

CONSUMERS UNION

FEBRUARY 1938

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1938 AUTOS
Technical Survey
and Ratings of
Models to \$1400

VITAMINS D & A
Uses, Sources, Dosages

OWNING A HOME
The Place & The Plan


LIFE INSURANCE
Renewable Term Policies

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A Complete Index
to Volumes 1 & 2

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**CONSUMERS UNION
OF UNITED STATES**



1938 AUTOMOBILES—See page 3

CONSUMERS UNION

Vol. 3, No. 2

February, 1938

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CU's ratings of products are based on both quality and price. A product rated "Also Acceptable" may be of higher quality than one rated "Best Buy" but the "Best Buy" will normally give greater return per dollar. In most cases a product rated "Not Acceptable" is judged not worth buying at any price, because of inferior quality or because it is potentially harmful. Products rated "Not Acceptable" for more specific reasons are so noted.

Diet on \$1.25 (per Week)

LAST November the readers of *Collier's* were shocked—we trust—to read in an article by Walter Davenport entitled "All Work and No Pay," that workers in some southern textile mills had received no cash wages for months and even years. All of their weekly earnings, Mr. Davenport pointed out, were taken up by debts at the company stores, rent for company houses, and a multiplicity of fees for company doctors, company-arranged "benefits," and other items.

Entirely apart from this virtual peonage, wages and working conditions generally as presented in the Davenport article seemed to reflect almost rock-bottom in employer-employee relations.

Most shocked of all were the mill owners and Mr. E. Howard Bennett, editor of the trade publication, *American Wool and Cotton Reporter*. Mr. T. M. Marchant, president of Victor Monaghan Company, whose \$0.00 pay ticket for one employee was reproduced in *Collier's*, promptly telephoned Senator Byrnes and two South Carolina Congressmen, provided the local newspapers with suitable statements for news stories and editorials, and then sat down to worry over the harm that the *Collier's* article would do in the eastern, northern, and western sections of the United States. He felt that with the help of "strong editorials" in the southern papers "Davenport cannot keep the people fooled down here."

Of the \$0.00 pay ticket, Mr. Marchant wrote to Senator Byrnes: "The ticket in question certainly shows that the operative used his money for provisions and did not throw it away, like some people we know." Besides, Mr. Marchant noted with pride, this worker got \$9.57 in cash for one week's work later on.

Mr. Bennett was no less vigorous in his defence of wage scales and company towns in the southern mills. Objecting to Davenport's picture of the drab company houses, he pointed out cheerfully that "a very large proportion of them have up-to-date toilet facilities," meaning bathtubs and lavatories. His conclusion was, in part, that Davenport's article was "unfair," "dishonest," and "dirty."

Was Davenport fooling? There is no doubt about the company stores and the pay deductions—photostats don't lie. As for wage levels in general, one interesting answer is found in the Southern Industrial Progress edition of Mr. Bennett's own magazine, issued last December 30.

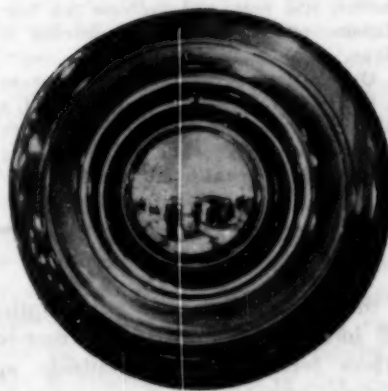
In a special article, Governor Olin D. Johnston of South Carolina says: "I don't believe that anywhere else in the world greater general content could be found among any one class of workers than we find among our more than 85,000 textile employees." The governor's own statistics show that these 85,000 happy textile workers earn an average of \$12.33 a week.

It would seem fair to conclude that, if \$12.33 is the average, many thousands of these textile workers would be able to spend no more than \$1.25 weekly on food for each person in the family; and for large families, the figure would be even less. A recent survey by the U. S. Bureau of Home Economics shows that each member of a typical southern workingman's family in this income group enjoys a weekly diet consisting of 1½ pints of milk, 1½ ounces of butter, ½ pound of tomatoes and citrus fruits, 1 pound of other fruits, 1½ pounds of potatoes and 2½ pounds of other vegetables. Apparently the amount of meat consumed was too small to be mentioned.

Governor, quit your fooling!

AUTOMOBILES

**A technical survey of the industry and complete
descriptive ratings of 39 new models up to \$1400**



THE automobile industry, as 1938 gets under way, is distinguished on three very special counts.

One, its dealers are burdened with the greatest stock of used cars they have had on their hands in years (estimated to be around 800,000).

Two, the new models, by and large, are only refinements of last year's models, with basic changes few and far between.

Three, prices on the 1938 models run about 10 per cent over last year's.

The three factors together, in conjunction with the business "recession," explain why automobile sales have slid off badly—or rather, have simply failed to respond to the stimulus usually provided by new model introductions.

And the bad state of sales explains why there's so much talk in and around the industry of price reductions to come; why the manufacturers are planning and worrying over promotional campaigns to push used cars out of the way; why Hudson picked last month to jump into the field with a new model priced \$100 under its erstwhile price-leader, the *Hudson Terraplane*.

There may be more new low-priced offerings in the offing; several have existed on manufacturers' drawing boards for some time. More likely, in view of retooling and production expenses that attend the birth of a new car, the manufacturers will eventually get around to price reductions on existing models as the way out.

They won't if they can avoid it. But prospective car buyers should keep the possibility in mind—and urge its realization on car salesmen who call on them.

Meantime, and so long as prices are up, "do not overbuy" remains a particularly pertinent piece of advice.

Overbuying means buying a 4-door car when a 2-door will do, as it will unless you drive most of the time with rear-seat passengers (for a family with small children a 2-door may be even better, because safer, than a 4-door).

Overbuying means buying an expensive model when a cheaper one has the same space inside; buying a large 8 instead of a 6 when you do most of your driving below 50 m.p.h. and most of it in stop-and-go service.

Most of all, overbuying means buying power and speed which you will seldom use and which will cost you money whether used or not. A thoughtful answer to the question, "What do I need in an automobile?" can save money as well as a careful answer to the question, "What am I getting?"

THIS report obviously cannot deal with the possible prestige value of an automobile—of a *Buick* as compared to a *Plymouth*, for instance—or with the precise appeal to individual buyers of special items of trim, upholstery and equipment, or with the desire everyone has for a car that is thrilling to drive and first away from the lights.

But this report can strongly urge that you fit the car you buy to the work it will have to do, and to your own driving habits. If you can get along without automatic devices and shifting aids, do so. Do not spend money for an overdrive if you seldom tour or drive between cities. If you live in hilly country, a *Chevrolet Master De Luxe* with standard rear-axle ratio may be the thing; on the prairies a *Ford 85 HP Standard* with a 3.55 axle might

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well be a more suitable vehicle.

Try to see the car you are tempted to buy as *old*—with its present good looks outmoded—as you can be sure they will be—with its lovely chromium strips corroded, with mechanical trouble looming near and the necessity for changing tires at hand.

Can you get a jack under the car? Can you replace the tail-lamp bulb yourself? Can you (or anyone else) clean the fuel-pump filter without taking the car apart? What will happen to the headlights if you bump somebody? Can the anti-freeze be conveniently drained if you wish to save it?

Advertised mechanical features are practically worthless as a guide to selection of a car; the true reasons for including them are rarely such that the manufacturer can explain them non-technically. Slogans and claims of past accomplishment ("Hupp has always built a good car") are no guarantee against present mistakes. Corrections of last year's mistakes are treated as 1938's magnificent accomplishments.

Comparative depreciation figures on last year's models are of some help in pointing out what cars to avoid buying. But the eventual resale price of current models will be affected by their public acceptance, the factory-price policy during the next year or two, the 1939 offerings, and other factors at present unforeseen, as well as by the intrinsic value of the cars themselves and the care given them. Popularity and resale value of different makes of cars vary considerably from place to place. The National Used Car Market Report, Inc., of Chicago, and the National Automobile Dealers Association, of Detroit, compile figures on average depreciation, which most dealers can provide. Buyers should find the figures for their own particular region helpful.

The treatment of whatever car you buy is, of course, a major factor in determining a good resale value as well as low maintenance costs. Racing the engine and riding-in the clutch pedal will wear the clutch facings out in a few thousand miles; lack of lubrication means a bill for chassis bearing replacement, particularly on knee-action cars. Ordinary "gear dope" in a hypoid axle (60-per cent of the 1938 cars are hypoid-equipped) is fatal. You can race a cold engine the first winter and nothing may happen; but

Wanted: Data from Car Owners

CU will appreciate comments from members on their experiences with the cars listed in this report as well as with other recent models. Particularly valuable will be detailed information on service life and on repairs necessary to such items as hypoid rear axles, overdrives, brake linings, clutch facings, carbon cleaning, valve grinding. Please give mileages at which repairs were needed, cost of the repairs, and other pertinent information.

Fuel and oil consumption records are similarly of value, and likewise should be as complete as possible. In all cases be sure to identify your car by make, model, and year, and indicate the conditions under which your driving is done.

Owner reports will be used, not as a basis for ratings, but to add to CU's files of service experience, thus to give us a better background for evaluating the design features of future new models.

by the second winter, oil consumption will increase with attendant excessive carbon formation. With outside appearance increasing as a sales asset for used cars, care of the finish by washing and polishing is well repaid.

Economy

ECONOMY over a period of years involves more than good gasoline mileage. First cost, depreciation, repairs, and operating cost must all be low. A powerful car with high "performance" cannot be operated cheaply, nor can any car be operated cheaply at high speed. The consumption of gasoline and oil at speeds above 35 m.p.h. increases out of all proportion to the extra miles covered per hour.

The durability of modern cars, by which is usually meant the amount of service rendered per dollar of first cost plus repairs, is often—and rightly—called into question. Part of the cost of any car is diverted from materials which would add to the car's life into features which add only to its sales appeal. The fact remains that the less performance a car is called upon to deliver—the less high-speed driving, fast hill-climbing, and rapid acceleration—the longer it will last. Maximum economy calls for minimum use of maximum power.

Cars do not run long with the efficiency they were designed for; they get out of tune—like pianos, but much more rapidly. Periodical adjustment is necessary more often than would be the case if the engine accessories—carburetor, automatic choke, fuel pump, ignition unit, etc.—were more durably built. And adjustment would be cheaper if accessibility were improved. It is not improved for two main reasons: (1) the chassis and engine are laid out primarily for efficient and simple production, not for service in Gus's alley garage; (2) the chassis, once fabricated, is shrouded in sheet metal to create "eye appeal," which has been found more impressive to the buyer than, for instance, an easily replaceable clutch.

Adjustment can be minimized, durability conserved, and operating economy increased by calling on the engine for less power, on the one hand, or, on the other, by enabling it to produce the needed power at a lower engine speed or with greater efficiency or both. Less power involves the use of throttle stops, or special economy equipment. The second method involves the use of overdrives or of some form of low numerical reduction in the rear axle. Either method saves gasoline and decreases engine wear. Overdrives, optional axle ratios, and 4-speed transmissions are dealt with below, under "Transmissions."

A throttle stop (which any mechanic can make up and install if the factory cannot furnish one) simply limits the opening of the throttle. When set so that the car's maximum speed is between 50 and 60 m.p.h., such a stop will increase gas mileage and tire life, cut down maintenance operations on the engine, tend to obviate rear-axle trouble, and may in some instances decrease the severity of accidents. It cuts down the speed on hills and the acceleration at traffic lights; it may be inadvisable in very hilly country and should not be used by drivers unaccustomed to it. But it saves money. (Third-grade gas can be used as a sort of automatic throttle stop if the throttle is opened only to the point where knocking is heard.)

Economy units limit the power output of the engine by cutting down the carburetor size, by using a smaller manifold, and (on *Plymouth*) by using a numerically lower rear-axle ratio.

Economy units can be ordered on *Plymouth* and *Chevrolet*. The engines of *Ford* 60 HP and *Willys*, being less powerful to begin with, do not require this treatment. These four cars together make up an Economy Group, which is rated separately.

So-called "midget cars"—the American *Bantam*, the imported British *Austin* (by far the best of the three), and the Italian *Fiat*—are "Not Acceptable" as economy cars, despite their very high gasoline mileage. First cost, particularly for the imported cars, is high; service life is likely to be comparatively short—*Bantam* engines, for instance, revolve 4,700 times per mile; resale value is highly problematical, and service and parts supplies are not readily available.

Transmissions

WITH engines brought close to the present limits of development, the engineers have focused their attention this year on transmissions and the mechanics of shifting. Efforts are being made to clear the front compartment of the gearshift lever, or "wobble-stick," partly to prepare the public for semi-automatic speed-changing units such as that introduced on *Oldsmobile* and the *Buick Special 40*.

This new transmission, manufactured in a new \$5,000,000 plant at Buick, has four forward "speeds" or ratios. Such an investment in a 4-speed transmission, in connection with the continued use of overdrives by other manufacturers, prompts an account of what is accomplished by a fourth ratio, however attained.

In the ordinary high gear, most engines revolve about 3,000 times for each mile the car travels; or 3,000 revolutions per minute at a speed of 60 miles per hour. (Exact revolutions per mile for each car, and the number of feet of piston travel, are given in the Statistical Table.) Such high revolution is particularly hard on the valves and their seats; high total piston travel is hard on cylinder walls, pistons, and piston rings.

But the 3,000 revolutions are reduced to between 2,200 and 2,700 revolutions when an overdrive or fourth ratio is in use; and the distance covered by the pistons in the cylinders is proportionately lessened. The saving in wear above 40 miles per hour is obvious. At the

lower engine speed, far less oil is burned, noise inside the car is greatly reduced, and there is less vibration. Gasoline mileage is boosted by as much as 20 per cent, because the engine produces the needed power more efficiently at the lower revolving-speed.

These advantages are offset at low speeds by poor hill-climbing and poorer acceleration than most drivers are accustomed to. Hence it is necessary that the driver be able to return quickly from overdrive or fourth ratio to third. The high cost of either overdrive or the *Olds-Buick* transmission is due partly to this shifting requirement.

With overdrive, the car returns to normal high gear upon momentary release of the accelerator after slowing down to between 30 and 35 m.p.h. (the overdrive engages when the throttle is momentarily released at 40 m.p.h. or above). The *Olds-Buick* unit engages the fourth ratio at 23 m.p.h. normally (but not until a much higher speed if the accelerator is held down) and returns to the third or accelerating gear whenever the throttle is opened considerably for hill-climbing or acceleration; it returns to third in any case when the car speed drops to 16 m.p.h.

This semi-automatic unit costs \$100 extra on either the *Oldsmobile* 6 or 8, \$102.25 on the *Buick Special Series 40*. (Top price for overdrives is \$50.) It is very complicated, apparently very carefully made, but has not been in users' hands long enough to allow us to predict what service troubles may arise.

The Columbia 2-speed axle is again available for installation on the *Lincoln Zephyr*. It provides two rear-axle ratios, the shift from one to the other being executed by engine vacuum whenever desired. The price is approximately \$80 installed. A similar unit can be installed in the *Ford*, but the possible savings are much less.

Simple aids to shifting—involving no change in the transmission—were described in the December issue of the *Reports*. On all *Cadillac* and *LaSalle* cars the shift lever is mounted under the steering wheel as standard equipment; it occupies the same position on *Pontiac*, at \$10 extra. Evans vacuum shift (engine vacuum supplying most of the force required for the shift) is available on *Studebaker*, *Graham*, and *Nash* at an average cost of \$30. Its chief merit is that it leaves the front compartment floor clear.

On *Studebaker*, *Graham*, and *Nash*, using the Evans vacuum shift, the motion of the lever is standard but shorter than with a conventional lever, although it involves the use of numerous extra parts. On the first two, mechanical linkages permit shifting when the engine is not running; on *Nash*, the hood must be raised to make the shift in such a case—as, for instance, when the battery is low and the engine must be started by pushing the car in high gear. On the *Lincoln Zephyr*, the floor is cleared of a shift lever and the knob of the latter is brought close to the steering wheel by employing a bent lever the greater part of which is hidden in the housing for heater and radio.

