a small area at a time. Thoroughly rinse off all soap with sponge or cloth wrung dry out of clear water. Clean other side and let the shade dry thoroughly before rolling.

Wall-paper cleaner or chemically treated sponge can be used in place of the shampoo.

Venetian blinds. Dust slats with lamb's wool brush or soft cloth. To remove greasy or sooty soil use the kerosene emulsion given on page 25. Polish with a dry soft cloth.

Clean the tape with soap jelly on a sponge or brush. Remove soap by rinsing thoroughly with sponge or cloth wrung dry out of clear warm water.

A commercial cleaner can be used instead of the soap-jelly shampoo.

Mirrors. Clean with a soft cloth or chamois wrung dry out of warm soapy water. Rinse surface with cloth or chamois wrung out of clear warm water and polish with dry cloth.

Electric fixtures. Glass fixtures can be cleaned with glass cleaners (*page 26*), metal fixtures with metal cleaners (*pages 25 and 26*), and plastic fixtures with cleaners for plastics (*page 14*). Be sure to turn off the current before cleaning lighting fixtures.

Wipe bulbs with a damp cloth when they are cold, and then dry them. Dust glass and plastic bowls and shades. Remove greasy soil from them by washing with cloth wrung out of warm soapy water. Rinse surface with clear warm water and dry.

Kerosene lamps. Remove char from wicks with soft paper or tissue. Clean chimneys, glass bowls, and shades with soft paper when they are cold, or wash them in hot soapy water, rinse, and dry.

Lamp shades. Washable fabric lamp shades soiled with dust can be washed with a soft brush and soap jelly. Rub the surface lightly and rinse thoroughly with a brush and clear lukewarm water.

Nonwashable lamp shades that have become spotted are difficult to clean. The only satisfactory method is to immerse them fully in a dry-cleaning fluid, a type of cleaning that should be done only by a commercial cleaner. To dust parchmentized shades use paper tissue or a soft cloth. If soiled, clean with soap jelly and a sponge wrung dry out of clear warm water. Rinse with sponge wrung dry out of clear warm water.

FLOORS AND WOODWORK

Cleaning Wood Surfaces

Unfinished wood surfaces absorb grease and dirt more easily and are more difficult to keep clean than wood surfaces which are oiled, painted, sealed, shellacked, varnished, or waxed.

In cleaning unfinished wood surfaces, use only small amounts of water and a mild soap. Rinse with a cloth wrung out of clear water and wipe dry. Soaps, alkalies, and too much water darken wood and may soften it and make it splinter.

Dark stains on unfinished wood surfaces may be removed by using the oxalic acid solution described on page 23.

Finished wood floors can be swept with a broom or soft floor brush or wiped with a dry mop. To clean more thoroughly, wipe or mop with a cloth wrung out of clear lukewarm water.

Floors so soiled that the above methods are not satisfactory should be washed with a mild soap-and-water solution. Rinse well with a cloth wrung out of clear water. An abrasive such as whiting may be required to remove spots from very soiled floors. Rub a little whiting paste on the spots and rinse with a clean cloth wrung out of clear water.

Greasy or sooty soil on enameled, painted, or varnished *woodwork* may be removed by using the kerosene emulsion described on page 25. Note also the oil solutions given on page 25 for removing dust from various kinds of nonwaxed wood and metal surfaces.

Finishing Wood Surfaces

To prepare for a new finish. Sand the wood surface and clean with cloths or a broom. When a stain is to be used, apply it before the wood filler. Supplies needed are clean coarse cloths, soft cloths, stiff brush, broom, fine steel wool or fine sandpaper, and a wood filler.

On open-grained woods such as chestnut, mahogany, oak, and walnut, use a paste filler. Thin this filler to brushing consistency with turpentine before applying it. On close-grained woods such as birch, cherry, maple, and yellow pine, use a liquid filler.

CAUTION: To avoid fire from spontaneous combustion store in a tightly closed glass or metal container all cloths used to wax, polish, or rub furniture.

To apply the wood filler, use a stiff brush and work first *across* the grain of the wood; then work *with* the grain. Allow the filler to set 15 to 30 minutes. Then rub the floor crosswise of the grain or with a circular motion with clean closely woven coarse cloth such as used in feed sacks in order to remove extra filler. Smooth the surface with fine sandpaper or steel wool and dust with soft cloths.

To apply finish. New finishes for floors include oil, paint, seals, shellac, varnish, and wax. To apply any one of these, follow directions given on container. Finishes should be applied in a warm room. *Wax can be used on any finished floor.*

Oiled floors. To oil a floor rub it with boiled linseed oil, using a soft woolen cloth or a brush. Let oil stand until thoroly dry. Before a new coat is applied, remove all excess oil by rubbing the surface with a soft cloth. Burn such cloths out of doors.

The oil will penetrate and dry more quickly if one part of turpentine is used to four parts of oil. Raw linseed oil may be used on floors when greater penetration is desired. Warm linseed oil will be absorbed more quickly than cold oil. (See CAUTION below.)

Oil should not be used on a waxed surface. When an oiled surface has been waxed, remove the wax before applying a new coat.

Painted floors. Paint a floor only after it has been thoroly cleaned and dried. Several coats of thinned floor or deck paint are more effective than one thick coat. Sandpaper the floor lightly between each coat; then dust it with clean cloths or a brush. Before a coat of floor varnish is applied, the last coat of paint should be lightly sanded and dusted.

Sealed floors. Seals are used to penetrate into the pores of the wood and to finish the surface. When this finish is applied, a filler is usually not necessary. When a seal is used on a new floor, two coats are preferable. After the first coat, use fine sandpaper or steel wool and dust the surface before applying a second coat.

Many experienced painters have pointed out that it is not advisable to use both shellac and varnish on the same floor; either shellac only or varnish only should be applied. These materials have different rates of expansion and so cracking or crazing results when both are used.

