Fig.08.02

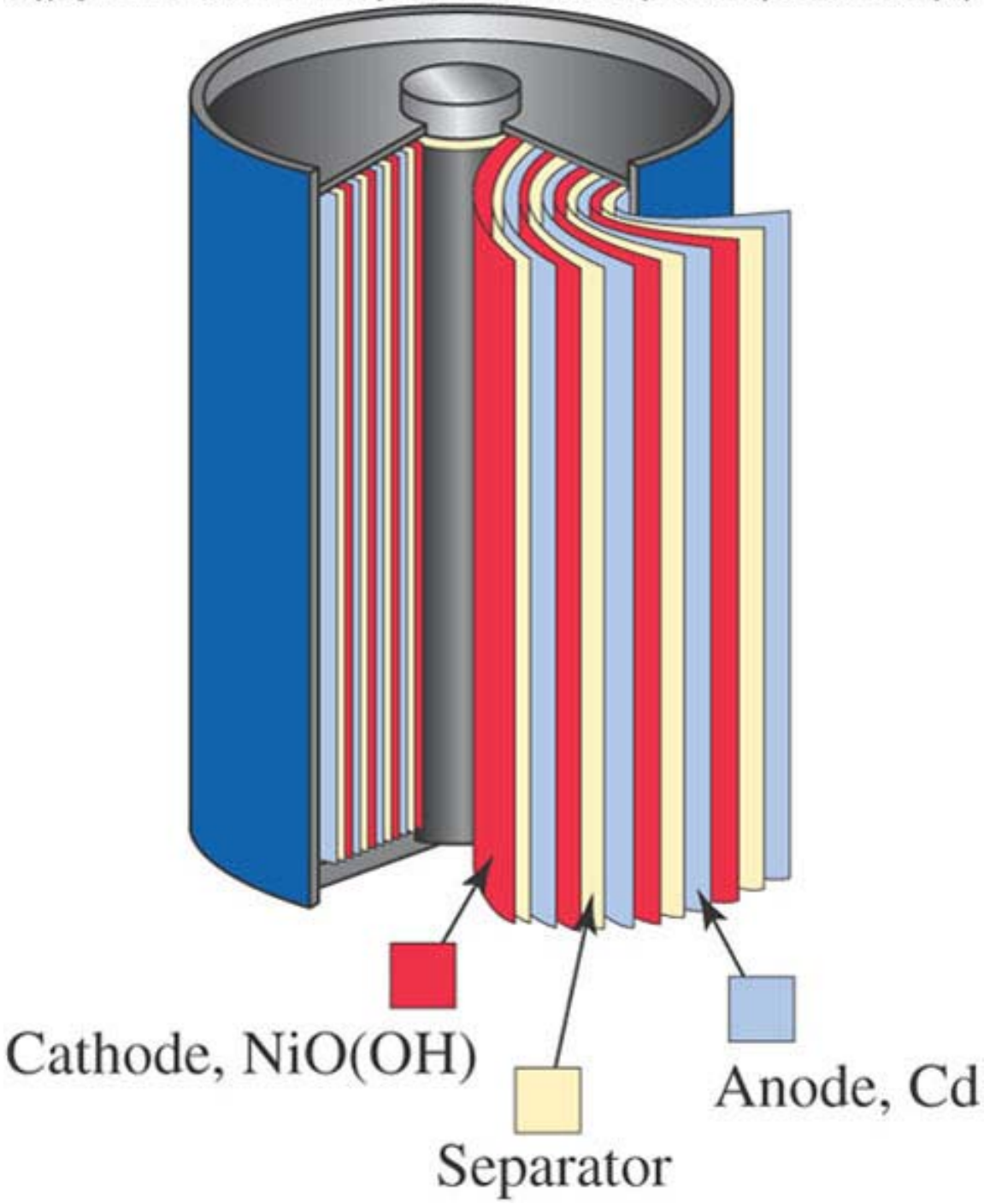