Shifting with the Electric Hand, an option on cars built by Hudson (except the new *Hudson 112*), involves a very short and easy motion of a finger lever; the motions are conventional as to direction and are guided by an H-shaped gate as heretofore. The use of the Bendix clutch control with the Electric Hand or of the free wheeling used with overdrives, nearly eliminates foot operation of the clutch.

All of the shifting devices referred to result in clearing the front-compartment floor, but those used on *Oldsmobile*, *Buick*, *Cadillac*, *LaSalle*, and *Pontiac* incorporate a somewhat unconventional motion of the shifting lever and do involve something new for a driver to learn.

On *Olds* and *Buick*, the motion of the shift lever is entirely parallel to the plane of the steering wheel. On *Cadillac*, *LaSalle*, and *Pontiac* some motions are parallel to the plane of the wheel and some (corresponding to the cross motion of a conventional lever) are up and down.

Some drivers may readily learn these changes in shifting; others may be confused by them, especially in emergency shifting. This leaves the term "safety shift," applied to certain of these new arrangements, open to some question, but safety is promoted by the easily reached and unobstructed levers.

Only by the use of overdrives or by the introduction of a fourth speed, however, is there any material effect on fuel economy, engine speed, noise, or vibration. The effect is, of course, obtained only at speeds at which the overdrive or cruising gear is in use. Any saving is roughly proportional to the

amount of open-road driving done, and not to the total mileage. Moreover, since engine condition is less important than appearance in determining a trade-in allowance, saving in engine wear is of greatest value to the owner who plans to keep his car several years or drive it more than 30,000 miles.

Safety

MINOR changes to increase safety have been made in many 1938 cars. The word is constantly used in advertising and in sales presentations; it is worth while, therefore, to see in what respects safety is present and in what respects lacking.

The most important safety requirement is that the driver be able to see at all times as many as possible of the obstacles, stationary and moving, that he must avoid. And that goal has by no means been reached.

Windshields on all Chrysler-built cars and some others have been increased in area for 1938, helping vision upward, and usually downward, but corner posts in general, and the fillets where post and roof join, are as bad as ever, and particularly dangerous for tall drivers. The blind area they create is sometimes six inches in width at little more than a foot from the eye, blanking out forty or fifty feet of space a hundred feet or so from the car.

Vision to the rear has been improved on a few 1938 cars, but the blind corner to the left rear is as bad as ever, requiring use of a hinge mirror. Hoods, though lower, are longer, making the right side of the path of travel impossible to see within thirty feet or so of the front of the car—in fact, the driver is called upon to maneuver his car in close quarters without being able to see any point whatever on its boundary.

Cars having vision better or worse than average are identified in the ratings below, but in no car are requirements for really safe vision being met.

Steering has been made more rapid on a few cars, notably *Plymouth* and *Hudson Terraplane*. Too much turning of the steering wheel is in general required to produce results; quicker maneuverability at low-to-moderate speeds or in skids is desirable.

A more important requirement is that the steering should have "road sense"—that is, the driver should be

Glossary of Statistical Terms

Overall Length: Bears little relation to room inside; cars of differing lengths often use the same body shell. Overall length is determined by the art department as well as by the engine size and type and the wheelbase. The shorter the car the easier it is to park. But cars which have roomy bodies together with a small overall length often gain this effect by moving the engine forward to a degree which affects roadability. Compare Nash Lafayette and Ambassador 8, which have the same room inside.

Maximum Advertised Horsepower: Available only at the high car speeds noted in the table. It bears little relation to the usable power at driving speeds—which, for the cars under discussion, averages about 70 HP at 40 miles per hour. High maximum horsepower usually makes possible a higher top speed, but it always increases the expense of ownership, whether it is used or not. Compare the usability of Ford and Chevrolet horsepower.

Gas-Consumption Factor: The number of cubic inches swept through by the pistons while the car moves (in top gear or overdrive) one foot. Though many other factors influence gasoline mileage, better mileage may generally be expected from the car with a low gas-consumption factor. Note the effect of overdrives or 4th ratios, equivalent to a saving of about 3 miles per gallon.

Brake Loading: The number of pounds of loaded car (shipping weight plus 300 lbs.) that each square inch of brake lining is required to control. Brakes are of differing designs and use linings with different coefficients of friction, so the comparison is a rough one. Further, a low figure is desirable for long brake-lining service life.

Piston Travel: The number of feet each piston travels (in high gear or overdrive) while the car goes one mile. The lower this figure, the less the cylinder walls, pistons and piston rings will wear (this wear is affected, too, by such design features as the hardness of the metal used for the cylinder block).

Crankshaft Revolutions per Mile: In high gear or overdrive. Less important than piston travel where general wear is concerned. But the fewer revolutions there are per mile the quieter the car will be and the freer from vibration at normal speeds; also the longer the valves and valve-seats will stand up.

Compression Ratio: Important to the buyer mainly for the reason that it limits the grade of gasoline the engine can use. A low compression rating will permit the use of lower-grade gasoline; all cars in this list can be used with regular-grade gasoline but knocking may be expected on most models after carbon accumulates in the motor.

able to feel through the steering wheel any tendency of the car to change its course. He should not have to pull unduly against the wheel to maintain the car's course on curves; and when coming out of a curve there should be enough restoring force to assist him in turning the front wheels to the straight-ahead position. This is a requirement for comfort as well as for safety.

Brakes need to do more than simply stop the wheels. The amount of braking should be controllable by the driver and in proportion to the pressure of his foot on the brake pedal. Some brakes tend to "grab" when the pedal is touched lightly, because the movement of the car aids in forcing the shoes against the drums. On slippery surfaces this can easily throw the car into a skid or slide the front wheels, in which case the car cannot be steered.

The brakes used on *Chrysler* lines, *Graham*, and *Studebaker* do not have these characteristics; other brakes may or may not have them to an objectionable degree.

The fore-and-aft location of the car's center of gravity is important chiefly at high speeds, and when traction is poor. Regardless of where the engine (the chief factor in fore-and-aft balance) is located, most cars are safe enough at ordinary speeds.

Opinions differ as to the best location of the center of gravity, but CU maintains that it should be fairly well to the rear for good traction and good control on curves and on loose road surfaces. Cars that depart widely from this standard are indicated in the ratings. If the engine is heavy and located too far forward, it may make the car "nose-heavy" and hard to control on

Statistical Comparison of 1938 Automobiles

Figures preceded by "4th" apply in fourth ratio, when car is equipped with Olds-Buick semi-automatic transmission. Figures preceded by "OD" apply in the case of the overdrive-equipped car when overdrive is in use. For explanation of terms used in this table, see glossary on facing page.

MAKE AND MODEL	OVERALL LENGTH INCHES	SHIPPING WEIGHT POUNDS	TAX-ABLE HP	ADV. HP. AND SPEED (MPH) AT WHICH REACHED	COMPRESSION RATIO (TO 1)	REV. PER MILE	PISTON TRAVEL PER MI.	GAS CON-SUMPTION FACTOR	BRAKE LOAD-ING, POUNDS PER SQ. IN.
Bantam 60	129	1200	7.75	19 @ 51	7.90	4700	2350	20	21.1
Buick 40	200	3560	30.63	107 @ 64	6.15	3190	2195	75	24.3
				4th 107 @ 79		2570	1770	61	
Buick 60	204	3780	37.81	141 @ 75.5	6.35	2859	1980	87	22.5
Buick 80	213	4245	37.81	141 @ 74	6.35	2922	2020	89	25
Buick 90	220	4730 ¹	37.81	141 @ 70	6.35	3076	2130	93	23.4
Cadillac 60	208	3845	39.20	135 @ 74.5	6.25	2740	2055	90	18.8
Chevrolet Master	187	2845	29.40	85 @ 69	6.25	2777	1735	57	19.9
Chevrolet De Luxe	187	2935	29.40	85 @ 61.5	6.25	3131	1960	64	20.4
Chrysler Royal	199	3180	27.34	95 @ 72	6.20	2993	2240	68	23.2
				OD 95 @ 95		2280	1710	52	
Chrysler Imperial	206	3565	33.80	110 @ 72	6.20	2835	2125	80	22.4
				OD 110 @ 90.5		2250	1690	64	
Chrysler Custom Imperial	224	4522	33.80	130 @ 66	6.50	3103	2520	95	21.3
				OD 130 @ 93.5		2180	1770	67	
De Soto	199	3134	27.34	93 @ 71	6.50	3042	2155	66	22.8
				OD 93 @ 98		2200	1560	48	
Dodge	197	2977	25.35	87 @ 71	6.50	3042	2220	63	21.8
Ford 60 HP	180	2579	21.63	60 @ 74	6.60	3415	1820	44	17.1
Ford Standard 85 HP	180	2800	30	85 @ 81.5	6.12	2805	1755	59	18.3
Ford De Luxe 85 HP	184	2876	30	85 @ 81.5	6.12	2805	1755	59	18.7
Graham Special	197	3400	25.35	90 @ 68	6.70	3168	2310	65	24.8
				OD 90 @ 90.5		2290	1640	47	
Graham Supercharger	197	3450	25.35	116 @ 77.5	6.70	3096	2260	64	25.3
				OD 116 @ 110		2190	1600	45	
Hudson 112	188	2668	21.6	83 @ 76	6.50	3170	2180	52	20
Hudson Terraplane De Luxe	193	2885	21.6	96 @ 77	6.25	3050	2540	61	20.6
Hudson Super Terraplane	193	2925	21.6	101 @ 78.5	6.25	3050	2540	61	20.8
Hudson 6	198	3005	21.6	101 @ 78.5	6.25	3050	2540	61	21.4
Hudson De Luxe 8	198	3155	28.80	122 @ 84.5	6.25	2980	2235	72	20.6
Hudson Country Club 8	205	3270	28.80	122 @ 84.5	6.25	2980	2235	72	21.3
Hupmobile 6	204	3370	29.42	101 @ 65	5.75	3314	2350	77	22.1
				OD 101 @ 90		2390	1765	58	
Hupmobile 8	206	3955	32.51	120 @ 65.5	5.80	3292	2605	94	21.2
				OD 120 @ 93		2320	1840	67	
La Salle V-8	201	3830	36.45	125 @ 74.5	6.25	2740	2055	84	18.8
Lincoln Zephyr	210	3444	36.30	110 @ 73.5	6.70	3104	1940	79	22.3
Nash Lafayette	183	3200	27.34	95 @ 66	5.83	3092	2255	69	21.0
				OD 95 @ 93		2190	1595	49	
Nash Ambassador 6	201	3460	27.34	105 @ 67	6.00	3055	2230	68	21.4
				OD 105 @ 94.5		2160	1580	48	
Nash Ambassador 8	205	3790	31.25	115 @ 70	6.00	2923	2070	72	19.0
				OD 115 @ 99		2060	1460	51	
Oldsmobile 6	190	3285	28.40	95 @ 64.5	6.10	3168	2180	69	24.2
				4th 95 @ 74.5		2740	1885	60	
Oldsmobile 8	198	3490	33.80	110 @ 67	6.20	3229	2080	79	23.4
				4th 110 @ 82		2640	1710	64	
Packard 6	197	3525	29.40	100 @ 65.5	6.52	3292	2330	76	22.8
Packard 8 (1601)	200	3650	33.80	120 @ 75	6.60	3048	2160	82	21.7
Plymouth Business	194	2774	23.44	82 @ 72	6.70	2999	2185	57	22.2
Plymouth Business ²	194	2774	23.44	65 @ 62.5	6.70	2870	2090	55	22.2
Plymouth De Luxe	194	2834	23.44	82 @ 71	6.70	3042	2220	58	22.6
Pontiac 6	192	3285	28.3	85 @ 65	6.20	3243	2160	68	22.3
Pontiac 8	197	3420	33.8	100 @ 70	6.20	3168	1980	75	23.0
Studebaker 6, 7A, 8A	193	3215	26.35	90 @ 60.5	6.00	3376	2460	72	23.4
				OD 90 @ 83.5		2440	1780	52	
Studebaker President 8	199	3475	30	110 @ 65.5	6.00	3299	2340	78	22.8
				OD 110 @ 90.5		2380	1680	57	
Willys 38	178	2300	15.63	48 @ 58	5.70	3307	2410	42	19.4

¹ With 6-wheel equipment. ² With economy equipment.

curves—especially so at high speeds.

Sway, the sidewise roll of the body of the car on corners, and lurching on rough or rutted roads are undesirable characteristics for both safety and comfort. Easy-riding cars are apt to sway too much. We feel that some sacrifice of riding comfort is worth while in the interests of safety and good roadability, and specific comment on this point accompanies nearly all ratings. In general, the 1938 cars offend less in this respect than their predecessors.

In sudden stops, or when the car leaves the road or overturns, the value of "safety interiors" becomes real. Nearly all cars have made some improvement in this direction, by padding seat edges, eliminating projections on instrument panels and doors, or designing instrument panels high enough or slanted enough to prevent knee injuries when passengers are thrown against them.

It is not usually necessary to buy a "de luxe" flexible spoke steering wheel to insure the driver against being wounded by the spokes in a crash; most wheels will bend, not break. With the exception of *Buick Series 80 and 90*, bodies on 1938 cars listed below are all steel.

Even steel bodies and safety interiors can do little to prevent injury and death from sudden impacts in travel at high speeds. Above 60 m.p.h., even the most expert driver has a very narrow margin of control which a slight incident or a second's inattention can destroy. This control is exercised through four areas the size of a man's hand—where (and when) the tires grip the road. Their grip decreases as speed increases; so does their power to direct the course of the car.

High speed makes for hazards on the one hand and high expense for gasoline, oil, and wear and tear on the other. The high power necessary for high speed is, in addition, wasteful, whether it is used or not. Thus are the questions of safety, economy, and overbuying linked together.

Comfort

PURCHASE of an automobile is to a large extent an investment in comfort, to which many factors contribute. Riding qualities vary pretty largely with the price paid, and so does the

quality of upholstery springs and fabrics. In terms of their riding qualities, cars are rated according to the following scale: Poor, Fair, Good, Very Good, and Excellent.

Better riding is usually obtained from cars with independent front-wheel suspension, or knee action, but such suspensions are somewhat more expensive to maintain, adjust, and repair. When conventional leaf-type front springs are made to approach knee-action springs in flexibility, CU maintains that in the interest of safety the springs should not be called upon to hold the axle in position against braking and steering strains. But, as in 1937, only *Hudson, Lincoln Zephyr*, and *Ford* use springs of the conventional leaf type with positioning members comparable to those used with knee action.

Next to riding qualities, interior room is probably most important to comfort. But rear compartment leg room greater than the necessary minimum is now difficult to obtain. The height of seats should be from fourteen to fifteen inches for a comfortable all-day drive, but in order to give headroom, many 1938 models have seats which are lower than this figure, and lower than they were last year. Seat widths and heights are reported on in the ratings when they vary appreciably from average.

Large trunk capacity is used as a sales asset, and has been stepped up for 1938; trunks are less often charged for as extras. When they are, "plain-back" sedans are a wise investment. Most of them have all the luggage capacity the rear springs can stand.

THE price not in brackets in the ratings below is for the lowest-priced 4-door sedan; the price in brackets is for the lowest-priced 2-door sedan. The 2-door sedans, in general, have the same interior seating capacity as the 4-door models. Note that a few models still use bucket-type front seats.

Delivered price at the point of manufacture is given, and delivered price in New York City (exclusive of city sales tax). The factory-delivered price, which determines the groupings, is the advertised base; the New York City price is given to show a repre-

For safety as well as for comfort, the position of the steering wheel should be adjustable so that the smallest driver in the family does not have to peer through it. Not all cars have this feature. Seats which rise as they move forward are nearly universal for 1938, aiding short drivers somewhat. The effective height of doors, and the position and size of sedan rear-quarter windows, are often restricted unduly by styling efforts.

Large factors in determining comfort, or fatigue in sustained driving at touring speeds, are the noise and vibration inside the car. Quietness—the "noise level"—varies greatly in different cars, and extremes are mentioned in the rating below. Noise and vibration are always decreased when the crankshaft revolutions per mile are lowered by overdrive or fourth ratio. Thorough sound insulation and careful balancing of moving parts are especially important in reducing noise and vibration.

