

CONSUMERS' RESEARCH ^{Inc.}

An educational, non-profit organization providing unbiased information and counsel to ultimate consumers on the goods and services which they buy.

WASHINGTON, NEW JERSEY

December 14, 1960

Dr. Robert A. Kehoe
University of Cincinnati
Dept. of Preventive Medicine &
Industrial Health
The Kettering Laboratory
Eden Avenue
Cincinnati 19, Ohio

Dear Dr. Kehoe:

We are sending you with this letter a copy of the January 1961 Consumer Bulletin which carries on page 9, an emendation to our article on dinnerware. The item itself is a brief one, and we tried in the small space available to bring the pertinent points on the matter to the attention of our readers. This is a brief mention, indeed, in view of the material which you sent us, but we plan to return to the subject again in a future issue of Consumer Bulletin.

Very truly yours,

Ernest A. Hinek
Ernest A. Hinek

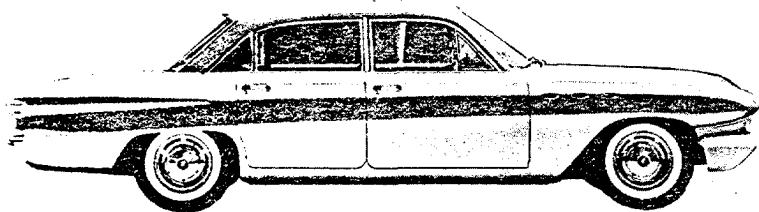
EA:NB°
Enc.

N9701

JANUARY 1961 • 40 CENTS

CONSUMER BULLETIN

The original consumer testing magazine

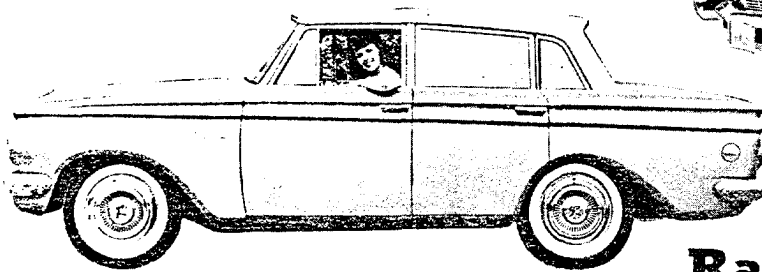


Buick Special

TESTS OF



Dodge Lancer



Rambler American

THREE BRAND NEW COMPACTS

Silver polishes, and prevention of tarnish

ELECTRIC HAIR DRYERS TESTED

Spark plugs—selecting the right type is important, but not easy

ELECTRIC HEATING FOR THE HOME

Color prints from Kodacolor and Agfacolor films

Contact lenses, bifocal type

N9701.01

KE 0008389

Some things to know about spark plugs

THE clever television commercials for *Chevron* gasoline solemnly announce that without gasoline, your car won't run. The same thing can be said for spark plugs. Without plugs, or with inoperative plugs, your car certainly won't run, except perhaps downhill.

But even though both plugs and gas and a good many other specific parts and supplies are essential to make cars go at all, it does not follow, as some advertisers seem to hope car owners will believe, that selection of the right brand of one or two of these products will cure all the ills of a gasoline engine. You should, of course, have properly selected plugs in your car. But the most important benefit from exercising the proper choice is that the *plugs themselves will last longer.*

"Hot" and "cold" plugs

For almost any car, there are various spark plugs that will fit physically into the engine, that is, plugs which have the right threads and thread lengths, and do not project far enough into the cylinder to interfere with motion of the piston. The most important difference among those plugs which will fit is in the property called "heat range."

Spark plugs get pretty hot when in use and this is desirable because the high temperature tends to "burn off" deposits which would otherwise accumulate and cause fouling. On the other hand, if the plug becomes *too* hot, the materials of which it is made will be adversely affected and the plug's life greatly shortened. Also, if the plug's temperature becomes sufficiently high, a condition known as *preignition* may occur; the plug remains so hot as to ignite the gas-air mixture in the cylinder before the spark is fired. This means that the explosion occurs too early in the engine's cycle, which greatly reduces efficiency and may cause serious damage to the engine under some circumstances. It may even cause an engine to continue running after the ignition has been shut off, a condition which could cause a serious accident.

A seemingly backward rule

To avoid both excessive fouling and preignition, you should use a plug of the right heat range for your car and for the type of driving you do. The first type to try is naturally the plug recommended by the car maker, or an equivalent type made by any of the reputable automobile spark plug manu-

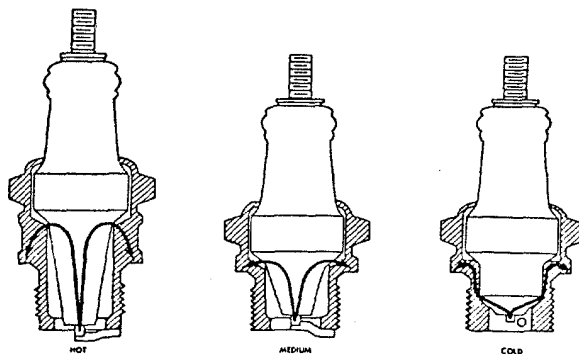


Figure 1—Heat paths in different plugs. When the heat path (shown by the heavy black lines and arrows) from the center electrode to the cylinder head is long, the plug will run hotter. When the path is short, the heat can escape more readily and the plug runs cooler.

facturers. Garages and automotive parts stores have charts which show the plugs recommended for various cars.

However, for any one or several of a variety of reasons, the heat range originally specified for the plugs in a particular car may not continue to be the best. In deciding what change to make, if any, you run into what seems to us best described (as an aid to memory) as the "backward rule"—

For *hot* engines, use what are called *cold* plugs. For *cool* engines, use *hot* plugs.

Provision of plugs with different "heat ranges" is a technique for making *all* plugs run within the *same* range of temperatures, from about 900 to 1700 degrees Fahrenheit. A "hot" plug is one which tends to *get* hot; a "cold" plug tends to stay cooler. Thus if an engine runs relatively cool, you put in a plug designed to *get hot* (a so-called "hot plug") so that the tip of the plug will operate at a suitably high temperature. If the engine runs hot, you should use a "cold" plug, one designed to aid in the dissipation of heat so as to keep its own tip cooler. Hence the backward rule: a hot plug for an engine that tends to run relatively cool, and vice versa. The sketches in Figure 1 show differences in plug design which make a plug tend to retain or dissipate heat, and determine its heat range designation.

Changing the heat range

An experienced mechanic can tell a good deal by looking at a set of used spark plugs. If there is a
(Continued on page 31)

The Consumers' Observation Post

SOME SPECIAL FOOD for the get-thin-in-easy-fashion dieter makes its appearance almost every week. The current fashion is the powdered food formula added to water to be drunk as a substitute for a snack or a meal. The half-pound ration for a day's food ranges from 89 cents to \$1.59. First in the field was Metrecal put out by Mead Johnson & Company. This is a balanced mixture of protein, carbohydrates, minerals, vitamins, and a minimum of fat--providing 900 calories a day--a fraction of the usual calorie intake, that enables the user who can stick to it to lose half a pound a day. Doctors, it is said, believe the product is safe for the average person to use and, if taken faithfully, it should result in reduction of weight. Whether it is a sound technique is another matter. Several doctors have pointed out that when the weight is down to the desired figure and the dieter returns to former eating habits, as many do, his weight will go right back up again, with undesirable effects on health. Better is the technique of adopting new eating habits that keep the calorie intake down, re-educating the appetite so that it will be satisfied with less food on a continuing basis.

* * *

REGULAR-GRADE GASOLINE is increasingly popular with U.S. motorists. A study by the DuPont Co., based on 4500 personal interviews, indicated that 58 percent of the persons queried reported buying regular-grade gasoline, as compared with 50 percent who did so in 1956. Filling the tank with "regular" is a good way to save money, and many engines don't need high-test gasoline. There is no advantage in using it when an engine does not actually require it.

* * *

THE TOBACCO INDUSTRY, which has been trying to fight off charges of misleading advertising and studies indicating that smoking is a cause of lung cancer, now has a new problem on its hands. According to The Wall Street Journal, cigarette makers are having trouble with tobacco sprayed with a new agricultural chemical MH-30, a symbol for maleic hydrazide. This chemical is used by farmers to halt the growth of suckers on tobacco plants that sap weight from the big leaves. Spraying eliminates the suckers more completely than the use of manual labor to do the job, and costs less. Tobacco companies complain that the use of this chemical results in tobacco that is deficient in aroma and in especially dense leaves that hold excessive moisture. Foreign tobacco buyers threaten to slash their purchases of American tobacco on the grounds that treatment with MH-30 produces soggy, soft, badly-filled, loose-ended cigarettes. Tobacco companies are stepping up the flavor of their products by adding licorice, chocolate, and essence of geranium to give a pleasing flavor to the smoke.

* * *

LABELS ARE CERTAINLY CONFUSING these days. One of our subscribers sent in three that appeared on a jacket that she purchased. One read in part "Galey & Lord's Tarpoon, Wash and Wear, Guaranteed Fast Color, Water Repellent, Guaranteed Shrunk." On the same garment was another label reading in part "Sharpees, water repellent, unconditionally guaranteed, dry clean only." The third label read "Shell cotton lining, Rayon & Acetate interlining, 70% reprocessed wool, 30% manmade fibre, Ornamentation 100% Orlon. Cuffs Cotton." Perplexed by the contradiction, she wrote the manufacturer of the garment who replied that the "wash and wear" label applied to the outer shell of the garment, while the other label referred to the interlining of the garment, which should be dry cleaned. What can be done to clean up such contradiction and confusion in garment labels? We already have a law and the Federal Trade Commission to enforce it!

PLASTIC FOAM LININGS for coats and jackets are fashionable this year. The new lining is made from polyurethane foam about 1/16 of an inch thick. It is claimed to be light and warm, and will add wrinkle resistance to thin fabrics used for the outer covering. How well it will stand up in dry cleaning is a matter not yet determined. The National Institute of Dry-cleaning has reported complaints of delamination on poplin car coats with rubber coatings made in Hong Kong during the past year.

* * *

SMOG on the West Coast and in other parts of the country may be reduced to some extent in the not too distant future. California has passed a law requiring every new car registered in the State to be equipped with an anti-smog device within a year after the new Motor Vehicle Pollution Control Board approves at least two suitable devices. Within three years, it is expected that all cars and trucks in the State will be equipped with such devices. The 1961 Lark for California delivery already includes an anti-smog device. There is some debate as to just what smog is, but there is general agreement that the California variety is caused by unburned gasoline or hydrocarbons and nitrogen oxides that sting the eyes, poison the lungs, and blight leafy plants.

* * *

THE USE OF X-RAY FLUOROSCOPES for shoe-fitting purposes should be prohibited or at least strictly regulated. That recommendation comes from the Public Health Service, which reports that some 32 states and the District of Columbia have taken action to prohibit or control such devices within the past three years. The fluoroscope, when used in shoe-fitting machines, subjects customers, and shoe salesmen as well, to potentially harmful radiation.

* * *

WHAT IS A MANUFACTURER'S WARRANTY? There is no general agreement on a proper definition, and there is a wide variation in meaning. One trade journal laments the fact that a warranty has come to mean a yardstick for quality, and urges manufacturers to define the term clearly and in detail when an appliance is installed. It suggests that "warranty" and "guarantee" should not be used interchangeably for, more often than not, customers assume a guarantee to mean replacement with a new appliance or 100 percent refund if anything serious goes wrong. High on the list of Better Business Bureau complaints is that guarantees or contracts are not fulfilled. Consumers should make certain just what the warranty or guarantee covers when purchasing a car, television set, or household appliance.

* * *

POTATOES are still a popular food in spite of all the talk about reducing. It seems that they are being processed into frozen or dehydrated products in considerable quantity. Indeed, many potato firms are planning expansion in view of the fact that more than 12 million 100-pound sacks of Idaho potatoes were processed last year into products such as frozen French fries, patties, and hash-browns, or dehydrated mashed potatoes.

* * *

"TOURIST TRAPS" along the New York to Florida route are reported to be especially numerous in Georgia. The irritation of tourists with the current attitude of Georgia law enforcement officers is so serious that one business group has urged a revamping of legislation in Georgia. At present, many Georgia sheriffs draw no salaries and are dependent for support upon a percentage of the fines they levy. Legislation is also advocated to require all officers patrolling highways in Georgia to wear uniforms and use marked cars. Until such time as conditions improve, tourists traveling through the State should exercise great caution and carry sufficient money for fines and bonds that may be required.

(The continuation of this section is on page 37)

Consumer Bulletin

THE ORIGINAL CONSUMER INFORMATION MAGAZINE

Consumers' Research is a non-profit institution. It is organized and operates as a scientific, technical, and educational service for consumers. The organization has no support from business or industry. Its funds come solely from the ultimate consumers who read Consumer Bulletin.

Scientific and technical staff, editors, and associates: F. J. Schlink, R. Joyce, D. C. Aten, M. C. Phillips, Erma A. Hinek, F. X. Hinek, Donald M. Berk, and A. R. Greenleaf. Editorial Assistants: Mary F. Roberts, B. Beam, and Ellen J. Snyder. Business Manager: C. D. Cornish.

Consumer Bulletin is issued monthly by Consumers' Research, Inc., at Washington, N. J. Copyright, 1960, by Consumers' Research, Inc., Washington, N. J.; all rights reserved. Subscription price (12 issues), \$5 per year, U.S.A. (Canada and foreign, \$5.20). For libraries, schools, and colleges, a special subscription of nine monthly Bulletins (October-June, inclusive) is available at \$3; Canada and foreign, \$3.20.

For a change of address, give your old address as well as your new one, including postal zone number. Allow five weeks for the change to become effective.

Responsibility for all specific statements of fact or opinion at any time made by Consumers' Research lies wholly with the technical director and staff of the organization.

Note: Consumers' Research does not permit the use of any of the material in its Bulletin for any sales promotion, publicity, advertising, or other commercial purposes. Application for permission to reprint for other purposes should be made by letter to Consumers' Research, Washington, N.J.

Listings usually are arranged in alphabetical order by brand name (not in order of merit) under each quality or performance rating. A numeral 1, 2, or 3 at the end of a listing indicates relative price, 1 being low, 3 high. Where the 1, 2, 3 price ratings are given, brands in the 1, or least expensive group, are listed alphabetically, followed by brands in price group 2, also in alphabetical order, etc. A quality judgment is wholly independent of price.

This publication is authorized to be mailed at the special rates of postage prescribed by Sec. 132.122, Postal Manual.

Entered as second-class matter, November 9, 1934, at the Post Office at Washington, N. J., under the Act of March 3, 1879; additional entry at Easton, Pa. Printed in U.S.A.

VOL. 44, NO. 1

CONTENTS

JANUARY 1961

- Spark plugs—some things one needs to know about them..... 2
Selecting the right type is important, but may not be easy. Consumers' Research advises against buying high-priced "special" kinds of plugs, or the widely advertised devices that are really spark plugs, but called something else by their promoters
- Silver polishes, old and new, and prevention of tarnish..... 6
Old reliable products are still available—and there are new ones that show great promise. One quite new and different kind of polish was outstanding in CR's tests
- Three 1961 compact cars
- Buick Special..... 10
- Dodge Lancer..... 11
- Rambler American..... 12
- Bifocals in contact lenses..... 14
- Electric hair dryers..... 16
Consumers' Research reports on tests of 10 new hair dryers for home use
- Food—soil characteristics affect its quality and wholesomeness.... 20
Government officials claim that soils do not influence food quality. Read this article by Professor William A. Albrecht to learn the facts
- Recent reprints from Consumer Bulletin..... 23
- Electric heating for the home..... 24
Some of the more important points involved in the installation and use of electric heat. Certain practices should be followed in construction of the house to bring costs of heating with electricity down to reasonable figures
- Color prints, and the negative color films used in making them..... 39

FEATURES

- The Consumers' Observation Post..... 3
- Off the editor's chest—Do you like the new movies?..... 33
- Walter F. Grueninger's selection and interesting evaluation of current phonograph records..... 34
- Ratings of Current Motion Pictures..... 35

KE 0008393

CONSUMER BULLETIN

JANUARY 1961

5

SILVER POLISHES

Old reliable products are still available—and there are some new ones.

One new and different kind of polish stood out in CR's tests.

It has often been said by men that women will pay a premium price for something made of silver and thereafter complain regularly that too much work and time are required to keep it shining. There is another drawback of silver, one that can be quite annoying; serving dishes and bowls of metal often get too hot to handle comfortably, because metal conducts heat well. But to the lady of the house silver has traditional dignity and worth, and is beautiful—that is, of course, when it is kept well polished.

Polishing silver pieces, while easy enough to do, is a time-consuming chore in many homes. Even though the best of today's polishes do a fine job of removing tarnish and shining silver, the work must be done again every few weeks if the silver is to gleam and sparkle. Many housewives will be glad to learn that this will not be necessary in the future, since there is now a product on the market that will solve, at least to a considerable degree, the problem of early tarnishing.

"This is exciting," exclaimed one woman—as she polished her silver pieces—when told that she would not have to polish those pieces again for several months or possibly a year.

The product that prompted this exclamation was *Turn-I-Shield*, a new and different type of silver cleaner, which cleans and polishes well and at the same time protects the silver from tarnish for relatively long periods. The maker of this new product, however, does not recommend it for use on silver surfaces that will come into contact with food. This means that tableware, the interior of cream pitchers, vegetable dishes, and the like should not be cleaned with this material. However, for articles of silver that are used for display and as ornaments, such as candlesticks, the backs of trays or outsides of bowls, including cream pitchers and sugar bowls, *Tarn-I-Shield* will be a welcome addition to the household's shelf of polishing supplies.

Tiffany and Company (Fifth Ave., N.Y.C.) have a new process that is said to keep silver from

tarnishing indefinitely. The process involves depositing a thin, transparent layer of material on the silver. According to Tiffany and Company, who use the new method to treat silver pieces they sell, it will not peel or chip with age and it does not change the appearance of the silver, providing the silver is not scratched. The process adds 10 percent to the purchase price.

Some metal polishes not safe for silver

There are a number of useful and effective polishes sold for cleaning and polishing silver, but there are also others that should not be used on a metal as soft as silver. Such a product may often be identified by the manufacturer's recommendation that it may be used for polishing *all metals*. If this claim is made, it is best to avoid using the polish on silver articles. (If the abrasive is suitable for the harder metals, such as stainless steel or nickel, it is likely to be too harsh for silver and will scratch it, perhaps in a very noticeable way. And, of course, if the abrasive is mild enough for silver, it will be relatively ineffective for polishing the harder metals.)

Even more unsuitable for cleaning or polishing silver pieces is scouring powder—no matter what claims are made for its mildness of action—which some women have used for cleaning and polishing silver pieces. Then they wonder why surfaces have such a dull, matt or scratched appearance. Even the mildest of scouring powders will cause marked scratching, and when used on plated ware can remove the thin layer of silver plate and expose the base metal in a relatively short time. The photograph reproduced on page 7 will give some idea of the effect use of a scouring powder will have on your silver.