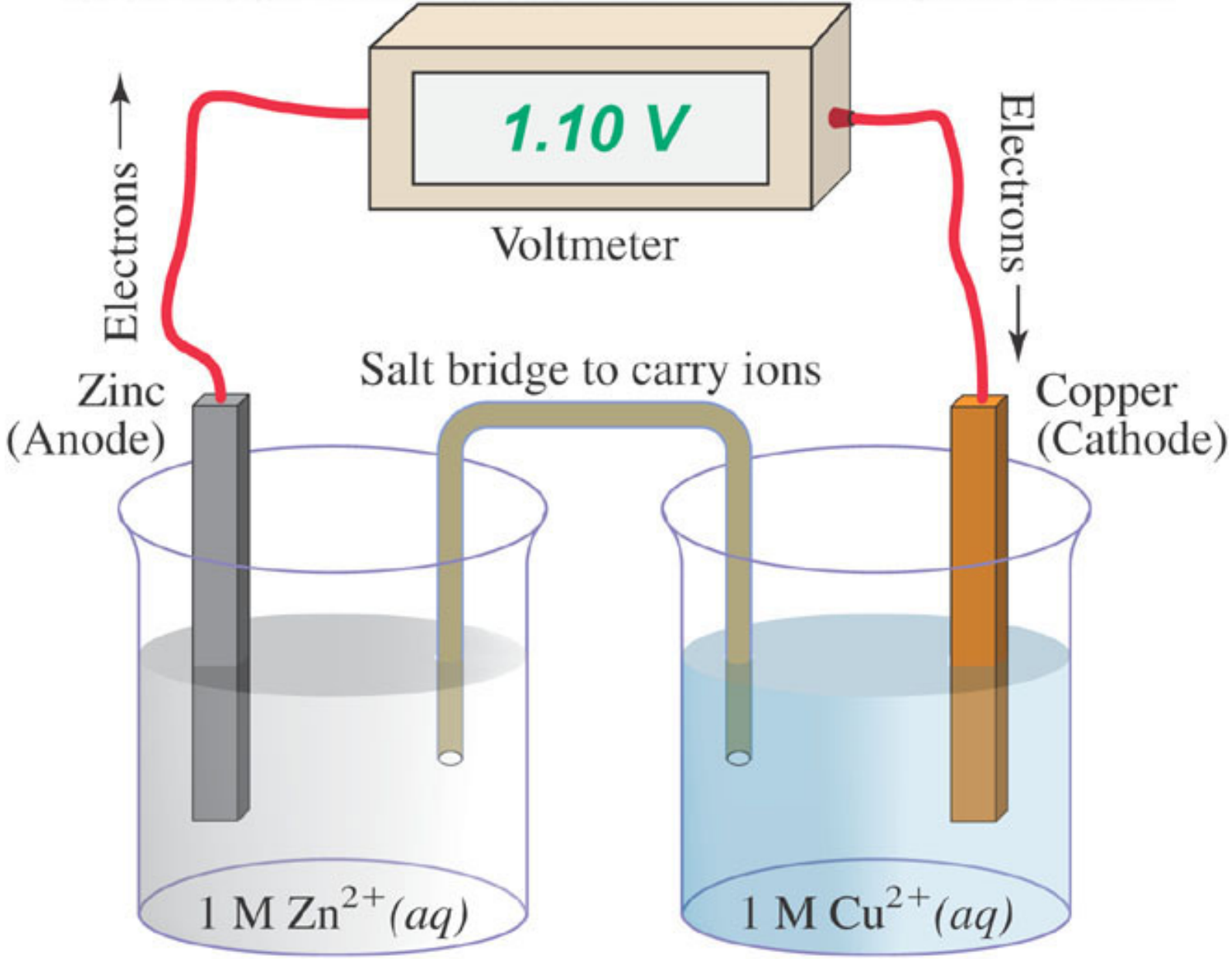