Shellacked floors. When shellac is used, the first coat is usually mixed with equal parts of denatured alcohol. Follow directions given on container for applying the other coats.

CAUTION: Be careful to have no flames in the room when preparing or using furniture or floor polishes that contain linseed oil or turpentine, as both are very inflammable. Never heat linseed oil directly over a burner; heat it in the upper part of a double boiler.

Varnished floors. When varnish is used, choose a good grade of floor varnish. Thin the first coat, using 1 pint of turpentine to 1 gallon of varnish. Allow coat to dry thoroly; then rub surface lightly with fine sandpaper. After sanding, wipe surface to remove dust. The second and third coats of varnish are usually applied without being thinned.

Before applying a new coat of varnish, smooth the surface with fine sandpaper or steel wool and dust it.

Waxed floors. There are two types of waxes—paste and liquid. Liquid waxes include plain liquids and water-wax emulsions. Apply each type of wax according to directions given on the container.

Several thin coats of wax are preferable to one heavy coat. Allow each coat to dry thoroly before applying the next coat. It is necessary to polish some of the liquid waxes and most of the paste waxes.

Wax may be removed by washing the surface with warm soapy water or using a commercial wax remover.

To prepare for refinishing. To get the best results in refinishing the surfaces of floors and woodwork finished with paint, shellac, seal, varnish, or wax, first remove all the old finish.

A sanding machine, a metal scraper, or a solvent is used to remove finishes. When a sanding machine is used, care must be taken not to let it cut too deep into the wood. If a metal scraper is used, careful work is necessary to prevent scratching the wood surface. This process is slow and tedious.

Solvents to remove paint and varnish may be bought or made at home. Commercial removers are the safest. Denatured alcohol is used as a solvent on shellacked floors.

Because a solvent dries quickly, do not cover a large surface with it at one time. Apply to the surface with a clean old brush, working in one direction. Let stand until the old finish wrinkles or becomes soft. Then lift off the gummy substance with a putty knife or cloth, working with the grain of the wood. Do not draw the knife back over the cleaned surface because it may scratch it.

Two or three applications of varnish remover may be necessary to take off all the old finish. If any shiny spots show on the surface, some of the old finish is still present. When all of it has been removed, wipe the surface with a clean cloth moistened in turpentine or denatured alcohol in order to remove the grease left by the varnish remover.

Homemade removers. Two paint and varnish removers that can be made at home are a lye solution and a trisodium-phosphate solution (*page 23*). These removers are hazardous to use. Injury frequently results either thru surface burns or, in case of lye, from breathing the fumes. These removers may also impair the wood. Extreme care is

necessary in applying them. When using lye, it is well to protect the hands with rubber gloves if they are available.

Apply lye solution with a long-handled brush or a cloth tied to a stick. When the old finish softens, lift it off with a putty knife, working with the grain of the wood. Rinse immediately with a strong vinegar solution (3 cups vinegar to 1 cup water) to neutralize any lye left on the wood. Do not cover a large surface at one time, for the lye paste dries quickly, tends to darken the wood and raise the grain, and it often burns the wood.

Trisodium-phosphate solution will remove paint and varnish and will also bleach wood. Apply to the wood with a dish mop. When the old finish softens, lift it off with a putty knife, working with the grain of the wood. Rinse well with a strong vinegar solution (3 cups vinegar to 1 cup water). Let the floor dry thoroly before applying a new finish.

After the old finish has been removed and the floor is thoroly dry, smooth the surface with fine sandpaper or steel wool. If necessary use a filler. To apply a new finish follow directions on pages 9 to 11.

Commercial paint and varnish removers. There are many good paint and varnish removers on the market. Follow directions of the manufacturer.

Cement, Concrete, and Ceramic Tile

To clean a cement or concrete floor first wet the floor with clear water. Prepare a hot solution of about 2 to 2½ ounces of washing soda or ½ ounce of trisodium phosphate per gallon of water. With a stiff brush or mop, apply the hot solution to the floor. Sprinkle scouring powder over soiled spots and rub them well. Rinse thoroly with clear warm water to remove scouring powder and alkali.

Do not use soap on unpainted or untreated cement floors because when that is done a scum of lime soap may form on them.

When paint is used, apply a kind made especially for concrete floors. To protect a cement floor that is new or just cleaned, apply with a mop a solution of equal parts of water glass and water. Allow to dry thoroly and apply a second coat. Repeated once or twice a year, this treatment will keep the floor in good condition.

Tile floors are made with four different kinds of bases—slate, asphalt, bitumen, and resin. Cleaning agents and polishes containing oils, turpentine, or carbon tetrachlorid should not be applied to them.

Remove surface soil with a soft brush. Prepare mild soapy-water solution and apply with a mop or soft cloth. Rinse thoroly with a mop wrung out of clear lukewarm soft water. Wax may be used if desired. For a homemade wax see water-wax emulsion, page 24.

FLOOR COVERINGS

To clean a wool or worsted rug or carpet, use a carpet sweeper or vacuum cleaner because beating breaks the back of such a rug.

Before applying any cleaning agent to an entire rug, first try it on an inconspicuous place to see that it does not change the color.

To shampoo rugs and carpets. If a general cleaning is necessary, shampoo the rug with soap jelly (*page 22*), and a soft brush, a sponge, or a cloth, working with a circular motion. Rinse several times with sponge or cloth wrung dry out of clear soft water. After the last rinse, use a soft brush to lay the nap of the rug down. When the rug is thoroly dry, brush the nap.

Small rag rugs made of materials having fast colors may be washed in a washing machine. First remove all dust by brushing or cleaning with a carpet sweeper or vacuum cleaner. Wash the rug in warm soapy water, rinse thoroly, and hang dripping on the line or place on a flat surface to dry. (Wringing a rug will cause deep creases in it.)