Silver polishes differ in their method of application; some require the use of dampened cloths or sponges with water to rinse off the polish; others are applied, allowed to dry, and simply wiped off with a dry cloth. This sometimes leaves a dust or powder that is unpleasant. Methods

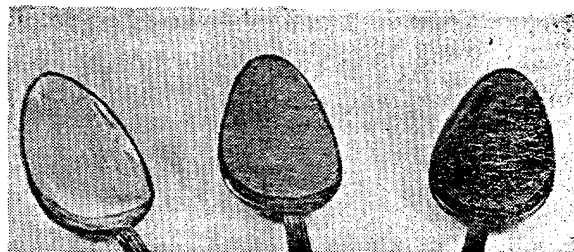
which require water are somewhat more troublesome since the silver must not only be washed or rinsed after the rubbing operation, but must thereafter be dried. This extra step is unnecessary with the polishes that are wiped off dry unless, of course, the silver is to be used in contact with food, in which case thorough washing and rinsing are desirable anyway.

Besides the pastes and liquid polishes, there are polishing cloths and mitts. These cloths or mitts generally contain an abrasive; some may contain a solvent also. While some cloths are suitable for removing relatively heavy coats of tarnish, with a fair amount of rubbing, they are expensive when their short life is considered, and their best use will be found in occasional wiping and touching up of pieces that are only slightly tarnished.

Polishing cloths or mitts are not fully suitable for polishing irregular surfaces, or surfaces with raised or incised or engraved designs. A cloth is relatively ineffective for getting into recessed places or around ornamental edging. On the other hand, with conventional polishes, one can clean recessed areas by use of a brush to carry the cleaner or polish into the parts that would otherwise be hard to reach.

There are two other methods one can use for removing tarnish from silver, but neither of these gives a polishing action, and hence either method will leave the silver without a shine.

The first of these methods removes tarnish chemically, simply by dipping the item to be cleaned into, or sponging it with, a solution that reacts chemically with the tarnish coating. Solutions of this type, commonly known as silver-brighteners or dip-type silver cleaners, were once very popular and widely advertised. Their popularity has waned, but they can still be bought in



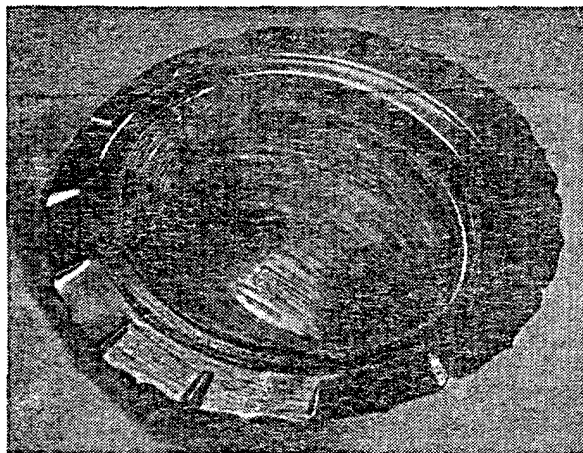
Example of degree of protection afforded to silver by some polishes during exposure of spoons to tarnish-producing gas. Before the spoons were exposed to the gas, they were rubbed with various polishes. The spoon on the left had been polished with Tarn-I-Shield, which gave good protection against tarnishing. Spoons have been outlined to show more clearly against the background.

grocery stores and supermarkets. The solutions are acidic and contain the chemical thiourea. Thiourea is a potent poison, and should not be used on surfaces that are likely to come into contact with food. Besides, in the process of using a thiourea dip, hydrogen sulfide gas is given off, and this is so poisonous that it could be harmful if the dip-cleaner is used in a small and poorly ventilated room. The chemical-dip method should not be used for articles with ornamental French gray or black antiquing.

The second method is also chemical. It removes tarnish by electrolysis, that is, by bringing together a piece of a certain metal, usually aluminum or magnesium, and the silver in a solution of a salt. In this process, the silver and the other metal act as poles of a battery producing a flow of electric current that carries away the tarnish from the surface of the silverware. One satisfactory way of applying this principle is to dissolve trisodium phosphate in water, one tablespoon for each gallon of hot water used. The pieces to be de-tarnished are placed in the hot solution and in contact with a piece of bright aluminum until the tarnish has been removed; the pieces are then rinsed thoroughly. Pieces with ornamental French gray or black antiquing should not be cleaned by this method. The method is not recommended for articles that are weighted or held together by filler or cement, since, with a hot solution, this may be melted or softened.

Tarnish preventive. Sterling silver or silver-plated tableware can be protected from tarnish for considerable periods if wrapped in a specially-treated cloth, often called a silver cloth. One well-known brand is *Pacific Silver Cloth* which can often be purchased at jewelers, department stores, and mail-order houses. It is available by the yard or in bags, rolls, or wraps. It sells at about \$2.50 per yard.

In the listings, mention is made of those products for which the directions call for the use of water. The absence of such a comment indicates



Scratches in above serving dish were caused by polishing with a scouring powder, much too harsh for silver.

KE 0008395

that directions do not recommend use of a damp cloth or sponge, or suggest rinsing.

A. Recommended

Tarn-I-Shield (Minnesota Mining & Mfg. Co., St. Paul 6) \$2.75 for 7-oz. spray can. Removes tarnish easily and quickly, gives silver a bright "new-look" finish, and protects the silver for many months from acquisition of a new coat of tarnish. Should not be used on pieces which are likely to come into contact with food.

* * *

Bonnie Brite (Bonnie Brite Products Corp., N.Y.C.) 49c for 8-oz. can.

Cadie Cloth (Cadie Chemical Products, Inc., New York 27) 49c for 15 in. x 17 in. cloth impregnated with an abrasive.

Electro Silicon (Electro Silicon Sales Co., Brooklyn 15, N.Y.) 80c for 16-oz. jar. Use of a damp cloth and rinsing are required.

Ellanar Polish (L & R Mfg. Co., Arlington, N.J.) 65c for 8-oz. bottle. Rinsing is required.

Goddard's Cloth (J. Goddard & Sons, Ltd., Leicester, England; made in England) 98c for 17½ in. x 12½ in. cloth impregnated with an abrasive.

Goddard's Polish (J. Goddard & Sons, Ltd.) 98c for 7½-oz. can.

Goddard's Powder (J. Goddard & Sons, Ltd.) 98c for 6-oz. can. To be made into a paste with water before use.

Gold Seal Glass Wax (Gold Seal Co., Bismark, N. Dak.) 29c for 6-oz. can.

Gorham Cream (The Gorham Co., Providence 7, R.I.) 27c for 8-oz. jar. Wetting and rinsing are required.

Gorham Liquid (The Gorham Co.) 49c for 12-oz. can.

Hagerty Foam (W. J. Hagerty & Sons, South Bend 16, Ind.) \$3.95 for 32-oz. jar. Use of a damp cloth and rinsing are required.

Brand	Type of polish: liquid, cream, etc.	Speed in removing tarnish	Brightness of shine	Relative protection against tarnishing
Baker's Instantaneous	Paste	Fast	Low	Some
Bonnie Brite	Liquid	Average	Bright	Some
Brite Silver	Liquid	Fast	Bright	Some
Cadie	Cloth	Average	Bright	Some
Electro Silicon	Paste	Average	Bright	None
Ellanar	Liquid	Average	Bright	None
Fabul-X Allmetal	Spray foam	Fast	Low	None
Gleamit	Mitts	Slow	Bright	Some
Goddard's	Cloth	Average	Bright	Some
Goddard's	Liquid	Average	Bright	Some
Goddard's	Powder	Average	Bright	None
Gold Seal Glass Wax	Liquid	Average	Bright	Some
Gorham	Liquid	Average	Bright	Some
Gorham	Paste	Average	Medium	None
Hagerty Foam	Paste	Average	Bright	None
International	Liquid	Average	Bright	Some
JNT	Liquid	Average	Medium	Some
Noxon	Liquid	Fast	Low	Some
Shino	Cloth	Slow	Bright	None
Silcreme Silbrite	Liquid	Average	Bright	Some
Silva	Cloth	Average	Bright	Some
Silverfleece	Cotton	Fast	Medium	Some
Sterling Brite	Liquid	Fast	Bright	Some
Tarn-I-Shield	Spray liquid	Average	Bright	Good
Wright's	Paste	Average	Medium	None

International (The International Silver Co., Meriden, Conn.) \$1 for 16-oz. bottle.

JNT (JNT Mfg. Co., N.Y.C.) \$1 for 16-oz. can.

Silcreme Silbrite (Norma Chemical Co., Inc., Mount Vernon, N.Y.) \$1.50 for 16-oz. bottle.

Silva-Cloths (Grey Industries, Inc., New York 28) 99c for 7 cloths, each 4 in. square.

Silverfleece (Earl Products Co., Chappaqua, N.Y.) \$1.59 for 5 in. x 9 in. cotton impregnated with an abrasive and a solvent.

Sterling Brite (Copper Brite Inc.) \$2 for 8-oz. bottle with brush.

Wright's Cream (J. A. Wright & Co., Keene, N.H.) 29c for 8-oz. jar. Use of a damp cloth and rinsing are required.

C. Not Recommended

Baker's Instantaneous (C. P. Baker Co., Philadel-

phia) \$2 for 22-oz. jar. Abrasive judged somewhat too harsh for silver. Use of a damp sponge is required.

Brite Silver (Copper Brite Inc., Los Angeles 46) 89c for 8-oz. bottle. Rinsing is required. Contains thiourea.

Fabul-X Allmetal (Fabul-X Industries, Norwood, Mass.) \$1, plus postage, for 8-oz. spray can. Abrasive produced visible scratches, hence not suitable for silver. Use of a damp cloth is required.

Gleamit (Gleamit Co., Great Neck, N.Y.) \$1.35 for two mitts. More than a normal amount of rubbing was required in removal of tarnish.

Noxon (Noxon, Inc., Jersey City 2, N.J.) 35c for 14-oz. can. The abrasive in this product produced visible scratches on polished silver.

Shino (The Pioneer Mfg. Co., Cleveland 4) 50c for 11 in. x 12 in. double cloth, having an inner layer impregnated with abrasive. More than a normal amount of rubbing was required in removal of tarnish.

Corrections and emendations to Consumer Bulletin

Dinnerware
Page 30, Col. 2, June '60 Bulletin

Colored *Cerama-Stone* earthenware should be listed under *C. Not Recommended*.

A Los Angeles newspaper in late October reported a danger to health in the *Cerama-Stone* dinnerware listed. Repeated use of colored dishes of the ware for acid foods, the newspaper said, on information from a health official, would present danger to health through lead poisoning. This opinion was based on reports received regarding their use by two persons in Cincinnati.

Another news story noted that the manufacturer had stopped production of this ware and has asked retailers to return all unsold colored *Cerama-Stone*. White *Cerama-Stone*, it is reported, is safe.

Portable electronic flash units
Page 24, Col. 2, July '60 Bulletin

Change the rating of the *Strobomite* electronic flash unit from *B. Intermediate* to *A. Recommended*. Tests of several new samples of the *Strobomite* indicated that the original sample tested was not operating normally. In later tests, the *Strobomite* units could be flashed as soon as the ready lights came on.

Electric clocks
Page 21, Aug. '60 Bulletin

The Ingraham Co., manufacturer of the *Harmony House* (Sears) electric alarm clock listed, has informed Consumers' Research that, through inadvertence, incorrect prices for replacement motor and crystal for that clock had been supplied to Consumers' Research. The correct prices to the

consumer are \$3.15 for the motor and 30 cents for the crystal.

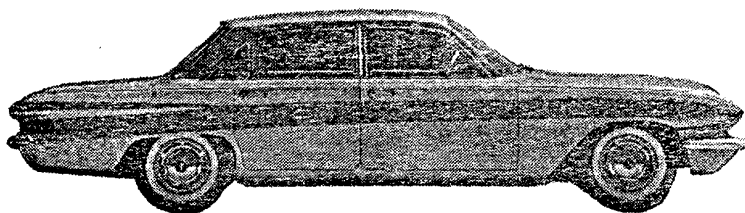
Refrigerator-freezer combinations
Page 16, Col. 1, Aug. '60 Bulletin

Change rating of *Admiral Model 14RF65* from *C. Not Recommended*, to *B. Intermediate*. The first sample tested gave abnormally high freezer temperatures. On the second sample, freezer temperatures were satisfactorily low—freezer food temperature of 4°F with refrigerator at 39 degrees at 90 degrees room temperature. Operating costs on an adjusted per-cubic-foot basis, however, were abnormally high for this type of combination. On the second sample, estimated monthly operating cost at 3½ cents per kilowatt-hour for electricity: at room temperature of 80 degrees, \$4; at 90 degrees, \$5.30. Running time was 56 percent. These figures should be substituted for the figures of \$3, \$4, and 45 percent running time in the table at the bottom of page 13 of the August 1960 issue. Also change temperature of frozen food (last column of table) from +16 degrees to +4 degrees.

Refrigerator-freezers using gas for fuel
Page 12, Col. 1, Sept. '60 Bulletin

The automatic ice maker on the *Norge Customatic Model CTGI-110*, though it operated satisfactorily in general, produced ice very slowly in the original test. On subsequent tests it was found that the automatic ice maker, when operating correctly, will produce 1 pound of ice in 4.6 hours, instead of in 14.3 hours as it did in the original test.

THREE 1961 COMPACT CARS



Buick Special

A newcomer in the field of compact cars, the Buick Special, merits a high rating in handling qualities, riding comfort, acceleration, and it shows good economy in use of gasoline.

THE *Buick Special* is a good, quiet car with good riding qualities for those who want superior acceleration to that afforded by the cheaper lower horsepower compacts and good gasoline economy, and who are willing to pay its relatively high purchase price (see "Prices"). Probably the most important feature of this car is the new aluminum alloy V-8 engine (shared by the *Oldsmobile F-85* and the *Tempest*). The use of this lightweight engine reduces the front end weight and favors good handling qualities. (Cast-iron liners are used in the engine cylinders.)

The transmission hump in the driver's compartment is low enough that three people can sit in fair comfort in the front seat, making the *Special* a 6-passenger car. The low height of the car

made it difficult for entry of tall persons. Leg room was adequate, and headroom was adequate in the front but not adequate in the rear for tall people.

The action of the heater and defroster was very satisfactory. The new, simplified automatic transmission performed well. Over-all body and frame design was judged good.

Disadvantages

Clock located on the top of the dash will be a definite hazard in the event a collision occurs. Signal lights instead of the more desirable meters were used for generator, oil pressure, and water temperature. Spare tire located flat on the trunk floor (not considered a good arrangement).

Prices

The car tested by CR was a *Model 4119* 4-door *De Luxe* sedan with automatic transmission, power steering, and 3.08 to 1 rear axle ratio.

"Posted price," \$3008.86, itemized as follows: Manufacturer's suggested list price, \$2519; automatic transmission, \$189; power steering, \$86.08; heater and defroster, \$74.24; radio, \$65.64; anti-freeze, \$4.90; transportation charge, \$70.

The price of the new compact *Special* is high for a car in the "economy" category; its selling price is about \$250 above the *Chevrolet*, *Ford*, or *Plymouth* cars of regular size, and it is \$625 above the *Rambler American*.

Riding and handling qualities

At speeds up to 60 miles per hour, riding quality was good except for a slight hop of rear wheels in passing over tar-filled expansion joints in roads, and over potholes. The car handled, parked, and cornered well. Seats were comfortable, and internal noise was low.

Instrument errors

Speedometer was about 3 percent fast at 30 miles per hour, 5 percent fast at 50 miles per hour. Odometer was about 3 percent fast.

Buick Special specifications

Taxable horsepower	39.2
Taxable weight, pounds	2610
Engine	
Type	V-8, aluminum alloy
Piston displacement, cubic inches	215
Rated maximum horsepower at stated rpm.	155 at 4600
Compression ratio	8.8 to 1
Cooling system capacity with heater, quarts	13.5
Chassis and body	
Type	Unit
Wheelbase, inches	112
Over-all length, inches	188.5
Width, inches	71.5
Height, inches	52.5
Tires	6.50 x 13
Rear axle ratio	3.36 to 1 (3.08 to 1 automatic)
Brake area, square inches	124
Turning diameter, feet	38
Minimum road clearance, inches	4.9
Trunk space, cubic feet	22
Other details	
Battery	12-volt 40-amp.-hr.
Gasoline tank capacity, gallons	16
Type of gasoline required	Regular
Curb weight, pounds	2740

Road tests of accelerating ability

Acceleration times were:

0 to 60 m.p.h.	14 sec.
20 to 50 m.p.h.	7.5 sec.
40 to 60 m.p.h.	7.5 sec.

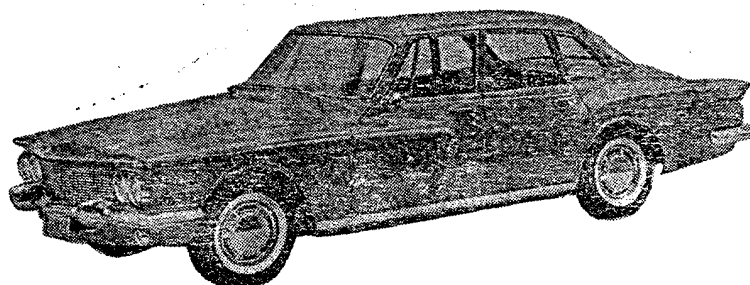
These figures indicate more than adequate acceleration properties. Actually, the acceleration of this model is superior to the 1960 models of the full-size 6-cylinder *Chevrolet*, *Ford*, and *Plymouth*, which have about the same horsepower but are about 30 percent heavier.

Gasoline mileage under test conditions

At a constant speed of 50 miles per hour, the car gave 25 miles per gallon. A second car tested gave 23 miles per gallon. Mileage is considered good for a car with a 155-horsepower engine.

Brakes

Braking quality was satisfactory; on quick stops there was a slight "nose dip." The parking brake was operated by an L-type lever located to the right of the steering wheel. Engine braking when descending hills was adequate, particularly in the "L" (low drive) position.



Dodge Lancer

Judged a satisfactory car of its type, with adequate acceleration and good gasoline mileage.

THE *Lancer* uses the same basic body and the same engine (101 horsepower at 4400 revolutions per minute) as the *Valiant*. The optional engines, however, are different. *Valiant* uses a "power pack" to get additional horsepower (148 hp. at 5200 rpm.), but the engine regularly used on *Plymouth 6* and *Dodge Dart 6* can be provided on the *Lancer* at extra cost (\$47.35). The main differences between the two cars are in the metalwork of the front and rear, and over-all length. The *Lancer* is 5 inches longer and 2 inches wider than the *Valiant* and is priced about \$50 higher.

The *Lancer* was relatively easy to enter and leave, but some persons may have difficulty entering the front seat because of the angle of the front door posts. The automatic transmission hump is low enough that three people can sit in fair comfort in the front seat, making this a 6-passenger car. (With standard transmission, only two can sit in the front seat.) Leg room, hip room, and headroom were satisfactory. Seats were comfortable, with no noticeable discomfort after 3 or 4 hours' driving. The automatic transmission was satisfactory. (For cars with engines in the 80- to 100-horsepower range, CR recommends, as preferable, cars with manual shift transmissions.) The 3-speed automatic transmission had a "park" position operated by a lever below the push buttons

(a desirable arrangement). Engine braking was not adequate on steep downgrades except with the transmission in the low or No. 1 position.