Fig.08.p360



$$Zn(s) + Cu^{2+}(aq) \longrightarrow Zn^{2+}(aq) + Cu(s)$$

Fig.08.04

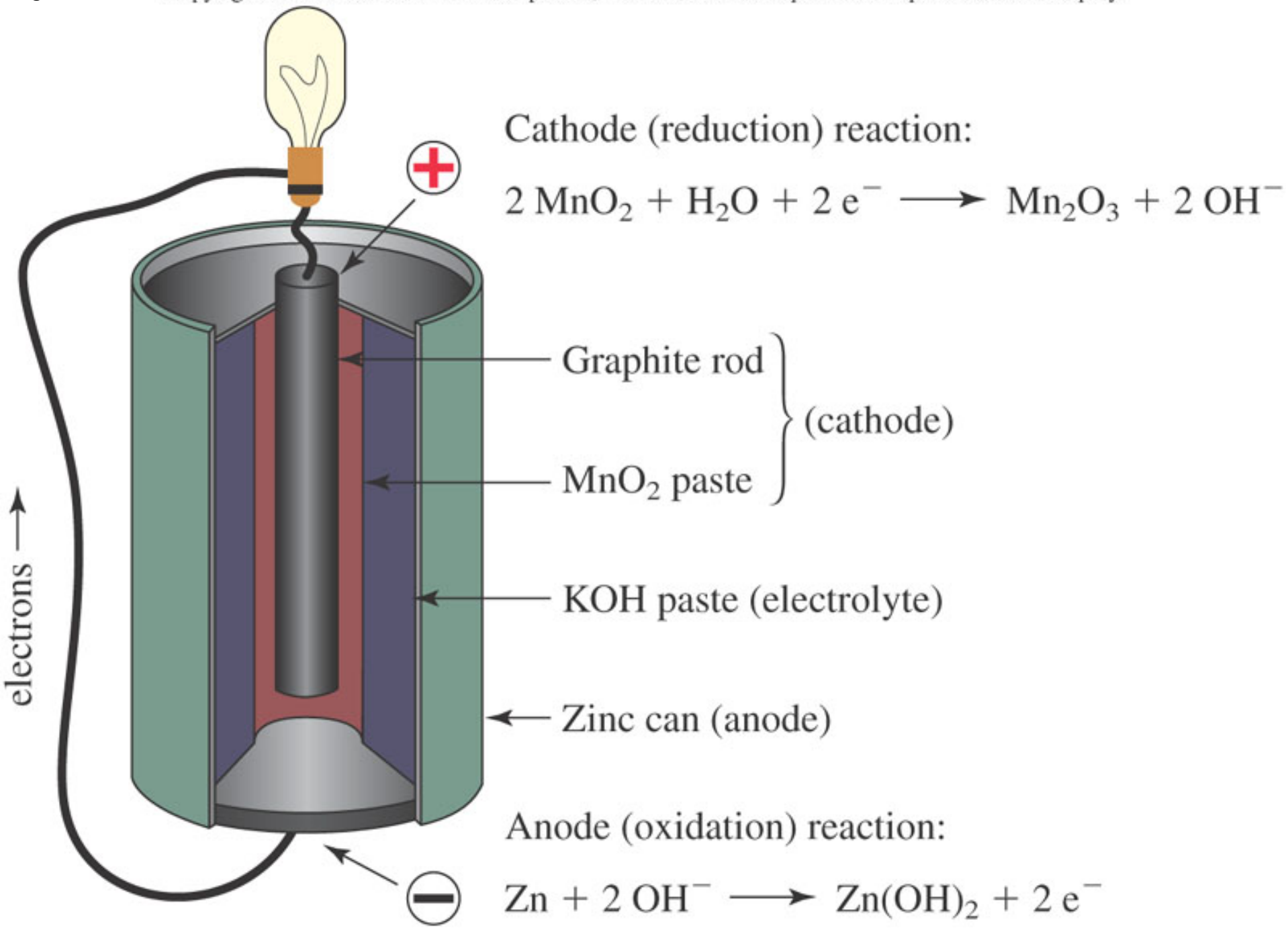


Fig.08.05

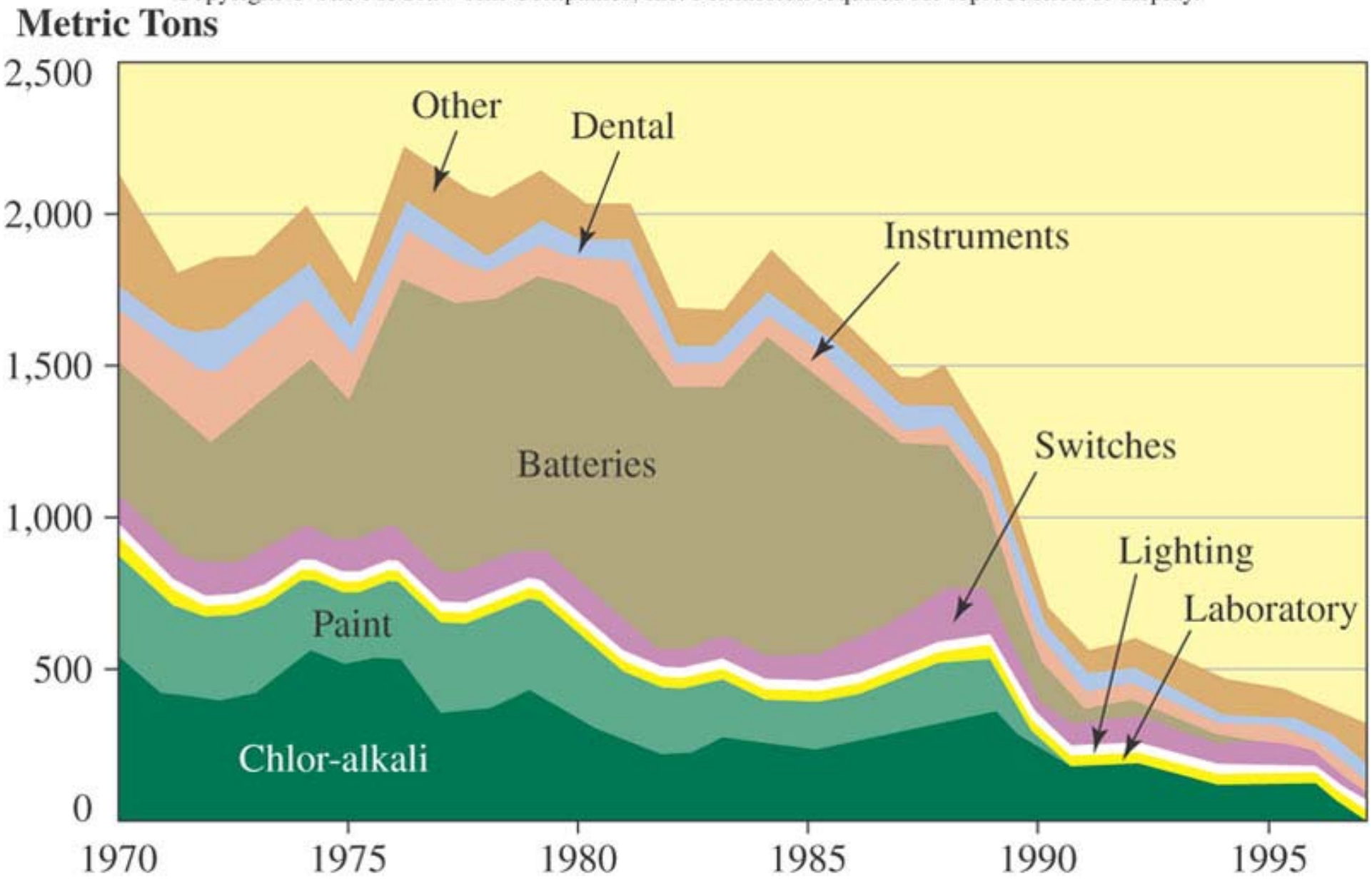