Ventilation is a factor in passenger comfort at present largely uncontrolled, despite increased use of ventilating panes on 1938 cars and the featuring by *Nash and Hupmobile* of "conditioned air." The latter is essentially a system for forcing outside air into the car through an oversized heater so that air leaks out of the car rather than in.

The tendency of the windshield to steam and to become covered with sleet in adverse weather is being met on 1938 cars by larger defroster slots at the base of windshields and blowers to force warm air from the heater through them in larger quantities.

Prices and Models

sentative markup covering freight, handling, etc. Freight, and hence the total price paid, varies according to the distance the car is shipped and according to the weight of the car.

Whenever possible, price of the model with the available minimum of equipment and without trunk is given. The model without trunk, when obtainable, costs from \$11 to \$26 less than the trunk model.

All cars noted as having hypoid rear-axle gears require special lubricants, which must be used strictly according to makers' instructions.

Economy Group

The cars in this group have a maximum of about 60 HP, and consequently offer less speed, acceleration, and hill-climbing ability than other cars. As a group, these cars should average at least 20 miles per gallon except in city driving, and for other expenses will cost much less per mile to operate than more powerful cars. They may not be advisable for use in very hilly districts.

"Economy-equipped" Plymouth and Chevrolet cars must be ordered from the factory, they are not stocked

by dealers, and are often obtained only over the dealer's objections.

Drivers who travel habitually through flat country at high speed and who wish to obtain the best mileage possible under high-speed conditions may be better suited by Ford 85 HP Standard with optional 3.54 rear-axle ratio than by any of the cars here. Or they may endeavor to obtain either the Business or De Luxe Plymouth with the 3.78 axle-ratio used in the economy-equipped models.

Best Buy

Plymouth Business Model P-5 with Economy Equipment. Del'd Detroit, \$730 [\$685]; del'd NYC, \$767 [\$722]. No trunk model.

The economy equipment, a special accessory group for which a charge of \$2.50 is made, consists of a smaller carburetor and manifold which decrease power at the higher speeds, and a lower numerical rear-axle ratio which cuts down engine speed and piston travel thus decreasing wear (see the statistical table). Gasoline mileage will be about 15 per cent better than with the regular Business model; acceleration and speed will be reduced. Because this is a standard-size engine with horsepower and other working stresses reduced below the standard level, service life should be long. See rating of the Plymouth Business model below for other characteristics of this car.

Also Acceptable

(In estimated order of merit)

Willys Standard. Del'd Toledo, Ohio, \$589.03; del'd NYC, \$629.03. No 2-door sedan. Black only.

The Willys Standard model sells for \$70 less than the next-cheapest car (the Ford 60 HP 2-door). The engine is the least modern in design of any in this group, but it will give faithful service for a reasonable time if operated at moderate speeds. Open-

road mileage approaches 25 per gallon. Engine and car are simple and easy to work on, a considerable factor in keeping costs down. Adequate service facilities and stocks of replacement parts, sheet metal, etc. are not so readily available as they are for other low-priced cars. Riding qualities, fair; interior quietness, poorer than average.

The Willys has low seats of less than average width, and highly crowned floors, and some people may find the driving position less comfortable than on larger cars. The car handles very well at moderate speeds. Vision (corner posts excepted) is better than average.

The Willys is also made in a de luxe sedan (\$641.10, del'd Toledo) with bodies in color and with better trim and equipment, as well as in a custom sedan at a still higher price with more, and mostly needless accessories. The latter model need not be considered by the buyer in search of economy. The Willys does not use hypoid gears.

Ford V-8 60 HP. Del'd Dearborn, Mich., \$707 [\$661]; del'd NYC, \$748 [\$702].

Last year's model is continued practically unchanged except for new sheet metal and instrument panel. Trunks are now standard equipment. An increased price, relative to the Ford 85 HP and other cars, makes the Ford 60 HP not so good a buy as it was last year.

A larger clutch and heavier transmission

were added during 1937. Riding qualities are fair. Interior quietness is poor. Steering is particularly easy but involves much turning; handling is very good. The 60-HP engine has given a good account of itself since its introduction.

Accessibility is better than on the 85 HP for ignition distributor and water pumps, but the Ford's general accessibility for repair or adjustment compares unfavorably with that of other cars, and there is no doubt that more frequent adjustment is required. When kept in proper tune, the Ford 60 HP will deliver mileage close to 25 per gallon at moderate open-road speeds, but the notes below on Ford 85 HP characteristics apply to the Ford 60 HP also. Does not use hypoid gears.

Chevrolet Master with Economy Equipment. Del'd Flint, Mich., \$730 [\$668]; del'd NYC, \$768.75 [\$706.75]. Trunk extra.

Economy equipment consists of a smaller carburetor and manifold, with other devices to increase thermal efficiency. With this equipment, gasoline mileage will be increased, service life will be longer, and maximum speed and acceleration will be reduced. The 2-door sedan has bucket-type seats, is priced only \$7 above the Ford 60 HP 2-door. Unless \$21 is spent for a trunk, Chevrolet sedans carry the spare tire exposed on the rear, with luggage space accessible only by pulling up the rear-seat back. See Chevrolet Master rating.

From \$730 to \$803

Approximately 50 per cent of the cars sold are from this group. It takes in four makes, each of about 85 HP, three

of them offered in standard and de luxe models. Transportation values predominate over considerations of luxury.

Best Buy

Plymouth Business Model P-5. Del'd Detroit, \$730 [\$685]; del'd NYC, \$767 [\$722]. No trunk model.

The 2-door sedan has bucket-type seats; both sedans have average seating space and seats higher than average. Vision, with the exception of corner posts, is very good. Accelerating ability is less than that of other cars of the low-priced group except Hudson 112; gasoline mileage is equal or slightly superior. Steering requires less turning (i.e., is "faster") than on competing cars. Road-ability rates as average. Shock absorbers give

better control than on Ford or Chevrolet. In riding qualities this model is inferior to the de luxe models of all three major low-priced cars, but superior to Ford Standard or Chevrolet Master. Uses hypoid gears.

Chief mechanical criticism of this car centers on its need for more rigid support of the front axle against steering and braking strains. The complaint is more urgent here than with the Chevrolet Master because this car uses a kick shackle. It is less urgent than with the Plymouth De Luxe because the Business model springs are stiffer.

Accessibility for repair or adjustment is superior to that of Ford, not quite so good as Chevrolet's, except that carbon cleaning

(needed more often than valve grinding) is easier on the Plymouth L-head engine.

Also Acceptable

(In estimated order of merit)

Ford V-8 85 HP Standard. Del'd Dearborn, \$733 [\$687]; del'd NYC, \$774 [\$728]. Trunk included.

As heretofore, this model has the same chassis as the De Luxe Ford. It weighs some 40 pounds more than it did last year, and 75 pounds less than the 1938 De Luxe. Seating space of both models is the same, riding qualities approximately the same.

Trim and upholstery are inferior to the De Luxe.

Vision is better than the group average. Brakes have been improved over early 1937, but still furnish an amount of "wrap" or "grab" or self-energization which CU believes to be objectionable. On the other hand, the "wishbone" holding the front axle rigidly in position is advantageous. Does not use hypoid gears.

Chief troubles with the *Ford* arise not from any main feature of design so much as from the engine "accessories"—ignition distributor, carburetor, etc.—and from such chassis features as shock absorbers and king-pin bushings. Regarding these items and the cost of maintaining them in proper condition, CU has received an amount of adverse criticism from owners which cannot be discounted. Regular attention, by experts, is important for continued efficient *Ford* performance.

The *Ford* engine-and-parts-exchange plan, excellent in principle, does not always act to lessen expense. The advertised cost of a reconditioned engine, it should be pointed out, does not cover reconditioned accessories or labor for installation or penalties for engines with badly scored cylinders or other damage.

The *Ford* is capable of very economical and satisfactory service in the hands of drivers who realize the value of preventive maintenance, but the policy of running the family car until it breaks down (in no case to be recommended) may bring particularly unsatisfactory results with the *Ford*.

Chevrolet Master. Del'd Flint, \$730 [\$668]; del'd NYC, \$768.75 [\$706.75]. Trunk extra; and luggage space inaccessible in no-trunk models.

This car is given a higher rating than last year for a number of reasons (one consultant would rate it still higher—ahead of *Ford V-8 85-HP Standard*). Several improvements in engine design have been made. Steering has been improved in respect to ease. A new clutch requiring lower pedal pressure has been installed. The troublesome rear-spring saddles have been redesigned. The sheet metal is much more easily removed when damaged, or for radiator repair. Voltage regulation has been fitted, and a larger generator is used. Changes have been made in the carburetor and the choke improved.

The Master model has, however, essentially the same chassis design of previous years, with conventional front springs, one-way shock absorbers, and poor riding quali-

ties. It furnishes relatively low-cost transportation for its power, with an engine and parts comparatively very accessible and cheap to repair (except for the carbon-cleaning operation when valve-grinding is not needed). Uses hypoid gears.

The 2-door sedan carries an especially low price, but *Chevrolet* prices (like many others) are often inflated by accessory groups which should be avoided unless very particularly desired. An engine-heat indicator (one of the extras on the Master model) is worth having.

Gasoline mileage of this model is good; engine speed and piston travel, low; performance characteristics, very satisfactory. Roadability is fair at moderate speeds. Vision is, comparatively, good. The rear seat is nearly two inches wider at the hips than in 1937, but is still below average width, and both seats are low.

Hudson Model 112. Del'd Detroit, \$755; del'd NYC, \$792 (2-door sedan about \$30 less). Trunk extra. Colored fenders, \$10 extra.

This new model stands between the standard and de luxe models of *Ford*, *Chevrolet*, and *Plymouth* in price, and compares with standard models in items of equipment. All important units are similar to or identical with those of *Hudson Terraplane De Luxe*, reducing the chance of the usual errors of a new model.

It has slightly less usable power, slightly better gas mileage than others in this group. Seating dimensions are those of *Hudson Terraplane*, and are considerably greater than in competing cars. Front suspension does not use radius rods, as do other *Hudson* cars, the system being similar in design to *Chevrolet Master's*. Does not use hypoid gears.

Riding qualities are fair to good. Vision is average. The Electric Hand is not available. Service life of the Model 112 engine should be longer than that of the *Terraplane* (note the difference in piston travel shown in the statistical table). The car, thanks to its light weight, extra room, moderate-performance engine (relatively), and rather modestly stressed transmission and rear axle, as well as an absence of costly frills, appears to warrant serious consideration in this field.

Plymouth De Luxe Model P-6. Del'd Detroit, \$803 [\$773]; del'd NYC, \$840.50 [\$810], Trunk extra.

The best-riding, quietest, and roomiest (at least in seat width) of the regular de luxe models in this group. Trim and upholstery

are better and equipment more complete than on the *Business Plymouth*. Voltage regulation is used. Other qualities rate as noted under the *Business* model.

Plymouth De Luxe can be ordered with the economy equipment described in the Economy Group rating; thus equipped, it may appeal to buyers anxious to obtain the benefits of economical operation and long service-life with maximum comfort. Uses hypoid gears.

Ford V-8 85 HP De Luxe. Del'd Dearborn, \$795 [\$749]; del'd NYC, \$836 [\$790]. Trunk included.

Comments made on the *Ford Standard* apply to the *De Luxe* model also. About 75 pounds heavier, this model uses the same chassis and offers the same inside room as the *Standard*, except for a wider shelf behind the rear seat. The body is outwardly longer, has slightly larger luggage space. Equipment is more nearly complete, upholstery of a higher grade. Due to the greater body weight, riding qualities are improved somewhat and car balance is better, with slight increase of load on springs and shock absorbers. Does not use hypoid gears.

Chevrolet Master De Luxe. Del'd Flint, \$796 [\$730]; del'd NYC, \$834.75 [\$768.75]. Trunk extra.

Aside from better trim and upholstery, and more complete equipment (most of the items in the accessory group being unnecessary), this car differs from the *Master* model in having the enclosed type of knee action used for the previous four years, as well as a standard rear-axle ratio numerically higher (4.22 to 1 instead of 3.72 to 1). This results in more rapid acceleration but it decreases gasoline mileage about two miles per gallon as compared with the *Master*. It also raises the engine speed and the level of noise inside the car, besides reducing the service life generally.

Buyers should order this car from the factory with the *Master* rear-axle ratio (the change cannot be made after purchase for less than \$20); if this is done the car will rate above instead of below the *Ford De Luxe* on our list. Uses hypoid gears.

The *Chevrolet* equipped with knee action has slightly better roadability than the one without it, and riding qualities rate as good instead of poor. The service of the 1938 knee action units promises to be reasonably satisfactory if they are kept properly lubricated; replacement expense can otherwise be heavy.

From \$850 to \$916

This group consists of four makes, of which two are offered in standard and de luxe form, covering a price range between the low- and medium-priced cars. In gen-

eral, the cars in this group have bigger bodies, longer wheelbases, and some items of higher-grade construction to warrant and to offset their higher cost.

Best Buy

Pontiac 6 Model 26DA. Del'd Pontiac, Mich., \$916 [\$865]; del'd NYC, \$959 [\$908]. Trunk extra.

The highest-priced car in the group, but depreciation is lower than on the others with the exception of *Dodge*. Carries the same type of knee action (with harder and better-protected bearings than were used

last year) and has the same body size as higher-priced General Motors cars. The engine is of a moderate-cost design, not intended for sustained high-speed work but capable of efficient and economical service,

while an optional ("plains") rear-axle ratio is available for increased economy.

The under-steering-wheel shifting lever mentioned in the introduction is offered at \$10 extra. Vision is average, with the usual obstruction from corner posts. Riding qualities are very good, though springs are rather flexible for good roadability at high speed. Seating dimensions are average, but the seats are too low for maximum comfort. Does not use hypoid gears.

Also Acceptable (In estimated order of merit)

Hudson Terraplane De Luxe Model 81. Del'd Detroit, \$864 [\$822]; del'd NYC, \$906 [\$862]. Trunk extra.

Though called de luxe, this is the standard model of the *Terraplane*. It provides seating space considerably above average, and there is slightly more leg room than last year, partly at the expense of trunk space.

Front suspension is by conventional springs, with the axle held in position by radius rods, a construction giving good steering and riding qualities without the complication of knee action. Riding qualities, however, have been sacrificed somewhat to good roadability and absence of sway.

Vision is average, gasoline mileage about average for the group. The Electric Hand is

\$25.50 extra, an automatic clutch control \$17.50. A hill-holder is available at \$10 to keep the car from rolling back when stopped on grades. The foot brake applies the rear brakes mechanically if the hydraulic system fails. Does not use hypoid gears.

Depreciation appears to be rather high, otherwise this car would rate as a "Best Buy."

The *Super Terraplane*, on the same chassis, has dual carburetion giving 5 HP more, better performance at low speeds, slightly better mileage. It carries a higher grade of trim (upholstery), more complete equipment. It delivers for \$51 more at Detroit, and should be rated above *Dodge* but below the *Terraplane De Luxe*.

Dodge Model D-8. Del'd Detroit, \$898 [\$858]; del'd NYC, \$937 [\$897]. Trunk extra.

Dodge carries essentially the same body shell as *Plymouth*, with better trim and upholstery, and has a slightly longer wheelbase and more HP. It has also a larger clutch and different engine accessories (carburetor, ignition units, etc.) as well as automatic choke. But comments on *Plymouth* vision and seating apply directly to *Dodge*. Gasoline mileage slightly above average for the group. Front suspension is by flexible springs of conventional type, with the dis-

advantages mentioned under *Plymouth*. The *Dodge* enjoys low depreciation. Uses hypoid gears.

Nash Lafayette Master Series 3810. Del'd Kenosha, Wis., \$850 [\$805]; del'd NYC, \$913 [\$859]. Trunk included.

The Master 2-door has bucket-type front seats, more horsepower and more leg room than last year, and better riding resulting in part from the adoption of direct-action shock absorbers. 1938 bodies are better insulated and sealed, but the interior quietness of the *Lafayette* is nothing special.

