LETTERS

Should the Gas Guzzler Go?

With the price of gasoline going up and up, it will soon be worthwhile to buy a car with better gas mileage, even if the old gas guzzler still has a lot of miles in it, before you *have* to get rid of it. Has that time come?

Would the fuel savings from the new car exceed its cost? Of course, the savings come in gradually, during the time that you would otherwise keep using the old car, while the new car cost occurs all at once and right away or as a down payment followed by loan payments. For simplicity, I assume that you would buy a new car after, say, Y years whether you buy a new one now or not. If you would have kept the old car for Y or more years, where

$$Y = (R \times M \times C)/(D \times P)$$

before trading it in, you will save money by trading it now. In this equation, R is the ratio of the new car's gas mileage to the difference between the new and the old mileages; M is the old car's gas mileage, in miles per gallon (mpg); C is the cost of the new car, in dollars; D is the average distance you drive, in miles per year; and P is the current price of gasoline, in dollars per gallon.

For example, if your gas guzzler gets 10 mpg, the new car 40 mpg, and it costs $8000, you drive 15,000 miles per year, and gas costs $1.30 a gallon, then $Y = 5.47$ years. If gas goes up to $5 a gallon, you would save money by getting rid of the guzzler right away, even if you were only going to keep it for 17.1 more months!

A more elaborate expression takes into account the interest you could have earned (but have to pay instead) on your car payments, further expected increases in gasoline prices, and differences in insurance and maintenance costs (if you can estimate them).

$$Y = \frac{RMC}{DP}\left(\frac{1+k}{1+g}\right) \times \left\{d + (1-d)\,\frac{i}{k}\left[\frac{1-(1+k)^{-N}}{1-(1+i)^{-N}}\right]\right\}$$

where R is, more precisely, the ratio of the new car's expenses per mile (instead of miles per gallon) to the difference between the old and the new; M, C, D, P are as above; k is the interest rate you can get on your money, in percentage per month; i is your loan interest rate, in percentage per month; g is the rate of increase in gasoline prices, in percentage per month; d is the fraction of C you have to pay as a down payment; and N is the length of the new car loan, in months.

If one uses the Jet Propulsion Laboratory Credit Union's current values of $k = 0.583$ percent per month, $i = 0.7$ percent per month, $d = 10$ percent, and $N = 48$ months; and assuming $g = 6$ percent per month, the more elaborate estimates of Y corresponding to the above example are 5.32 years if gas costs $1.30 per gallon, 16.6 months if gas costs $5 a gallon. If g were zero (don't we wish!), we would want to get rid of the guzzler if $Y = 5.64$ years or 17.59 months.

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Soviet Exchanges: An Alternative Path

Nicholas Wade errs when he concludes, in his recent article "Science exchanges chilled by Soviet invasion of Afghanistan" (News and Comment, 1 Feb., p. 510), "The mechanism of the exchanges gives [the United States] access to the closed Soviet society which it would not otherwise have. . . ." Not true! American scientists with some fluency in Russian have been collaborating with their Soviet counterparts simply by purchasing an extended stay in the Soviet Union on a regular tourist visa. The official exchange mechanisms can be bypassed entirely. It is fortunate that Western scientists can still decide for themselves—with a little help from their institutions' travel funds—whether it is unpatriotic or not to establish or maintain collegial ties within the Soviet Union.

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Soviet and U.S. Coal Supplies

In her review (7 Dec. 1979, p. 1174) of *The Soviet Energy System* (*1*), Gloria Duffy reports that "Soviet coal supplies are estimated at 6790 billion metric tons" as opposed to "reserves of the United States, placed at 437 billion tons." The two tonnage estimates are in no way comparable. The 6790 billion metric tons refers to the total coal resources of the Soviet Union, identified as well as undiscovered. The 437 billion short tons is not for reserves but refers to the U.S. coal reserve base, which is the identified coal from which reserves amounting to about 50 percent of the reserve base might eventually be withdrawn. A comparable U.S. coal resource tonnage estimate to that quoted for the Soviet Union is about 4000 billion short tons, as reported by Averitt (*2*). The latter estimate is now being revised by the U.S. Geological Survey for publication in about 1981 and will most likely be higher.

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References

1. L. Dienes and T. Shabad, *The Soviet Energy System, Resource Use and Policies* (Winston, Washington, D.C., and Halsted-Wiley, New York, 1979).
2. P. Averitt, *U.S. Geol. Surv. Bull. No. 1412* (1974).

Psychotherapy and Health Insurance

The fight to have psychotherapy by psychologists covered by Medicare and eventually by all health insurance (News and Comment, 4 Jan., p. 35; 22 Feb., p. 822) is of interest to me, even though I am a psychiatrist and so already covered. Although I have reaped the financial benefits of legislation in Massachusetts making $500 a year of outpatient psychotherapy a mandatory coverage in all health insurance policies, I have always thought that psychotherapy should *not* be covered by Medicare, welfare, or any insurance plan. I believe psychotherapy or psychoanalysis—that is, simply, the talking cure—should be paid for by the patient. For those who are unable to pay and are truly in need, I believe charity is the best answer.

The question of which type of therapy is effective is irrelevant to me. I enjoy doing psychotherapy, and I believe insurance coverage is destructive to the whole process. First, because it is impossible to tell which type of therapy is more effective, if psychiatrists are covered, then psychologists, social workers, nurse therapists, pastoral counselors, vocational rehabilitation counselors, occupational therapists, hypnotherapists, and so forth, should also be covered. If not, competition is being limited, and prices become inflated. This is not consistent with our democratic, free-enterprise system.

Second, government or insurance coverage interferes with the therapeutic

process itself. Coverage by someone other than the patient (i) promotes dependency; (ii) interferes with the recognition of patients who are inadequately motivated to do the work of therapy; (iii) beclouds the reasons for breaking through resistances to therapy, since a waste of time is no longer a waste of money; (iv) obviates some of the best opportunities for showing the patient how to deal with anger, which is the emotion behind most neuroses; and (v) takes away from the therapist's ability to serve as a convincing example of the value of independent functioning.

An analogy might illustrate these points more clearly. If the government or insurance paid for skiing lessons, many people would start taking lessons just for the fun of it. Since more teachers would be needed, the poorer teachers would not be weeded out. A number of seriously dedicated teachers faced with large numbers of uncaring students would give up their dedication to teaching efficiently. The people who really wanted to learn serious skiing wouldn't be able to differentiate between good and fair instructors any longer, so they would go outside the country to where the whole thing is taken more seriously.

Finally it is the conflict between the paying bureaucracies and the therapists which serves to destroy the efficacy of psychotherapy. As the numbers of patients and therapists grow, the government and the insurance companies try harder and harder to economize. They begin demanding more and more qualifications, forms to be filled out, justifications for therapy to be delineated, reviews, and so forth. They begin to see the benefits of delaying and of making errors. In order to get paid, therapists must spend more and more time and creative effort on this fight. Eventually the struggle for money commands more attention than the therapeutic outcome. The patient is the one who loses.

I have no doubt that psychotherapy is frequently very helpful. Its destruction would be a great loss to our society. Why not let the consumers choose the type of therapy they want and decide whether the pain of their symptoms warrants the outlay of their money, time, and effort on the chance that therapy might work? I'm sure the price would then come down.

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Erratum: In the photograph on page 626 accompanying the article "A new call for abolishing the NRC" (News and Comment, 8 Feb., p. 624), the official shown with Mitchell Rogovin was Lee V. Gossick, the Nuclear Regulatory Commission's executive director for operations, not John F. Ahearne, the commission chairman.