Fig.08.06

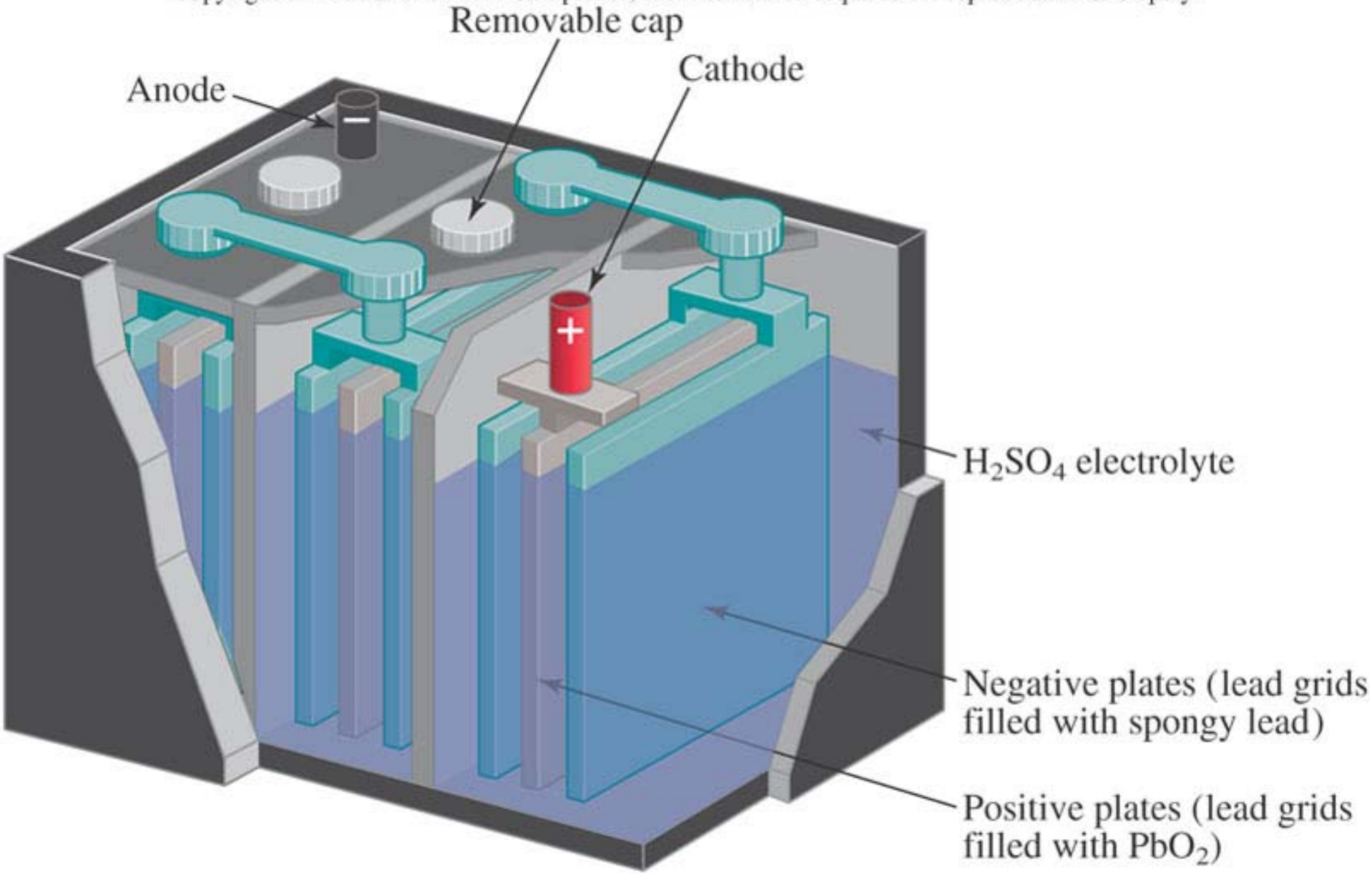


Fig.08.07