Disadvantages

Over-all design was satisfactory, but workmanship could be improved, particularly in spot welding of the body. There were some sharp edges on the doors, and parts of the door latches fixed to the body were a potential hazard. An ammeter was supplied to indicate operation of the alternator, but an indicating light was used instead of a pressure gauge for oil pressure. The glove compartment was rather small. Spare tire, located under the trunk floor, was not readily accessible.

Prices

The car tested by CR was a 4-door sedan, *Model 770*, with *Torqueflite* transmission and 3.23 to 1 rear axle ratio.

"Posted price," \$2488.25, itemized as follows: Manufacturer's suggested list price, \$2154; *Torqueflite* transmission, \$171.55; heater and defroster, \$74.40; back-up lights, \$10.70; wheel covers, \$15.95; anti-freeze, \$3.65; transportation charge, \$58.

Riding and handling qualities

At speeds up to 60 miles per hour on roads in good condition, the *Lancer's* riding quality was good, but on rough or "washboard" roads the ride was

somewhat choppy at high speeds. Turning and cornering qualities on winding and hilly roads were good. On sharp turns, there was some leaning of the car body, but not to a degree considered objectionable.

Road tests of accelerating ability

Acceleration times were:

0 to 60 m.p.h.	20.5 sec.
20 to 50 m.p.h.	13.5 sec.
40 to 60 m.p.h.	10.5 sec.

These times were within about 1 second of the figures obtained on last year's *Valiant* with standard transmission.

Instrument errors

Speedometer was about 4 percent fast at 30 miles per hour and 7 percent fast at 50 miles per hour. Odometer was about 4 percent fast.

Gasoline mileage under test conditions

At a constant true speed of 50 miles per hour, the *Lancer* with automatic transmission gave 27 miles per gallon (good). In city driving, miles per gallon ranged from 21.5 to 24 (good).

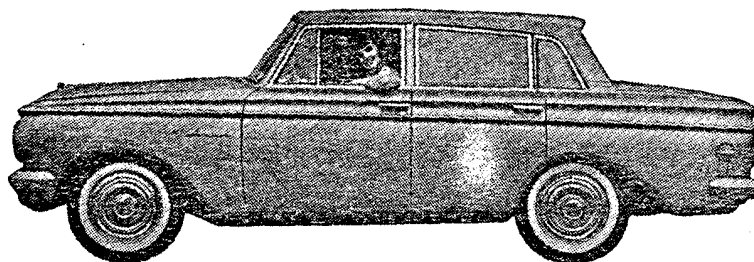
Brakes

Service brakes were satisfactory, but the car was slightly nose heavy on emergency stops. The parking brake was of the step-on type, located at the left of the steering column, released by a con-

trol under the instrument panel and operating on the rear wheels instead of the drive shaft. (The disadvantageous drive shaft brake arrangement is used on the larger cars built by Chrysler. See discussion in the May 1957 CONSUMER BULLETIN.) The step-on type of brake used on the *Lancer* is not considered satisfactory as an emergency brake. The manually-operated pull-type brake operated and released by one hand is the only kind satisfactory in an emergency situation.

Dodge Lancer specifications

Taxable horsepower	27.7
Taxable weight, pounds	2595
Engine	
Type	6-in-line, overhead valves
Piston displacement, cubic inches	170 (225 with optional engine)
Rated maximum horsepower at stated rpm.	101 at 4400 (145 at 4000 with optional engine)
Compression ratio	8.2 to 1
Cooling system capacity with heater, quarts	12 (14 with optional engine)
Chassis and body	
Type	Unit
Wheelbase, inches	106.5
Over-all length, inches	189
Width, inches	72.5
Height, inches	53.5
Tires	6.50 x 13
Rear axle ratio	3.55 to 1 (3.23 to 1 automatic)
Brake area, square inches	129
Turning diameter, feet	37.8
Minimum road clearance, inches	5.4
Trunk space, cubic feet	24.9
Other details	
Battery	12-volt 50-amp.-hr.
Gasoline tank capacity, gallons	13
Type of gasoline required	Regular
Curb weight, pounds	2690



Rambler American

The Rambler American is judged to be a very good car of its type and is recommended for those who want economy both in purchase price and in operation.

ALTHOUGH the *Rambler American* for 1961 has new body styling, it is basically the same as the *Rambler American* that has established reliable

performance over a period of several years. It will seat five people in comfort, it is relatively easy to enter and leave (in the front but not in the rear). Leg room and headroom are adequate for most people, though tall people wearing hats might desire additional headroom in the rear. Heater and defroster action were very good. The new ceramic dual muffler and tail pipe are guaranteed to the

original purchaser for as long as he owns the car. This car uses single headlights. CR considers single headlights preferable to the dual type.

Trunk space has been increased and is now judged adequate. Workmanship and finish were generally good.

American Motors Corp. are committed to a policy of not making annual changes on their cars just for the sake of change and novelty. This policy should help to maintain good resale value.

Disadvantages

The use of signal lights for generator and oil pressure, instead of meters. The spare tire, located at the part of the trunk nearest the rear seat of the car, was not readily accessible. This is one of the few cars that still use an undesirable type of hood ornament (see May 1959 CONSUMER BULLETIN).

Prices

The model tested by Consumers' Research was a deluxe 4-door sedan with standard transmission, and with 3.31 to 1 rear axle ratio.

"Posted price," \$2052.05, itemized as follows: Manufacturer's suggested list price, \$1894; heater and defroster, \$74; anti-freeze, \$3.80; transportation charge, \$80.25. The *Rambler American* is about \$80 lower in price than the *Corvair* and *Falcon*, \$175 lower than the *Lancer*, and \$120 lower than the *Valiant*, with equivalent equipment.

Riding and handling qualities

At speeds up to 60 miles per hour on roads in good to moderately rough condition, this car gave a very good ride. Riding and handling qualities on hilly, winding roads and cornering on sharp curves were very satisfactory. Seats were comfortable, and there was room for five passengers to ride in comfort.

Road tests of accelerating ability

Acceleration times were:

0 to 60 m.p.h., through all gears	15 sec.
20 to 50 m.p.h., high gear	11 sec.
40 to 60 m.p.h., high gear	8.5 sec.

These figures were approximately the same as obtained on the 1960, and the *Rambler American* was appreciably faster in acceleration in the 0 to

60 m.p.h. and 20 to 50 m.p.h. ranges than the *Valiant* and *Lancer* (which have engines of higher rated horsepower).

Instrument errors

Speedometer was approximately 4 percent fast at 30 miles per hour, 7 percent fast at 50 miles per hour. Odometer was about 2 percent fast.

Gasoline mileage under test conditions

At a constant speed of 50 miles per hour, the first car tested gave 28 miles per gallon. A second car of this make and model tested gave about 2½ miles per gallon less. Such differences are to be expected in tests of several cars of a given make and model. They are due to a multiplicity of small differences, including those in carburetors, details of the ignition system, variations of fits and finish of working parts.

Brakes

Braking qualities were satisfactory. The parking brake, located at the left of the steering column, was of the hand-operated pull-out type and provided satisfactory action on the model tested. This type of brake is to be preferred to the step-on type of parking brake.

Rambler American Deluxe and Super specifications

Taxable horsepower	23.4
Taxable weight, pounds	2540
Engine	
Type	6-in-line, L-head
Piston displacement, cubic inches	195.6
Rated maximum horsepower at stated rpm.*	90 at 3800
Compression ratio*	8.0 to 1
Cooling system capacity with heater, quarts	12
Chassis and body	
Type	Unit
Wheelbase, inches	100
Over-all length, inches	173
Width, inches	70
Height, inches	56.2
Tires	6.00 x 15 (6.50 x 15 optional)
Rear axle ratio	3.31 to 1 (3.78 to 1 optional)
Brake area, square inches	139.5
Turning diameter, feet	36
Minimum road clearance, inches	5.3
Trunk space, cubic feet	22
Other details	
Battery	12-volt 40-amp.-hr.
Gasoline tank capacity, gallons	20
Type of gasoline required	Regular
Curb weight, pounds	2650

* Custom model has a 125 horsepower engine, 8.7 to 1 compression ratio.

Food products labels

Consumers' Research will be glad to receive from its readers interesting examples of labels which either do not give information they should, or conceal important information by various devices of color contrast, extra small type, or a location which makes the label difficult to find or to read.

We shall also be glad to receive labels from packages of candy, much of which at the present time has been so highly sophisticated by manufacturers and their chemists that popular candies contain a startling number of unfamiliar food modifiers and additives (highly questionable for children).

Bifocals in contact lenses

CONTACT LENSES are here, probably to stay for some time. Almost all of the contact lenses worn today are "single-vision" or one-distance lenses. For those older than the adolescent, this kind usually provides best vision for a distance somewhat beyond arm's length. There are many persons who have difficulty in reading fine print who have considered contact lenses. If "two-vision" type of conventional glasses have to be worn, then why not bifocal contact lenses? Before 1948, almost every person who tried contact lenses suffered during the trial, most often because of the liquid or solution which had to be used with each lens. However, a smaller size, fluidless type, of single-vision contacts was improved about that time. Soon thereafter, requests for contact lenses increased. Demands were heard daily. The thoughts formerly of "good enough for father" is being reversed to "if it's good enough for granddaughter, then I'm in!"

Can any type of contact lens be tossed in an eye, haphazardly? Will every eye accept a contact lens? There have been instances where eyes have been damaged or ophthalmologists have had to remove an eye because the contact lens was incorrectly fitted or worn neglectfully. Several "opportunistic-operators" who used their own exaggerated statements to establish themselves as "contact lens specialists" have been restricted by Federal Court orders. Some of these self-proclaimed specialists had only a minimum of training with contact lenses, but the American public, which usually inquires carefully about who takes care of certain other health items, sometimes still buys from these charlatans simply because of their misleading and persuasive advertising. Difficulties associated with all kinds of contact lenses lie in poorly fitted, eyeball-irritating lenses, or failure to recognize eye injuries received while wearing or due to contact lenses. An example is a foreign body that lodges on the numbed cornea of the eyeball under the contact lens. Or a numbed cornea allows infection to spread disastrously. A skinned cornea has resulted from unskilled handling of the lens by the fitter or by insufficient or inadequate instruction from the "salesman" who beguilingly sold an unsuspecting person.

Some persons highly nearsighted and some fewer persons farsighted (in vision, that is) may easily wear single-vision contact lenses. Contact lenses are worn most often for vanity or for psychological reasons. Occasionally contact lenses can improve vision when conventional lenses

When glasses are needed for reading, why not use bifocal contacts? Most eye physicians refuse to prescribe bifocal contact lenses because, in their opinion, there is rarely an indication for them. The lenses are not sufficiently perfected at the present time. Because the difficulties in wearing these tiny aspirin-tablet-sized lenses are many, Consumers' Research presents additional information about contact bifocals.

The author is Purman Dorman, M.D., an ophthalmologist of Seattle, Washington, a member of the Advisory Board of The National Society for the Prevention of Blindness, and first eye advisor for the Federal Board of Vocational Rehabilitation. He has spent much time attempting to improve vision. He is one of the many ophthalmologists throughout the country fitting contact lenses.

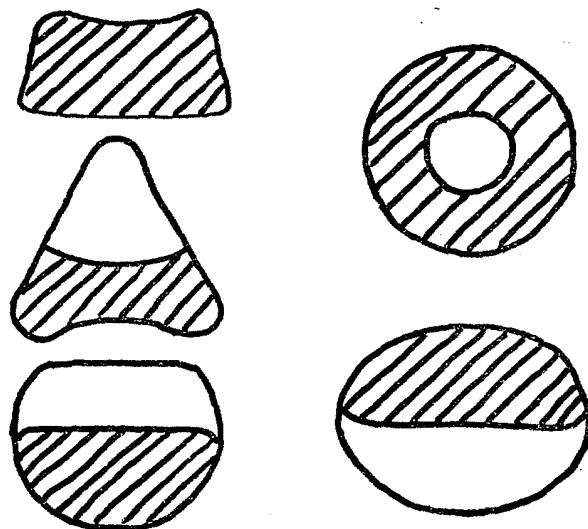
cannot. That is true in keratoconus, the conical-shaped cornea. It is particularly true after a cataract operation, for vision with contact lenses often is better than vision with glasses. The problems are the far greater difficulty for the usually older wearer to gain adequate wearing time as well as the extra cost of the lens. There must be an extra willingness of the patient to wear this type of lens which is heavier and thicker than the usual contact lens. Most younger persons with single-vision contact lenses have a first jubilant exclamation "I can see! I can see!" Such expressions are rarely heard, with bifocal contact lenses.

Bifocal or two-vision contact types are still under experiment. Single-vision and bifocal contact lenses may seem similar but they are far from being identical. Most single-vision lenses are circular. Their usual diameter varies between 9.0 and 10.5 mm., depending on the desires of the fitter with relation to strength or correction, thickness of the lens, diameter of the wearer's cornea and other factors. Some experimental bifocals are circular. Others are circular with two parts lopped off or triangular with the corners rounded, or ovoid. The rounded-corner triangular design has its base at the bottom. The ovoid uses about half the vertical area for

reading vision and half for distance. One round kind has a flange resting on the lower lid, to keep it in position. Some of these bifocal contacts rotate on the cornea, others are prevented from rotating. One circular shape did have the reading portion in the exact center. Some dreamer may develop another one tomorrow. Presently the most popular shape is completely round with distance vision being obtained through its center. This center area is about 3 or 4 mm. in diameter. The reading portion is a narrow band around the outer edge, on the front or back surface of the lens.

Why can't bifocal contacts be worn as easily as regular bifocals? With conventional bifocal glasses the wearer has only to learn to use a certain area of the lens for reading. This area always stays in the same place. In addition, there is always a slight amount of combined head movement and eye movement which helps the wearer to "adjust" his vision. This combined motion is essential to help the eyes "find the correct focus" but this assisting mechanism of combined motion cannot be easily utilized where one is wearing bifocal contacts.

With contact bifocals, the circumstances are different. Every contact lens shifts slightly on the corneal surface. Such action permits tears to move freely and allows better metabolism of the cornea. As the upper lid moves downward to wet the eyeball covered by a contact lens, tears are swirled under that lens. As the lid returns, it usually sweeps the lens upward, slightly, definitely moving it away from where it had been before. A lens movement of 10 to 15 percent away from center may not interfere too much with vision for some single-vision lens wearers but may be extremely annoying for others wearing either single-vision or bifocal contacts. If a circular bifocal lens is fitted too loosely, it does not remain near enough to the center. It is comfortable for wear but not for vision. If fitted too tightly, the lens remains nearer the center of the cornea. However, irritation then often develops, discomfort follows, and wearing time shortens or becomes non-existent. The older-aged person looks more often to comfort than to appearance,



Sketches similar to some present or recent bifocal contact lenses

In each instance, the shaded area represents that portion of the lens used by the wearer when reading. Of the lenses illustrated, the one in the upper right hand corner is the design being tried by an overwhelming percentage of those persons attempting to wear or wearing bifocal contact lenses today. This type may have the reading portion on the inside surface (next to the eye) or on the outside surface of the lens. Sketches are of head-on views of the lenses.

and the older he becomes, the greater importance he gives to comfort. The older person says: "I should stick something in my eye as soon as I get up, in order to read the morning newspaper? How much do I want to punish myself?"

This does not mean that bifocal contacts are not worn. Far from that. There are some who own bifocal contacts. There are those who always want to be the first or who will "try anything." Yet there are relatively few wearers of bifocal contact lenses. There are some who have learned to wear single-vision lenses first, then learned to wear bifocal contacts later. Some have kept their bifocal lenses for varying lengths of time, then relegated them to a drawer. Too much bother.

Bifocal contact lenses as offered today have but little useful purpose, even for those few who are willing to wear them.

Change of address

If you change your address, please notify CONSUMER BULLETIN at least six weeks before the change is to go into effect, if at all possible.

Be sure to give both the old and new addresses. It is best to type or "print" your name and address, to insure maximum legibility. The address

portion clipped from the wrapper of your latest copy of CONSUMER BULLETIN will be helpful. If your new city has postal zone numbers, be sure to include the zone number in your new address. It will help in getting your BULLETIN to you more promptly.

Hair dryers

EVEN the woman who has not previously had need for a home hair dryer may soon find herself sitting around the house attached to something resembling a vacuum cleaner. Home permanent waves and the casual haircuts now in vogue have stimulated the use of home hair dryers with their new hood attachments. The new home dryers have been improved in design so that the good ones will dry the hair about as rapidly as the commercial-type dryers used in beauty parlors.

When Consumers' Research last tested hair dryers in 1954, only one kind of hood was tested, a "dryer cap" that was filled with silica gel, a drying chemical. Nowadays, almost every hair dryer for home use has a cap attachment intended to distribute the hot air around and over the head. Separate hoods to be used with dryers are also sold in drug stores, department stores, and the mail-order houses at prices around \$1 to \$2.

Hair dryers are sold in a wide range of prices. Those bought by Consumers' Research for this study ranged in price from \$4 to \$21. The lowest-priced ones were of the familiar type, a dryer (an electric fan and heater) with a handle, on a stand. Usually the dryer can be removed from the stand and held in the hand if desired.

A newer design is one that uses a plastic hose similar to that found on canister-type vacuum cleaners. Dryers of this kind, canister- or box-like in shape, have advantages in convenience over the older designs. They are more stable. (Unfortunately, the older types were forever falling over on the table.) They have controls at the front or side that are easily seen and operated. One of this kind tested, and other new models being advertised, also have an air outlet in the base, advertised as being useful for drying newly manicured nails at the same time as the hair. One big disadvantage of the dryers of the newer design is that they are sold at much higher prices than the older ones—two to three times as much, indeed.

Nevertheless, it is unlikely that the woman who can afford one would not choose a new-style dryer in preference to the old kind that must either be held in the hand or used with a hood that is essentially inconvenient. (See illustrations, pages 16, 17.) Hoods having a long unsupported tube-like extension have a real disadvantage in use. If the woman drying her hair turns her head, or doesn't locate the dryer properly in the first place, she will cut off the flow of air. Furthermore,



The size of the hood or the bonnet makes a difference

The bonnet at the left was comfortable on the head, and furthermore did not disarrange the hair setting. The hood at the right was too small; it was uncomfortable and tended to disarrange the hair. The hoods shown belong with the Kenmore and Lady Century dryers.

she will find it a little difficult to get the dryer located properly in direct line with the head so the long tube will stay open and the hood will function properly. A small hood anchors the user even more closely to the dryer. It is convenient in using a dryer with a hood of either of these two types to have someone place the dryer in the proper position behind the head. With the dryer behind her, of course, the user cannot easily reach the controls, nor does she have much freedom of motion during the drying process because of the hood. She is, in fact, every bit as limited in her activities as she would be in a beauty shop.

The flexible supported hose, found in the newer designs, on the other hand, makes it possible for the user to move her head around more or less at will. Some manufacturers have even gone so far as to provide a strap for their hair dryer so that it can be carried on the hip from place to place, within the limitation of the electrical cord.