The engine is mounted far forward, making roadability and steering only fair. Front suspension is by conventional springs with kick shackle. Riding qualities rate as good; vision average. This is the lowest-priced car available with overdrive (\$50 extra), without which gasoline mileage will be below the group average. Does not use hypoid gears.

A hill-holder (\$10), Evans vacuum shift (\$30), and the Nash so-called "conditioned air" system (\$30) are further extras. The De Luxe model, selling for \$50 more at Kenosha, carries a higher grade of upholstery and trim than the Master model, without substantial mechanical advantage other than voltage regulation.

From \$958 to \$998

Cars in this group are only slightly larger or more powerful than those in the preceding group. They do offer somewhat more in riding qualities and luxury features.

Motorists who buy above this group should be careful to see that they are purchasing qualities they really need and will really use.

Best Buy

De Soto Model S-5. Del'd Detroit, \$958 [\$930]; del'd NYC, \$999.50 [\$971.50]. Trunk included on 2-door; extra on 4-door.

De Soto carries the same body shell as *Plymouth* and *Dodge*, has approximately the same average interior room, with higher-than-average seats. It has a new and stiffer frame for 1938; knee action with harder and better-sealed bearings. The front wheels have been moved ahead 3 inches, giving less front overhang and better car balance. Engine is smoother and more lively at low speeds than in 1937. Riding qualities are very good. Gasoline mileage is good, with overdrive (\$37.50 extra) in use, excellent.

Despite some trouble with carburetion in 1937 which may persist in 1938, the *De Soto*, particularly when equipped with overdrive, is highly recommended. Uses hypoid gears.

Also Acceptable (In estimated order of merit)

Studebaker Commander 6 Model 7A. Del'd South Bend, Ind., \$965 [\$955]; del'd NYC, \$999 [\$989]. Trunk included. Black; colors, \$10 extra.

The model for which bracketed prices are given is a 5-passenger 2-door brougham, with full-width rear seat but less leg room and larger trunk space than a sedan.

Seats in all bodies are wider than average but, to gain headroom, low. Corner-post obstruction is very bad; otherwise, vision is average. The "Planar" system of individual front-wheel suspension, offered by Studebaker as an option on previous models and standard equipment this year on all models, gives very good riding qualities with no necessity for the anti-sway bars used on some other cars. Without the overdrive (\$44.50 extra), economy is average, piston travel and crankshaft revolutions per mile are high. Should be purchased with overdrive and standard (4.55 to 1) rear-axle ratio for best results. A new frame for 1938 increases structural rigidity, and steering has been improved. Uses hypoid gears.

Trim and finish are perhaps slightly below average for this group. On the *Commander State*, Model 8A, which is a de luxe model delivered at South Bend for about \$75 more, they meet the level of the next-higher-priced group. Hill-holder is standard on the *Commander State*. The Evans vacuum shift is \$30 extra on both models.

Oldsmobile 6 Model F-38. Del'd Lan-

sing, Mich., \$967 [\$916]; del'd NYC, \$1011 [\$960]. Trunk extra.

Very similar in general size, features, and dimensions to *Pontiac 6*, but equipped with a more powerful and smoother engine of somewhat better construction. Does not ride so "softly," but has better roadability.

Seats too low for maximum comfort; vision fair. Normal-driving gas mileage about average for this group.

The semi-automatic 4-speed transmission described in the introduction, available for \$100 extra, places this car in the next higher group as to price (though it is still less costly than cars in that group equipped with overdrive). The transmission adds to gas and oil mileage, interior quietness and car service life, as well as to convenience of operation once the technique of its use is learned. It does increase both the likelihood of knocking on standard fuels and of adjustments or repairs too complicated for many service men. *Oldsmobile* does not use hypoid gears, but the manufacturer recommends hypoid-gear lubricants.

Chrysler Royal 6 Model C-18. Del'd Detroit, \$998 [\$963]; del'd NYC, \$1040 [\$1015]. Trunk extra.

This car is virtually a de luxe model of the *De Soto*. Aside from trim, upholstery,

instrument panel, and grille, it differs mainly in having an engine with slightly more horsepower, though the effect on gasoline mileage will be small. Trouble with carburetion (a "flat spot"; hesitation in acceleration just above idling speed) was prevalent last year. Individual cars should be tested carefully with this in mind. Overdrive, \$45 extra. Uses hypoid gears.

Hudson 6 Model 83. Del'd Detroit, \$984 [\$948]; del'd NYC, \$1028 [\$991]. Trunk extra.

The *Hudson 6* carries the *Super Terraplane* engine, developing 101 HP, in the 122-inch-wheelbase chassis of the *Hudson 8*, with the superior *Hudson 8* grade of upholstery and trim. Body size and all other characteristics are substantially those of the *Super Terraplane*. Does not use hypoid gears.

Pontiac 8 Model 28DA. Del'd Pontiac, \$980 [\$934]; del'd NYC, \$1025 [\$979]. Trunk extra.

Same body shell as *Pontiac 6* and *Oldsmobile*.

Wheelbase is longer than either in order to carry the 8-cylinder engine. Although this engine has a long service life, it confers little advantage in performance over the *Pontiac 6* except for high level-road speeds and it gives fewer miles per gallon. Characteristics in general are the same as for the lower-priced *Pontiac* but the springs are not as flexible, although riding qualities rate as good. Does not use hypoid gears. A "plains" ratio is available to reduce engine speed and increase economy. An under-steering-wheel shifting lever is \$10 additional.

From \$1022 to \$1078

Horsepower averages 103, wheelbase 121 inches, but no larger bodies are available than in the preceding group. Eight cylinders are more common than six, and average weight is higher—both at the expense of gasoline mileage.

Best Buy

Buick Special 8 Series 40. Del'd Flint, \$1022 [\$981]; del'd NYC, \$1070 [\$1054]. Trunk extra.

About 70 per cent of *Buick* production was of the corresponding model last year. A very powerful car at moderate speeds, with optimum gasoline mileage slightly below average for the group (15 to 16 miles per gallon).

Roadability and riding qualities rate as very good. Vision is about average. The body has approximately the same interior dimensions as other lower-priced General Motors cars except *Chevrolet*.

The irregular shape of the new piston head used by *Buick* permits the use of a higher compression ratio with *Buick's* valve-in-head engine, and one that is now comparable to that of other cars; the usual "pinging" can be expected as soon as carbon accumulates. Because of the valve-in-head design, carbon removal may be somewhat more costly than for L-head engines.

Any improvement in roadability for 1938 may be credited to the cross-link stabilizer used with the new coil-spring rear suspension. The coil springs improve riding qualities, are lighter and cheaper than the leaf springs they replace, and have the advantages of requiring no lubrication and of being silent in operation.

Lower spring weight offsets in part the weight disadvantage of the torque-tube drive necessary with coil springs and always used by *Buick*. Riding qualities are more nearly constant than with ordinary springs, whose friction characteristics change in service. Because coil springs involve no interleaf friction, however, the shock absorbers used with them must be capable of somewhat greater damping effect than is needed for leaf springs. Uses hypoid gears.

The *Buick Series 40* is well made and fairly simple in design, yields high power, and is low in price. Even when equipped with the 4-speed semi-automatic transmission (\$102.25 extra) mentioned under *Oldsmobile 6* above and in the introduction, this *Buick* remains lower in price than cars of the next higher group.

Also Acceptable

(In estimated order of merit)

Studebaker Commander State Model 8A. Del'd South Bend, \$1040 [\$1030]; del'd NYC, \$1093 [\$1083]. Trunk included.

As with the *Studebaker 6* (rated above), the price in brackets refers to a 5-passenger coupe or brougham, with full-width rear seat. This car is essentially a de luxe model of the 6 with better upholstery, paint, and trim. Hill-holder is standard equipment. All other characteristics are similar to those of the 6. It is economical in operation, commands a good resale price, but first cost is relatively high.

This car should be ordered with overdrive and 4.55 gear ratio for most economical operation or if much high-speed driving is to be done. Considered with the other cars in this group, *Studebaker Commander State* deserves the rating given; but remember that it is a de luxe model, and the same car minus extra trim and equipment can be bought in the next lower price group.

Hudson De Luxe 8 Model 84. Del'd Detroit, \$1060 [\$1028]; del'd NYC, \$1105 [\$1073]. Trunk extra.

The roomiest car in the group, with the highest rated horsepower, but careful reduction of weight (among other advantages) results in gasoline mileage above the group average. Piston travel, because of a shorter stroke, is lower in this model than on the *Hudson 6* and *Terraplanes*, adding to the service life. Riding qualities and roadability rate as very good. Construction features and available extras are similar to those of *Terraplane* and *Hudson 6*; trim and upholstery duplicate those of the latter.

On the same chassis, with higher grade trim and more complete equipment, the *Hudson Custom 8* delivers for about \$110 more at Detroit.

Oldsmobile 8 Model L-38. Del'd Lansing, Mich., \$1078 [\$1027]; del'd NYC, \$1125 [\$1074]. Trunk extra.

In body dimensions similar to *Buick* and other General Motors cars. Riding qualities very good, roadability good. Vision downward, over the long hood only fair; average in other directions, with the usual obstruction by corner posts. Seats are too low for maximum comfort. Powerful performance, less than average economy. Like the *Oldsmobile 6*, does not use hypoid gears, but requires hypoid lubricants. The *Oldsmobile-Buick 4-speed* semi-automatic transmission, \$100 extra.

Nash Ambassador 6 Series 3820. Del'd Kenosha, Wis., \$1050 [\$1000]; del'd NYC, \$1109 [\$1059]. Trunk included.

Body dimensions similar to those of *Nash Lafayette*, but better trim and upholstery. Has a more powerful valve-in-head engine. Compression ratio has been raised this year; intake manifold cast into the cylinder head and water-jacketed. Economy is stated to be 10 per cent better.

Criticism of this model is similar to that for the *Lafayette*, but heavier engine, brake drums, and larger tires add weight, tending toward less satisfactory front-end control and roadability. Riding qualities, very good; roadability, fair. Does not have hypoid gears. Overdrive and other extras like *Lafayette's*.

Graham Standard 6. Del'd Detroit, \$1065; del'd NYC, \$1095. Trunk included. No 2-door sedan.

The lower-priced of two non-supercharged *Graham* models, with the minimum of equipment. All *Graham* models carry a new, roomy, all-steel body with too low seats, designed primarily to be looked at, not out of. Front suspension is of conventional design, conferring good riding qualities partly at the expense of good steering. Aside from this, the *Graham* contains much good engineering. Overdrive (\$45) and Evans vacuum shift (\$32) are extras. Uses hypoid gears.

Economy on gasoline, a *Graham* feature, cannot offset the high purchase price and the high rate of depreciation set by previous models. With better trim and more complete equipment, this chassis model sells as the *Graham Special* for \$90 more at Detroit.

Hupmobile Standard 6. Del'd Detroit, \$1045; del'd NYC, \$1090. In color, \$12 extra. Trunk included. No 2-door sedan.

Roomy body with set-in steel roof, ex-

remely low seats. The engine is, in design, a holdover from Hupp's 1936 production. The car is produced with limited engineering and financial resources, and the price for this, the cheapest of three 6-cylinder models varying in equipment, is high. Gasoline mile-

age will be low unless the overdrive (\$37.50 extra) can be used or the car is equipped with one of the two optional rear-axle ratios. Uses hypoid gears. This car is judged to be the least satisfactory purchase in this group.

From \$1175 to \$1205

These cars are high-priced in terms of transportation values. They average 108 HP; two 6's are included, but one, Graham, except for its high price, is more nearly comparable to cars in the preceding group. The extra power and speed resources of cars in this group are seldom

utilized by the average buyer. Moreover, these cars do not offer more seating room than is available at lower prices; they do offer a quieter, somewhat easier, and definitely more expensive ride. Optimum gas mileage for the group, not over 16.

Best Buy

Chrysler Imperial 8 Model C-19. Del'd Detroit, \$1198 [\$1165]; del'd NYC, \$1245 [\$1212]. Trunk included.

Improved over last year's Imperial in smoothness, power at lower speeds and frame rigidity. The front wheels have been moved forward, lengthening the wheelbase, improving appearance, and bettering the car balance. Riding qualities, excellent; roadability, very good. Considering the length of the hood, downward vision is better than average, but the corner post obstruction persists. Overdrive, \$45 extra. Uses hypoid gears.

Also Acceptable

(In estimated order of merit)

Packard 6 Series 1600.¹ Del'd Detroit, \$1175 [\$1145]; del'd NYC, \$1225 [\$1194]. Trunk included.

A new all-steel body, used on this car and the Packard 8, provides excellent seating space, with seats at the minimum satisfactory height. Vision is very good, but obstructed by the usual wide corner posts. About 150 pounds have been added to weight, 7 inches to the wheelbase, approximately \$150 to the price. Better performance has been obtained by increasing the size of the engine and its speed of revolution (the

¹ As we go to press, delivered prices on this car have been reduced \$100. The new price would make Packard 6 a "Best Buy" in the next-lower price group. It compares more favorably with other cars in this group until other makers reduce prices.

improvement is particularly noticeable at low speeds). In spite of intensive advertising regarding insulation and riding qualities, interior quietness is not outstanding, and riding qualities are average for the group. Uses hypoid gears.

The suspension is very "soft" resulting in excessive sway on corners; it may be stiffened by an optional front anti-sway bar and by "inserts" which control the friction of the rear springs. If the buyer requests and gets these, roadability of the car will rate as excellent and the car itself will rate as a "Best Buy."

While inferior in accelerating ability to some other cars in the group (particularly the Studebaker President), the Packard 6 contains many high-grade features, and should give better gasoline mileage than others of the group unless they are fitted with overdrive.

Studebaker President 8 Model 4C. Del'd South Bend, \$1205 [\$1195]; del'd NYC, \$1275 [\$1265]. Trunk included.

Bracketed prices are for a 5-passenger coupe with full-width rear seat. The President model is very much improved over last year, the engine smoother, quieter, and less powerful. Because of a reduction of car weight, general performance is improved. A new frame greatly increases structural rigidity, a new body provides more seating space, especially in front. Steering has also been improved.

Roadability, even though the engine has been moved forward, is very good; riding qualities are very good, though there is some tendency toward excessive motion in the rear. Seats are too low, and corner-post obstruc-

tion very bad. Piston travel and engine speed are high unless overdrive (\$49.50) is used with standard (4.55 to 1) rear axle. The overdrive is similar to that on other cars; last year a non-freewheeling type was used in which changes of ratio were apparently too noisy for public acceptance. Evans vacuum shift is an extra (\$30). Hill-holder is standard equipment. Uses hypoid gears.

Hudson Country Club 8 Model 87. Del'd Detroit, \$1199; del'd NYC, \$1246. No 2-door sedan. Trunk extra.

Identical in engine, trim, and equipment to the custom model of the Hudson 8, but mounted on a chassis with 7-inches-longer wheelbase (129 inches, longest in group), the extra length furnishing very generous leg room in the rear compartment. The car has small trunk space, very good riding qualities and roadability, and, due to its low weight and other features (see Hudson and Terraplane above), is comparatively cheap to operate. Does not use hypoid gears.

Nash Ambassador 8 Series 3880. Del'd Kenosha, \$1200 [\$1150]; del'd NYC, \$1265 [\$1215]. Trunk included on 4-door, no trunk on 2-door model.

Performance at moderate speeds no better than with the Nash 6, which has the same seating space. The 8 has superior trim, is quieter at the higher speeds, but may be less satisfactory in steering than the other cars of this line due to its greater weight. It is, of course, inferior to them in gasoline mileage. Riding and handling qualities generally similar to the Nash 6. Extras, including overdrive, are listed under the Nash Lafayette. Does not use hypoid gears.

From \$1272 to \$1409

The higher prices of this group will bring more luxury-value with little that will add in any appreciable degree to usable transportation. Rate of depreciation will be high.

There is an increase in horsepower over the preceding group. Very powerful, very fast in most cases, very high fuel costs.