Cork floors. A cork floor covering without any surface treatment can be cleaned by sweeping it with a hair floor brush. Wax can be applied to the surface.

When a cork floor is very soiled, clean a small area at a time with a mop wrung out of soapy lukewarm water. Rinse the surface thoroly with a mop wrung out of clear lukewarm water. Change the water frequently. Waxed cork floors can be cleaned with a dry mop or a polishing brush.

To remove fresh grease stains, apply a soft cloth moistened with carbon tetrachlorid.

Felt base covering. A common floor covering consists of a felt base made of paper saturated with asphaltum, dried, and finished with a painted or linoleum surface.

Remove surface soil with a soft brush. Using a mop wrung out of warm soapy water, clean a small area at a time. Rinse with a mop wrung out of clear warm water.

When a felt-base covering has a painted surface, a coat of varnish will protect the paint. When it has a linoleum surface, wax will give protection.

Linoleum. The floor on which either inlaid or printed linoleum is laid should be smooth and level. Linoleums are cleaned with a soft cloth or mop wrung dry out of warm soapy water. Wash only a small portion at a time. Rinse with a cloth or mop wrung dry out of clear warm water. To protect the surface of the linoleum, apply wax.

Hot water, strong soaps, and other cleaning agents should not be used on linoleum.

Rubber. Use a soft brush to remove loose soil. Apply a water-

wax emulsion (*page 24*). When two coats of the emulsion are to be used, add a little water to thin the first coat and apply it with a cloth or a soft brush over a small area. Polish the floor with a soft cloth, brush, or electric waxing machine before the wax is thoroly dry. (In the absence of other polishing devices, a brick covered with carpet, felt, or cleaned lamb's wool can be used.) The second coat should not be thinned. Apply it and polish the floor.

This type of waxing cleans the rubber and also protects its surface. Coarse abrasives, alkalis, and cleaning materials containing oil and soap should not be used on rubber floors.

FURNITURE

Wood framework. To care for oiled, painted, shellacked, varnished, or waxed furniture, follow the directions given for the care of wood floors and woodwork (*pages 9 to 12*).

To treat scratches rub them with a cloth dampened with linseed oil, working with the grain of the wood. In lieu of linseed oil, nut meat may be used. First remove the thin skin, flatten the meat against the finger and rub it on the scratch with the grain of the wood.

Plastic framework. Plastic framework or plastic trim on furniture includes such products as crystalite, lucite, plexiglas, and tenite. The following directions, by a manufacturer, are recommended:

"To avoid scratching, do not wipe with a dry cloth, but wash with a grit-free soft cloth, chamois, or sponge. Rubbing with a dry cloth builds up an electrostatic charge on the plexiglas (and crystalite) so that it attracts dust particles from the air; rubbing with a damp chamois will remove this charge as well as the dust and is therefore recommended.

"Soap and water, kerosene or naphtha may be used to remove grease and oil, but acetone, benzene, and lacquer thinners will affect the surface. The use of kitchen cleaners should also be avoided since they may contain coarse abrasives which will scratch. The application of automobile or furniture waxes is highly recommended to cover minor scratches and to help prevent further scratching."

Follow the directions that accompany the plastic.

Metal framework. For general cleaning, wipe metal surface with a cloth wrung out of hot soapy water, rinse, and wipe dry. For special cleaning, a polish for metal can be used.

Fabric upholstery. Upholstery needs to be cleaned thoroly at regular intervals to prevent moths and prolong its life and beauty.

For ordinary cleaning remove the loose cushions and use a vacuum-cleaner appliance or hand brush, especially in the corners. Down-filled cushions should be carefully brushed and aired out of doors and not cleaned with a vacuum cleaner, because down may be sucked into it.

Soiled fabric coverings that are fast in color may be shampooed with soap jelly (*page 22*) and sponge or cloth wrung dry out of lukewarm water. First test the fabric in an inconspicuous place to see that it will not change color. To remove the lather rinse the surface with a cloth or a sponge wrung dry out of lukewarm water. Care must be used not to dampen the stuffing in the furniture.

Grease spots can be removed from upholstered furniture by sponging them thoroly with a cloth saturated with carbon tetrachlorid, working from the outer edge toward the center. Have a clean cloth at hand to absorb the soiled cleaning fluid. More than one application may be necessary.

Leather upholstery. Use saddle soap on a dampened sponge or a soft cloth. Cover only a small area at a time. Rinse with cloth or sponge wrung dry out of clear lukewarm water. Polish the surface with a dry soft cloth.

Piano keys. Moisten a soft cloth with denatured or wood alcohol (POISON) and apply to piano keys. Be careful not to spill alcohol on the wood finish, as it will leave a stain. Do not use water, as it tends to yellow the keys.

CURTAINS, DRAPERIES, PICTURES

Curtains and draperies. Shake or brush with a soft bristle brush. Washable materials should be laundered in lukewarm soapy water and rinsed thoroly in water of the same temperature, then ironed or stretched to shape, and dried.

Dry cleaning of curtains and draperies should be done by commercial cleaners.

Pictures. Dust glass and frame with a soft clean cloth. If only slightly soiled, wash with a chamois wrung dry out of clear soft water. Rinse with a chamois wrung dry out of clear water.

To remove a greasy film on glass, wash with chamois wrung dry out of ammonia water (*page 21*). Rinse with chamois wrung dry out of clear water. Be careful not to let ammonia water get on the frame, as it may affect the color.

HOUSEHOLD EQUIPMENT

Porcelain enamel and synthetic surfaces are being used increasingly on many types of household equipment. Since enamel surfaces are fused on cast iron or steel, they should be used with care to prevent chipping and cracking.