Manufacturers seem well aware that the older design leaves much to be desired. Most of those making hair dryers have announced newer models that are flatter and thus more stable and use a plastic hose to carry air to the head. Not all these new designs are available in retail stores, CR's shoppers found, and at least one new model that was advertised when samples were purchased was not actually in production.

Despite the important differences in design, the dryers were very similar in the basic essentials. Each had a heating element and a motor-driven fan; most of them had switches which gave "off," "cool," and "hot" settings.

The dryers tested weighed less than $3\frac{1}{2}$ pounds each. Plastic, which is light in weight and does not conduct heat as readily as metal (and thus remains cooler to the touch), was used in many hair dryers. The watts input (an indication of cost of electricity for operating the appliances) ranged from 215 to 440 watts. This means that the hair dryers tested would not cost more than about $1\frac{1}{2}$ cents per hour to use, a sum which most women would likely consider not significant.

Consumers' Research included 10 hair dryers in the current study. Each dryer was used by three women on CR's staff. One had fairly short hair, another medium-length hair, and a third had a long page-boy bob. None had her hair cut during the testing of the dryers. During the tests, the dryer users sometimes washed and dried their hair twice in one day.

The women were frank in expressing their likes and dislikes and found some things about the dryers that were a distinct annoyance. Unmarked switches, switches inconveniently located, and hoods that were too small or difficult to put on were particular points of critical comment.

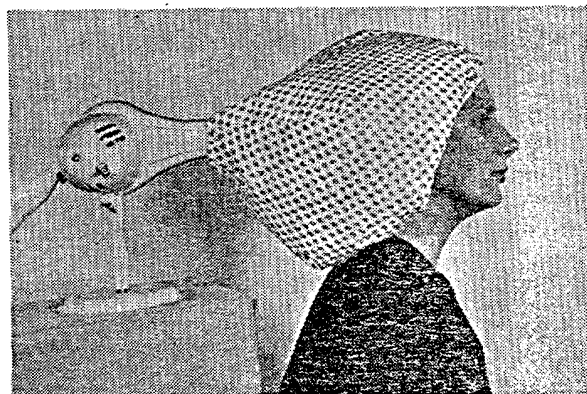
Both efficiency and comfort are affected by the means by which the hot air is carried to the head



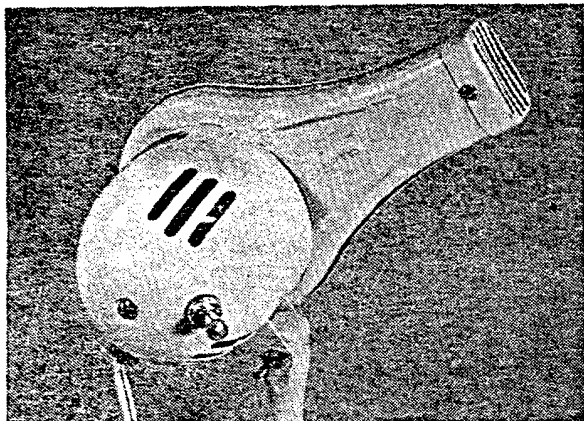
The long tube on this hood works well only when it is kept straight and the air can travel freely. The Kenmore dryer had this type of tube and hood.



A flexible tube like the one on this hood provides both convenience and comfort. The General Electric, Lady Century, Lady Sunbeam, and Ronson dryers all used tubes of this kind.



The short length of the extension on this hood practically ties the user to the dryer. The Miracle Vac and Tropic-Aire dryers had hoods of this type.



Switches should be marked!

This switch on the Tropic-Aire dryer controls only the heating element, which is turned on or off depending on the switch knob position. The switch used should be of such design that on and off positions can be clearly marked; they could not on the one shown. The motor runs whenever the dryer is plugged in; it, too, should be controlled by a switch, properly marked to show on and off positions.

Small, close-fitting hoods tended to disarrange the hair settings and were especially objectionable.

Quietness in operation was judged an important point. The hair dryers that were judged the noisiest were not necessarily most effective in removing moisture from the hair, though they sounded as if they were working harder. There was, in fact, no great difference between one dryer and another in time taken to dry the hair. The *Sunbeam* dryer, found noisier by the users than any other, did not dry their hair any faster than other less noisy dryers because none of the three women could tolerate the "hot" setting for any length of time. (They used the "medium" setting.)

As with all electrical appliances, safety to the user is of greatest importance in a hair dryer. All the dryers tested had low leakage current, an indication of negligible shock hazard, under room conditions and under humid air conditions. All the dryers but one, the *Oster Airjet*, passed tests of electrical insulation under normal and high-humidity conditions. (The *Oster* failed the high-voltage breakdown test and therefore was given no further tests.)

All but one of the dryers tested had some means for protection against overheating. The *General Electric*, *Lady Century*, and *Lady Sunbeam* dryers each had a bimetallic thermostat, which turned off the heating element in the event that the dryer became overheated, and turned it on again when the temperature went down. The *Handy Hannah*, *Kenmore*, *Oster*, and *Ronson* dryers each

had a fusible wire which would melt and open the electrical circuit if the dryer got too hot. These four hair dryers would require replacement of the heating element by a serviceman in the event that the fusible link melted. An alternative would be buying a replacement heating element from the manufacturer or his service representative and installing it yourself. For example, one manufacturer, *Handy Hannah*, will supply a replacement heating element for his hair dryer at \$1, postpaid.

The *Tropic-Aire* had a soldered link, two leaves which separated when the solder melted after $1\frac{1}{2}$ minutes of overheating. These two leaves could be soldered together again by any handyman, radio repairman, technician, or appliance repairman, in the event that they had separated in safeguarding the appliance from undue heating. The *Chic* had a fusible rivet that operated in much the same way.

The *Miracle Vac* appeared to have no thermal protective device.

All of the motors in the dryers were the brushless type except the *Handy Hannah*, *Kenmore*, *Lady Sunbeam*, and *Oster*. Brushless motors have several advantages over motors with brushes. The brushless motors do not cause interference effects on television or radio; in addition, they are noticeably quieter, and may be expected to have a longer trouble-free life.

All were designed for operation at 110-120 volts, alternating current only, except the *Handy Hannah* and *Oster* which could be used on direct current also.

Hair dryers are listed alphabetically within the 1, 2, and 3 price brackets in the A-, B-, and C-rated groups. Prices given in parentheses are list prices; others are the prices paid for the dryers tested.

A. Recommended

Ronson "Hood 'N' Comb," Model L (Ronson Corp., Woodbridge, N. J.) \$14.99 (\$19.95).

Description: 300 watts. Weight, $2\frac{1}{2}$ lb. Pink plastic housing, with attached plastic stand. A plastic hose and hood, a comb attachment, and a plastic bonnet are supplied. Adjustable vertically and horizontally. Two switches, "on-off" and "warm-cold," for control of fan and heating element. Had wire fuse to protect against overheating and possible burnout of heating element.

Performance: Hair-drying ability, good. Hood easy to put on and take off. No radio or television interference. 2

General Electric, Model HD-1 (General Electric, Automatic Blanket & Fan Dept., Bridgeport 10, Conn.) \$20.82 (\$24.95).

Description: 400 watts. Weight, $3\frac{1}{4}$ lb. Pink plastic housing, with foam-rubber bottom cushion and attached plastic hose. One sliding switch, marked "off-cool-low-

med-high." Plastic "bonnet" supplied to be attached to the hose. Had a bimetallic thermostat to protect against overheating.

Performance: Hair-drying ability, good. Hood very easy to put on and take off. No radio or television interference. Considered by the users to be the most satisfactory of the dryers tested, over all. 3

Lady Sunbeam, Model HD3 (Sunbeam Corp., Chicago 50) \$16.29 (\$26.95).

Description: 330 watts. Brush-type motor (brushes fairly easily replaceable). Weight, 3¼ lb. Plastic housing with four attached rubber feet. There is an opening for drying fingernails in front. One rotary switch marked "off-cool-warm-medium-hot." Plastic hose and hood. Had a bimetallic thermostat to protect against overheating.

Performance: Hair-drying ability, good, but the dryer was judged the noisiest in use of those tested. Hood a little tight over head when large curlers were used for hair setting. The hose of this dryer cannot be replaced easily, a disadvantage. Slight interference with TV picture when used near set; no effect on sound. Some radio interference. 3

B. Intermediate

Chic, No. 695 (Morris Struhl, Inc., New York 10) \$5.95.

Description: 215 watts. Weight, 2 lb. with stand (1¾ lb. without stand). Pink metal housing, with wooden handle, detached metal stand. Adjustable horizontally. Two switches, "on-off," "hot-cold." No hood provided. Had fusible rivet to protect against overheating.

Performance: Hair-drying ability, fair. No radio or television interference. No instructions came with the dryer. 1

Handy Hannah, Model 101 (Handy Hannah Products Corp., Whitman, Mass.) \$9.99.

Description: 440 watts. Brush-type motor (brushes not readily replaceable). Weight, 2¼ lb. Plastic housing, with attached plastic stand. Adjustable horizontally and vertically. Rotary switch marked "hot-off-cold." No hood. Had wire fuse to protect against overheating. (Replacement heating element, \$1, postpaid.)

Performance: Hair-drying ability, fair. Objectionable radio and television interference. (Interference was reduced when the dryer was used in a part of the house distant from the set.) No instructions came with the dryer. 2

Kenmore (Sears-Roebuck's Cat. No. 8-8727) \$14.97, plus postage.

Description: 440 watts. Brush-type motor (brushes not easily replaceable). Weight, 2¼ lb. Chrome-plated and yellow enameled metal housing, with attached plastic stand. Adjustable horizontally and vertically. Rotary switch marked "off, cold, warm, hot." Blue printed plastic hood-and-tube supplied. Had wire fuse to protect against overheating.

Performance: Hair-drying ability, good. Hood was easy to put on and take off. Objectionable radio and television interference. (Interference was reduced when

dryer was used in a part of the house distant from the set.) The instructions provided did not apply to the dryer supplied. 2

C. Not Recommended

Miracle Vac Hair Dryer Kit, Model C (Miracle Vac Co., Fort Wayne, Ind.) \$3.99. Kit includes dryer (Model 12518) and hood.

Description: 215 watts. Weight, 2¼ lb. with stand (1¾ lb. without stand). Chrome-plated metal housing, with wood handle, detached metal stand with rubber feet. Adjustable horizontally and vertically. Pink cloth hood with plastic covering supplied. Two toggle switches marked "on-off" and "hot-cold." No instructions came with the dryer. Lacked device to protect against overheating.

Performance: Hair-drying ability, fair. Hood fairly easy to put on and take off, but felt tight and uncomfortable on a head with large curlers. No radio or television interference. 1

Tropic-Aire, Model 786A1 (McGraw-Edison Co., Bersted Mfg. Div., Boonville, Mo.) \$6.95. Hood available, Cat. No. 38104, \$1.25.

Description: 210 watts. Weight, 2½ lb. Yellow painted metal housing, with wood handle. Detached metal stand. Adjustable horizontally. No control for fan, which runs as long as dryer is plugged in. Switch, unmarked, turns heater on and off. Blue printed cloth hood supplied. Fusible link to protect against overheating (two leaves soldered together, which could be repaired by the home handyman—see text).

Performance: Hair-drying ability, fair. No radio or television interference. 1

Oster Airjet, Model 202-04 (John Oster Mfg. Co., Milwaukee 17) \$13.99 (\$21.95).

Description: 440 watts. Weight, 2 lb. Metal housing, with black plastic base. Adjustable vertically. Two switches, "on-off" and "cold-hot." Pink plastic hood supplied. Had wire fuse to protect against overheating. **Performance:** Hood fairly easy to put on and take off. This appliance failed electrical proof-voltage test; no further tests were applied. 2

Lady Century, Cat. No. HD-21 (Century Enterprises, Inc., New York 67) \$17.01 (\$29.95).

Description: 225 watts. Weight, 3¼ lb. Plastic housing, with 4 felt-based feet. Sliding switch marked "off-cold-warm-medium-hot." Plastic hose and attached plastic "bonnet." Hood had "air volume control" to regulate air flow. Had a bimetallic protective device.

Performance: Drying ability, good; stability, good. In general, convenient to use. Sliding switch did not work properly. Hood could not be pulled or pushed to go on a head over the large-sized curlers, a disadvantage for some users. Tight hood tended to cause air volume and control to be blocked (and to cause the dryer to overheat). A hole and some deformation developed in the plastic case near the hose connection where the case became hot enough to soften and deform the plastic. No radio or television interference. 3

and forage crops, and is adversely affected when soils are of an unsuitable type, or are fertilized by unsound methods or materials. It must follow that human beings are subject to similar effects and that they may be adversely affected by the consumption of meat and other food products from livestock and poultry fed on grain and forage that grew on soils of unfavorable kinds, or soils improperly fertilized.

* * *

WHEN nature puts different species of plants into different places so that grasses grow luxuriantly in some areas, and trees, shrubs and brush in others, she is demonstrating the different plant-nourishing qualities that exist in the soils. Nature produced forests, built primarily of cellulose (woody fibers) with little value as food for warm blooded animals, on the well-watered calcium-deficient soils of the eastern United States. She produced tall grasses on the younger soil of the eastern prairies where the rainfall was moderate; she grew short grasses on the still younger semi-arid soils of the western plains.

The American bison, a beast noted for its massive bony structure and great strength, was the animal product characteristic of the plains area soils on which, a generation or so later, wheat was grown that was high in protein and in the mineral elements required to support the manufacture of protein by plants. Protein is an essential food substance, basic in the functioning elements of all animal bodies. The starch also present in the grasses represents only stored energy, and it plays a part in the building of excessive and abnormal fatty layers in domestic animals, fat that is bad for the pocketbook and for the health of the consumer who buys the animal as meat.

Organized knowledge about the locations and relationships of plants, animals, and human beings and their interactions with their environments is the basic outline of the expanding biological science called ecology. Among the chief environmental factors is the pattern of the fertility of the soils which fundamentally maintain all life.

Nature's array of various interrelated life forms has been telling us for countless generations that the soil of each region is best suited to supplying the needs of the specific plant and animal life which thrives in that region. Each of nature's crops (plant or animal) represents a survival of the fittest, determined basically, if there are no disturbing factors, by what the local soil provides in nutrients. This fact was emphasized by Darwin a century ago.

The wisdom of the animal body

Animals search out their feeds for quality in terms of health and growth. They test and choose soils

according to the nutritive qualities of the plants which grow on them. That there are soil differences which underlie variations in the nutritional values of crops is indicated every time a cow breaks through the fence to get out of her pasture. She is prompted by more deeply seated causes than a mere desire to get to the other side or to escape confinement.

Careful observation of the cow's misbehavior, as she seeks to eat where she is not supposed to, is very revealing. One finds that usually she is expressing a preference for grass growing on the virgin unharvested soils along the highway or the railroad right-of-way, as compared with the grass growing in the long-used, time-worn soils inside the pasture area. The cow's wisdom in seeking soil that grows feed of high quality carries an important lesson for men. When men moved their grazing animals such as cows, sheep, and goats to the fenced-in well-watered lands now customary, they failed to realize that animal physiology is such that the animals were not necessarily feeding well and living in good health. There were deficiencies, due to the insufficient fertility of the soil in the enclosed pasture areas, and continuing unplanned use of the land often increased the deficiencies and caused additional ones to appear. In due course, farmers often came to face the need of purchasing protein supplements for animal feeding, even for the abnormal castrated animals that are fed only to be fattened for slaughter.

When it comes to judging the nutritive value of various grasses available for feed, appearances may be deceiving. Thus, in a fenced-in, humid

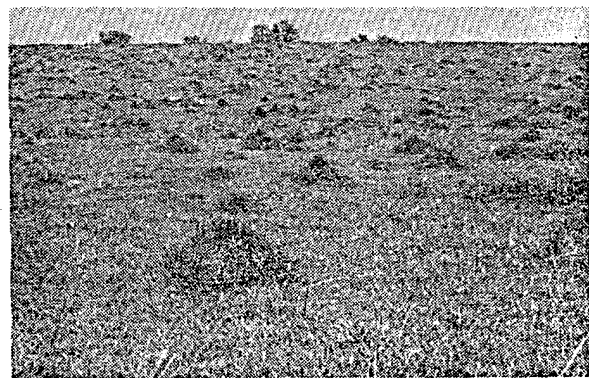


Figure 1

Although the hummocks of grass in this field appeared lush and green, the cow which fed here instinctively preferred the surrounding forage which, as explained in the text, was more nutritious despite its less succulent appearance. (Photo by G. E. Smith, Department of Soils, University of Missouri.)

grazing field where the soil has been largely depleted, lush green grasses may grow in certain spots fertilized by a cow's droppings, and it might seem to a man that these grasses ought to be desirable and especially nutritious to the cow. But the beast, in its natural wisdom, knows better, and avoids the greener grasses which are not really as nutritious as they seem. (See Figure 1.)

In current agricultural practice, there is often an attempt to grow dark-green grasses of the sort that the cow does not prefer by fertilizing humid soils with chemical nitrogen. We labor under the delusion that a higher concentration of nitrogen in the fertilized vegetation is proof that the grass must contain higher concentrations of protein, but unfortunately, protein is not fully measured by nitrogen content, which may be but a crude and unreliable chemical symbol of the nutritive quality of feeds. Those who contend that the crude protein in the grass grown by such fertilization with nitrogen duplicates the nutritional quality of the protein which is grown by legumes fail to manifest the wisdom exhibited by the cow.

On the semi-humid soils of the Plains and Western Prairies, the cow's droppings as fertilizers do not exhibit the disturbing effects that have been mentioned on the growth of the grasses, nor on the cow's choice of food, and no dark green spots in the pasture are in evidence. On the dryer soils, under only low to moderate rainfalls to change the character of the soil, little organic fertility has been leached away. Plenty of plant-nutritive material is left to balance the added nitrogen. The crops actually growing, on account of the scant rainfall, have not acted to remove important elements of the fertility supply.

Soil quality, not plant pedigree alone, determines the nutrient balance in a crop

Those who contend that a given plant does as well on any soil on which it grows as it would on another soil except for the volume or weight of crop produced, have a wrong understanding of the nature of plant inheritance. In one experiment, potassium (potash), recognized as an essential factor for the plant's production of carbohydrate and needed often for increased yield of plant material, was added in various amounts to all but one of four plots of soil which were otherwise alike. Seeds from the same mother plant were used to give a constant genetic background. Of three crops, the first was not given legume bacteria for nodule production, while the seeds for the other two were treated with bacteria which established prominent root nodules.

In terms of crop yields, the first crop was a bountiful one, varying in quantity with the amount of applied potash. Nevertheless, in terms of total

nitrogen, it gave back no more in the total crop (both tops and roots) than what was in the seed originally planted.

The second crop took nitrogen from the atmosphere to increase nitrogen in the plants over the total in the planted seed. However, the third crop did not give more nitrogen than was present in its seeds because removal of the tops and roots of the plants had *depleted the soil* to such an extent that even with the root nodules, the third crop was not able to utilize atmospheric nitrogen. The third crop gave larger yields of dry matter (plant material with moisture removed) than the second. Although the seeds for the second and third crops were identical in every way, *nutritional properties of the crops were quite different because of differing soil characteristics.*

In the same experiment, measurements were also made of the amounts of sugar and starch in the various crops. The results (see Figure 2) show that within each group of identical and identically treated seeds, characteristics of the soil had an important effect on the proportions of sugar and starch in the crops. (In the diagram, "B" and "C" indicate the seeds that were inoculated with nodule-forming bacteria; the "A" seeds were not so treated.)