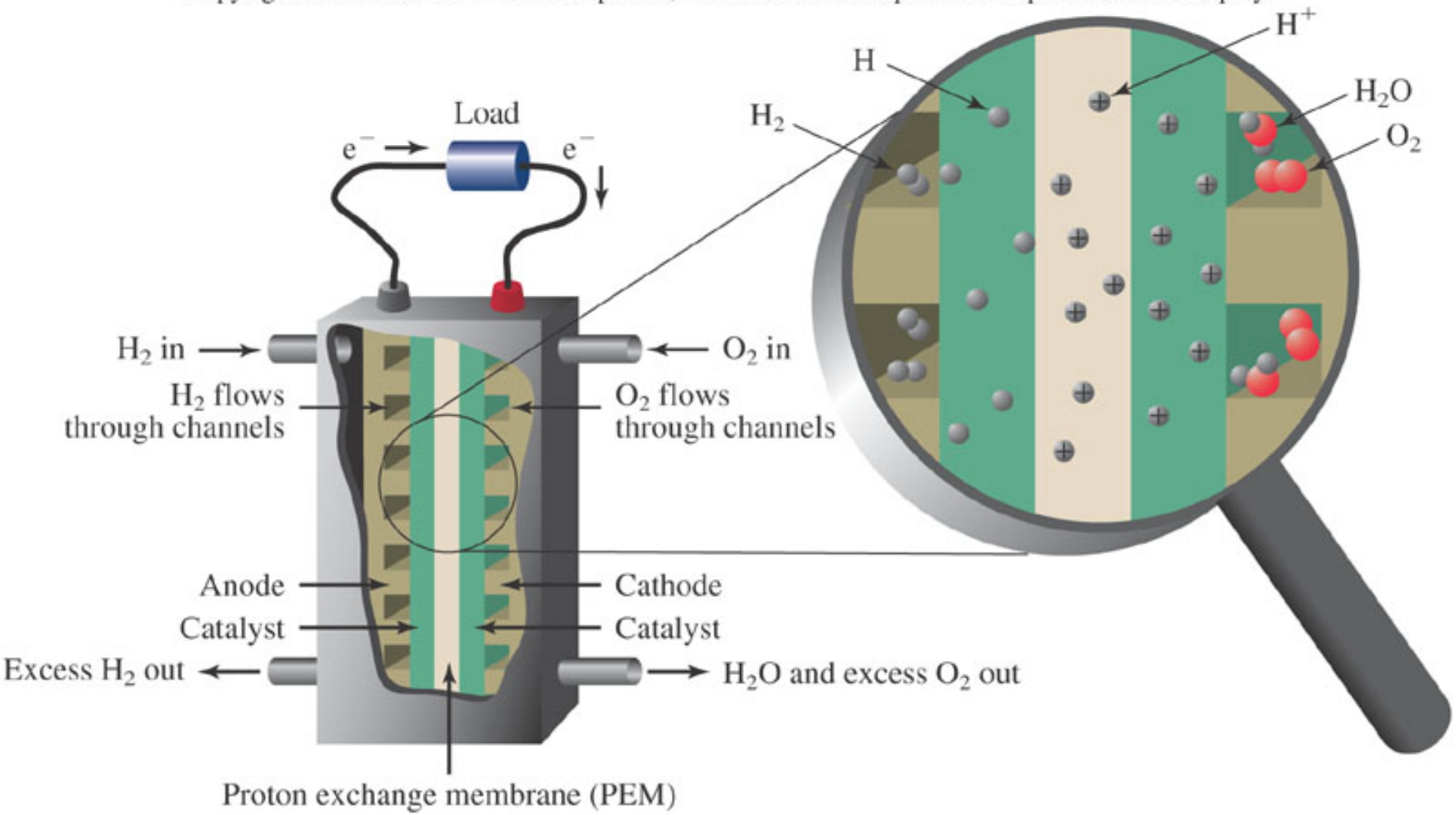
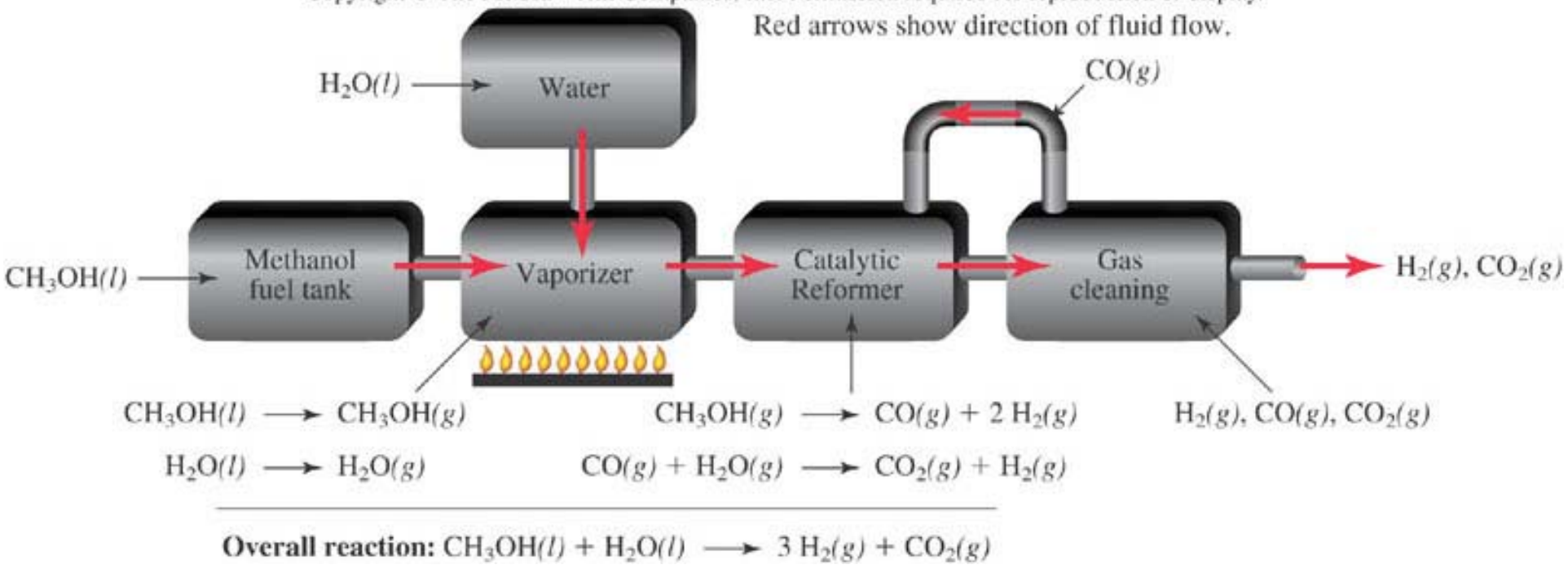