Both enamel and synthetic surfaces should be cleaned with mild soapsuds and rinsed. Only fine abrasives, such as whiting moistened with kerosene or a mild commercial cleaner, should be used to treat stubborn stains.

Bathroom. Bathroom fixtures can usually be cleaned by a brisk rubbing with hot soapy water. Rinse with water and dry.

For cleaning badly soiled bath tubs, apply whiting powder moistened with kerosene or with a fine commercial cleaner. Rinse surface thoroly. Trisodium-phosphate solution (1 tablespoon dissolved in 1 gallon hot water), with enough soap to make suds, can also be used. Be sure to rinse thoroly.

Clean the stool with soapy water and a long-handled brush. Flush frequently with a strong washing-soda solution (*page 22*) or drain-pipe cleaner to keep it clean and odorless. Rinse thoroly.

Iron-rust stains on bath tub or bowl may be removed by applying a diluted oxalic-acid solution (*page 23*), (POISON). Thoro and immediate rinsing of the surface is necessary.

Beds. Clean frame of a painted wooden or steel bed with a cloth wrung dry from warm soapy water. Rinse with a cloth wrung out of clear warm water. Clean only a small area at a time.

Bedsprings can be cleaned easily if they can be placed in the yard where they can be washed with a garden hose and thoroly dried in sun and air. If springs must be cleaned in the house, brush or wipe them with a damp cloth or clean with a vacuum-cleaner attachment.

Mattresses. Air and turn regularly to keep them in good condition. Clean with a whisk broom or a vacuum-cleaner attachment. Exposing a cotton mattress to the sun will help to keep the fibers fluffy.

Pillows. Air and sun outdoors frequently to keep the feathers fluffy. Brush with a whisk broom.

To wash pillows, first remove the feathers to a closely woven bag large enough to prevent the feathers from packing and tie the top of the bag securely. Wash bag and contents in a tub of warm soapy water, gently sousing up and down. Rinse in clear warm water and dry thoroly either outdoors in the sun and wind or indoors with an electric fan, shaking the feathers while they are drying. Wash the ticking the same as any cotton fabric. When feathers and ticking are dry, replace the feathers.

Dairy utensils. Wash with a mixture of $\frac{1}{2}$ tablespoon of trisodium phosphate and $\frac{3}{4}$ tablespoon of washing soda dissolved in one gallon of hot water. Rinse thoroly with boiling water and dry thoroly. Frequent sunning of dairy utensils is highly desirable.

Kitchen sink. Wash daily with hot soapy water and rub stub-

born stains with mild abrasive such as whiting paste (*page 26*), or a commercial cleaner.

To help keep a sink drain from becoming clogged, flush it daily with boiling water. To remove iron rust, use oxalic-acid solution, *page 23*.

To clear a clogged drain. Supplies needed are a force-cup, boiling water, washing-soda solution (*page 22*), or drain-pipe cleaner.¹

Partly fill the sink with water. Place the force cup over the drain, press down on it, and then release the pressure. Repeat alternate pressing and releasing until the pipe is cleared. As soon as water flows freely thru the drain, carefully pour a pail of boiling water into it from a height of a foot or more in order to wash out the clogging substance.

If the force cup fails to clear the drain, pour a hot washing-soda solution or a drain-pipe cleaner down the pipe.

To clear a clogged trap. Supplies needed are a screwdriver, bucket, bottle brush, stiff wire with bent or hooked end, wrench.

If the force cup and drain-pipe cleaner fail to clear an S-type trap, unscrew the plug. Place a bucket under the trap to catch the surplus water, and drain the pipe. Insert a bent wire into the trap opening and pull out the accumulated grease and dirt. Brush the trap with a round bottle-brush. Pour a pail of boiling water from above into the sink drain to flush the pipe clean. Clean the plug before replacing it.

Kitchen storage cabinets. Clean enameled, painted, and varnished wood and metal cabinets with a sponge or a cloth wrung out of warm soapy water. Rinse surface with cloth wrung out of clear warm water.

The kerosene emulsion (*page 25*) will quickly remove greasy soil from enameled wood and metal cabinets. Follow directions given with the cleaner.

Radiators and registers. To clean radiator coils, brush them with a long-handled radiator brush. To clean a floor register, remove it and brush the screen on a newspaper. To remove the soil, wipe the register with a cloth wrung dry out of kerosene. Dry with a clean cloth.

Stoves. Most electric, kerosene, and gas stoves and some coal and wood stoves have a surface finish of enamel. Enameled surfaces are wiped with a cloth wrung out of hot soapy water and rinsed with a cloth wrung out of clear warm water.

Acid foods such as lemon juice or vinegar spilled on an enamel surface should be wiped off immediately with a damp cloth to prevent staining. Stubborn stains on enamel surfaces should be rubbed with a

¹A force cup is a hard-rubber, bell-shaped cup about 5 inches in diameter fastened to one end of a stick about 3 feet long.

fine abrasive such as whiting, or a mild commercial cleaner, and rinsed with a cloth wrung out of clear warm water.

Electric stoves. *Be sure to turn off the switch and let the stove cool before beginning any cleaning.*

Remove grease trays and oven racks, wash in a pan of hot soapy water, rinse, and dry. Wash oven lining with a cloth wrung out of hot soapy water, rinse and wipe dry, then replace trays and racks. Food spilled on an electric heating unit should be allowed to char or burn dry and then is brushed off.

To clean chromium, nickel, or steel trim see directions on pages 20 and 26.

Stoves with wicks. Besides washing the surface of a kerosene or other similar type of stove, wipe the wicks clean daily. Remove chimney, outside collar, and flame spreader; turn wick level with top of wick tube, and wipe it from the center outward until the charred edge is removed. Clip loose threads with scissors. Careful wiping of wicks having a beveled edge is necessary to maintain an even flame.