These observations show the serious error of those who argue that soil is of no importance in determining the nutritional value of the crops grown on it. It is the soil which determines nutritional value. The genetic factor present in the seed and transmitted to the growing plant merely sets limits to the range of variations the soil factors can produce. To argue, as have government officials, that the soil, however deficient in natural fertility, is of no significance in determining the quality of the crop is a confession of misinformation, not of scientific knowledge.

Animals, too, are greatly affected by soils

Experimental work with rabbits has shown that the body growth of the animals and their body physiology, even the maintenance of sexual vigor, varied according to differences in the fertility of the soil on which crops for their feed were grown.

Tests were made with hay grown on soil with no nitrogen, and other hay grown on companion lots, otherwise the same, which were treated with various sized doses of commercial fertilizer nitrogen.

In repeated trials with lots of five rabbits (two males and three females), the animals were offered for choice equal amounts of four different hays along with constant quantities of corn. The rabbits regularly chose to consume the most hay from the check plot which had no nitrogen treatment, and consumed decreasing amounts of the

hay crops that had been grown with larger amounts of chemical nitrogen used as fertilizer. Thus the rabbits demonstrated an ability to recognize differences in the nutritive values of the several crops grown on differently fertilized soils. Naturally enough, the animals which chose to eat less hay showed smaller gains in weight than the others. Thus the properties of the soil samples had an indirect but definite effect on the characteristics of the animals fed with the forage grown on them.

The data indicated that the animals were struggling with poor nutrition and body growth and avoided the supposed protein supplement in the form of the artificial high nitrogen content in the hay, which, though it was nitrogen, did not correspond to the high quality protein which they needed. The unbalanced nutritional quality of the feed obtained by some of the rabbits even produced sexual infertility, which was not present when the animals were on a diet which was known to be complete for growth.

The facts that have been outlined will be observed in nature by those who do not have preconceived ideas about plant growth. The professional agriculturist unfortunately often views the effects of soils on the growth of plants with a distant outlook, as if the only problems were those of industrial manipulation of dead materials, with emphasis on the various technologies for *economic* advantages only. People who approach agricultural research in this way have lost sight of agriculture as a biological demonstration by the forces of nature, where man is more a spectator than a manager in complete control of soil and produce.

Such unrealistic views of agriculture have led to the expressions by high governmental officials of the view that soil is but a chemical and physical agent for the production of larger quantities of crops; they seem unaware that the soil of our planet is a complex material developed through

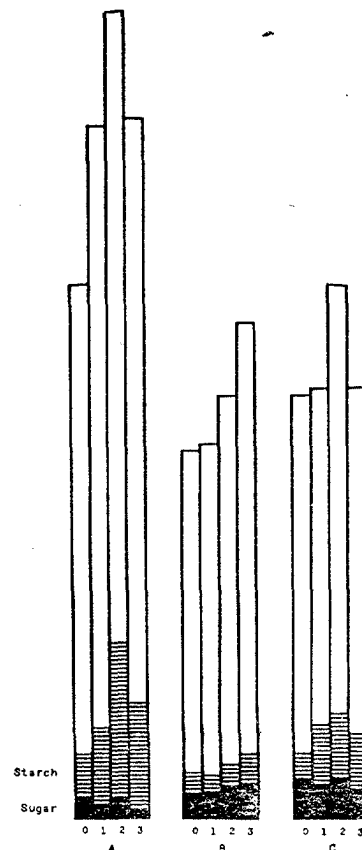


Figure 2

The three groups of bar graphs show the effects of different soil treatments on three successive crops of soy beans. The height of each bar indicates the total yield of dry matter from a given quantity of seed. The solid section at the bottom of each bar represents the amount of sugar in the crop as determined by analysis, and the cross-lined section represents the amount of starch. Within each group the seeds used were identical, and the soils used were identical except for increasing amounts of added potassium proportional to the numbers, 0, 1, 2, 3, shown at the bottoms of the bars in each group. Note that differences in soil treatment affect not only the total yields but also the relative ratios of sugar and starch to each other and to the total yields. This demonstrates clearly that characteristics of the soil do have a marked effect in determining the nutritional qualities of the foods grown on it.

many centuries, having the power of creation, not only for plants, but for everything that lives, moves and has its being upon the earth.

Recent reprints from CONSUMER BULLETIN

Title	Bulletin issue	No. of pages	Price (stamps acceptable)	Title	Bulletin issue	No. of pages	Price (stamps acceptable)
Foods and nutrition	'60-'61 Annual	9	25c	Milk—an overrated food			
				Part I	Nov. '59	6	20c
Refrigerator-freezers using gas for fuel	Sept. '60	3	10c	Part II	Mar. '60	5	20c
Does "buy now, pay later" cost too much?	Aug. '60	2	5c	Softening the water we use	Feb. '60	7	20c
Getting the most service from your rugs	May '60	4	10c	Encyclopedias for children	Dec. '59	3	10c
Rugs and carpets, selection	Apr. '60	5	20c	Japanese transistor portable radios	Nov. '59	3	10c
				Automatic washing machines (revised)	May '59	7	25c

Heating the home with electricity

THE popularity of electric heating is growing by leaps and bounds. Whereas only four or five years ago building contractors and architects hesitated to recommend electric heat, it is now being actively promoted in most areas of the country. Indeed, although most electric utility companies formerly looked with disfavor on this use of electric power because the added load on their lines was not attractive to them from a cost standpoint, they are now favorable to house heating by electricity. As an example, at the present time the Detroit Edison Co. employs 15 electric heating specialists whose function it is to inspect homes in which electric heat is to be used and recommend modifications or changes to the owner or contractor, as needed, so that the home will be properly constructed and contain adequate insulation and means for control of moisture.

Electric home heating is not new, for there were a few homes using it in cheap-power areas in the Northwest over 45 years ago. Indeed, there were more than 2000 homes using electric heat in Tacoma, Washington, by 1920. In 1934, the Tennessee Valley Authority built 300 electrically heated homes, but the long-continued lack of popularity of this type of heat, even in an area with an abundance of cheap electric power, is attested to by the fact that in 1946 there were

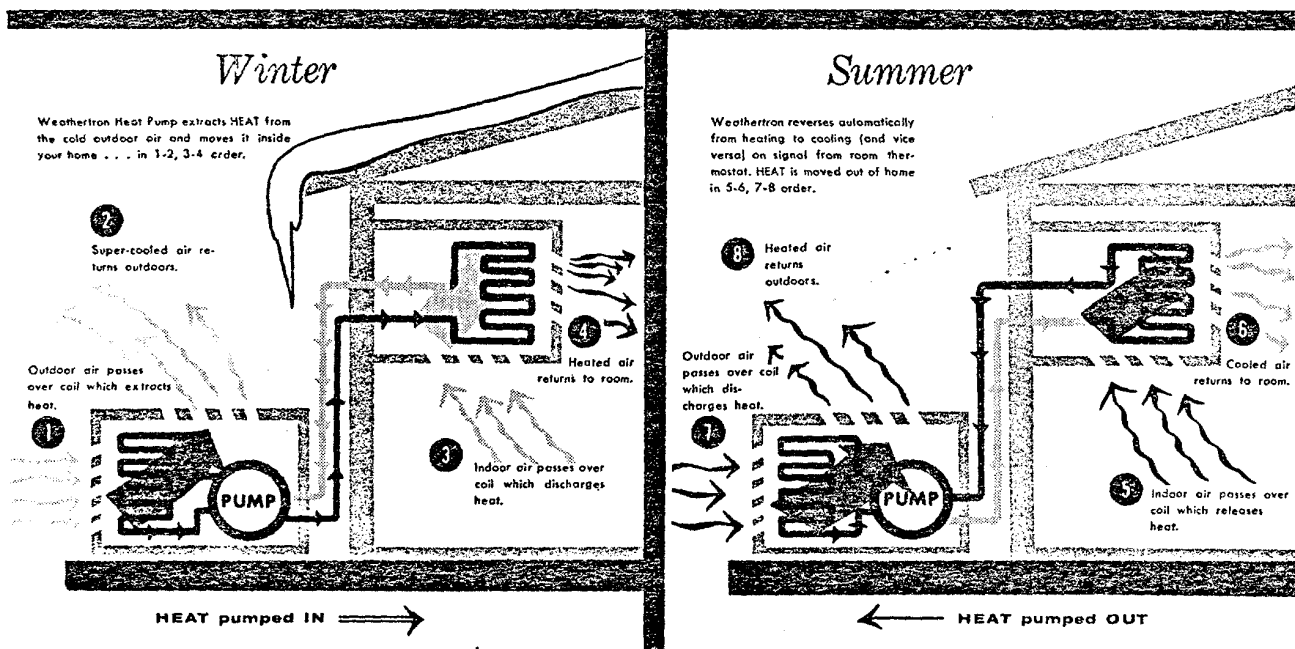
only 2400 homes using it in TVA territory. By way of contrast, it is estimated that, at the present time, there are more than 275,000 electrically heated homes in the Tennessee Valley alone, and more than three quarters of a million in the United States.

When are you comfortable?

Whether or not a particular person finds a house comfortable will depend mainly upon the temperature of the air in it. The English, who seldom employ central heat, usually find our homes hot and stuffy. Elderly persons in the U. S. will often feel chilly in a well-heated room maintained at 72 degrees. There are also noticeable differences in the comfort conditions best suited to men and women. If, for example, your wife persists in lowering the thermostat setting, she is not being ornery; she is honestly too warm at a temperature at which you may feel nicely comfortable.

One may also feel chilly even though the thermometer indicates a suitable air temperature, if the walls of a room are much colder than the air. With cold walls, body heat is lost to the walls by radiation at a faster-than-normal rate and, as a result, one feels chilly even in a room in which the air is at the most desirable temperature.

There are, of course, other factors involved in



A heat pump heats the home in the winter and cools it in the summer. Its two modes of operation are shown in the sketches above.

one's sense of comfort in a home. We Americans have become most demanding in recent years in regard to the operation of our home-heating systems. Indeed, we expect far more from our heating systems than most are capable of supplying, unless we are willing to pay for and maintain complicated and expensive controls and to pay special attention to the construction of the home.

The role of insulation

The proponents of electric house heating take a giant step forward in the cause of comfort with their insistence that adequate insulation be employed in the floors, walls, and ceilings in an electrically heated home. For many years, the amount of insulation it was economically justifiable to install in a home was dependent principally upon the cost of the fuel to be used with the heating system. Naturally, where fuel was cheap, loss of a great deal of heat through exterior walls and roof did not involve much outlay and was often to be preferred to the expense and inconvenience of a good job of insulation. As the prices of fuels rose, the dollar value of the heat lost through poorly insulated walls, roof, and floors became so great that it became economical to provide good insulation.

Some persons may suppose that doubling the thickness of the layer of insulation will cut the heat loss in half and save half the fuel required to heat a house. This is not true. In point of fact, a 4-inch thickness of average insulation is only about twice as effective in retaining heat as a layer 1 inch thick, and a 6-inch layer is only slightly more effective than a 4-inch layer. Thus, the choice of the right thickness of insulation involves important economic considerations in any given region and with any given type of fuel. The amount best to use is determined principally by the prevailing prices for the fuel in the area, likewise upon the severity of the cold weather and the number of months of the year in which heating is required. The effectiveness of the insulation has a bearing also on the initial cost of the heating plant, since smaller and less expensive heating equipment can be used when good insulation and other factors combine to keep the heat loss lower. Thus there are not only savings in initial cost, but also savings of space, which has economic value in most homes.

The importance of the part played by insulation in reducing the costs of heating a home is readily indicated by figuring the reduction in heat losses obtained with its use. Proper installation of 6 inches of good insulation in the ceiling should reduce the heating bill about 30 percent in a typical uninsulated home of frame construction of 1000-square-foot area (3 inches of insulation would save about 18 percent). $3\frac{3}{8}$ inches of insulation in the

It was only a few years ago that the possibility of widespread use of electricity for heating of homes was a most unpopular subject with the electric utility companies. It became unpopular, too, with those consumers who, as trail blazers, took a chance, had electric heat installed, and then found that costs of electric heating were far beyond what they had expected.

At the present time, there is a noticeable change in the attitude of the electric power utilities, home builders, and consumers, as the advantages offered by this type of home heating become better known and details of construction of new homes are being modified so that electricity can compete better with oil or gas. It is evident now that use of electric heat in homes will continue to grow at a lively pace.

This article discusses some of the more important points involved in the installation and use of electric heat and shows why it is important that certain practices be followed in construction of the house to bring costs of heating with electricity down to reasonable figures. Owners of oil or gas heating systems will also find much useful information in this article.

exterior walls would effect a further reduction of over 10 percent of the original fuel cost figure*. The addition of storm windows, storm doors, and weather stripping account for slightly less than a 10 percent saving. The ceiling and wall insulation plus the tighter windows and doors would give a total of about 50 percent reduction. Thus, if it costs \$200 to heat the uninsulated house, it will

*It was formerly the case that the various kinds of insulation used in homes did not differ greatly in their insulating value. New types have been developed in recent years, however; some of these are better and some not as good as those long used. As a result, it no longer suffices to specify solely that a certain thickness of insulation is to be used. One should aim at a thickness of insulation which provides specific limits of heat loss for the house. In the past year, various members of the electric heating equipment industry joining with the insulation manufacturers and electric utility companies have adopted a so-called "All-Weather Comfort Standard for Electrically Heated and Air Conditioned Homes" which sets certain maximum rates for heat flow ("U" values) through ceilings, walls, and floors, and specifies a limiting heat-loss factor per square foot of total floor area based upon the climatic conditions prevailing in the area. The "U" value (not to be confused with the "K" value which is a measure of the insulating value of the insulating material only) is the amount of heat in Btu which passes through a one-square-foot section of a wall (including plaster, insulation, and siding) in one hour when the difference in temperature between the two surfaces is one degree Fahrenheit.

A typical "U" value for the ceiling in an electrically heated home is 0.05, for a window with storm sash, 0.55. Thus, in a well-insulated home, the heat loss through each square foot of window will be 11 times that through each square foot of ceiling area. It thus clearly pays to keep window area to a minimum if heating costs are an important consideration, and of course to use throughout the house windows of the double-glazed type or regular windows with storm windows.

cost only \$100 to heat it if the steps mentioned are taken to reduce heat loss. Of course, the percentage reductions will be made whether oil, gas, or electricity are used as the fuel. The actual dollar savings, however, are greater with electricity because, as previously indicated, it is usually much more expensive per heat unit (Btu) supplied. You get 2000 British thermal units for 1 cent with electricity at 1.7 cents per kilowatt-hour; 7000 Btu for 1 cent with gas at 13 cents per therm and oil at 16 cents per gallon.

The cost of electricity for heating

The amount spent each year to heat any home is also dependent to a considerable extent upon the temperatures maintained, the size of the house, and the region in which the house is located.

It is not difficult for a person with a head for figures to estimate with reasonable accuracy how much it will cost to heat a newly constructed home with gas or oil on the basis of his past experiences, provided, of course, he has kept accurate records of his fuel costs on the dwelling previously occupied. Electric heating is comparatively new, however, and thus, except in a very few areas, there is little background information available upon which to base estimates of heating costs.

In order to obtain useful information on this question, Consumers' Research wrote to several large utility companies throughout the country and requested data on their rates for electricity used for electric heating, the relative popularity of the different types of electric heating systems used in the homes they serve, and the approximate yearly charges for home heating. On the basis of the information received, Consumers' Research offers the following formula for estimating the annual cost of heating a home with electric heat. It is assumed that latest construction methods are followed with regard to use of insulating materials (for example, extra insulation is required in the ceiling where ceiling heat cables are employed), storm windows, weather stripping, orientation of the house, etc.

$$YC = \frac{FA \times DD \times CE}{50,000}$$

YC = yearly cost of heating by electricity
FA = square feet of *all* floor area heated
DD = average degree-days per year
CE = cost in cents for 1 kwhr. of electricity

For example, approximate yearly cost for heating a ranch home with 1500 square feet of heated area, located in the Detroit area (6400 degree-days), where electricity costs 2 cents per kilowatt-hour for electric heating, would be about:

$$\frac{1500 \times 6400 \times 2}{50,000} = \$380.$$

If the same house were located in Portland, Oregon (4100 degree-days; about 0.9 cents per kwhr. for electricity), the yearly operating cost would be only about:

$$\frac{1500 \times 4100 \times 0.9}{50,000} = \$110.$$

It is generally wise to use more insulation in an electrically heated home than in one in which gas or oil supply the heat. Don't be misled by the advertising claims of a few manufacturers, salesmen, and contractors that electricity is as inexpensive to use as gas or oil. In general, if an honest, unbiased evaluation is made, taking into consideration costs for fuel and insulation, it will *always* cost more to heat with electricity, except in a very, very few areas where the lowest known rates for electricity prevail. In any particular home, to be competitive with oil at 16 cents a gallon or natural gas at 13 cents a therm, electricity must be available for house heating at $\frac{1}{2}$ cent a kilowatt-hour. This is a phenomenally low rate for electricity and would be available only in extremely limited areas of the United States. Thus, if you pay \$200 a year to heat your house with electricity at $1\frac{1}{2}$ cents per kilowatt-hour, you could heat the same house at a cost for fuel of less than \$75 with oil or gas at the prices mentioned (16 cents, 13 cents).

There are, however, other charges involved in the installation and operation of a heating system, and these tend to reduce the wide differential between costs of electric heating and gas- and oil-fired systems when fuel costs alone are considered. For example, there is no direct need for a chimney in an electrically heated home, unless the homeowner desires a fireplace for reasons of its aesthetic charm, or wishes to provide some means of warming the home in the event that power is cut off for a substantial period, at times (this can happen most anywhere). (But a power outage can also put a gas, oil, or coal furnace out of commission, in many cases, since these heating plants commonly have electrical auxiliaries of some kind; they always do in the case of an oil burner.)

There is a second advantage with electric heat that routine maintenance charges will be low, for there is no need for an annual cleaning job. Moreover, one's initial investment in an electric system will normally be less than in an oil- or gas-fired system; thus carrying charges will be lower also. Finally, because individual room thermostats are usually installed with electric heat, savings may be made by setting temperatures lower in unused or seldom used rooms. Owners, aware of the higher price they pay for "fuel," are likely to take advantage of this latter characteristic of an electric system and may thus effect some savings.

Other advantages of electric heat

Obviously, there must be other definite advantages in the use of electric heat that tend further to offset its high operating cost; otherwise, its increasing popularity would be difficult to explain. Perhaps the most important of these is the present trend in fuel prices which shows that on a long term basis prices for gas and oil are rising, whereas charges for electricity have remained pretty constant for several years. In recent years, also, the electric companies increased their generating capacity to a considerable extent in order to take care of the peak loads created by summer air conditioning. As a result, they are interested in increasing their wintertime business so as to utilize their expensive power plant and distribution equipment to better advantage, and many companies now offer special rates to users of electricity for home heating.