Best Buy

Packard 8 Model 1601. Del'd Detroit, \$1325 [\$1295]; del'd NYC, \$1378 [\$1347]. Trunk included.

Carries the same body as Packard 6, above, but provides 20 additional horsepower, greater smoothness, quieter operation. Riding qualities, excellent; roadability, very good—excellent if the changes to reduce sway, suggested in criticism of the 6 above, are made.

Vision is relatively good in spite of the long hood. This car (and the Packard 6 as well) has one of the best types of independent front suspensions, good rear suspension, and is generally well built.

Also Acceptable

(In estimated order of merit)

Buick Century 8 Series 60. Del'd Flint, \$1272 [\$1256]; del'd NYC, \$1323 [\$1307]. Trunk included on 2-door sedan, extra on 4-door.

Bears the lowest price in the group, and is the most powerful, with outstanding reserve power at moderate speeds. Riding qualities rate as very good; roadability, very good; vision downward, over the long hood, is poor. The body is the same in dimensions but not in trim as that on the Buick Series 40. Quieter than the Buick Special 40, except when the latter is equipped with the 4-speed transmission, not available on the Series 60.

LaSalle V-8 Series 50. Del'd Detroit, \$1380 [\$1340]; del'd NYC, \$1435 [\$1395].

LaSalle carries the standard-size General Motors body with a high grade of trim and upholstery. Riding qualities rate as excellent; roadability, very good, except that springing is very flexible for a car with the performance characteristics of the LaSalle, resulting in bad away on fast turns. Downward vision has been improved for 1938 by lowering the nose of the hood, vision in other directions is average. Interior quietness is very satisfactory. There are new sheet metal, under-steering-wheel gearshifts, and changes in carburetion for 1938.

Lincoln Zephyr V-12. Del'd Detroit, \$1409 [\$1388]; del'd NYC, \$1461 [\$1440]. Trunk included.

Riding qualities, good; roadability, very good; vision, excellent. Seats are at the maxi-

Automobile Labor

NOTES on labor in the automobile industry, including a special report on Ford labor policies, have been withheld from this issue because of space limitations. They will appear in the next issue, along with a brief summary of cars in the high-priced field (above \$1500).

mum height for comfort. Head room over the rear seat has been increased. The tunnels in front and rear floors have been greatly reduced for 1938, in part by the use of hypoid gears.

The engine operates more quietly and its freedom from service expense is somewhat increased by the adoption of hydraulic valve lifters. Gasoline mileage should be higher than for other cars in the group with the exception of Graham. The unit body and chassis construction, the excellent vision, and the comfortable seating position are outstanding features of this car. But steering, shock-absorber control, riding qualities, and the interior noise level are below the standard of this group.

Graham Supercharger Model. Del'd Detroit, \$1290; del'd NYC, \$1340. No 2-door sedan. Trunk included.

Identical in body, wheelbase, engine displacement and optional equipment to the Graham Standard rated in a previous group, but carries a supercharger which raises the maximum horsepower from 90 (at 68 m.p.h.) to 116 (at 77.5 m.p.h. car speed). Has other minor engine differences, a larger tire size,

and much better upholstery and trim.

The centrifugal supercharger, despite the advertising claims made for it, does not confer very useful characteristics upon a passenger-car engine. It increases the power at high speeds much more than at low; hence is chiefly an asset for high-speed travel. It increases the power output per cubic inch of piston displacement, but the full increase is realized only when the throttle is wide open. Its "eggbeater" effect on the ingoing mixture of gasoline and air is often overrated. Where gasoline economy in normal service is concerned, the Graham has previously given a good account of itself, but due more to careful design, relatively light weight, and overdrive than to the supercharger.

Riding and handling characteristics of the supercharged Graham are similar to those of the non-supercharged model described above. The custom model with supercharger, delivered at Detroit for \$90 additional, has more complete and luxurious equipment.

Hupmobile 8 Model H. Del'd Detroit, \$1325; del'd NYC, \$1385. Trunk included. No 2-door sedan.

With different combinations of trim and equipment, this car is also delivered at Detroit for \$1368 and \$1489. All 8-cylinder models carry overdrive as standard equipment. In general, comment on the Hupmobile 6 above applies to this car. The 8 is very heavy and employs a conventional front suspension which CU does not regard as satisfactory, particularly for heavy cars. It uses a powerful engine with a high number of revolutions per mile and very high piston travel to provide accelerating ability. Gasoline mileage will be low unless overdrive (standard equipment) is used. Uses hypoid gears. Least satisfactory purchase in this group.

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In addition to the subject index, we give here a month-by-month list of the contents of the Reports from the first issue through December, 1937. Any copy of the Reports is obtainable at 25 cents.

May, 1936

Women's Hosiery (inexpensive brands), Alka-Seltzer, Toilet Soaps, Breakfast Cereals, Lead Toys, Grade A and B Milk, Toothbrushes, Cost of Octanes, Credit Unions.

June

Low and Medium Price 1936 Automobiles, Gasolines, The Baking Industry, Moth Preventives, Vegetable Soup, Vegetable Seeds, Meat and Diet, Anacin & Baume Bengue.

July

Mechanical Refrigerators, Bathing Suits, Sunburn Preventives, How to Buy Used Cars, Motor Oil, Travel, Cooperative Distributors, Mechanical Pencils.

August

Oil Burners, Coal Stokers & Gas Boilers, Women's Hosiery (medium-priced brands), White Bread, Laundry Soaps, How to Judge Meat Quality, Coney Island (bacterial tests), Black List of Drugs and Cosmetics.

September

Men's & Women's Shoes, Tires, Whiskies, Women's Coats, Hot-Water Bottles, Rubbers, Building a Cooperative.

October

Tooth Pastes & Powders, Men's Shirts, Electric Shavers, How to Buy and Use Coal and Oil, Anti-Freeze Solutions, Brandies, Gins, Rums & Cordials, Canned Peas & Apricots.

November

1937 Radios, Children's Shoes, Electric

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December

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January-February, 1937

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March

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April

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May

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June

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July

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November

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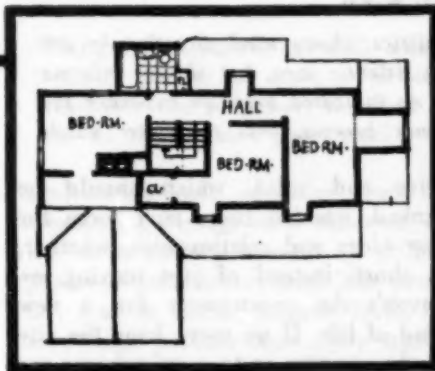
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OUTSIDE

This is a representative example of a new house in period design. The design is good—to look at; and it is free of the phony gadgets often found on period houses. The dormer windows are correctly located with respect to the facade.



INSIDE

Note that the two dormer windows enter the extreme corner of the bedrooms, so that both lighting and ventilation suffer. It is extremely difficult to avoid such awkward arrangement, or waste of space, in period design.

Community, Site & Plan

Second of a series of articles for prospective home-owners



by **ALBERT MAYER**

Mr. Mayer, a practicing architect in New York City, has also done considerable work in governmental and municipal housing projects. He was the principal architect for the Suburban Resettlement Administration.

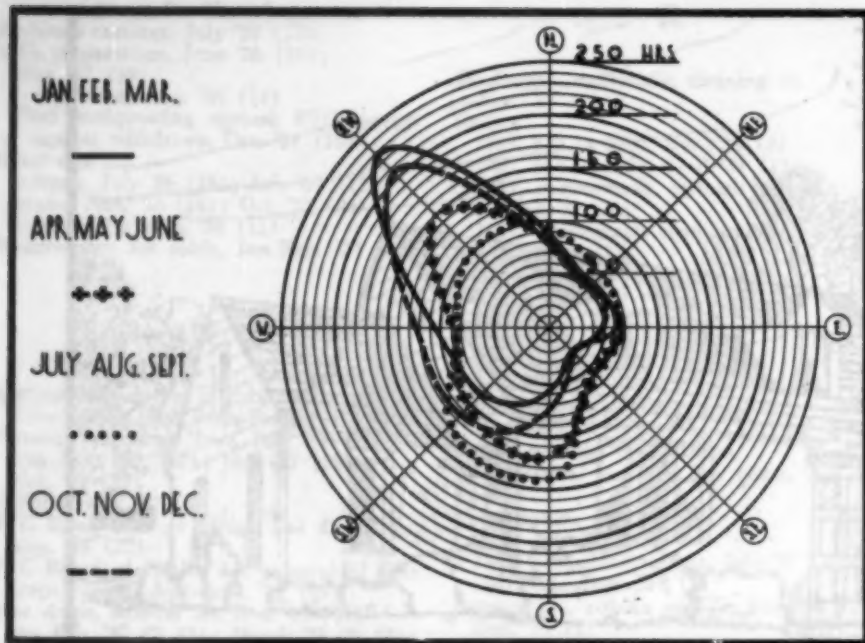
WE HAVE in the first article of this series discussed a number of important pragmatic considerations involved in the decision to buy, build, or rent. In the articles to come we shall similarly enumerate and discuss the physical factors of the house and its environment. But it should be understood that all of these are no more than the physical shell of what should be a spiritual concept and adventure. A series of check lists and precautions don't make a home. These are simply means to an end. Have you thought

out with sufficient imagination what the quality of that end should be?

We hesitate to emphasize this point; there has been so much sobstuff dispensed by advertising men and high-pressure writers that the whole business has been made ludicrous. The atmosphere is surcharged with home

and mother and patriotism and recovery and "ye olde" and Tudor half-timbering and the latest gadgets. So it is that the prospective home owner approaches the problem with a whole series of subconscious preconceptions.

His first job is to shake himself free from them, and especially from the most insidious of all—the snobbish desire to imitate friends and yet be different, to have a house which is not so boldly independent as to be criticized but is yet so trickily different as to arouse admiration. That snob-



DIRECTION OF WIND

This graph, based on weather bureau statistics, shows wind direction by seasons; it applies only to parts of the North Atlantic area, but similar information is probably available for other areas. As indicated here, an exposure just west of south will catch maximum summer breezes, less of winter winds.

bish attitude accounts for our fake "differences"—odd gables and turrets and half-timbering, and trick combinations of stone and brick and wood—and for our unimaginative uniformities such as the universal hideous ground-planting of cedars and dwarf pines.

The ordinary procedure places most emphasis on a "dream house" of a certain style or period, in a community of a certain social prestige, which in turn demands a house with certain requisites. In that case your check lists at best enable you to fit yourself and your family into a rigid framework which is not the product of your individual needs at all.

We are not making a plea for the bizarre, or a plea to disregard your neighbors and your neighborhood. We are urging you to examine your way of life, to have respect for what is best in it, and to be consistent with that.

Too often we are simply "moving," physically moving. When we do we find a lot of accumulated old stuff and, after a certain hesitation, discard much of it. But we take along our mental and social junk, our fixed ideas and habits. For a long time before we go to a new home we should rigorously analyze these; find out which are still

alive and valid, which should be junked, whether there isn't room for new ideas and relationships, whether, in short, instead of just moving we haven't the opportunity for a new kind of life. If we move from the city to the country or to a suburb, we are missing the point if we don't grasp at a new relationship with nature, if climate and sun don't have a richer significance for us, if trees and flowers and grass remain simply ornamental.

It is such values as these that we must create within ourselves, and we must understand and insist upon the physical, technical, legal provisions that will assure a framework for preserving them, so far as that is possible with land use still largely in the control of speculators.

The initial leaning toward a given kind of community will be determined by the intangibles just touched on. The first important question is: What do you want of your community, what do you want the personal relation to be between it and you? And though in general these articles are directed to people who will acquire moderate-priced homes reasonably near each other, considerations of this nature apply in greater or less degree to homes at any price level.

Community

Stability. Stability is to be preferred to possibilities of profit growing out of later changed use. Changed use in nine cases out of ten means deterioration rather than improvement, and then the joke is on you.

Does the community seem to lie in the path of urban industrial or business growth? Avoid it.

Is the community large enough to have some character, and extensive enough to resist encroachment and swallowing up? Preferably its boundaries should border on parks, parkways, or other suitable, permanently determined areas.

Is it, and are the surroundings, protected by adequate zoning as to land use and density of development? Does the zoning authority grant exemptions too liberally?

Is there a city plan? If possible, locate in a town or village or city which has a definitely adopted plan and planning board. See what it provides; be alert as to proposed changes. If there is no plan, agitate for one. It's your best long-run protection.

Is the community protected by deed restrictions? Are they recorded; for how long do they run; and what provisions do they contain? Some restrictions are too mild, some are too harsh and snobbishly cover the wrong things. Watch out particularly for provision as to minimum allowable house cost, which may be too high for you.¹

Are any new highways or other public works planned that will either disrupt the community or be too close to your own site? Check this point with the authorities. A new parkway, a new express train schedule may change desirable characteristics even when physically not objectionable—as witness suburban Riverdale in New York, now becoming a tremendous apartment house center because of Henry Hudson Parkway.

Is the topography pleasing? Does the site-planning take advantage of the topography? Are there too many streets; are there dangerous traffic streets which the children must cross going to and from school and play? Large blocks, unpierced by alleys and

¹ For community planning and selection, see FHA Technical Bulletin No. 5. Appendix A contains a model for deed restriction.

garage access lanes in back, make for the safest and the most peaceful atmosphere.

Character. Is there sufficient development so that the community's character is pretty well established? There is a gamble in being one of the early residents in a new community.

Ask questions of the people living in the community. Where possible, you might even test your impressions by renting a house first, possibly for the summer months.

Convenience. Check on proximity to schools, parks, recreation areas, transportation, shopping² and entertainment centers. Deed restrictions should keep the latter from encroaching, but reasonably close access is desirable. Check on cost of transportation to school and to business. Check on the express service promised for next year. In the case of schools, check not only for present requirements, but for the future. Are the schools overcrowded? A new school may mean a bond issue, which will be reflected in the tax rate.

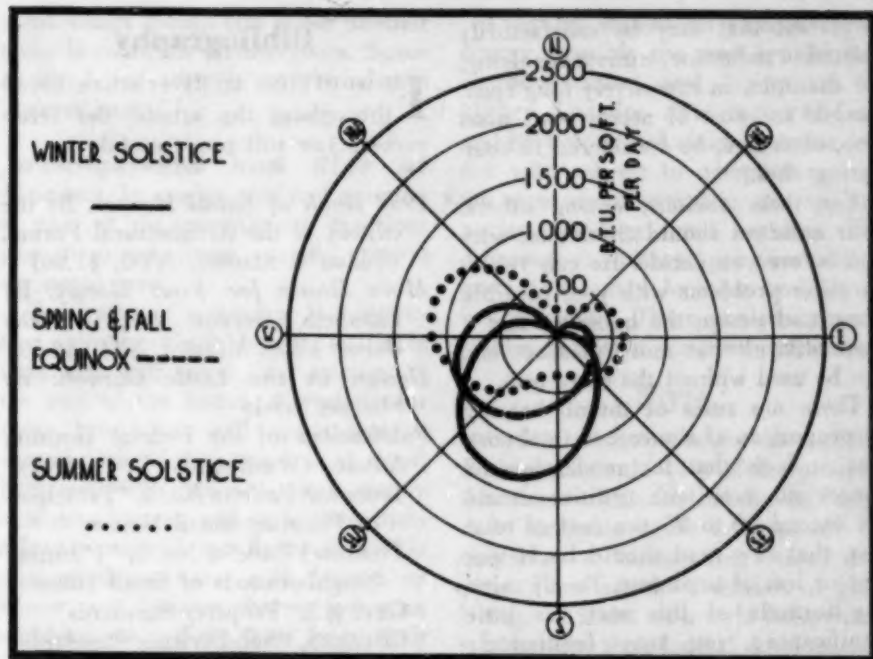
Utilities. Check on which are present, on their character, and on their relative costs as between the different communities you are considering. You will want to check specifically on: water supply; sewage system and method of disposal; electric light and power; telephone; fuel for cooking and heating; paving; police and fire protection; garbage collection; snow removal.