Drain and clean the fuel tank by tipping it back, removing the cap from the fuel line, and draining out the fuel. Clean the pipe with a stiff wire. Then wash the fuel tank and pipe with a little kerosene.

Do not have flame or fire in the room when cleaning kerosene and other wick types of stoves.

Washing machine. Clean tub of washing machine with hot soapy water, rinse, and wipe dry. Release pressure on wringer rolls and wipe with a damp cloth. Leave drain faucet open and prop up the lid for an inch or two to allow circulation of air when the tub is not in use. In the cylindrical type of machine, dry the cylinders carefully to prevent rust and discoloration. To keep a wooden tub from leaking, partly fill it with water several hours before using.

Various supplies are needed to remove different kinds of stains. To remove grease from enamel, use whiting paste and kerosene. To remove stains from metal, use whiting paste or commercial metal cleaner. Stains on galvanized iron can be taken off with baking-soda and kerosene paste, and stains on copper with ammonia solution (*page 21*) and suds, or with a vinegar-and-salt solution. Rinse after applying the cleaner and wipe dry.

CAUTION WITH ELECTRIC WASHING MACHINE AND STOVE: Never adjust or oil any part of an electric washing machine while the cord is connected to the electric circuit. Pull out the electric plug when leaving the machine after using it. Place connecting cord out of reach of young children and in a place where it will not become wet or dusty. Before cleaning an electric stove, always turn off the current and let the stove cool.

To keep the frame of the machine from rusting, rub it with lemon oil or paraffin oil. Follow carefully the manufacturer's directions for oiling the machine.

Refrigerators. Mechanical and ice refrigerators are cleaned in the same way except for defrosting the mechanical type and cleaning the trap in the ice refrigerator. To defrost the mechanical refrigerator, follow directions that come with it.

Prompt cleaning of the surface where food has been spilled is the best time saver in the daily care of refrigerators.

Each week remove shelves, wash interior and shelves with hot soapy water, rinse, and dry. To remove food odors, wash interior surface with a solution of one tablespoon of baking soda dissolved in one gallon of water. Flush the drain pipe with a cool washing-soda solution (*page 22*) using a long-handled brush if necessary. Leave door open until walls and shelves are well dried.

METALS AND ENAMELWARE

Only very fine abrasives such as whiting and grit-free metal polishes should be used on highly polished metal.

After decorative silver, pewter, or copper dishes have been cleaned and polished, a quick and very light brushing with melted paraffin or a rubbing with wax will prevent discoloration.

Aluminum. Strong soaps and alkalis discolor aluminum utensils and therefore should not be used to clean them. Slightly discolored utensils can be cleaned by boiling in them an acid such as sour milk, buttermilk, tart apples, rhubarb, or tomatoes; or they may be boiled in water to which vinegar or cream of tartar has been added. Remove all traces of acid by washing in hot soapy water, rinse, and dry.

A badly discolored aluminum utensil should be rubbed with fine steel wool (size 00) or with a cloth dipped in whiting paste. Mild abrasives like whiting do not scratch aluminum, as do coarser abrasives.

To remove burnt food, bring water in utensil to boiling point. Scrape with a spatula, dish scraper, or wooden spoon. Remove discoloration with fine steel wool or a fine abrasive and wash in hot soapy water, rinse, and wipe dry.

Brass and copper. To clean a badly tarnished piece of brass or copper, apply a hot vinegar-and-salt solution, a slice of lemon with salt, or one of the following acids: buttermilk, sour milk, vinegar, tomato, rhubarb, tart apples. Rub acid well over the surface. Wash utensil in hot soapy water, rinse, and dry thoroly. Polish with whiting

or with a commercial cleaner. Some commercial cleaners not only clean but also polish metals.

Frequent washing of copper utensils in hot soapy water is essential to keep them free from tarnish.

Chromium. To clean chromium, wash with a soft damp cloth wrung out of hot soapy water (made with a mild soap), and dry with a soft cloth. To remove stains caused by hot fat burned on the electric-range surface units, rub with whiting paste, grit-free scouring powder, or a commercial cleaner, using a soft cloth.

Iron and steel. To clean a greasy iron or steel utensil that cannot be cleaned easily by washing with hot soapy water, first boil in it a strong soda-and-water solution (*page 22*), then wash in hot soapy water, rinse, and dry thoroly.

Scour a rusty iron utensil with wood ashes, steel wool, or feldspar powder. Scour a rusty steel utensil with a finer abrasive such as whiting.

If iron or steel utensils are to be stored, clean and rub over the surface melted nonsalted fat, such as lard, paraffin oil, or sweet oil. Wrap tightly in paper or cellophane to protect from dampness and dust.

Stainless steel. Rub stained surface lightly with feldspar cleaner and polish with a soft cloth. Wash utensils in hot soapy water, rinse, and dry. Stainless steel saucepans and skillets with copper bottoms are most efficient in conducting heat and should be kept clean and free from stains. Polish copper according to directions on *page 19*.

Nickel. Wash with hot soapy water. Polish with whiting paste or feldspar cleaner, rinse, and wipe dry.

Pewter. The soft lustre characteristic of old pewter may be retained by washing it frequently in hot soapy water and drying thoroly.

Since pewter is an alloy made chiefly of tin and copper, it is a very soft metal and scratches easily, hence no coarse abrasives should be used to clean it.

If pewter becomes very tarnished, rub it with the whiting paste used for polishing silver (*page 26*), or with a commercial cleaner. Dry and polish. Wash in hot soapy water and dry.

Silver. To avoid tarnish, wash silver frequently in hot soapy water and store in chemically treated flannel covers. Specially treated papers may also be used. To remove tarnish easily and quickly, use electrolysis (*page 25*). Silver polish will also remove tarnish.

