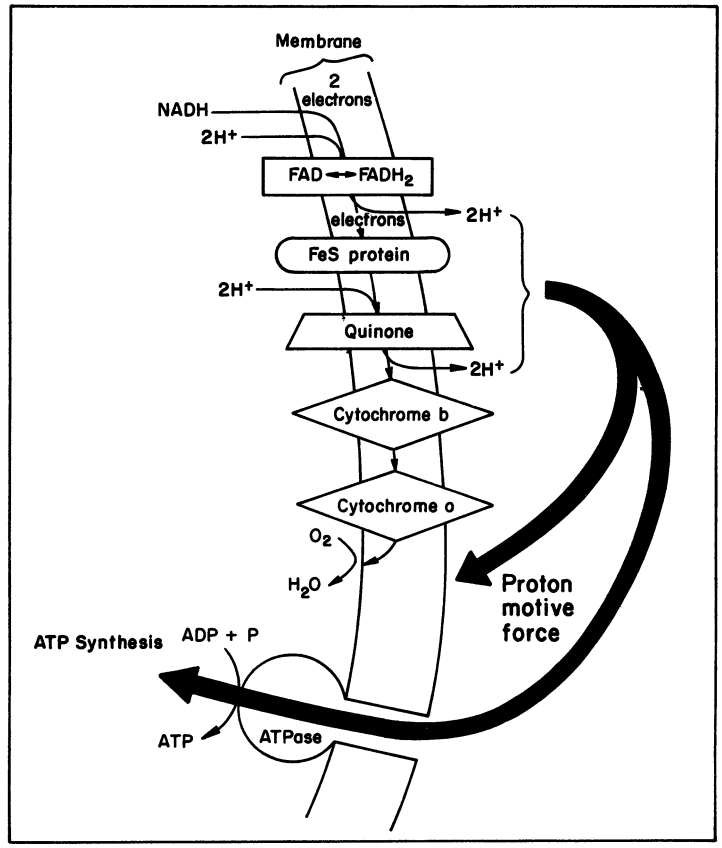

Figure 5.6. Electron transport and electron transport phosphorylation. *Top:* Oxidation of NADH and the flow of electrons through the electron transport system, leading to the transfer of protons (H^+) from the inside to the outside of the membrane. The tendency of protons to return to the inside is called *proton-motive force*. *Bottom:* ATP synthesis occurs as protons reenter the cell. An ATPase enzyme uses the proton-motive force for the synthesis of ATP. The proton-motive force is discussed in Section 4.7. (With permission, from T. D. Brock, K. M. Brock, and D. M. Ward, *Basic Microbiology with Applications*, 3d ed., Pearson Education, Upper Saddle River, NJ, 1986, p. 71.)

5.5. CONTROL SITES IN AEROBIC GLUCOSE METABOLISM

Several enzymes involved in glycolysis are regulated by feedback inhibition. The major control site in glycolysis is the phosphorylation of fructose-6-phosphate by phosphofructokinase.

$$\text{fructose-6-phosphate} + \text{ATP} \longrightarrow \text{fructose-1,6-diphosphate} + \text{ADP} \qquad (5.8)$$

The enzyme phosphofructokinase is an allosteric enzyme activated by ADP and Pi, but inactivated by ATP.