You will want a technician's check on purity, quantity, and pressure of water supply; on the adequacy of the sewage system; on quality and durability of the paving. City dwellers are so accustomed to taking these services for granted that they are likely to overlook the importance of a check.

You yourself will check on the costs of fuel, electricity, etc., and transportation.

You may suffer from too many utilities as well as too few. Unnecessary streets, and streets wider than necessary, mean excessive first cost and

² How do prices of groceries and other items bought locally compare with prices you are now paying?



GRAPH BY HENRY NICCOLAS WRIGHT

AMOUNT OF SUN

This graph shows average daily amount of sun heat on a vertical wall at various seasons. And as for wind, so for sun—an exposure just west of south will get maximum sun in winter, the least amount in summer. (This graph, like the one on the opposite page, applies only to parts of the North Atlantic area.)

replacement cost, excessive costs for cleaning, policing, snow removal. On the other hand, beware of utilities promised but uncompleted. The promoter may be acting in good faith, but may later become financially unable to fulfill his promises, or may go out of business.³

Miscellaneous. Visit the site at different seasons of the year, and at different hours of the day. It may be very hot in summer, there may be mosquitoes, or it may be too damp and cold in winter. Traffic may be slow in the morning, but trucks may roar through at night. Check with automobile maps to see what the community's relation is to main highways.

When you have made a serious preliminary study of the community, get the advice of a local realtor, and of a lending institution (even if you don't plan to have a mortgage) to see whether it will lend. If you do need a mortgage its preliminary OK is essential before you make any commitment. Will FHA insure? Their reaction will be worth having.

³ In the case of uncompleted paving, etc., it is wise to get a bond assuring completion before you buy.

Site

SITE and community are so closely interrelated that many of the points above apply to the choosing of a particular site as well. But certain more detailed considerations enter in at this stage.

Cost. In comparing alternative sites and communities, total cost of site, if you are building, must be determined before any commitment is made. Total cost consists of raw land plus road (including access road to house) plus paths plus utilities run to the house plus landscaping plus cost of rock excavation, if any, plus cost of waterproofing cellar, if any, plus cost of land drainage if the soil happens to be swampy.

Cost of rock excavation and of cellar waterproofing must be considered part of site cost, because neither adds any value to the house which it would not have if an equally meritorious site were found that did not require such treatment. Possibly your plan can avoid these costs, possibly not. Fine trees properly located add to the value of the site both because they save the actual cost of planting new ones and because they are full grown. But it is

important that they be satisfactorily related to the house, without involving, for example, an excessively long road. Length and cost of access road must also, of course, be considered in comparing sites.

For these reasons, among others, your architect should check sites with you before you decide. He can visualize these problems with you, possibly place and design the house so that a more difficult but more pleasant site can be used without the extra cost.

There are rules of thumb bearing on proportion of site cost to total cost. One such is that for moderate-sized houses site cost with utilities should not exceed 20 to 25 per cent of total cost, that raw land should be 10 per cent or less of total cost. To my mind any formula of this sort has little significance; you may legitimately want, for instance, lots of land and a comparatively simple house.

"Protection." Here is a loose term, which may imply anything from a legitimate desire not to look into your neighbor's windows and hear his radio to a baronial complex requiring hundreds of acres for its satisfaction. A defensible concept of protection is a reasonable degree of privacy. On relatively small plots, a good deal depends on the placing of houses with respect to each other.⁴

Within limits, the degree of protection is independent of the size of the plot. Where slopes are steep, comparatively little land is required for privacy, for houses are on different levels. A well wooded small site gives a greater sense of privacy than an open area many times its size. Here again, however, the site should be visited in winter when there are no leaves as well as in the summer.

Landscaping and Soil. Choice of site will be affected by the ease with which it can be landscaped to suit your needs. Landscaping is not merely ornamental, but should provide the best organization for the exterior space just as the plan should for the house

⁴ On small plots, the group or row house actually gives greater privacy than the detached house. There are no side windows to transmit sight or sound. There are also important economies involved, as well as architectural and site-planning advantages. For an excellent discussion of this, see Henry Wright's *Re-Housing Urban America*, pp. 39-62.

Bibliography

IN ADDITION to literature cited throughout the article, the references below will prove useful:

1938 Book of Small Houses. By the editors of the Architectural Forum. (Simon & Shuster, NYC, \$1.96)

More House for Your Money. By Elizabeth Gordon and Dorothy Ducas. (Wm. Morrow, NYC, \$2.50)

Design in the Little Garden. By Fletcher Steele

Publications of the Federal Housing Admin. (Washington, D. C., free): Technical Bulletin No. 4, "Principles of Planning Small Houses"

Technical Bulletin No. 5, "Planning Neighborhoods of Small Houses"

Circ. #2, "Property Standards"

Circ. #5, "Sub-Division Standards"

Form No. 805, "How to Judge the House You Wish to Buy"

"Safe Sewage Disposal for Rural Houses." (Published by Better Homes in America, Purdue University, Lafayette, Indiana)

itself. It should be able to provide as many of the following items as you may require: front yard, flower and vegetable gardens, service unit (including drying-space for wash), play-space for children, shade for south or west porch, protection for the north exposure, frame for views.

Character of soil and sub-soil are important as affecting (1) first cost and maintenance cost of gardens, (2) waterproofing cost of cellar spaces, (3) proper sewage disposal where connected sewers are not available.

View. When you visit the house in the winter, it may have a splendid view. In the summer, foliage may block it, and you may not own enough land to permit pruning away the foliage to regain the view.

A splendid view is often the most compelling single factor in determining location. But unlimited views from all rooms tire the mind and the eye. Landscaping should cooperate with fenestration and other details of the planning to produce gradation and contrasts.

The requirements of view and of privacy may in certain sites conflict with each other. Location of the house

on the site, its orientation, and its layout of rooms will be influenced by such site problems; proper solution of these questions will in turn influence the decision as to desirability of the site. For just as questions of the community merge into those of the site, so problems of the site merge into those of the house plan. A particular instance is relation of house to street: if you prefer the living quarters away from the noise of the street, then you may want to choose a site whose favorable exposure is in the rear.

Plan

THE scope of this series of articles is such that we can do little more than discuss criteria to guide the prospective home owner. But at no point is it more necessary to be telescopic than in discussing plan. A book could be given over to the subject and still fail to cover all the possibilities. We shall here simply suggest the criteria and give a few examples of their specific application. Each family must think out the implications in terms of its own needs.

Orientation. Orientation is concerned with sunlight and with prevailing breezes. Obviously these differ in different localities. An elementary principle is to place the house to catch prevailing breezes in summer and, so far as possible, to guard against harsh winter winds.

The principle as to sunlight is simply to have enough of the right kind at the right time—not too much and not of the wrong kind. In the northeastern states, for instance, the sun in the south is best: it is available for the most hours in winter, and its angle is high in summer when it is least wanted. The west or northwest sun is hot and shines in at a low angle in summer, and is present for only a short time in winter. Again, the early eastern sun is undesirable for people who customarily sleep late.

Intelligent orientation involves proper placing of the house on the site and with respect to other houses (which may otherwise interfere with sunlight) and on proper arrangement of rooms in the house, of window sizes (large on favorable exposures, smaller on others), of window heights (the higher the window head, the fur-

ther the sunshine gets into the room), of room depths (the back of a deep room rarely gets sunshine), of trees in relation to shade and protection from unfavorable winds. There is no subject to which less thought is given ordinarily; but real study will help you to avoid irritating errors and to grasp unsuspected opportunities.⁵

Functions of the House. These center around work, play, relaxation, rest, personal privacy, and, possibly, accommodation of guests or others not regularly members of the household. Work consists of housework and cooking, the homework of children and sometimes of adults. Three kinds of play must be considered: adult, adolescent, and children's. Proper arrangement of plan, and proper relation of the house to outside play and delivery areas, will reduce interference of one function with another, and lessen irritation caused by one age group's habits working on another's. Such factors as the location of delivery entrance, stairs, living room in relation to bedrooms, workshop (if any), and bathrooms, typify the kind of thing that can impede or promote the harmonious performance of the family's normal functions.

Adaptability of plan to functions will benefit from flexibility of the plan. Families increase and decrease. Will the plan function under an increase, will it lend itself to expansion? An important item of flexibility may be a dining room so located in regard to the kitchen that it can for short periods or permanently be used as a bedroom. (In that case the size and shape of living room and its relation to kitchen should be examined from the standpoint of its possible use for dining.)

Whether or not storage space is adequate, properly located for its purpose, and properly subdivided for each individual use, can make a striking difference in the happiness of the household. It is worth while to make a rigorous inventory of requirements to see how the proposed house meets

⁵ Not much is available on orientation in prepared written form. But an intelligent person can work it out from his own experience and local climatic and meteorological records. For further helpful discussion see *Re-Housing Urban America*, pp. 133-136; also "Planned Sunshine" in *House & Garden* for January, 1937.

them. Check garage size to see whether there is room for garden tools. Space required for toys is nearly always underestimated.⁶

Arrangement and Size of Rooms. In a sense, this vast question is part of the question of functions just discussed. Some specific criteria are noted here.

Total area of a room is less important than its width, length, available unbroken wall space, and relation to the rest of the house. A rectangular room has more wall space than a square room of the same area. A small bathroom with one door may accommodate a hamper and scale better than a larger one with two doors. Desirable size of living room will depend on where you dine, whether or not your children study there, how large their rooms are, where your own desk is.

Furnishability depends on door locations and door swings; on window locations and height of sills. Extreme carelessness is often evident here. Sometimes in even a large bedroom it's simply impossible to fit two beds and night table.⁶ I have seen country houses with doors so small the furniture couldn't get through. Always get a plan and lay out your proposed furniture on it to scale.

Consider the question of a porch—the indoor-outdoor living room. If you are ever going to want it, plan it integrally with the house; don't figure on pasting it on someplace later. It will never fit either practically or aesthetically. Should provision be made for screening it?

Economy (First Cost, Maintenance Cost, and Energy). Excessive length of corridors, narrow, deep closets, irregular nooks, excessive length of exterior wall all cost extra money and generally give no commensurate value. They add to maintenance cost, heating cost, and labor cost. If you are buying or renting a house, this should be taken into account; if you are building, see if you can't boil these things out of the plan.

⁶ For the purpose of checking on adequate closet dimensions and internal arrangements, bridge-table storage, garage sizes, room required for dining a certain number of people, wall space for beds and night tables, etc., consult the invaluable *Architectural Graphic Standards* by Ramsay and Sleeper. The title may seem formidably technical, but it is as useful as a cookbook.

From the standpoint of economy of energy, possibly the most crucial item is the location and layout of the kitchen. Location with respect to front and back door and stairs; interior layout with respect to compactness and the sequence of receiving, storing, preparing, cooking, and serving. The difference in mileage per year with a good and a bad location and layout is stupendous. There are many good studies available on these questions.⁷

Style

I URGE the most rigorous self-discipline on the part of the prospective home owner or builder to forget style until his house answers all the questions of orientation, view, and plan. These are the essentials of good living. To insist on a style beforehand is to hamper their logical development.

And don't forget that any historical style means some degree of discomfort, no matter how ingenious the architect may be (if you build) or the builder has been (if you buy). You don't get as good light and ventilation with dormer windows as you do with straight windows. Whether you build or buy, you pay extra for each phony gable, for each piece of half-timbering. Nine times out of ten a period facade will demand window locations that produce awkward situations inside.

Concentrate on the true elements of valid architecture—on the proportioning of rooms, on their relation to and view into each other, on desirable vistas within the house and out from the house, on site and landscaping.⁸ If you don't visualize the proportions properly, check them against rooms and houses you do know, make a model of your house in clay—quite easy to do—study its proportions, its windows, its doors. Make your trees in scale, with pins and pieces of sponge. Let the design grow from your and the architect's interpretation of the characteristics of plan, structure, and land.

⁷ Publications of the Bureau of Home Economics in the Department of Agriculture: *Housing for the Family*, published by the Women's City Club of New York; publications of the American Home Economics Association (Washington, D. C.); and the women's and home magazines.

⁸ For an intelligent discussion of the whole question, see Federal Housing Administration (Washington, D. C.) Technical Bulletin No. 2, "Modern Design."

Renewable Term Insurance

is the cheapest and soundest available—but it's not easy to get

(This is the fourth article in CU's series on life insurance)



THE prospect of another major depression is not a pleasant one for policyholders, or insurance companies either.

Following the lowering of wages and the spread of unemployment, billions of dollars of insurance would be lapsed or surrendered in the mad scramble to retrieve "savings" urgently required for immediate needs. The whole setup of the life-insurance business would be threatened as companies were forced to meet the demand-banking obligations of their investment contracts.

In the early '30s some forty companies were forced into receivership. The ill conceived combination of savings and protection, involving the companies in large-scale banking operations, could prove as disastrous to many more.

Faced with drastic reductions in income and forced to forego current savings, policyholders discover that in their combination contracts they cannot withdraw their savings and continue paying for only their insurance protection. If the insurance is to be continued, the policyholder must continue payments for the insurance *and* the savings, whether expedient or not.

The impractical attempt to combine savings and protection in an iron-bound contract underwrites the usual fate of such policies as these—lapse or surrender. The strains and pressures of present-day society simply do not permit long-term savings programs for the majority of wage-earners.

THE only solution toward the reduction of costs for most policyholders is to rewrite their insurance—to replace their costly combination

Objections and Answers

A NUMBER of objections to our recommendations of renewable-term policies have been received by CU—solely, to date, from spokesmen for the life-insurance companies. Their main contention, the usual one, is that the cost for renewable-term becomes prohibitive in later years and that the average person would do better to buy a level-premium plan.

The next article in this series will include thorough cost analyses of the various level-premium contracts as compared with term insurance. In this connection a more detailed evaluation of the level-premium contract as a means of saving will be given.

contracts with inexpensive insurance policies divorced from any savings feature.

This is not, to be sure, a simple thing to do.

Most policyholders will discover that the average company is not concerned with the sale of *insurance* policies. Special arguments have been prepared and, for many individuals, insurmountable obstacles created to thwart any attempt to rewrite policies and secure pure protection.

It is the purpose of this article to help CU readers choose desirable insurance policies. In former articles it has been pointed out that the most desirable type of policy is the renewable-term contract. For under renewable-term contracts the policyholder is charged for insurance only. No reserves are created to decrease the insurance. No extra premium is required for savings accumulations which frequently cause the ultimate surrender and destruction of the insurance program.

The permanent, constant protection

afforded by renewable-term contracts is the cheapest and soundest insurance available.

It must be borne in mind, however, that renewable-term insurance is reserved for the finest physical, financial, and moral risks; that an individual's color, sex, or occupation can bar him from securing this type of policy.

FEW companies will sell term insurance to women. Those that do, limit sales to first-class female risks enjoying independent incomes. With Negroes no attempt at classification is made; all are rejected for low-cost contracts. With women and Negroes neatly disposed of, the bulk of the remaining population is barred from term insurance through an elaborate rating system for occupations.

Thus are immediately eliminated most manual workers, skilled or unskilled. The banned list reads like a rollcall of occupations in modern industry.

Workers engaged in the manufacture of Abrasives, Acetylene Gas, Acid, Airplanes, Aluminum, Artificial Silk, Asbestos, Asphalt, Automobiles, and workers in Amusements and Sports (on the ground or off the ground), to mention but a partial listing under "A," cannot buy term insurance from the private companies. The average insurance manual allots twenty pages of fine type to listing the banned occupations.

To complete the job, the minimum amount of renewable-term insurance sold is not \$1,000 but \$2,000. In some companies it is as high as \$10,000. The indictment against the private companies for feigning in their social obligation to insure the public could

not be more complete. The average individual must seek elsewhere for an intelligent solution to his insurance problem.

Fortunately there is a solution in the low-cost term contracts offered by some of the fraternal organizations. The *International Workers Order* and the *Knights of Columbus*, two of the largest fraternal organizations, both offer renewable-term insurance. And some of the smaller fraternal organizations—e.g., the *American Workmen*, with headquarters in Washington, D. C.—do the same.