Tin. Use a weak soda solution (1 tablespoon of washing soda solution in 1 quart of hot water) and heat to boiling point, or rub the stained surface with feldspar powder. Wash thoroly in hot soapy water, rinse, and dry thoroly.

Zinc. Zinc coverings on tables and sinks can be cleaned by rubbing them well with wood ashes or commercial scouring powder. Some stains can be removed by rubbing with vinegar or some other common food acid, such as rhubarb, tomato, buttermilk, or lemon rind. Wash thoroly and dry. Before cleaning the zinc mat under the stove **be sure there is no fire in the stove.** Rub zinc with scouring powder and kerosene.

Scrub garbage pails with soap and water. Apply scouring powder, rinse, dry, and expose to sun and air.

Enamelware. A vigorous rubbing in warm soapy water will remove most food stains on enamelware. Stains that do not respond to the treatment can be cleaned with a damp cloth dipped in whiting paste (*page 26*). Do not place enamel utensils over intense heat to dry, nor in freezing temperatures.

RECIPES FOR CLEANERS AND FINISHERS

Water Softeners

AMMONIA SOLUTION

Dissolve 1 pint of 10-percent ammonium hydroxid in 1 gallon of water, or 6 ounces of 28-percent concentrated ammonium hydroxid in 1 gallon of water. Usually the concentrated 28-percent solution is less expensive to buy than the 10-percent solution. The diluted strength is the same for both.

Store in a glass jar or bottle with a tightly fitting glass or rubber stopper. The amount needed to soften water depends on the hardness of the water.

TRISODIUM-PHOSPHATE SOLUTION

For moderately hard water use $\frac{1}{2}$ to 1 tablespoon of trisodium phosphate in 1 gallon of hot water. For very hard water use 1 to 2 tablespoons in 1 gallon of hot water. Dissolve the trisodium phosphate thoroly in the water. Enough soap may be added to make a permanent suds for cleaning.

ALL MEASUREMENTS indicated in these recipes are based on standard-size measuring equipment and are level. Note the following equivalents and abbreviations:

3 teaspoons (<i>t</i>)	= 1 tablespoon (<i>Tb</i>)
16 tablespoons (<i>Tb</i>)	= 1 cup (<i>c</i>)
2 cups (<i>c</i>)	= 1 pint (<i>pt</i>)
2 pints (<i>pt</i>)	= 1 quart (<i>qt</i>)
4 quarts (<i>qt</i>)	= 1 gallon (<i>gal</i>)
16 ounces (<i>oz</i>)	= 1 pound (<i>lb</i>)

WASHING-SODA SOLUTION

Add 1 pound of washing soda to 1 quart of boiling water and stir occasionally until soda is dissolved. Pour into covered jar or bottle and label. Use 2 or more tablespoons of the solution to 1 gallon of water to soften moderately hard water or for cleaning.

Wall Cleaners and Starch

SOAP JELLY

Pour 1 cup of hot water over 2 cups of mild soap flakes and beat to a jelly with a rotary egg beater. Apply jelly to soiled surface with a damp sponge or cloth, cleaning a small area at a time. Rinse surface thoroly with sponge or cloth wrung out of clear soft water.

WALL-CLEANING SOLUTION

This is a good cleaner for enameled and painted walls. To make one gallon of it, dissolve $\frac{1}{3}$ tablespoon of trisodium phosphate and $\frac{1}{2}$ tablespoon of washing soda (sodium carbonate) in 1 gallon of hot water. Add to this solution 1 tablespoon of soap flakes and stir until thoroly dissolved. When solution is lukewarm, apply it to the soiled wall with a sponge or a soft cloth wrung out of the solution, using a circular motion. Rinse wall immediately with a second sponge or cloth wrung out of clear lukewarm soft water.

WALL-PAPER CLEANER

<i>Small quantity</i>	<i>Large quantity</i>
1½ c water	1 gal water
½ c salt	2½ lb salt
½ oz (2 Tb) aluminum sulfate or alum	4 oz aluminum sulfate or alum
1 Tb kerosene or	4½ oz kerosene or
1 Tb carbon tetrachlorid	½ c carbon tetrachlorid
2½ to 3 c flour	9 to 9¾ lb flour

Use a good grade of bread flour. Place water and salt in a kettle. Stir and heat to 180° F., or until bubbles appear on bottom of pan. **Remove from stove** and add kerosene and aluminum sulfate or alum. Add flour, stirring quickly to prevent lumps. Continue stirring until a smooth thick paste forms. Knead the dough until it is smooth and not sticky. It may be necessary to use a little less flour, since flours differ in starch content. Apply a small ball of dough to the soiled wallpaper with even strokes, working downward. Discard the dough when it becomes soiled.

STARCH FOR WALLS

1 c dry laundry starch	2 qt boiling water
Cold water	1 qt buttermilk

This starch will preserve the finish on oil-painted or enameled walls and nonrun wallpaper. Add enough cold water to starch to dissolve it. Com-

bine boiling water with starch mixture, stirring constantly until starch becomes cooked, that is, until it becomes stiff. Cool and add enough cold water to make a thin liquid. Add buttermilk and strain thru a cheesecloth. Apply freely to the wall with a calcimine brush. Do not try to cover a large area at one time. Brush on thoroly in order that no brush marks will appear on the surface.

WALL-PAPER PASTE

3 pt flour	8 qt boiling water
2 qt cold water	2 Tb powdered alum

Blend alum, flour, and cold water to form a paste. Pour 8 quarts of boiling water into the mixture, stirring slowly. Cook at low temperature for 10 minutes, stirring constantly.

