

the animal's body with the quantity it needs. As Cannon points out, the liver is the busiest and most versatile of all body organs. Yet three fourths of the liver can be lost without causing any serious interference with the important functions it performs.

The digestive system also has a wide margin of safety. Most of the stomach can be removed without greatly impairing digestion and nutrition. Some people have lost as many as 10 feet of small intestine without serious results, and a large part of the large intestine can be cleared away with impunity. Another factor of safety in the alimentary canal is the provision of enzymes at various stages along the route which can duplicate one another's work.

Many more instances might be given to prove that our bodies are constructed with a wide margin of safety. Perhaps the best proof is that we ourselves, without being consciously aware of it, conduct our lives on the assumption that our bodies are run according to an economy of abundance rather than an economy of scarcity. Not until we are forced to economize on bodily strength, not until we lose several feet of intestine or a kidney or a lung, do we realize that we have been endowed by Nature with *more than enough* rather than *just enough* to live on.

Here the old adage "willful waste makes woeful want" may be inserted as a warning. Factors of safety are for unlooked-for contingencies. By and large we get along much better if we have all our parts in place and working properly. It is not wise to spend reserves recklessly or to invest them in risky ventures simply because we have them. It is a very comfortable feeling to know they are there in a safe place ready to be drawn on when the need arises. Thus, the fact that our bodies are constructed on an extravagant scale is no reason for sacrificing our reserves to ambition, carelessness, ignorance, preventable infection, or whatever else exacts the tribute that leads toward untimely death.

It is highly encouraging to note that immunization procedures, improved methods of diagnosis, and other measures for controlling disease in childhood are making it possible for many more people to grow up with their margins of safety undepleted. Thus we are coming closer to that hope, so beautifully expressed by Dr. Lee K. Frankel, "of growing old gracefully, in the possession of our mental and physical powers, so that whatever the biologic age, whether the present one or whether through the efforts of science it may be extended, the final breakup will come as came that of the deacon's one-horse shay. A century of unimpaired usefulness and then dissolution, with springs and axles and hubs and tires going to pieces all at once. When we can approximate this happy state, we shall understand what another great American poet meant when he asked us to meet the great finale 'like one who wraps the drapery of his couch about him, and lies down to pleasant dreams.'"

#### REFERENCES

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