

II

Time to Burn

You have reached the age of twenty, let us say, and weigh net 150 pounds. How much energy do you still have to burn up before your machinery gives out? About 52,840,800 calories, according to the closest calculations of the physiologists. How long will this amount last? All depends, of course, on the speed at which you burn it up.

What if you decide to exist as long as possible, and to this end you do absolutely nothing? What if you lie in bed as long as you can endure it, then rise and loll about all day, then off to bed again, never lifting a finger except when you have to? Well, with luck, you might hang on for 29,356 days, or about 80 years, four months and 24 days. That would bring you to the ripe age of a century.

What if you undertook to work hard every day, seven days a week, fifty-two weeks a year, without let-up, until you wore out? Then you would last only 48 years and 3 months. This assumes that the work you select burns you up at the rate of 3,000 calories a day—a fairly common rate in rather hard but not strenuous labor.

What if you decide to put in every day at running Marathon races and mountain climbing? Then your sojourn on earth is cut squarely in half again, for such grinding toil burns up 6,000 calories daily. You have only 24 years and some 45 days to go.

We know that nobody ever works or loafes on any such simple programs. We always knock off now and then. We always miss out days or weeks on account of sickness. We lose our jobs and hang around looking for new work. So our actual distribution of energy is irregular and spread quite unevenly over our days. But these over-schematic programs sharpen my point about energy; they show it is a quantity that is fixed according to your body weight, usable at many rates, and—once used—never to be recalled. For each pound of weight, an adult can burn about 252,242 calories sooner or later. This is more than three times as much as any horse or cow, any dog or cat has on reserve.

How slowly a man can consume himself has never been answered satisfactorily. To be sure, we know that, under ordinary conditions, the mere maintaining of bodily functions burns up about 1,800 calories every twenty-four hours. But may not new conditions be devised which reduce this considerably? Jacques Loeb, you may recall, lengthened the life span of some tiny creatures 1,000 times by slowing down their basal metabolism. Cold, a diet deficient in meat proteins, and various applications of drugs re-

tard the furnace. Many minor tricks of posture, breathing, and the like help a little, as we shall show elsewhere. That any immense retardation is possible without serious consequences seems most improbable, in the present state of science. But the possible retardations have not been well explored. So let us inquire into them.

We have seen the difference between energy and power, and we have also touched upon the part which the rate of energy consumption plays in determining the power factor. Let us look at this latter point now a little more closely.

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