Paint, Varnish, and Stain Removers

LYE SOLUTION

1 can lye	Long-handled brush
3¼ qt water	Long-handled spoon
4 Tb cornstarch	(enamel or iron)
Enamel or iron kettle	

Dissolve lye in 1 quart of cold water in an enamel or iron kettle, stirring slowly with a long-handled enamel or iron spoon. Dissolve cornstarch in 1 cup of cold water and combine with 2 quarts of water. Pour lye solution into cornstarch very slowly, stirring continually until a paste is formed. Rubber gloves help to protect the hands when working with lye (*see warning on use of lye, page 11*).

After the lye solution is applied to the floor, immediately neutralize it by applying a vinegar solution made with 3 cups of vinegar to 1 cup of water.

TRISODIUM-PHOSPHATE SOLUTION

Dissolve ½ pound of trisodium phosphate in ½ gallon of hot water and apply to wood surface with a small dish mop or brush. Neutralize with vinegar solution given above.

OXALIC-ACID STAIN REMOVER

This stain remover is for unfinished wood and enamel surfaces.

To remove stains on *unfinished* wood, dissolve 1 teaspoon of oxalic-acid crystals (POISON) in ½ cup hot water and let the solution cool. Apply to stain, let it remain on the wood for a few minutes, then wipe it off with a soft cloth. Repeat if the stain has not been removed. Rinse spot with ammonia solution (*page 21*).

To remove iron stains from enamel surfaces, use a dilute solution of 1 teaspoon of oxalic-acid crystals in 1 cup of hot water. Apply to stain and rinse immediately with ammonia solution. Then rinse with water.

Waxes and Cleaners for Woodwork

WAX PASTE

$\frac{1}{2}$ lb beeswax ¹	$\frac{1}{4}$ pt turpentine
or $\frac{1}{4}$ lb beeswax and	$\frac{1}{4}$ pt denatured alcohol
$\frac{1}{4}$ lb paraffin	

This is a soft paste suitable for waxing floors and furniture. Melt wax in pan over a slow fire, being careful not to spill it. Remove from fire and stir in turpentine and alcohol until mixture is a thick paste. Pour into covered jar. Paraffin wax can economically replace beeswax.

Apply a small amount of wax with a soft cloth, rubbing thoroly with the grain of the wood until there is no free wax remaining on the surface.

THICK LIQUID WAX²

$\frac{1}{4}$ lb beeswax	$1\frac{1}{4}$ pt turpentine
1 lb paraffin	$\frac{1}{4}$ pt raw linseed oil

This wax is used to clean, protect, and polish both finished and unfinished wood surfaces. Melt paraffin and beeswax in pan over a slow fire. **Remove from stove** and add linseed oil and turpentine, stirring mixture vigorously. Store in tightly covered jar.

Put a small portion of the mixture on a soft cloth and rub it on the wood surface, polishing with the grain of the wood. Unfinished wood is darkened somewhat by the absorption of linseed oil.

WATER-WAX EMULSION

1 oz soap flakes or soap cut into small pieces	4 oz carnauba wax ³ finely ground
16 oz (1 pt) boiling soft or distilled water	16 oz (1 pt) soft or distilled cold water

In order to form a stable emulsion, correct weights of soap flakes and wax must be used. Dissolve soap flakes or soap in boiling water. Slowly add the carnauba wax, stirring constantly until thoroly dissolved. When mixture has become a smooth emulsion, quickly add 16 ounces of cold soft

¹Those who have honey combs available can prepare their own beeswax. To extract the wax, break the combs into pieces, place them in a cloth sack, such as a 25-pound sugar sack, and tie it securely. Put the sack in a utensil and cover it with water. Boil the water. With a wooden ladle press the melted wax thru the bag. The wax will rise to the surface of the water. Either let it harden as the water cools or skim it off into another container. If the wax is to be left in the water until it hardens, remove the bag and its contents before the wax cools. The cake of wax can be used to make homemade waxes. This method is given by Dr. V. G. Milum, Department of Entomology, University of Illinois.

²This recipe was developed by Dr. A. T. Kerr at Cornell University.

³Carnauba wax is difficult to obtain during the war but it is ordinarily easily available.

water to cool it. Strain the emulsion thru cheesecloth and store it in a cool place.

Shake the wax solution before using it. With a soft cloth apply a small amount to the floor. Before the wax becomes dry, rub the floor lightly with a dry clean cloth or mop. When two coats of wax are used, thin the first coat with a little water before applying it.

KEROSENE EMULSION

1 qt hot water (120° to 130° F.)	3 to 4 oz beeswax
1 t trisodium phosphate	$\frac{2}{3}$ c kerosene

This cleaner is for painted, enameled, and varnished wood surfaces. Dissolve the trisodium phosphate in the hot water. Melt the wax in an aluminum utensil, **remove from the stove**, and add kerosene. While rapidly stirring this melted wax and kerosene solution, *slowly* add the hot-water solution.

With a soft cloth apply a small amount of the solution to the soiled woodwork. Rub dry, using a clean soft cloth. This solution is especially good for quick and frequent cleaning and for polishing greasy or sooty woodwork. If the emulsion has separated while standing, shake before using.

OIL SOLUTIONS FOR CLEANING

No. 1. This is for ordinary dusting of nonwaxed wood or metal surfaces. Put 1 tablespoon of paraffin, lemon, or boiled linseed oil into a quart jar, cover, and turn the jar in the hands until the oil is spread evenly over inner surface of jar. Put dust cloth in jar and leave overnight. The oil will be evenly distributed thruout the cloth.

No. 2. For varnished, shellacked, oiled, or painted surfaces that are slightly soiled, mix together 4 tablespoons of boiled linseed oil, 1 tablespoon of turpentine, and 1 quart of hot water. Thoroly wet a soft cloth in the mixture and wring out dry. Wipe furniture with treated cloth. Polish with a clean dry cloth.