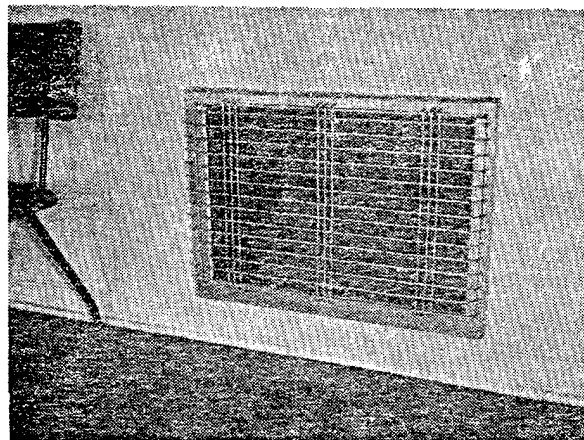
Primary among the areas in which electric heat excels, as claimed by the equipment manufacturers and power companies, is safety; there is no flame and little danger of flare up or explosion to be concerned about. Possibly, too, electrically heated homes are cleaner and healthier and also safer because there are no products of combustion to be spread through the house. There are, however, in some instances, small amounts of vaporized chromium present in the air where high temperature heating units are used, and there is reason to suppose that these are potentially harmful from the standpoint of health. In a sense, these metallic vapors tend to bring some of the outdoor atmospheric pollution into the home just as do the fumes sometimes present from an oil burner that is not operating well.

As has been noted, the temperature of individual rooms can be better controlled with electric heat than with most other methods of heating, since it is much easier to install individual thermostats in each heated area. If it should turn out that some rooms are insufficiently heated, the necessary changes in equipment can be made without much difficulty in most instances (unless rooms are heated by the use of ceiling cables).

Types of electrical heat systems

Three general types of installation are in wide use at the present time and each kind offers certain advantages not provided by the others. Thus, any homeowner, in choosing his own kind of installation, will need to evaluate certain factors concerned with operating cost, comfort, and convenience.

Heat can be transferred from one area to another in three different ways, by conduction, by convection, and by radiation. When you touch a hot lamp bulb and burn your finger, the glass of the bulb transfers heat to your finger by conduction.



A typical electric wall-mounted heating unit.

If the palm of your hand feels warm when you place it close to the bulb, radiated heat causes the warming effect. If you warm your hand in the stream of warm air rising from the bulb, that heat is carried by convection. Although conduction is the fastest and most efficient means to transfer heat from burner to pot on the electric range, it is not suitable for use in house heating. Thus most of the devices in use at present depend on convection or radiation, or a combination of the two, to heat a room.

Baseboard heaters are available which are similar in appearance to the usual baseboard radiation used with gas- and oil-fired hot-water systems. They have an enclosed and insulated resistance element which is heated when electric current flows through it. This heat is transferred to the air in the room mainly by convection currents which enter at floor level and are directed away from the wall, to an extent, by a baffle placed at the open top of the enclosure. Baseboard heaters provide a very satisfactory means for heating a room by electricity. They should be located preferably along the walls of a room which are exposed to the outdoors. When so installed, they tend to warm the walls and thus improve comfort conditions within the room. In some instances, where an adequate length of open wall space is not available, as in some kitchens and bathrooms, it may be necessary to employ heaters mounted in the wall between studs, or a heating means known as ceiling cable to provide the amount of heat needed to keep the room comfortably warm.

A popular type of electric heating device is the heater mounted in the wall. A wall heater supplies heat usually by both radiation and convection. Some brands are equipped with fans which increase slightly the amount of heat carried by convection and also contribute a slight amount of noise to an



Photo courtesy General Electric Co., Electric Heating Section, Louisville, Ky.

In a radiant-heat ceiling panel the heating cable is usually stapled to the ceiling in the form of a large grid, covering the whole area. After installation, the cable is covered by a smooth plaster coat or by a second layer of gypsum board.

otherwise completely quiet system. Wall-mounted units have the disadvantage that for effective operation the area of the room immediately in front of them should be kept clear of furniture and any other articles which might be marred or otherwise spoiled due to elevated temperatures brought about by their immediate proximity to the heat-generating device. For the person living in the house, radiated heat has the advantage that it warms, immediately, that side of a person which faces the source of radiation.

Resistance wire embedded in the ceiling is also widely used for electric heating in many areas of the United States. It functions principally by radiation, in that the heat is conducted from the wire to the ceiling mass—whether plaster or plasterboard—which then becomes slightly warm to the touch and a source of radiant heat over the whole room. The heat thus radiated is absorbed by anything within the room it strikes and then transferred to the room air mainly by convection.

Such a system has the obvious disadvantage of a considerable lag between the time heat is called for and actually is available to warm a room (the other methods do not have this disadvantage). It should be noted that the embedded-resistance-wire method of heating does not help effectively to correct the formation of cold drafts in the window areas, drafts which are one of the major sources of discomfort in homes.

In another kind of system, a bank of electric resistance elements is located in a central furnace. Such a system delivers heat to the rooms in the same way as an oil- or gas-fired forced-warm-air

furnace and offers the advantages and disadvantages inherent in a duct system of warm-air distribution.

Finally, electric heating can be provided by a heat pump which is essentially an air-conditioning device that removes heat from the house in the summer and, within certain limitations, provides heat in the winter. Although the initial installation is very costly, the heat pump, once installed, can supply heat at about one half the cost of other electrical devices in regions where the wintertime temperatures are usually above about 40 degrees. As temperatures go down, however, the efficiency of the heat pump goes down also, and it is necessary to supplement its heat-producing capabilities with resistance-type heating elements—usually built in—which are much more costly to operate. For this reason, heat pumps are far more popular in the South and Far West where winter temperatures are only moderately cold.

Electric heat isn't all peaches and cream. In addition to the disadvantages mentioned in regard to cost of operation, there are certain other limitations connected with the special care required in respect to the construction of the home. For example, if heating costs are to be kept within reasonable limits, such architectural features as open-beam type of construction, window-walls extending from floor to ceiling, a number of large picture windows, sliding aluminum glass doors, jalousies, and a fireplace may have to be sacrificed, for these all allow much heat to escape from the house. In addition, it will be worth while to pay particular attention to orientation of a house. Living quarters, for example, are best located on a southern exposure if large glass areas are desired; sleeping quarters should be on the north, because large window areas are not required there. In any case, over-all window area should be kept to a minimum if reasonably economical heating costs are to be realized.

Readers interested in more complete information on certain aspects of electric home heating will find the following pamphlets well worth having.

Electric comfort heating. Insulation and Design, 20 pages. Technical in nature. Available at 25 cents from the Electric Comfort Heating Section of the General Electric Co., Appliance Park, Louisville 1, Ky.

Electric House Heating. 14 pages. A general discussion. Available at 15 cents from the Superintendent of Documents, Washington 25, D. C.

Insulation Fundamentals and Insulating the Electrically Heated and Air-Conditioned Home. Two pamphlets of general interest. Available at 25 cents for both from the Wood Conversion Co., First National Bank Bldg., St. Paul 1, Minn.

Negative color film

(The beginning of this article is on page 39)

Kodachrome has an extremely fine grain and shows minute detail very well. However, its slow speed (ASA 10) is a great disadvantage for many purposes. *Ansochrome* and *Ektachrome*, which are slightly coarser in grain, are three times faster, with an ASA speed of 32. *Super Ansochrome* and *High Speed Ektachrome* are used where the light level is low, or fast shutter speeds and small *f* stops are needed; they have high speeds of ASA 100 and 160, respectively.

Kodacolor film has a speed of ASA 32 and *Agfacolor*, which is available in two emulsions, has speeds of ASA 20 for CN14 and ASA 40 for CN17.

A new booklet entitled "Clicking With Color," published by Eastman Kodak Co. and priced at 35 cents, is highly recommended by Consumers' Research as a well written and convenient guide for amateurs in the taking of color photographs.

Processing of negative color films

Kodacolor film is developed and printed by many processing laboratories in addition to those directly controlled by Eastman Kodak Company. Prices for this processing vary greatly, as does the quality of the finished prints. Consumers' Research checked the work of some well-known photofinishers who have run large ads in the popular photographic magazines, as well as one laboratory well known to CR for their processing of slide films. A roll of film was sent also to Eastman Kodak Co. at Rochester, N.Y., for their processing.

Each roll of film included the same subjects taken with the same lighting conditions at the same time of day with the same camera. Exposures were closely set on the basis of readings of a good exposure meter. The exposed films were then sent to the various processors for developing and printing. A roll of *Agfacolor* CN14 film was also exposed under the same conditions and was sent to Perfect Photo, Inc., in Philadelphia. (Perfect is the only processor that can process *Agfacolor* film in the U.S. at present.)

When the finished film was received (and this took from 7 to 12 days), the prints were laid out on a table and a panel of persons, most of whom take pictures only on rare occasions, viewed them and chose the set that seemed to them to be best. This panel for the most part judged the pictures on a basis of personal appeal of the finished prints and did not take into account many of the shortcomings of the various processors' work, such as



Figure 1—The above photograph is from a print made directly from an *Agfacolor* CN14 negative. The black-and-white print was made on Kodak Medalist No. 3 paper.

scratches and spots, which were all too common.

The choice between the two types of film went by a large margin to the *Agfacolor* film. The comment made by most was on the "snap and sparkle" of the *Agfacolor* prints. However, the few experienced amateur photographers on the panel chose the *Kodacolor* prints on the basis of good color rendition.

As far as the quality of processing went, there were great differences among the various photofinishers. The results from Perfect Photo, Inc., on *Agfacolor* left much to be desired. Many of their prints bore very noticeable scratches and some were spotted. The *Kodacolor* finishers produced varying results. Eastman Kodak made the best prints in our judgment, with Free Film Co. a close second. Others produced one or more blurred prints, or prints with poor color, and one set had a foggy haze on all the pictures.

We would judge from the brief test that low-priced photofinishing is no bargain, unless for pictures one does not prize greatly. Lord Film Labs, which advertises heavily in the photo magazines a price of \$2 for processing and printing a roll of eight *Kodacolor* pictures, returned prints that were approximately contact print size. (No size was mentioned in the ad.) All the others supplied so-called "3x" size prints or prints about 3 x 4½ inches. The original film was No. 120, with frames 2¼ x 3¼ inches in size. The Lord

Expert amateur photographers know, and others should perhaps be reminded, that nearly all color prints are inferior in photographic quality to transparencies. Many have chosen color prints for reasons of convenience or because they do not like to use a projector or hand viewer to examine their pictures, but at best color prints still remain far below color transparencies in visual quality. This rule applies almost universally, since even the less careful and competent processors of color transparencies do a good job compared with processing work done at the present on color prints.

Two exceptions to the above rule should perhaps be noted. Recently portrait photographers have produced direct-color prints (Type C) of very fine visual quality and clean color. However, these are expensive. There are also still more expensive color prints, used in superior magazine and advertising illustrations, but these are priced far out of the range of interest to amateur photographers—except, of course, to the very few to whom money is no object. These fine color prints, which may be used for preparing beautiful calendar and magazine illustrations in four-color halftones, cost from \$50 to \$200 each. The process used for these costly prints is entirely different from that which turns out mass-production prints on paper from either negative or positive color film.

prints were not in sharp focus (the negatives were sharp) and the colors were poor.

Free film?

A new facet to Kodacolor processing is the offer of free film with each processing order. When the user sends in a roll of film for processing, the processing laboratory returns the finished prints and a new roll of the same kind of film, all for the price of processing alone. Some years ago this would have appeared to be a bargain, and if you are one that buys films and processing at list price at the corner drug store, it is a bargain. List price of a No. 120 roll of Kodacolor film is \$1.35 and processing of an eight-exposure roll by Eastman Kodak will cost \$3.22, giving a total of \$4.57. If you send your film to the Free Film Company, for example, this processing will cost \$3.21, and they will send you a roll of fresh Kodacolor at no

extra cost. Thus you will save \$1.36. In effect, these companies are either selling you film at cost (about 85 cents) and charging the usual mail-order price for processing, or selling film at list price and processing it at a large discount.

Of course, if you are able to buy negative color film of 120 size for about \$1 per roll and send it to one of the low-cost processors for developing and printing at \$2.25, then the Free Film plan does not offer any particular advantage. However, the catch to low-cost processing, and it is important, is the quality of the finished product. From what we have seen of low-priced photofinishers of negative color film, the results are likely to be highly variable and, for the most part, rather unsatisfactory.

Agfacolor film would appear to have a great future if the quality of processing can be improved by Perfect Photo, Inc., and if they can considerably reduce the time required for the service. (A 5 x 7 inch enlargement took over two weeks.)

The following photofinishers are rated on Kodacolor processing only, except Perfect Photo, Inc., which is rated on Agfacolor processing.

A. Recommended

Eastman Kodak Co. (Rochester 4, N.Y.) \$3.22 for developing and printing 8 pictures from a No. 120 roll. Prints, 3x size (3 x 4½ in., approximately). Quality of work, very good; there were no scratches or spotting of prints.

Free Film Co. (P. O. Box 1, Morris Heights Sta., New York 53) \$3.21 for developing and printing 8 pictures from a No. 120 roll. Prints, 3x size. A "fresh-dated" roll of Kodacolor film was returned with the finished prints. No scratches or spots, but some of the prints were judged to be on the dark side.

C. Not Recommended

Lord Film Labs (P.O. Box 243, New York 51) \$2 for developing and printing 8 prints from a No. 120 roll. Prints, approximately the same size as the original negative. The negatives were sharp, but the prints were not.

Master Color Labs (General Post Office Box 30, Newark 1, N.J.) \$2.25 for developing and printing 8 prints from a No. 120 roll. Prints, 3x size. Prints appeared to be somewhat veiled by haze. Colors were off; green grass appeared brownish.

Perfect Photo, Inc. (P.O. Box 7100, Philadelphia 17, Pa.) \$3.22 for developing and printing 8 pictures from a No. 120 roll of Agfacolor film. Prints, 3x size. While the prints had better than average sparkle and snap, some were scratched badly and some had spots on them.

For the present, the rating given Perfect Photo finishing will apply also to Agfacolor film since at this time it can be processed only at Perfect Photo, Inc. CR will watch this film and its processing closely, and if the quality of the finished product changes, a new rating will be given.

Some things to know about spark plugs

(The beginning of this article is on page 2)

hard, black, baked-on deposit around the electrodes and inner insulator, it is likely that too cold a plug is being used for the engine and type of driving. The type of driving is important. Generally speaking, a plug will reach an acceptable operating temperature at a certain driving speed, say 35 miles per hour in a particular case; then as the car's speed goes up, so does the plug temperature until at some steady higher speed, perhaps 80 miles per hour, the plug becomes *too* hot, even reaches preignition temperatures. In another car, the limits of steady speed for proper spark plug temperatures might be, say, 20 and 50 miles per hour. Clearly, selection of the right plug depends in part on the kind of service the car will be used for, and the way the car is driven.

A black deposit which is wet and oily on a plug indicates that the engine pumps oil, or perhaps that the plug was not firing, because of a defect in the ignition system or the plug itself. If the possibility of ignition failure is ruled out, the proper remedy is to find and correct the cause of oil pumping. Pending this, slight or temporary improvement of the condition can sometimes be obtained by use of a hotter plug.

If you are using too hot a plug (remember this is one designed to dissipate heat slowly and thus to *get* hot), electrode wear, especially of the center electrode, will be too rapid. In judging the condition of the electrodes and deciding whether erosion occurs too quickly, nothing can replace the experience of an expert who has seen thousands of plugs at various stages of normal wear. However, you can take as a rough guide the claims of plug manufacturers that their products, if properly cared for, should give good service for 10,000 miles. Actually, considerably longer service is often possible. If a plug can be cleaned and "regapped" to the proper distance between the metal electrodes, and no defect is apparent, there is no need to throw it away merely because of its age and honorable service.

Proper care of spark plugs includes inspection, cleaning, and regapping at regular intervals—about every 5000 miles on a new car and more frequently as the car gets older, perhaps every 2000 to 3000 miles after the car has run 30,000 miles. Plugs should be handled with care to avoid cracking of the ceramic insulation. When practicable, use a round wire feeler gauge to set the gap; a flat gauge is not suited to the purpose because worn electrodes are not flat and hence the space between them varies. On cars with

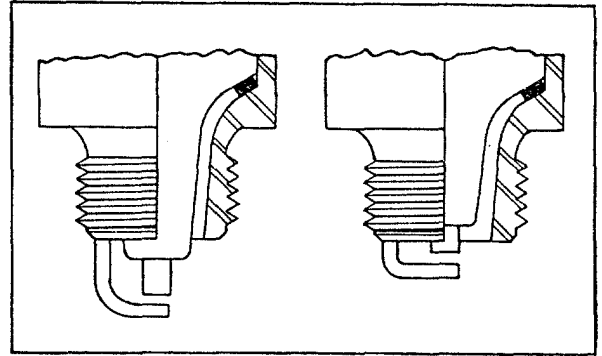


Figure 2—The protruding-nose type of plug is shown in the diagram on the left; a conventional design with slightly recessed nose is on the right. (These diagrams are from the Technical Manual of Motor Master Products Corp.)

aluminum engines, don't remove plugs while the engine is hot. With plugs that require gasket washers, always use *new* washers when you put the plugs back in place. The washers are compressed as the plugs are screwed in and this makes the seal. It is best to use a torque wrench in seating plugs, so they will be screwed in tight enough, but not too tight. If you don't have a torque wrench, use a wrench with a 10-inch handle. Tighten a solid gasket snug with the 10-inch wrench; a folded gasket should be compressed by about one half turn of the plug after it is "finger tight."

Protruding nose design

On some plugs, the nose of the insulator protrudes beyond the shell (see Figure 2). This is said to expose the insulator to the rushing gas-air mixture in the cylinder and provide some cooling effect which increases with engine speed. Such plugs are said to run hotter at slow speeds and cooler at high speeds than conventional plugs. The exposed-nose plugs are designed primarily for overhead valve V-8 engines, and with some other types of engines such plugs cannot be used because of space limitations.

Replace 'em all?

If you have one or two bad plugs, should you replace them all? Not necessarily. If plugs of a set are equally old and some fail apparently due to age and wear, it may make sense to replace them all. However, contrary to some more or less legendary beliefs, it is *not* necessary to change all the plugs just so that *all* plugs shall be of the same make or even the same heat range. Equiva-

lent plugs of standard manufacturers are pretty much alike. The "original equipment" plugs with the car are not necessarily better than others, and it should make no difference if some cylinders are fired by *Champion* and some by *AC* or *Autolite* plugs, or by plugs of a smaller, well-qualified manufacturer. Among the several other brands which have good reputations in the industry are: *Acme*, *Auburn*, *Blue Crown*, *Leonard*, *Motor Master*, and "private brands" of big mail-order firms such as Montgomery Ward and Sears.

In certain cases, spark plugs of different heat ranges may be best for different cylinders, as judged by an expert observing the condition of the removed plugs. To facilitate consideration of this factor, one should keep plugs in order when removed for inspection and put each one back into the cylinder from which it came. It is helpful also to keep a record of the mileage reading at which each plug is installed.