Fig.08.08



Overall reaction: $CH_3OH(l) + H_2O(l) \longrightarrow 3\,H_2(g) + CO_2(g)$

Fig.08.10

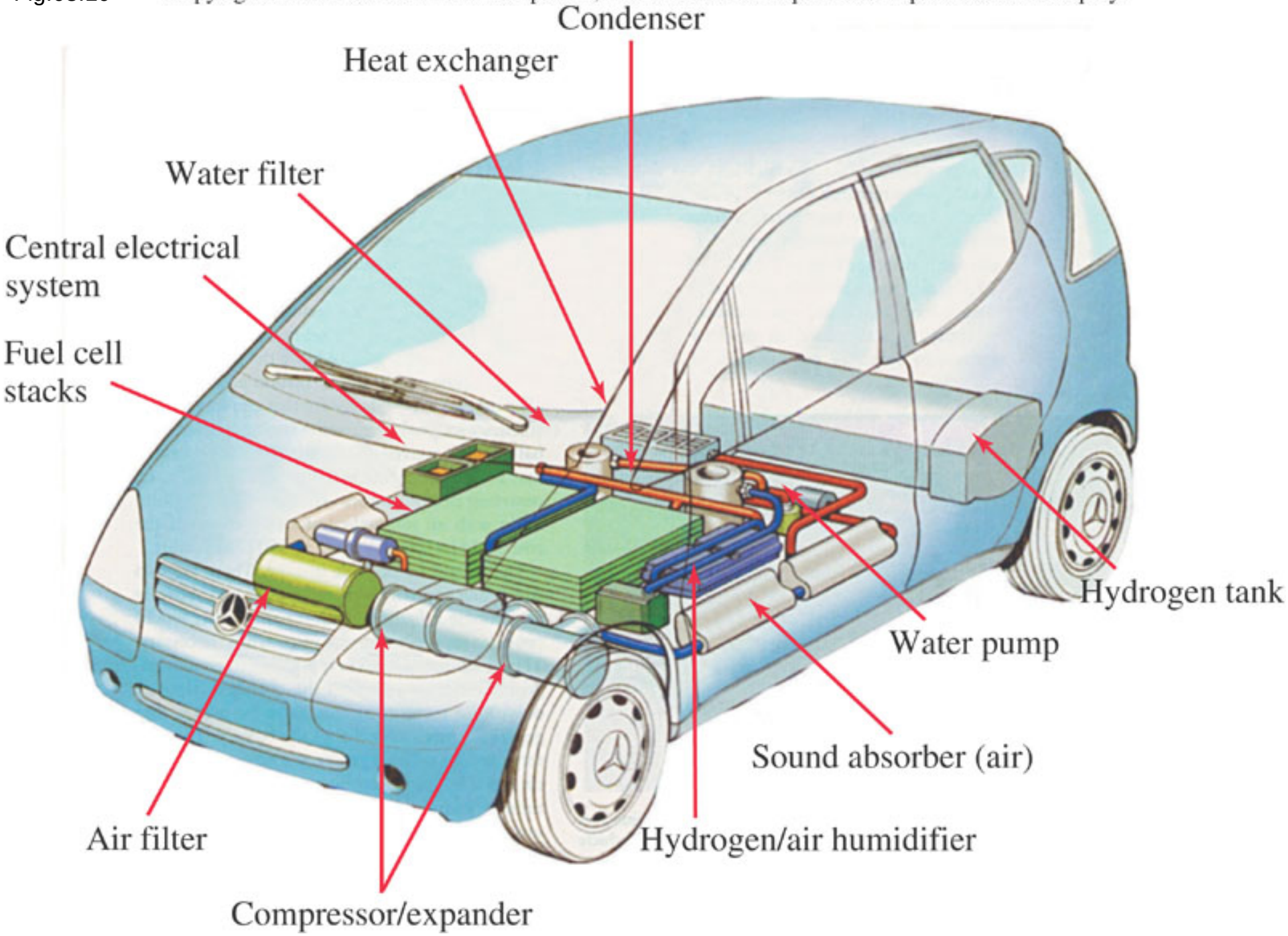