No. 3. For special cleaning of oiled floors not waxed, use $\frac{2}{3}$ quart of boiled linseed oil with $\frac{1}{4}$ quart of turpentine. Apply to the floor with a soft cloth wrung dry out of the solution.

Be careful to have no flame in the room when preparing or using furniture or floor polishes that contain either linseed oil or turpentine, as both are very inflammable.

Silver and Glass Cleaners and Polishers

ELECTROLYSIS FOR SILVER

1 qt boiling water	1 sheet of aluminum
1 t baking soda	(omit if aluminum
1 t salt	kettle is used)

This is a quick and labor-saving method of cleaning silver. Add soda, salt, and sheet of clean aluminum to kettle of boiling water. If necessary,

use several times the above amounts of water, soda, and salt in order to *completely immerse* the silver, which must be in contact with the sheet of aluminum. *Keep water at boiling point thruout the cleaning process.* Remove and wash the cleaned silver in hot soapy water, rinse, and polish with a soft dry cloth.

A clean inexpensive aluminum kettle may be used in place of an enamel kettle and the sheet of aluminum. Since aluminum deteriorates somewhat in the cleaning solution, valuable utensils should not be used. Pour out the cleaning solution as soon as the silver is removed.

SILVER OR NICKEL POLISH

1 c hot water	1 lb fine grade of whiting
$\frac{1}{4}$ t trisodium phosphate	for liquid polish, <i>or</i>
2 Tb mild soap flakes or homemade soap cut in small pieces	2 lb fine grade of whiting for paste polish

Dissolve the trisodium phosphate in hot water, add soap, and stir until dissolved. Add whiting to the soap solution, stirring until smooth and free from lumps. Store in glass jar with cover and label.

With a soft cloth apply a small amount of polish to the silver and rub until the stain is removed. Wash the silver in hot soapy water, rinse, and dry thoroly.

WHITING PASTE FOR METAL SURFACES

Add enough water or ammonia solution (*page 21*) to whiting to form a paste. Apply to tarnished silver, chromium, or nickel with a soft cloth and rub until the tarnish is removed. Let dry and polish. Wash the metal in hot soapy water, rinse, and dry.

GLASS POLISH

1 c hot water	2 Tb soap flakes or finely
$\frac{1}{2}$ t trisodium phosphate	chipped soap
	1 lb whiting

Dissolve trisodium phosphate in hot water, add soap flakes, and stir until dissolved. Remove from range, add whiting, and stir until mixture is perfectly smooth. Store in a wide-mouthed jar.

Apply a small portion of polish on tissue paper or on a slightly damp cloth and rub on the glass surface. As soon as it dries, rub off with a clean dry cloth. When the paste becomes dry, add enough water to make a thick liquid.

WINDOW CLEANING FLUID

Dissolve $\frac{1}{2}$ tablespoon of trisodium phosphate in $\frac{1}{2}$ cup of hot water. Stir in 4 tablespoons of whiting powder and then add enough water to make one quart of a smooth mixture.

When this fluid is to be used, first remove surface soil from window with tissue or soft paper. Shake the fluid. With a soft cloth apply it to the glass and let dry. Then polish with a clean dry cloth. This fluid is especially good for cleaning sooty windows.

HOW TO MAKE SOAP

Preparing the fat. Sour and rancid fat, fat scraps, and tallow can be combined with new fat to make soap. All such materials must be clean and free from salt.

To extract the fat from sour or rancid fat, meat scraps, and fryings, boil them in water. Use approximately equal quantities of fat and water and add 1 tablespoon of vinegar for each quart of water.

Heat the mixture, stirring occasionally until it boils. Remove from stove, and add 1 quart of cold water to each gallon of hot liquid in order to settle impurities in the bottom of the dish. When the cooled fat forms a solid cake, remove it from the water.

Mixing ingredients. Enamel or iron utensils *not* aluminum should be used in soapmaking. If several times the amount of fat given below has collected, it is best to use a large iron kettle. The following ingredients are needed: 1 can lye (about 13 ounces), 2½ pints cold water, 6 pounds clean salt-free fat (equal amounts of lard and tallow are recommended).

Place lye in kettle and carefully add the water, stirring slowly with a long-handled enamel or iron spoon. Allow solution to cool to room temperature (about 70° F.). In another kettle melt the fat and cool it until it is just warm to the hand. *Pour the lye solution slowly in a thin stream into the melted fat.* Stir mixture slowly and evenly while the lye is being added, and until the fat and the lye solution are evenly mixed.

Molding and hardening. When the mixture is thick like honey, pour gently into glass or enamel pans or into firm pasteboard boxes lined with waxed paper. If the mold is greased with vaseline, the soap may be quickly removed. Cover mold with a heavy rug or blanket and leave it for a day or two in a place that is warm but not hot.

Before the soap hardens, cut it into bars with twine or fine wire, and place it on shelves to dry for two or three weeks before using. Soap should not be allowed to freeze until after it has hardened for at least two weeks.

Good homemade soap is free from excess alkali, which is harmful to skin and fabrics. It contains glycerin, which helps to keep the skin soft. For toilet soap, stir into the above mixture 2 to 4 ounces of glycerin after the lye solution and the fat have been combined.

Reclaiming soap. Greasy layers in soap show that the fatty matter was not thoroly combined with the lye because of inaccurate measurements or because the lye was stirred too quickly or unevenly into the grease. To reclaim soap with greasy layers, place it in a utensil with 2 quarts of water, melt with gentle heat, and stir occasionally. Boil the mixture slowly until it becomes thick and clear. Pour it into mold and cover for two days to keep it warm before cutting it into bars.

NOTE.—Homemade soap contains glycerin, which is valuable for war purposes. The government is urging that where it is practicable to sell the fat to a collecting agency, people do that instead of using it for making soap at home. These agencies will sell it to manufacturers who in the process of soap making will extract the glycerin and make it available for war industries.

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