Spark plugs that are "not" spark plugs

There is a constant stream of advertising in magazines and newspapers and by direct mail for various novelty-type spark plugs, which it is claimed will do wonders for your car. Some of these devices are said not to be spark plugs, but are called "igniters," or "fire injectors," or by other names. All such gadgets that we have seen *are* spark plugs in the sense that when one of them is used, the gas-air mixture in the cylinder is ignited by a spark. Fancy names and fancy claims notwithstanding, the specialty plugs do not give significantly better gas mileage, greater horsepower, or other improvement.

Novelty plugs cost more, don't last as long

The main difference between novelty plugs and ordinary ones is that the special plugs don't come in appropriate heat ranges, and therefore don't stand up in service, unless you're lucky. One kind of plug is advertised as similar to aircraft plugs, and therefore somehow presumably superior for cars. What the advertisers don't point out is that radial engines for aircraft run much cooler than car engines, so that a plug type suitable for one use is not necessarily good for the other.

The real differences in spark plug behavior occur after periods of use. The "special" plugs are no better than ordinary ones when new, and in general they don't stand up. An experienced service manager reported to Consumers' Research that he sees the various novelty plugs frequently in cars coming in for repair, and that they are commonly in poor condition even after as little as 2000 or 3000 miles of driving.

Comparative tests of performance with "injectors" and ordinary spark plugs have been made

at the University of Saskatchewan in Canada. Other tests were made by an assistant professor of mechanical engineering at the University of Manitoba, also in Canada. *Science and Mechanics* magazine published in August 1959 a report by its engineering consultants. None of these reports showed the superior engine performance claimed for special or novelty plugs.

An interesting sidelight of the *Science and Mechanics* report is that "igniters" showed up exceptionally well on a *spark plug tester* even though the same plugs did not give better than ordinary results in an engine. This apparent anomaly leads to the question: What do the testers test?

Spark plug "testers"

Almost every auto repair shop has a device for testing spark plugs by firing them continuously by rapidly repeated high-voltage impulses in an enclosed chamber at various controlled air pressures. A window, made of heavy glass permits observation of the spark. When the pressure gets high enough, the spark is "quenched" and the pressure needed to accomplish this result is taken as a measure of the plug's performance.

Such a test even at atmospheric pressure, or at relatively low pressures, will show up invisible cracks in insulation or electrical discontinuities in the high tension path within the plug. However, the conditions in a compression tester are not at all the same as those in an engine, and unless specific defects are exhibited, the results of tests in these devices need not be given any great weight in deciding whether or not to discard a plug.

Used plugs can often be made quite suitable for continued use by *light* sandblasting (heavy blasts roughen the surface and speed up future deposits) and cleaning of the electrodes by filing or sandpapering the sparking surfaces—giving particular attention to the inside surface of the ground electrode because this surface is not likely to be much affected by sandblast cleaning. A plug rejuvenated in this way and properly regapped will probably not show up as well in a tester as a new plug, because the sharp edges of the electrodes in a new plug help it to spark at higher pressures. But this difference is temporary and largely eliminated by spark erosion in a few hundred miles of operation.

In short, a compression tester in expert hands can give useful information about certain defects of plugs, but don't let an ignorant or unscrupulous operator use the testing device merely as a gadget to promote sales of new plugs when perhaps your old ones are still capable of doing very well if cleaned and regapped.

● OFF THE EDITOR'S CHEST

Do you like the new movies?

Now that the holidays have brought out a number of new movies, what do you think of the entertainment offered? Motion pictures, at a standstill during the spring because of the writers' strike, have begun to appear in greater numbers. The present trend is toward what the trade calls "hard ticket" shows. These are movies, usually lavish productions, that are put on like a play, only twice a day, with tickets priced somewhat above the run-of-the-mill rate. The best seller of this type on the current scene is *Ben Hur*, which runs for 4½ hours, with seats (Loew's, N.Y.C.) at \$1.50 to \$3.50. Following in the footsteps of *Ben Hur* are *The Alamo*, *Pepe*, *Exodus*, *Cimarron*, and *Spartacus*.

The "hard ticket" policy of presenting a motion picture in the same way as a theatrical production is reported to make money for the film producers, but the technique does nothing whatever for the local distributor in the neighborhood theater who cannot get customers at such prices and must, therefore, depend on less spectacular pictures that he can run for only two or three days. As we have noted before, good family pictures, for showing in what the trade calls the "nabes" (neighborhood houses), are hard to find. Even sophisticated critics have reported alarm at the sight of children standing in line to see *Psycho*.

The dean of motion picture critics, who has been a proponent of "adult pictures," has also complained about the subject matter of current motion pictures. Bosley Crowther in the New York Times decried certain "seamy little pictures," "vice and violent films," and the "distinctly vicious films" being shown in neighborhood theaters. John Crosby, television critic, of the New York Herald Tribune, and a vigorous opponent of "censorship," denounced in forthright terms the "multiple adulteries" shown in such films as *From the Terrace* and *The Apartment*, pointing out that it was "quite a problem nowadays finding a movie to take the children to." He commented favorably on the French censorship of TV based on the belief that a diet of violence is not good for grownups or children.

The number of pictures that portray the grim and beastly side of warfare and take delight in belittling patriotism is also excessive and the theme is much overdone. As *Variety*, the leading trade journal, reported last fall: "World Wars One and Two, along with the Korean conflict are about to be fought all over again on the nation's screens. In addition to the three war dramas in current release, no less than 13 more are either

finished. . . in active production or preparation, or definitely set." William H. Mooring, Hollywood critic, observingly notes that it seems as if "every aspect of war that can cause Americans embarrassment is being laid bare in the latest wave of Hollywood war films. Whether box-office desperation or political defeatism is the cause, the effect is the same." Oddly enough, this type of picture is not particularly profitable, according to *Variety*, which reports that since *Bridge on the River Kwai* and *Young Lions* no war drama has really "hit it big" at the box office.

An excellent article in the American Legion Magazine, September 1960, by Howard Stephenson, raised the question as to whether the current practice of emphasizing crooks, including crooked law enforcement officials, unethical businessmen, sordid environment, oppression of minorities, as well as murder, rape, infidelity, and homosexuality may not be a definite propaganda technique to discredit American ideals. He points out that the net effect sought by the propagandists is to plant doubt in people's minds, to slant their ideas, and to brainwash them into thinking that the film correctly portrays their economy, their political system, and that the American way of life is corrupt, immoral, and generally decadent. Certainly if the recent crop of motion pictures were well patronized, some of these objectives might well be attained.

As one critic pointed out, not every good wholesome screen play pays off at the box office, but there have been outstanding examples in recent years that might well be copied by other producers. Walt Disney, for example, produced *Shaggy Dog*, *Sleeping Beauty*, and *Pollyanna*, which enjoyed considerable success and were well worth family viewing. *The Alamo*, which is currently playing to large audiences in the big cities, is a majestic portrayal of the battle to the death of one hundred eighty-five free men rebelling against a tyrant that is suitable for all but the very young, who might be emotionally upset by the tragic ending.

Exhibitors of sex and sin in technicolor are given to crying "censorship" when there is the slightest suggestion that youngsters and teenagers should not be permitted to attend performances of lurid sex dramas and brutal, violent, blood-thirsty crime melodramas. The fact that the public is staying home in droves from the movies seems to have escaped them completely. Now that the New York critics have indicated that they, too, are revolted or at the very least bored with the excess of perversity shown in intimate detail and at length, perhaps producers will lend an ear and turn out good wholesome shows to which the whole family can go for an evening's entertainment.

Phonograph Records

BY WALTER F. GRUENINGER

Please Note: Stereo records are indicated by the symbol (S). Ratings (AA, A, B, etc.) apply first to the quality of interpretation, second to the fidelity of the recording. Most performances are available on both stereo and regular LP records.

ⒺBeethoven: *Symphony No. 4* and *Overture: Consecration of the House*. Philharmonia Orchestra under Klemperer. Angel S 35661. \$5.98. Dramatic, heavy playing of a lesser Beethoven symphony. The distant mike pickup, which has a tendency to fuse the sound, doesn't aid matters. No question the interpretation is marvelous in its way. But don't overlook other ways and other recordings. A A

ⒺBeethoven: *The Middle Quartets* (Op. 59 Nos. 1-3, Op. 74, Op. 95). Budapest String Quartet. 8 sides, Columbia M4S 616. \$23.92. One of the outstanding sets of the season. Great music, performed by the most widely heard quartet the world has ever known. Though Roismann's tone, as first violin, and occasionally his facility, seem less effective than a decade ago, the group commands the utmost respect and admiration. Often the sound is rough, but that's in keeping with the music. Meticulous, but never over-fussy attention to details. Brilliant, crystal clear sound which discloses the slightest blemish in performance. AA A

ⒺBrahms: *Violin Concerto*. Kogan with the Philharmonia Orchestra under Kondrashin. Angel S 35690. \$5.98. Kogan is one of the smoothest sounding violinists now recording, but he rarely gets beneath the surface of this deep, Germanic masterpiece. Look to three or four other recordings for that. The orchestra is no great shakes either, particularly the solo oboe. Satisfactory sound, with orchestra somewhat distant, soloist at the best sounding distance. B A

ⒺBruckner: *Symphony No. 9*. Columbia Symphony under Bruno Walter. Columbia MS 6171. \$5.98. Bruckner died without completing this symphony, but the great concluding *Adagio* will long live in the hearts of those who know it. Bruno Walter uncovers the exaltation with all the skill at his command. His orchestra is first class. The sound is fittingly spacious, though the volume level is low, and the contrast between loud and soft passages is not as pronounced as in the best recordings. AA B

ⒺDvorák: *Three Great Symphonies*. Cleveland Orchestra under Szell. 6 sides, Epic BSC 109. \$17.96. Included are Op. 70, 88, 95. Szell never dawdles over a sentimental phrase, preferring straightforward, disciplined interpretation. Some may prefer more flexibility and sentiment in these direct-to-the-heart, melodic, ingratiating symphonies that include just enough drama to keep the interest high. The engineers have produced a good compromise in sound, not too much hall, yet not too little. But the sound is a bit hard. A A

ⒺHandel: *L'Allegro ed Il Penseroso*. Addison, McCollum, Reardon, Orchestra and Chorus under Waldman. 4 sides, Decca DX 7165. \$11.98. Handel's notable settings to poems of Milton depict the cheerful man (*L'Allegro* sung by tenor and bass) and the melancholy dreamer (*Il Penseroso* sung by soprano). Unfortunately, Adele Addison falls short of her difficult task. John McCollum emerges clearly as a gifted, knowledgeable tenor who finds an able associate in John Reardon. The direction rocks along, but doesn't inject the life into the score I believe is there. This is not a perfectly realized presentation. Fairish recording. B A

ⒺHandel: *Organ Concerti*, Op. 4 Nos. 1-3. Kohler (organ) with the String Orchestra of the Leipzig Gewandhaus Orchestra under Thomas. Epic BC 1101. \$5.98. Enchanting, melodic works which pit the organ against the orchestra. Expressively played, transparently recorded, with just the right balance between instruments. AA A

ⒺMendelssohn: *Symphony No. 4* & Brahms: *Variations on a Theme by Haydn*. Vienna Symphony under Sawallisch. Epic BC 1098. \$5.98. To the experienced ear, it doesn't take many measures before you

know a performance is outstanding. Such was the case when I first listened to the joyous *Italian Symphony*. As the stylus advanced, the promise became the fact. The *Variations* stand in the forefront of Brahms' orchestral works. No respectable library should be without them. Transparent, spacious recording. AA A

ⒺMozart: *Clarinet Concerto*, De Peyer (clarinet), and *Horn Concerto Nos. 1 and 3*, Tuckwell (horn). London Symphony under Maag. London CS 6178. \$5.98. The clarinet concerto, surely a masterpiece, is masterfully played. The phrasing, particularly, is beautiful. The *Horn Concerto No. 1* I find a lesser work, but *No. 3* recalls Mozart at his best and demands a first-class horn player. Tuckwell qualifies easily. The recording of the clarinet concerto sounds silky, but the horn concerti require a bit more volume, and fall a trifle short of the admirable sound overside. AA A

ⒺPaganini: *Caprices*. Ricci (violin alone). London CS 6163. \$5.98. Short pieces (24 of them) which tax the technique of the greatest violinists. Ricci has been identified with this music for about 20 years. Though occasionally his playing sounds rough and a bit off pitch, he sins seldom. Most violinists will regard this as a MUST. Very well recorded, too. AA A

Baker's Dozen. Don Baker (organ). Capitol T 1363. \$3.98. For a decade Baker played the organ at New York City's Paramount Theater. Here he plays the mighty Robert Morton pipe organ weighing 17,000 pounds. But it doesn't blast you out of the house unless you turn the volume too high. "Londonderry Air," "Riders in the Sky," "Adios," "The Moon Was Yellow," and other pleasant tunes played in good taste and well recorded. AA A

Germany Revisited. Carola Kraus (singer) and Alfons Bauer and Orchestra. Capitol T 10247. \$3.98. Pleasant listening. Principally polkas and march tunes such as you might hear in a *Biergarten*. But there are modern twists, too, which make the disk unique. There's personality in the singer's voice and a strong umpha in the band. Yodels and a zither, naturally. AA A

ⒺInformally Yours. Carmen Cavallero (piano). Decca DL 74017. \$4.98. Continuous and varied music gliding from "Just One of Those Things" to "Falling in Love with Love," "I'll Follow My Secret Heart," "The Most Beautiful Girl in the World." Easy listening and good recording, though there is some background noise now and then. AA A

Irish Sing Along (Mixed Chorus). London TW 91234. \$4.98. The popularity of "sing along" disks gets a boost from this nostalgic release which includes "When Irish Eyes are Smiling," "Peggy O'Neill," "Mother Machree," "Macushla," and similar numbers. Very well recorded, as is its companion disk, *German Sing Along*, on London TW 91237. AA A

Soft Swaying Strings. The Knightsbridge Strings. Top Rank RM 341. \$3.98. Arranged for string orchestra are 12 standard pieces which may suggest our 50th state. An Hawaiian guitar here and there brightens the scene and adds local color. The beat from the percussion section promotes dancing. Included are "South Sea Island Magic," "Honolulu Blues," "Trade Winds," etc. Expertly played and satisfactorily recorded. AA A

ⒺThe Connoisseur's Handel. Deller, Poulter, Brown, Bevan (singers) with the Handel Festival Orchestra under Lewis. Bach Guild BGS 5029. \$5.95. A dozen arias and concerted numbers from operas and oratorios infrequently heard. Obviously these singers are experts in the style, and they produce most enjoyable sounds. Included is music from *Jephtha*, *Seize*, *Orlando*, *L'Allegro*, *Rinaldo*, *Theodora*. The engineering is good. AA A

Ratings of Current Motion Pictures

THIS SECTION aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 17 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Boxoffice, Cue, Daily News (N. Y.), The Exhibitor, Films in Review, Joint Estimates of Current Motion Pictures, Motion Picture Herald, National Legion of Decency, New York Herald Tribune, New York Times, The New Yorker, Parents' Magazine, Release of the D. A. R. Preview Committee, Reviews and Ratings by the Protestant Motion Picture Council, The Tablet, Time, Variety (weekly).

The figures preceding the title of the picture indicate the number of critics whose judgments of its entertainment values warrant a rating of A (recommended), B (intermediate), or C (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure
biog—biography
c—in color (Ansco, Eastman, Technicolor, Trucolor Warner Color, etc.)
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
sci—science fiction
soc—social-problem drama
trav—travelogue
war—dealing with the lives of people in wartime
wes—western

A	B	C		A	B	C	
6	5	2	Alamo, The.....	—	3	2	Dondi.....
—	3	1	All in a Night's Work.....	—	7	2	Dreams (Swedish).....
—	4	8	All the Fine Young Cannibals.....	1	2	1	Elevator to the Gallows (French).....
—	5	7	All the Young Men.....	1	10	5	Elmer Gantry.....
—	2	1	Amazing Mr. Callaghan, The.....	—	8	2	End of Innocence (Argentine).....
—	3	3	Amazing Transparent Man, The.....	—	3	6	Enemy General, The.....
—	5	7	Angel Wore Red, The.....	—	7	6	Entertainer, The (British).....
—	1	3	Another Sky (British).....	—	3	—	Escape to Berlin (German).....
—	5	2	As the Sea Rages (German).....	1	2	1	Exodus.....
—	2	1	Aunt from Chicago, The (Greek).....	—	3	—	Facts of Life, The.....
—	3	6	Battle in Outer Space (Japanese).....	—	3	1	Fanny.....
—	3	9	Bell Boy, The.....	—	5	5	Fast and Sexy (French-Italian).....
2	2	1	Belles and Ballets (French).....	—	2	1	Fedra, the Devil's Daughter (Spanish).....
—	4	3	Between Time and Eternity (German).....	—	3	1	Fever in the Blood, A.....
—	2	3	Beyond the Time Barrier.....	—	3	1	Flaming Star, The.....
—	7	—	Boy Who Stole a Million, The (Spanish).....	1	2	3	Flute and the Arrow, The (India).....
—	2	4	Breath of Scandal, A.....	—	6	1	For the Love of Mike.....
—	7	3	Brides of Dracula, The (British).....	—	5	2	Freckles.....
—	3	—	Bridge, The (German).....	—	1	3	General Della Rovere (Italian).....
—	5	5	Butterfield 8.....	—	5	2	G.I. Blues.....
—	2	6	Cage of Evil.....	—	3	—	Girl in Lovers' Lane, The.....
1	5	5	Captain's Table, The (British).....	—	1	4	Girl of the Night.....
—	—	3	Career Girl.....	—	3	—	Go Naked in the World.....
—	6	—	Chartreuse Caboose.....	—	2	1	Goddess of Love (Italian).....
—	3	—	Cimarron.....	—	2	1	Goliath and the Dragon (Italian).....
—	2	1	CinderFella.....	—	2	2	Good Girls Beware (French).....
—	2	1	Circle of Deception.....	—	2	1	Grass is Greener, The.....
—	1	6	College Confidential.....	1	3	—	Great Day, The (Spanish).....
—	4	5	Come Dance with Me (French).....	—	1	2	Great Imposter, The.....
—	3	2	Confess, Dr. Korda! (German).....	—	2	1	Great Knight, The (Italian).....
—	2	2	Counterfeit Coin, The (Greek).....	—	—	—	Green Carnation, The (see Trials of Oscar Wilde)
—	2	1	Counterfeit Traitor, The.....	—	2	1	Guns of the Navarone, The.....
—	6	3	Crowded Sky, The.....	—	3	—	Half Pint, The.....
—	2	4	Crowning Experience, The.....	—	3	—	Hand in Hand (British).....
—	13	3	Dark at the Top of the Stairs, The.....	—	3	5	Hannibal (Italian).....
—	3	—	Day of the Painter.....	—	2	5	Head of a Tyrant (Italian).....
—	6	4	Day They Robbed the Bank of England, The (British).....	—	6	3	Heaven on Earth (Italian).....
—	4	7	Desire in the Dust.....	—	4	1	Hell is a City (British).....
—	2	2	Dog, a Mouse, and a Sputnik, A (French).....	1	3	10	Hell to Eternity.....
				—	3	—	Hideout in the Sun.....
				—	1	7	High Powered Rifle, The.....
				1	7	6	High Time.....