The *Knights of Columbus* (home office in New Haven, Conn.) offers its term insurance to members up to age 55. In this respect it offers a better service than the *International Workers Order*, in which the maximum age for securing insurance is at present 45, a figure too low for a working-class organization. Otherwise, the IWO contract is an excellent buy. A chartered organization under the jurisdiction of the Insurance Commissioner of the State of New York, the IWO offers pure protection in amounts ranging from \$100 to \$2,000.

Most fraternal organizations offer, along with their insurance contracts, death and sickness benefits for very low rates.¹

FOR the business executive, the professional, and the white-collar worker enjoying good health and a secure job, who is not separated from his wife and who does not drink to excess, against whom no judgment exists or legal action is contemplated, to whom no neighbor refers in malicious gossip and whose past is unimpeachable, there exists a number of acceptable renewable-term contracts.

The *Eureka-Maryland Assurance Corporation*, of Baltimore, Md., offers the best one-year-renewable-term contract. A non-participating company, its contract is automatically renewable as term, throughout life. Never will the insured be compelled to submit to another medical examination once he has secured the contract. Nor will the terms of the contract compel him to convert to a higher-premium form after a specified number of years. It represents permanent, constant protection for the life of the insured. The

¹Fraternal organizations will be treated fully in a separate article to be published in an early issue.

contract is issued to first-class male risks only, from ages 21 to 55 inclusive. The policy grants a conversion privilege until age 60. Minimum amount, \$2,000.

The *Bankers National Life Insurance Company*, of Montclair, N. J., also issues a yearly renewable contract. But this contract has a minimum of \$5,000 and is renewable to age 65 only, at which time it must be converted to a higher-premium form. It is issued to first-class risks, including women with independent incomes, from ages 20 to 59 inclusive. The policy grants a conversion privilege which is mandatory at age 65.

The *State Life Insurance Company of Indiana* also sells a yearly renewable-term contract to age 65.

The yearly renewable-term contracts of the *Travelers* and *Penn Mutual* are not acceptable. They are renewable for a limited number of years only, and must be converted at the end of a specified period. In the *Travelers* the maximum is 9 years and in the *Penn Mutual*, 15. And in neither company can the contract be carried past age 65.

THERE are alternative renewable-term contracts that are very similar to the one-year-renewable-term. These are the 5-, 10-, 15-, and 20-year renewable-term policies. Instead of increased premiums at the end of each year as with one-year-term, the increase occurs at the end of the specified period. During each period a level premium is paid.

A 10-year renewable-term, taken at

"Coughs and Colds"

MOST recent CU publication is a 16-page pamphlet on "Coughs and Colds"—a reprint (revised and expanded) of the much approved article of this title in the January-February issue of the *Reports* last year.

"Coughs and Colds" has been reissued in this pamphlet edition of 20,000 copies in order to spread further the useful information contained in it and to satisfy numerous requests. One fraternal insurance organization has already ordered 5,000 copies for its members. CU members can help greatly toward the fullest distribution of the pamphlet by telling their friends about it and by urging local bookstores to order copies.

Single copies are 5c; 10 to 25 copies, 4c each; over 25, 3c each.

age 30, for example, requires a uniform premium of \$10.71 per \$1,000 until age 40. At this time the contract automatically renews at the increased rate of \$13.52, which will be the level rate until age 50 is reached and another increase takes place.

The *Metropolitan Life Insurance Company* offers the best buys in this category.² When comparing *Metropolitan* costs with costs under other contracts it must be remembered that the *Metropolitan* is a participating company; in the past, rebates or "dividends" have averaged approximately 30% on term contracts. Minimum amount sold is \$2,500. Unmarried, self-supporting women are eligible.

The term policies of the *Metropolitan* provide that any renewal which occurs after age 64 must be into a higher-premium form. This does not mean that all term policies must be converted at age 64; merely that after age 64 term insurance can no longer be bought.

To illustrate: An individual, age 35, purchasing a 20-year renewable-term will pay a level premium to age 55. At this time the contract is automatically renewable for another 20 years at an increased rate. At the expiration of the second 20 years—age 75—the insured can no longer renew into another term contract but can convert without medical re-examination into a higher-premium contract.

Similar to the above are the 5- and 10-year-term contracts of the *New England Mutual*. The 5-year-term contract is renewable to age 65 and the 10-year-term contract is renewable to age 60.

MOST policyholders have been led to believe that term insurance is temporary insurance, that it affords protection for a limited period only. Either through ignorance or malicious intention many company officials deny the existence of renewable-term contracts. Mr. M. Albert Linton, president of the *Provident Mutual Life Insurance Co.*, of Philadelphia, in his book "Life Insurance Speaks for Itself," invariably refers to term insurance as "temporary."

²The *Metropolitan* operates in every state in the union. Most companies do not. Write to your state Insurance Commission for information concerning any particular company.

It is unquestionably true that Mr. Linton's own company, the Provident, sells temporary term contracts. But Mr. Linton is hardly justified in referring to all term contracts as temporary because the 5- and 10-year convertible (non-renewable) contracts of the Provident are temporary.

It is of vital importance to remember that there are term contracts which are *not* renewable. These are not to be confused with the renewable plans. Non-renewable term—and term that must shortly be converted into some other form—may serve important purposes but it does not represent permanent protection. The individual must guard against those contracts that do not renew for as long a period as he considers necessary.

With over 350 insurance companies operating in America, it would be physically impossible to list here all the acceptable and not-acceptable contracts sold. We will have accomplished our purpose if CU members understand the nature of term contracts and are able to distinguish for themselves between the desirable renewable-term and the undesirable non-renewable plans.

While it is true that the overwhelming majority of insurance companies do not sell acceptable term contracts, we have not exhausted the list of those that do. Equipped with the fundamental principles as outlined in this and preceding articles readers of the *Reports* should be capable of independent judgment.

FOR clarification and further illustration, we list here a few of the companies selling undesirable term contracts:

Aetna Life Insurance Co., Connecticut: 1-, 5-, and 10-year-term contracts. The 1-year-term is renewable for 9 years, convertible within 8; the 5-year-term is non-renewable, convertible at any time; the 10-year-term is convertible within 8 years, not renewable.

Prudential Insurance Co., New Jersey: 10- and 15-year convertible contracts; non-renewable.

John Hancock, Massachusetts: 5- and 10-year non-renewable; convertible within 5 and 7 years, respectively.

New York Life Insurance Company: 7- and 14-year non-renewable term, convertible within 5 and 10 years, respectively.

Notice of Election of Directors



THE terms of four of the fifteen members of CU's Board of Directors expire in April, 1938, and the membership will be called upon to elect new directors to fill the vacancies.

The Directors whose terms expire:

Heywood Broun—Journalist; President, American Newspaper Guild

A. J. Isserman—Counsel; Consumers Union; Bureau of Cooperative Medicine

Charles A. Marlies—Assistant Professor of Chemical Engineering, College of the City of New York

Bernard Reis—Certified Public Accountant; author of "False Security"

The structure of the Board and the manner of nomination and election to it are described in the sections of the By-laws reprinted below.

In accordance with the By-laws, the present Board of Directors will act as a nominating committee. Other nominations may be made by the membership, and should be submitted to the Secretary of Consumers Union, 55 Vandam Street, New York, not later than March 3rd. Such nominations must include the full name of the nominee and his exact address, and should be signed by the nominating member with his address as it appears on Consumers Union records.

While the By-laws do not require it, members should, if possible, state the scientific, professional, cooperative, labor, or other connections of the nominee and the work in which he is actively engaged.

For obvious reasons, persons having business interests which would be affected to any marked extent by the work of Consumers Union are not eligible to membership on the Board.

Since Consumers Union is a strictly non-profit organization, the members of the Board receive no compensation. Those who serve do so because of their interest in the consumer movement.

Inasmuch as the Board is an active group responsible to the membership for the proper functioning of the organization, it is desirable, but not re-

quired by the By-laws, that most of the nominees be located in the New York area, so that they will be able to attend meetings. The pertinent sections of the By-laws follow:

There shall be not less than 15 nor more than 30 directors, as the directors may from time to time determine, holding office for three years except as hereinafter provided.

There shall be four groups of directors. The terms of office of the first group shall expire at the close of the 1937 annual meeting, of the second group at the close of the 1938 annual meeting, and of the third group at the close of the 1939 annual meeting. Each group shall consist of approximately one-third of the total number of elected directors. In order to have the numbers of members in each group approximately equal, upon any increase in the number of directors or a change in the terms of directors, the Board may, upon two-thirds vote, rearrange the grouping of directors. The fourth group of directors are the following, who shall not be elected by the membership but who shall hold office ex officio as hereinafter provided: 1. Director. 2. Technical Supervisor. 3. Staff representative.

The method of election of directors shall be as follows: the Board of Directors shall be a nominating committee to place in nomination candidates for the vacancies. Candidates may be nominated also by a petition signed by one member in good standing, which must be filed with the secretary two months before the date of the annual meeting; provided, however, that in no event shall the number to be placed on the ballot in this manner exceed 12. In the event that more than 12 such nominations are received, the 12 nominated by the greatest number of members shall be so placed on the ballot. Each nominee, upon accepting the nomination, shall be required to answer such questions as may be put to him at the instance of the Board of Directors, concerning his record, financial interests and other connections. The ballots must be sent out to the membership at least one month before the date of election. The directors shall on the ballot include a statement concerning the record of each nominee. The ballots shall designate the secretary to act as a proxy, to vote as directed in said ballot at the annual meeting. The form of said ballot shall be determined by the Board of Directors, and said ballot shall state which candidates are nominated by the Board of Directors, and which are nominated by petition. All notices in respect to said nominations and election and the ballot for said election may be included in the regular publications of the organization.

CU'S MEMBERS report-

Worst Ads

TO CU: One opinion: Don't waste space baiting the advertisers, who won't even know it anyway; leave the worst ad of the month to *Ballyhoo* and *Hooley*. It wouldn't be amiss, however, to mention recent advertising of advertising (*Esquire*, Sept., p. 183) containing such statements as 98% of all people are honest. However that may be, the other 2% write the advertisements, and this example seems to me one of the most deliberately dishonest ever perpetrated.

W. B. THOMAS

Wichita, Kans.

TO CU: Here's my candidate for the "Worst Ad of the Month."

A.J.S.

Butler, Pa.

One member's suggestion that we hold a "Worst Ad of the Month" contest brought no very strong response one way or the other. Presumably CU members see (and hear) enough bad advertising without having the worst of it put before them through the *Reports*. Anyway, we're printing one prize specimen submitted, and will henceforth let members be their own judges.

Esquire ran another ad advertising advertising in July to the effect that "the big boss of national advertising is the consumer." Now that W.B.T. brings up the subject we'd like to ask *Esquire* again whether it was these big bosses who told *Esquire* to turn down the advertising of CU.

Consecutive Paging

TO CU: We have subscribed to the Consumers Union Reports since their inception. As the number of copies increases arithmetically, the difficulty in finding past articles seems to increase geometrically, and the reports are thereby robbed of their maximum usefulness.

May I suggest one change which would cost nothing and would, at least, enable subscribers to make their own annual indices? Number the pages consecutively from month to month throughout the year.

In addition, it would be convenient to have, in the first issue of each volume, a page with headings (article, page, etc.) and ruled lines, on which subscribers could record subsequent articles.

B.R.

Bryn Mawr, Pa.

A resolution that pages of the *Reports* be numbered consecutively was

February, 1938

approved by CU members at the annual meeting last April, but rejected by the board of directors, who felt that the majority of members would find the method confusing.

The index occupying the four center pages of this issue is offered in the belief that it will satisfy the reference needs of all members. Contents of the *Reports* will be thus indexed annually. Does this solve the question?

Live & Learn Dept

TO CU: Unless you have humanly erred again, in proofreading Dr. B. W. on page 17, Jan. 1938 *Reports*, you should have called to his attention the fact that it is "brachiopod." Reference—any good dictionary!!!

PROOF READER

Washington, D. C.

Dr. B. W.'s erudition put us under a spell—out of which Proof Reader's erudition jars us. We note, with shame, that the doctor's word "brachiopods" does not appear in Webster's, 1934.

But both Dr. B. W. and Proof Reader ignore the brachiopod (of the crustacean *Branchiopoda*). It, too, has a mantle which bears shell-secreting glands; and Webster's uses it, and not brachiopod, to illustrate the definition

of mantle. How's that for erudition, Dr. B. W.? How's that for a quick recovery, P. R.?

Personal Information

TO CU: . . . How about a "Personal Reference (or Information) Dept" for consumers who are planning to buy an article and must have information on it in a short time. You could, maybe, obtain a tentative rating on the article and pass it along to the consumer who would, at any rate, have something better to back his decision than the ads in the newspapers.

The consumer should be prepared to pay a nominal fee which would include expense of obtaining the information, mailing, etc.

(This information would naturally be on new products, products not yet tested by the Union or on goods produced only in a small area about which the Union might secure an unbiased opinion.) . . .

I would like to congratulate the Consumers Union for holding to its high ideals and to a policy which promotes impartial testing and opinions.

O. WM. SCHULTZ

Detroit, Mich.

There is at least one major technical objection to any such thing as a tentative rating: most products must be tested thoroughly before they can be fairly evaluated at all. Quite aside from this, CU's staff would not now be able to take on the extensive work that would be involved in the department Mr. Schultz suggests. In the not too distant future we may be able to work out a basis of procedure.



WORST AD CANDIDATE

If we had a prize we'd give it

Vitamins D and A



SOME SOURCES OF VITAMIN D

Left to right: irradiated milk (a quart a day does not give enough vitamin D for many children); viosterol, and halibut oil fortified with viosterol (five drops a day of either is enough for most children); cod-liver oil (but do not force a child to take it)

Second article in a series summarizing what's known about vitamins and vitamin products



THE disagreeable taste of cod-liver oil and the relatively large dosages required are at least partly responsible for the wide use of other oils higher in vitamin potency which can, therefore, be given in smaller amounts. Such an oil—and one of the first to be introduced—is the oil obtained from the liver of the halibut. It contains approximately 45,000 International¹ units of vitamin A and about 540 units of vitamin D per gram. This compares with 850 to 2,000 units of

vitamin A and 85 to 175 of vitamin D for cod-liver oil, U. S. P.

But halibut-liver oil is a fairly expensive source of vitamin D, since its vitamin D content is relatively small despite its high vitamin A potency. And it should not generally be used alone unless the physician wishes the administration of large doses of vitamin

¹ All units discussed in this article are those adopted by the International Vitamin Congress and incorporated in the XI Edition of the U. S. Pharmacopoeia.

A. Halibut-liver oil (Haliver oil) is now fortified with viosterol, increasing the vitamin D potency to about 9,000 units per gram, and is more satisfactory for general use in this form.

Other fish-liver oils sometimes used as sources of vitamins A and D include those of the hake, the burbot, and that class of fish known as the Percomorphi.

Many of the fish-liver oils are used in the preparation of concentrates, some of which contain only vitamins A and D while others are combined with other vitamins or with calcium salts. The potencies of such preparations vary considerably, depending upon the source and the method of producing the concentrates. The net result of the variability, unfortunately, is confusion on the part of both the public and the physicians.

Viosterol in oil is an oily solution of irradiated ergosterol containing approximately 10,000 International units of vitamin D per gram. It contains no vitamin A.

Because of its high vitamin D potency, only a few drops a day of viosterol are generally prescribed, and it is therefore important to see that the entire amount is taken. It should not be added to the milk formula or to orange juice, since the oil will simply float and cling to the sides of the container; the infant will receive little or none of the vitamin D.

Irradiated ergosterol has recently been introduced on the market in a non-oily vehicle which mixes easily with milk and other liquids. The base of this preparation (marketed as *Drisdol*) is propylene glycol—tasteless, odorless, and apparently non-toxic.

FOOD manufacturers have eagerly seized upon discoveries in vitamin research and have entrenched themselves in the marketplace with breads, cereals, and even candies, chewing gum, ice cream, and beer, containing vitamin D. Some of these foods acquire vitamin D through irradiation with carbon or mercury-quartz lamps, others through the addition of viosterol or concentrates of fish-liver oils. Quite aside from the fact that normal adults get all the vitamin D they need in their diet, the number of units in such concoctions is so variable that they should never be depended upon.