A	B	C	
3	6	—	Hound that Thought He Was a Raccoon, The.....doc-dr-c AY
—	—	3	How to Make a Monster.....mel A
1	8	3	I Aim at the Stars.....biog-dr AY
—	2	4	I Passed for White.....soc-dr A
1	6	5	Ice Palace.....dr-c AY
5	8	3	Inherit the Wind.....dr A
—	8	2	It Happened in Broad Daylight (Swiss).....dr A
—	9	3	It Started in Naples.....dr-c A
—	2	1	Ivan the Conqueror (Italian).....hist-dr-c AY
—	2	2	Journey to the Lost City.....adv-c AY
—	1	2	Juke Box Racket (British).....mus-com AY
3	10	1	Jungle Cat.....adv-c AY
—	6	3	Key Witness.....cri-dr A
—	—	4	Kill Her Gently.....cri-mel A
—	3	—	Kill Me Tomorrow (British).....cri-mel AY
—	5	6	Last Days of Pompeii, The (Italian).....dr-c A
—	2	2	Last Woman on Earth, The (British).....mel-c A
—	1	4	Legions of the Nile (Italian).....mel-c A
—	5	7	Let No Man Write My Epitaph.....soc-mel A
2	8	7	Let's Make Love.....com-c A
—	3	—	Little Shepherd of Kingdom Come.....dr-c AY
—	2	1	Little Shop of Horrors, The (British).....cri-dr A
—	—	3	Louisiana Hussy.....mel A
—	1	3	Love Game, The (French).....com A
—	—	3	Loves of a Greek in Paris (Greek).....dr A
—	—	3	Ma Barker's Killer Brood.....cri-mel A
—	—	3	Madame X (Greek).....dr A
—	3	—	Magic Boy (Japanese).....car-c AY
—	4	3	Magnificent Seven, The.....wes-c AY
—	3	—	Majestic Island.....trav-c AY
—	3	1	Make Mine Mink (British).....cri-com A
—	3	3	Marie Octobre (French).....war-dr AY
—	3	1	Marriage-Go-Round.....com-c A
—	1	2	Menace in the Night (British).....cri-mel AY
1	8	3	Midnight Lace.....mys-dr-c AY
—	2	1	Missile from Hell (British).....war-dr A
—	2	1	Mistress, The (Japanese).....dr A
—	1	3	Model for Murder (British).....cri-mel A
—	—	3	Morals Squad.....cri-dr A
—	9	4	Murder, Inc.....cri-dr-c A
—	3	—	Mysteries of the Deep.....doc-c AY
—	2	1	Naked and the Wicked, The (Italian).....mel A
1	2	1	Naked Night, The (Swedish).....dr A
—	3	—	Natchez Trace.....hist-mel A
—	3	2	Never Let Go (British).....cri-mel A
—	6	4	Never on Sunday (Greek).....com A
—	4	2	Next to No Time (British).....com-c AY
—	5	2	Night Fighters, The.....war-dr AY
—	4	6	Nights of Lucretia Borgia, The (Italian).....dr-c A
—	1	3	No Morals (French).....cri-mel A
1	4	1	North to Alaska.....com-c A
—	7	8	Ocean's Eleven.....cri-dr-c A
2	5	5	Oscar Wilde (British).....biog A
—	2	5	Ostrich Has Two Eggs, The (French).....dr A
—	2	1	Parrish.....dr-c A
2	5	—	Pepe.....mus-com-c AY
—	1	5	Picnic on the Grass (French).....dr-c A
—	4	1	Please Turn Over (British).....dr A
—	3	2	Plunderers, The.....mel A
—	—	4	Port of Desire (French).....dr A
—	2	1	Prisoners of the Congo.....mel-c A
—	—	3	Private Lives of Adam and Eve, The.....com A
2	9	3	Psycho.....mys-mel A

A	B	C	
—	2	1	Rachel Cade (British).....dr-c A
—	6	4	Rest is Silence, The (German).....dr A
—	2	1	Revolt of the Slaves.....dr-c A
1	4	—	Royal Ballet, The (British).....doc-c AY
—	3	—	Runaway.....soc-mel AY
—	3	3	Santa Claus (Mexican).....dr-c AY
—	1	3	Saturday Night and Sunday Morning (British).....dr A
—	6	2	Savage Innocents (British).....doc-dr-c A
1	10	2	School for Scoundrels (British).....com A
—	1	4	Secret of the Purple Reef.....mys-mel-c AY
—	—	3	See Naples and Die (Italian).....dr A
—	5	6	September Storm.....dr-c AY
—	6	1	Seven Ways from Sundown.....wes-c AY
—	2	3	Sex Kittens Go to College.....com A
—	—	5	Sexpot (French).....dr A
—	3	—	Shadows.....soc-dr A
—	1	2	Shakedown, The (British).....cri-mel A
—	—	3	Shameless Sex (Italian).....dr A
—	1	2	She Walks by Night (German).....mel A
—	4	1	Sign of Zoro.....adv AY
—	2	1	Sin and Desire (French).....dr A
1	10	5	Sons and Lovers (British).....dr A
—	7	3	S.O.S. Pacific (British).....mel A
4	6	3	Spartacus.....dr-c A
—	3	1	Splendor in the Grass.....dr-c A
—	—	3	Squad Car.....mel A
—	4	2	Stop! Look! and Laugh!.....com AY
—	4	6	Studs Lonigan.....nov A
—	3	12	Subterraneans, The.....mus-com-c A
—	2	1	Summer of the 17th Doll (British).....dr A
—	—	3	Sundowners, The.....dr-c AY
6	6	3	Sunrise at Campobello.....biog-c AY
—	4	7	Surprise Package.....cri-mel A
—	1	2	Sweet Life, The (Italian).....dr A
1	3	—	Swiss Family Robinson.....adv AY
—	8	4	Tarzan, the Magnificent (British).....mel-c AY
—	3	1	Ten Who Dared.....hist-dr-c AY
—	7	4	13 Ghosts.....mys-mel AY
1	6	7	39 Steps, The (British).....mys-mel-c AY
—	2	1	Three Forbidden Stories (Italian).....soc-dr A
—	3	—	Three Worlds of Gulliver, The.....fan-c AY
—	4	5	Three-Penny Opera, The (German).....mus-dr A
—	8	4	Time Machine, The.....sci-c AY
—	—	7	Trapped in Tangier (Italian).....cri-mel-c AY
2	3	5	Trials of Oscar Wilde, The (British).....biog-c A
—	3	6	Twelve to the Moon.....sci-mel AY
—	3	—	Two Faces of Dr. Jekyll, The (British).....dr-c A
—	—	3	Unashamed, The.....dr A
—	10	7	Under Ten Flags (Italian).....war-dr A
—	5	1	Village of the Damned (British).....sci AY
—	—	3	Virgin Spring, The (Swedish).....dr A
—	3	—	Wackiest Ship in the Army, The.....war-com AY
—	7	4	Walk Like a Dragon.....dr AY
—	2	5	Walk Tall.....wes-c AY
—	2	4	Walking Target, The.....cri-mel AY
—	1	2	Wasted Lives and the Birth of Twins.....soc-doc A
—	4	5	Weddings and Babies.....doc-dr A
—	3	1	Where the Boys Are.....com-c AY
—	4	7	Where the Hot Wind Blows (French).....dr A
—	3	5	Why Must I Die?.....soc-mel A
—	2	3	Wicked Go to Hell, The (French).....dr A
—	3	—	Wild Rapture.....trav-doc AY
—	—	3	Wild Ride, The.....mel A
—	2	1	Wizard of Bagdad, The.....adv-c AY
—	6	1	World of Apu (India).....dr AY
—	4	3	World of Suzie Wong, The.....dr-c A
—	2	8	Young Jesse James.....wes-dr A

The Consumers' Observation Post

(Continued from page 4)

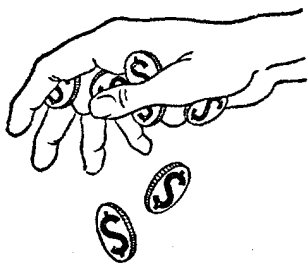
THAT SYSTEM FOR ISSUING WARRANTIES ON USED CARS was such a good idea that it is a pity some of the companies involved couldn't make a go of it. On May 25, 1960, a voluntary petition of bankruptcy was filed at U.S. District Court in Birmingham, Alabama, by Registered Test Cars Inc. as well as each of its wholly owned subsidiaries: Consolidated Auto Warranty Corp., National Bonded Cars Inc., and Sure Car of America Inc. Most buyers of secondhand cars will just have to trust to their own judgment in making a purchase, or better still employ first-rate auto mechanics to survey carefully the cars they have in mind to buy.

* * *

THOSE NEW LABELS AND TAGS required by the Textile Fiber Products Identification Act are causing confusion among consumers. The favorite story among sales people is that of the customer who picks up a garment and remarks: "The label says this is Dacron polyester, but I want plain Dacron." She does not realize that Dacron is the brand name of DuPont's polyester fiber. In Chicago, according to Women's Wear Daily, labels showing multiple percentages in children's wear have created some customer doubts as to wearability. The fiber content of a label is useful to a commercial dry cleaner or laundry, but the average consumer wants to know about shrinkage, fading, color resistance, and other factors of performance in use such as those provided in the American Standards Association's L22 standard, a more practical and meaningful frame of reference for informative labeling than mere fiber names and percentages.

* * *

HOME APPLIANCES THAT CAN BE RENTED instead of purchased are being tried out in a limited area. The monthly rental fees include service. Leasing for the first two years costs about the same as monthly payments in buying on the installment basis if you include depreciation, service, and interest charges. After that period, leasing charges cost increasingly more than appliances bought on the installment plan. Business and industry are using the lease type of arrangement for typewriters, adding machines, computers, cars and trucks, and a number of industrial items. Perhaps the leasing technique will prove popular for many kinds of home appliances also.



You won't throw money away, IF

You subscribe to CONSUMER BULLETIN!

Of course, you need to do more than *read* our reports and ratings on products by brand name. As one subscriber wrote us recently, "How I wish I had followed your recommendations about automobiles. You were so right!" It will help you save money and get the make or model best suited to your needs, if you consult CONSUMER BULLETIN and the big ANNUAL *before* you make a final decision.

It costs only \$5 a year to be a subscriber (\$2 more brings the big 224-page ANNUAL that provides a convenient buying guide on a wide range of subjects). Just turn the page for a convenient order form. Fill it out today while you are thinking about it. If you already are a subscriber, tell a thrifty friend about us.

FOREIGN CAR DEALERS report increasing competition from the new American compact cars. Sales of the little foreign cars are dropping and several have reduced their retail prices to maintain sales. Finance companies frown on dealers' stocking the foreign cars on the grounds that most of the sales are on a cash basis and they get no installment contracts. It seems that the majority of foreign car buyers (smart people interested in getting the most for their money) pay cash or secure lower-interest bank loans. Volkswagen, which is at the top of the list of foreign car sales, is bringing out a new model with some improvements in order to meet U.S. competition better.

* * *

THE NICKEL CIGAR may not disappear entirely. The Wall Street Journal reports that scientists have developed some new chemicals that can be blended with tobacco to make an inexpensive cigar wrapper. The new process uses scrap tobacco instead of high-priced leaf. The researchers have tried out the new wrappers that contain as much as 50 percent additives, and report no evidence of toxic side-effects. The three new chemical agents for use in homogenized wrapper material are variations of hydroxymethylphenol, aminomethylphenol, and polyesters. Certainly the desirability of smoking tobacco containing these substances may be open to question. Their presence should in any event be shown on the label of the cigar and its package. Flavor agents such as rum and maple are also to be added.

* * *

SERVICING APPLIANCES in order to keep them running in the home is the subject of many discussions and conferences. At a meeting of the American Home Economics Association, Mrs. Katherine B. Bailey of the Wisconsin Extension Service recommended what she called "preventive servicing," which includes thorough instruction on the care and proper use of equipment. The homemaker who understands how an appliance performs can give facts and symptoms to a serviceman so that he can locate the source of trouble more quickly. Thorough reading and following of the instruction book are important factors in satisfactory operation.

* * *

THOSE BROWN SPOTS THAT HAVE APPEARED ON RUGS in the bathroom, bedroom, or any other places where cosmetics are applied may be due to the new artificial tanning lotions. The National Institute of Rug Cleaners reports that Man Tan, Positan, and Magic Tan, and no doubt similar products which turn the skin a brownish color, will also have a similar effect on wool rugs. Such a spot is difficult to remove, although it can be bleached out, by an expert, with hydrogen peroxide. Unfortunately, this technique will also remove the color along with the stain.

Consumer Bulletin

WASHINGTON, NEW JERSEY

Please enter my order as checked. I am enclosing my check (or money order) for \$_____.

Begin subscription with _____ issue.

NAME _____

STREET _____

CITY & ZONE _____ STATE _____

1-61-S

Please check your preference:

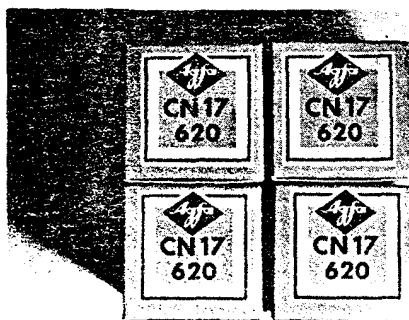
☐ I enclose \$7 (Canada & foreign, \$7.20) for one year's subscription to Consumer Bulletin monthly (12 issues) AND the big 224-page Annual Bulletin, ready in September 1961.

☐ New ☐ Renewal

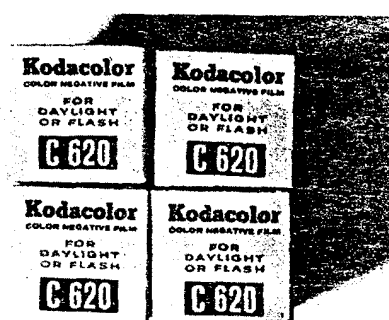
☐ I enclose \$5 (Canada & foreign, \$5.20) for one year's subscription to Consumer Bulletin monthly (12 issues).

☐ New ☐ Renewal

☐ I enclose \$2.50 (Canada & foreign, \$2.75) for a copy of the big Annual Bulletin alone, when it is ready in September 1961.



Negative color film



used for making color prints

WHEREAS the advanced amateur photographer exposes most of his color shots on a type of film which will be turned into a slide or transparency, a great many family snapshots are made on negative film, which affords means for making relatively inexpensive color prints. The advent of *Kodacolor* film some years ago opened the field for color prints for the persons who take most of their pictures on Easter Sunday, Christmas Day, at graduation ceremonies, and on the days of parades, celebrations, and other public events. The availability of film of the *Kodacolor* type has made the color snapshot a popular medium for the family photograph album.

Kodacolor film is a negative film, that is, the developed image appears as a negative, which has dark areas where there were light ones in the scene; the negative is printed by direct-contact or by projection on another sensitized sheet to form the positive print. Slide or transparency films, such as *Kodachrome*, *Ektachrome*, and *Ansochrome*, are positive or reversal films; the developed transparency slide that gives the colored picture is the original film that was exposed to the subject. Such slides must be viewed in an illuminated hand viewer or projected on a screen.

Negative color film has a number of advantages to the photographer. The first, mentioned above, is the presentation of the finished picture in easily viewed print form needing no projector or hand-held viewer. Negative color film has the great advantage of simplicity in use in that the same film is used in daylight and for flash. Flash pictures are taken with the ordinary clear flash bulbs. (In contrast to this, the same slide film cannot be used advantageously for both outdoor pictures and flash pictures unless corrective filters or bulbs are used in making the exposure.) Errors in exposure can be corrected in the printing process. Black-and-white prints as well as color slides in any desired number can be made. Slide films, on the other hand, are not tolerant of errors of exposure, since the finished picture is the original exposed film, and one gets only one picture, a transparency, from one exposure or frame of the film. If you want duplicates of the slide, the best way to obtain these is to take the picture over again

the desired number of times. While color prints can be made from slides, they are more expensive than those made from negatives. However, slides made from negatives are generally not as good as slides that were originally made on positive slide film.

Which type of film to use?

The choice of negative vs. positive color film should be determined by the final use to be made of the film. It is our recommendation that anyone whose primary interest is in color prints should choose negative color film. If the end results are to be color slides for projection, then a positive film such as *Kodachrome*, *Ektachrome*, or *Ansochrome* is the choice. Within the two classifications of color film lies an additional decision: which of the many types or brands of each should be used? Until this year the choice of a negative color film was easy, since the only brand available in the U.S. was *Kodacolor*. Now there is another brand, *Agfacolor*, from Germany. Tests by CR showed that with *Agfacolor* the amateur can obtain satisfactory color prints as well as good black-and-white prints. Black-and-white prints are easier to make from *Agfacolor* negatives since the absence of a built-in color mask (the orange color of *Kodacolor* negatives) permits the use of ordinary black-and-white printing papers (see Figure 1, page 29). *Kodacolor* requires the use of a special (*Panalure*) printing paper which must be handled in almost complete darkness during processing.

A wide range of color films is available for the making of color pictures on slides or transparencies. Kodak makes *Kodachrome*, *Ektachrome*, and *High Speed Ektachrome*. Ansco makes *Ansochrome* and *Super Ansochrome*. All of these are available in special emulsions for particular lighting situations, such as daylight, flash lamps, or flood lamps. It is well to bear in mind that no color film exactly reproduces the original colors in a scene. Therefore, the choice of film for color rendition alone is one that necessarily involves a considerable element of personal taste. Use of *Kodachrome* is a necessity when the picture is intended for first-quality reproduction by printing processes, for

(Continued on page 29)

COMING **IN FUTURE** **BULLETINS**

Record changers

Collaro	Glaser-Steers
Garrard	.Webcor

Mobile homes

**How to choose one, with ratings of
mobile homes of some leading makers**

Children's shoes

Boy Scout	Kali-sten-iks
Buster Brown	Kinney's
Classmate	Little Yankee
Dr. Posner	Poll Parrot
Educator	Pro-tek-tiv
Edwards	Storybook
Fleet-Air	Stride Rite
Flying Aces	Thom McAn

Stainless-steel flatware

Continental	Majestic
Cutlers Guild	Montgomery Ward
Ekco	Oneida
Georg Jensen	Reed & Barton
Gorham	Scientific
International	Sears Roebuck
	Wallace

1961 automobiles

Buick Le Sabre	Ford Falcon
Chevrolet Corvair "700"	Mercury Meteor 600-6
Chrysler Newport	Oldsmobile F-85
Chrysler Valiant	Oldsmobile Dynamic 88
	Pontiac Catalina

Waste (garbage) disposal units

Chambers	National
Frigidaire	Sears Kenmore
General Electric	Westinghouse
Hotpoint	Whirlaway
Kelvinator	Youngstown

Consumer Bulletin

The pioneer consumer magazine, testing and reporting on products since 1928.

Published by Consumers' Research, Inc., Washington, New Jersey.

KE 0008427