The cosmetic manufacturers, too,

are well up in the vitamin stampede. Irradiated facial creams and sunshine soaps are found on most of the drug counters of the country. Although a small amount of vitamin D can be absorbed through the unbroken skin, there is no evidence that it can have any beneficial effect on the skin itself.

VITAMIN-D milk offers an excellent vehicle for the distribution of vitamin D to those who need it most—for all babies drink milk.

There are three types of milk fortified with vitamin D:

(1) Irradiated milk, which is produced by treatment of the milk with ultra-violet light;

(2) "Vitex" milk, which derives its potency from the emulsification of the milk with viosterol or with a fish-liver oil concentrate;

(3) "Metabolized" or "yeast" milk, which is made antirachitic by feeding the cows irradiated yeast.

Only the last two types offer reliable protection against rickets. They contain approximately 400 units of vitamin D in a quart, but the quantity is so well dispersed and so completely absorbed that it appears adequate for complete protection in this form, even though it is about one-third of the amount usually prescribed for infants when the vitamin is administered in other forms.

Only about 135 International units of vitamin D can be added to a quart of milk by the irradiation process, and this appears to be below the amount necessary for complete protection.

The prescription of the correct dosage of vitamin D for those who need it should be left to the physician. Unfortunately, however, many physicians derive their knowledge of the dosage of vitamin D from a label on a bottle or from manufacturers' literature.

The following advice as to dosage is based on a review of clinical studies with cod-liver oil and viosterol in the prevention of rickets in large groups of white and colored children in several recognized hospitals and clinics. The dosages given are for the *prevention* and not the *cure* of rickets. The cure of rickets is a problem for a competent physician.

FOR the prevention of rickets in full-term babies, about 1,200 International units of vitamin D in oil (daily)

are sufficient. A few pediatricians advise as little as 625 International units, but such an amount in this form is the minimum protective dose and is practical only under ideal conditions, as in a Home for Infants. For the infant cared for at home, where there is the possibility that a dose may occasionally be omitted, it is safer to give the full 1,200 units.

The dosage of vitamin D depends also upon the available sunshine. In localities where the winter is long or where the air contains much dust, as in industrial cities, 1,200 units become a definite minimum. And there are individual instances where more may be required, as in digestive or metabolic disturbances, where the vitamin D is not completely absorbed.

Each infant requires individual care, and a physician or pediatrician may increase or diminish the daily dose of vitamin D depending upon the child's development and environment. Negro children, because of their greater susceptibility to rickets, require larger doses than do white children.

Two or three teaspoonfuls of a good cod-liver oil will furnish at least 1,200 units of vitamin D. Children who show distaste for the oil should not be forced to take their vitamin D in this form. Many instances of lipoid pneumonia have been traced to forced feeding with cod-liver oil.

Halibut-liver oil with viosterol and viosterol in oil are easier to administer, since the amount required is much smaller. About 6 drops daily is adequate for most children. Again it should be emphasized that the oil should not be added to the milk formula or to the orange juice in a glass. It should be dropped into a teaspoon containing a little orange juice so that it will not be lost. *Drisdol*, a soluble solution, may be added directly to the milk.

IT IS unfortunately true that while yeast milk or milk to which vitamin D concentrate has been added offers an excellent and convenient source of vitamin D, its present price makes it prohibitive for many people. In New York City, at the present time, grade B milk can be bought in the stores for 9c to 12c a quart. Vitamin-D milk can be obtained only in Grade A, and sells for 17c a quart. At best, this is a 5c differential—a handy additional profit

for the milk distributors, and an obstacle to the use of an excellent source of vitamin D by many who need it.

With evaporated milk, as with fresh milk, the irradiated form does not offer adequate protection. Some fortified evaporated milk is available, however, and when this is diluted with an equal amount of water, it offers a satisfactory substitute for Vitex or yeast milk, at a much lower cost.

Capsules and tablets of vitamin D concentrate should be used by older children and adults *only when there is a definite indication for a supplement of vitamin D as in malnutrition or pregnancy.*

Artificial sunlight from a mercury-quartz or carbon-arc lamp will prevent and cure rickets, but the dosage and manner of administration require high technical skill and must be reserved for use in a hospital or under a physician's direct supervision. Unregulated exposure to a lamp can cause serious and even fatal reactions in infants. Growing children and adults get all the natural sunshine they require, in season.

Preparations containing malt should not be used as a source of vitamin D, since they may cause digestive disturbances in infants.

The chief reason for the use of vitamin D preparations is the prevention and cure of rickets. It must be remembered, however, that rickets is a disease of infancy and early childhood; and that it occurs but rarely after the second year of life, when the child has begun to eat a mixed diet of natural food substances and obtains adequate vitamin D from his diet and from exposure to sunlight.

Prematurely-born infants, because of their greater susceptibility to rickets, require larger doses of vitamin D than do full-term babies. Larger doses are especially desirable in such infants from birth until the infant reaches normal weight, when it may be reduced to levels recommended for full-term babies. Prematurely-born infants are usually under the care of a physician and it is he who can best decide the dosage and kind of vitamin D preparation to be used.

THE exact requirements of vitamin D from natural sources for children over two years of age and for adults cannot be definitely stated. *All*

available evidence indicates that an adequate amount is normally obtained from a well balanced diet containing milk, butter, and eggs and from seasonal exposure to sunshine.

When these foods cannot be obtained daily, as on relief diets, a small amount of vitamin D concentrate or cod-liver oil is a desirable supplement to the growing child's or the adult's diet, especially if there is inadequate exposure to sunlight. Vitamin D is not easily destroyed by heat so that ordinary cooking does not affect it.

The question of the relation of calcium, phosphorus, and vitamin D to dental decay is still unsettled. While it is unquestionably true that for sound bones and teeth adequate amounts of these substances are necessary, it is equally true that "balanced" diets apparently do not prevent dental decay or cure or arrest it.

The claims of a few observers in England and the United States that they were able to arrest dental decay by administration of vitamins C and D and calcium have not been substantiated. In view of the fact that the cause of dental decay is not definitely known, nothing concrete can be said of the relation of vitamin D to it. No one should be misled into believing that eating irradiated foods or vitamin and calcium tablets will cure or prevent dental decay. The well informed dentist has learned to put little faith in such preparations.

There are certain ailments of older children and adults in which more vitamin D is needed than is normally supplied in the diet. One of these is known as osteomalacia. It is not common in the United States, but may occur in pregnant and lactating women. For osteomalacia and other disorders which require supplementary vitamin D, a physician must determine the kind and amount to be taken.

The use of very large doses of viosterol or vitamin D concentrates for the treatment of arthritis and psoriasis has been recently reported in medical journals and newspapers, but there is as yet no definite evidence that any genuine relief or cure has been obtained. On the other hand, it can be said that serious danger does attend the use of the very large amounts of vitamin D recommended—100,000 to 500,000 units daily.

Such large quantities of vitamin D

may increase the concentration of calcium in the blood to abnormally high levels or produce deposits of lime salts in soft tissues, especially the blood vessels and the kidneys. If it is desired to undergo treatment in spite of such dangers, it is essential to be under the care of a competent physician who can determine the level of calcium in the blood at frequent intervals and watch for symptoms of overdosage.

THE alleged toxicity of cod-liver oil has agitated many people. It can be definitely stated, however, that cod-liver oil or vitamin D concentrates in ordinary doses will not cause heart disease, kidney disease, or any other.

Cod-liver oil, viosterol, or vitamin D concentrates may produce toxic effects in experimental animals, when they are subsisting on limited diets or when large quantities are given. But with humans the daily experience of thousands of physicians indicates that, in normal doses, cod-liver oil, viosterol, and concentrates will not cause harm. Half a million units of vitamin D administered daily to a human being may damage the heart, blood vessels, and kidneys. But such toxic doses are far from the normal therapeutic and prophylactic doses.

It is nevertheless desirable in using vitamin D products to take the same attitude that should accompany the use of drugs. As Dr. Joseph Brennemann, a leading American pediatrician, has recently stated:

I am keenly aware both of the importance of vitamins and of our still abysmal ignorance concerning their optimal representation in our diet. We are quite familiar with the results of an adequate intake of nearly all that have so far been discovered. The upper limit of safe tolerance, ultimate as well as immediate, remains to be determined. That tolerance for vitamins in natural foods cannot be overstepped, or is at least not likely to be, may be accepted. One cannot feel so sure, even in the present absence of evidence to the contrary, that synthetic and pure extract concentrates have not potentialities for harm.

One need not fear any harmful effects from the administration, in normal doses, of cod-liver oil or vitamin D concentrates to infants for the prevention and treatment of rickets. After the age of two, as we have pointed out, vitamin D preparations are unnecessary if the diet is adequate. They should be taken only under the

supervision of a physician when a definite need for them has been proven to exist.

Vitamin A

HARPER'S BAZAAR recently carried an article on vitamins that is typical of the sort of "educational" material purveyed through our "best" magazines. It was written in the finest style of a lady columnist giving sex advice—maternal and with the air of tolerant authority. We quote:

Dejectedly she stood outside the doctor's office. Malnourished!—*she*—it didn't seem possible. And yet that was what the doctor had said . . . malnourished. What did he call it? Avitaminosis . . . lack of vitamins. . . Malnourished! How impossible that such a thing should happen to her. Wasn't that something that only happened to *poor* people? . . . And yet she had begun to *look* so terrible. People would meet her on the street and say, "You just don't look a *bit* well." And it was true. Her make-up wouldn't stay put. Her hair came all out of curl ten minutes after it was set. No use to put on nail polish . . . It just chipped right off again. And what did the doctor tell her was the matter? He told her she needed vitamins! . . . She stepped in her druggist's and gave him the doctor's little slip. He produced a bottle of tiny pills. Then she drove on down to the library, asked for a book on Vitamins and this is what she found (and thought):

"A" helps to keep the eyes cloudless and in a healthy condition. (Then bright eyes are part of this too, hmmm—) Necessary for the normal formation of the enamel of the tooth. . . It tends to prevent dryness of the skin and hair. (How furious she was with Pierre, her hair-dresser, when he refused to change her hair to this new smooth style . . . when he flipped a strand of it superciliously through his fingers. And he was right. It was no wonder her hair didn't coil easily. . .

and so on and so on—a tangle of half truths and pure fabrication.

Let us see what is actually established about vitamin A.

THE source of vitamin A in plant tissues (vegetables and fruits) is in the form of a pigment called carotene. This pigment is known also as provitamin A, because, when fruits or vegetables are eaten, the carotene is converted into active vitamin A by the liver, principal storehouse of vitamin A in the body.

Foods having a yellow or green color are rich sources of vitamin A. Spinach, the green part of lettuce, broccoli, peppers, green asparagus, string beans, yellow corn, sweet pota-

toes, squash, and carrots contain a good deal of carotene; white corn, white potatoes, white asparagus, and the heart of lettuce are poor sources. Of the fruits, apricots, mangoes, and yellow peaches are some excellent sources.

Many animal products contain actual vitamin A. The best sources are fish-liver oils, eggs, butter, liver, and cheese. Milk, cream, red salmon, and oysters are also good sources.

Frozen vegetables appear to retain their content of vitamin A, and cooking or heating destroys very little of the vitamin. Heating at high temperatures and in the presence of oxygen appears necessary for the destruction of vitamin A or carotene. Even so, for most complete preservation, the vegetables should be cooked for as short a time as possible in a covered pot. Commercial canning is now done in such a manner that oxygen is excluded, so that only slight destruction of vitamin A is involved.

IT HAS not yet been established just how many International units of vitamin A are necessary for optimum health; authorities differ, and estimates range from 1,500 on up. But the infant who gets his milk, butter, and eggs daily will have ample vitamin A, especially if he also gets cod-liver oil.

From the age of three to seventeen it has been estimated that larger amounts of vitamin A are required, but it is unnecessary to resort to fish-liver oils or concentrates provided the diet is well balanced—that is, if it includes one to two glasses of milk, one to two eggs, about a half-ounce of butter, and green vegetables or yellow vegetables daily. The obsession many mothers have about spinach is justifiable almost solely on the ground that it is a rich source of vitamin A; while the total iron content of spinach is high, there is evidence that this iron is not easily absorbed and utilized in the building of the blood.

The pregnant and nursing woman needs even more vitamin A and it may be necessary for her to supplement the natural sources.

Mineral oil, used as a laxative, carries away from the body some of the vitamin A of vegetable origin. If the diet is well balanced, however, and average doses of oil are used, the loss is negligible (see article on Constipa-

Sustaining Membership

CU's Executive Board has approved the establishment of a new type of membership, to be known as a Sustaining Membership and to cost \$10 a year.

Members paying this fee will receive, in addition to the *Reports* and the *Annual Buying Guide* and a binder for the *Reports*, all special material issued by CU during the year—books, special reports, pamphlets, etc. Like all other members, sustaining members will, of course, have voting privileges.

CU members able to afford the \$10 fee may want to consider renewing their membership on that basis as a means of contributing to CU's development. And quite apart from this consideration, sustaining memberships provide a convenient way to obtain all CU material without the bother of ordering it piece by piece.

Special material issued last year, including Bernard Reis's book, "False Security," came to \$3. Special material scheduled for the months to come will probably exceed that figure.

tion in the *CU Reports* for November, 1937).

When there exists a state of hypersensitivity or allergy to foods rich in vitamin A and these foods cannot be eaten, it is essential that another source of the vitamin, such as fish-liver oil or carotene, be supplied. The same rule applies to children in whom, because of intestinal disorders, vitamin A is poorly absorbed, and to older people subsisting on planned restricted diets such as are sometimes prescribed in gall-bladder disease and obesity.

VITAMIN A is known today to be essential to growth, vision, and the maintenance in normal condition of certain specialized tissues of the body. That it is essential to growth was the first thing established about it. It was then discovered that lack of the vitamin produces a disease of the eye known as "xerophthalmia," in which the outer lining of the eye becomes thickened and eventually destroyed.

Vitamin A is also essential in maintaining good vision. Individuals who get an inadequate amount suffer from what is called "hemeralopia" or impaired ability to see in dim light ("night blindness").

Recently several investigators claimed that through the use of a special photo-

meter they had detected this condition among a large number of school children and young adults. They believed it to be a manifestation of vitamin A deficiency, claiming that it was cured by cod-liver oil or vitamin A concentrates. But the photometers, investigated by biophysicists specializing in optics, were found to be something less than reliable as indicators of "night blindness." The biophysicists, studies suggest that deficiencies in vitamin A as measured by the presence of hemeralopia are much less common than first indicated. Manufacturers have seized upon this night blindness theme and are using it to stimulate the sale of vitamin A products.

Other manifestations of mild vitamin A deficiency occur and are being more often recognized by physicians. Some of these are (1) thickening of the skin of the limbs, (2) urinary tract infections with stone-formation. Further work is required before anything more definite can be said about these disorders.

There has been much discussion of the relation of vitamin A to infections. Most of it is found in ads for cough syrups and cold remedies, where the vitamin goes under the name of the "anti-infective" vitamin. It is true that a person who is getting an inadequate supply of vitamin A is less capable of resisting infection than a normal person. The reason for this is that adequate vitamin A is necessary for the maintenance of a normal lining of the body cavities, which is important if bacteria are to be resisted. The way to improve the resistance, of course, is to have an adequate diet.

It is not true, however, that an amount of vitamin A in excess of that obtained by an adequately nourished person will further increase resistance to infection. As far as is known, an excess of vitamin A has no influence on the complex immunologic processes that are involved in infections. And the history of experiments in cold prevention bears this out. Taking an excess of vitamin A in the form of an artificial preparation will not prevent or reduce either the frequency or the severity of colds or the grippe.

(This is the second of three articles on the subject of vitamins and vitamin preparations. The third article will appear in an early issue of the *Reports*.)

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A NON-PROFIT MEMBERSHIP ORGANIZATION OF CONSUMERS

55 VANDAM STREET, NEW YORK, N. Y.

ESTABLISHED FEBRUARY 6th, 1936

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