Fig.08.16

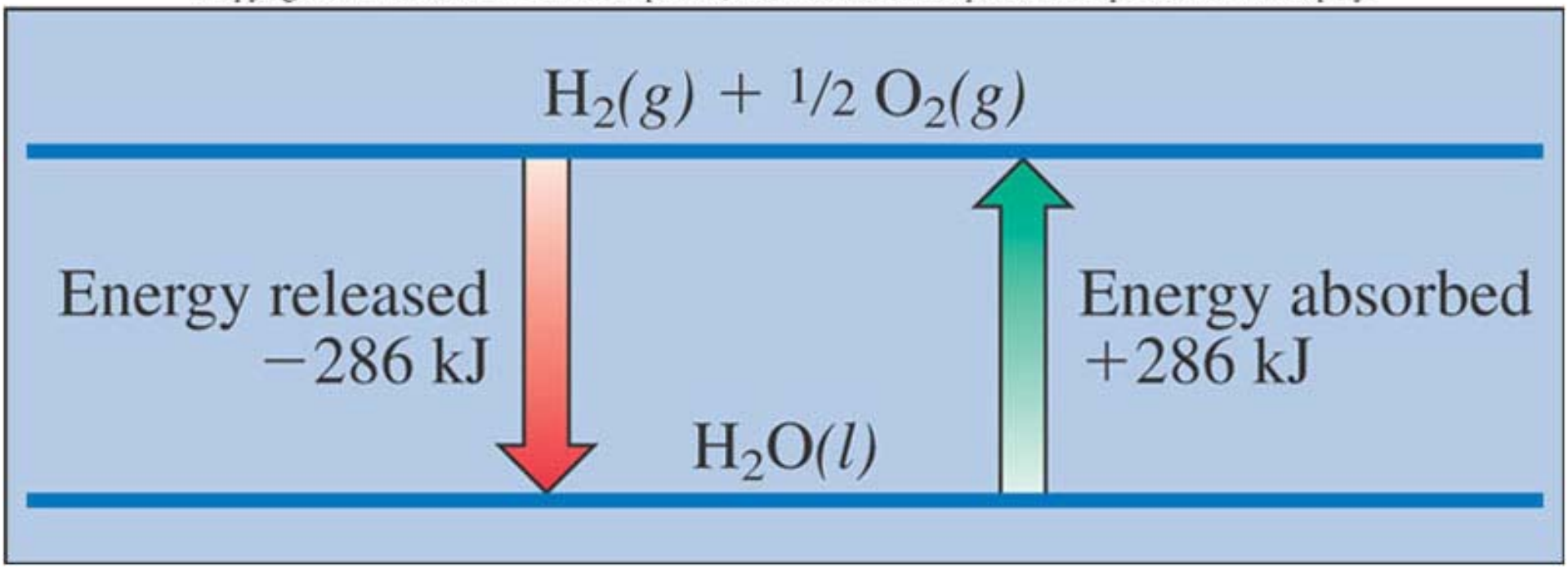


Fig.08.17

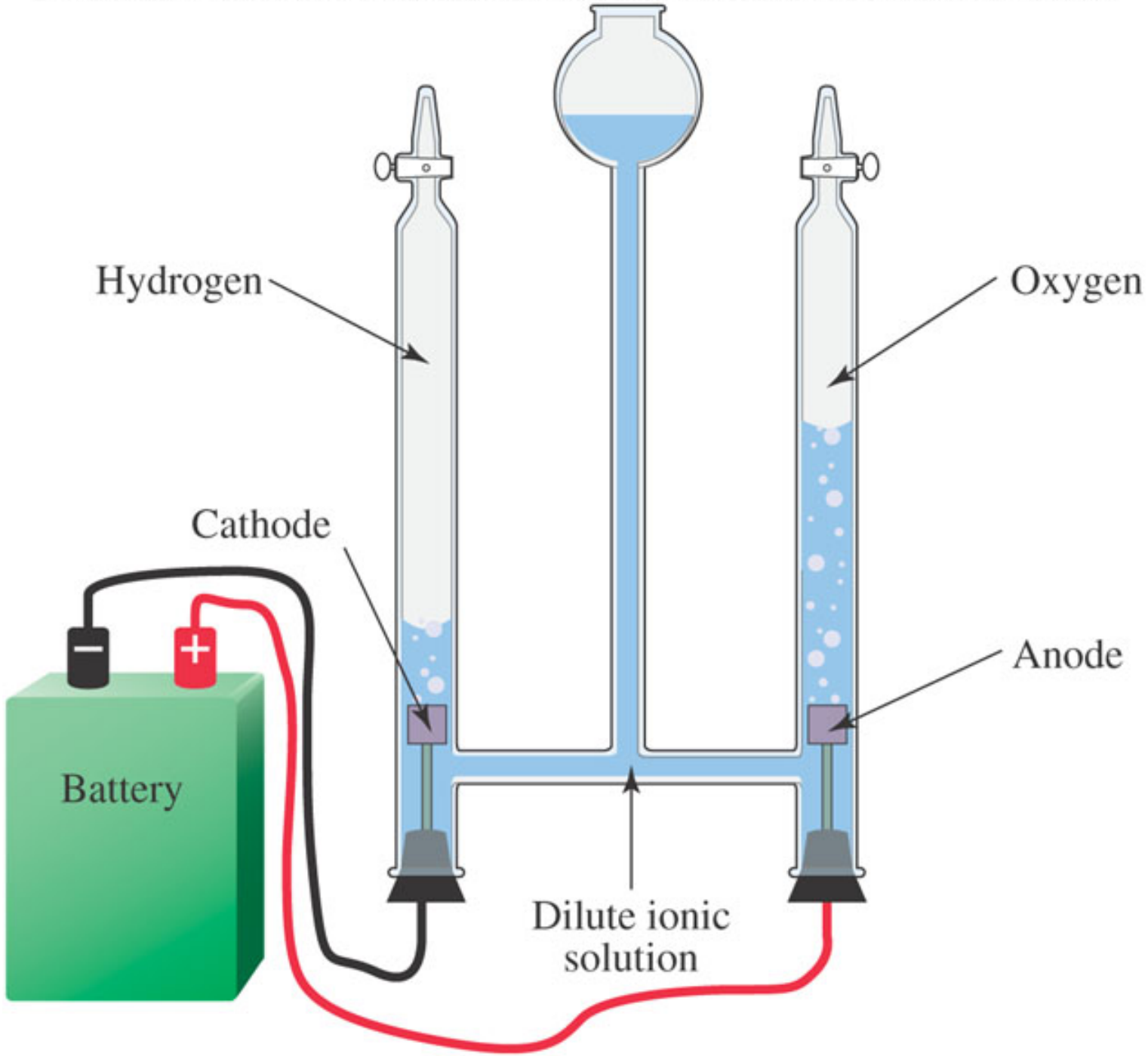


Fig.08.18

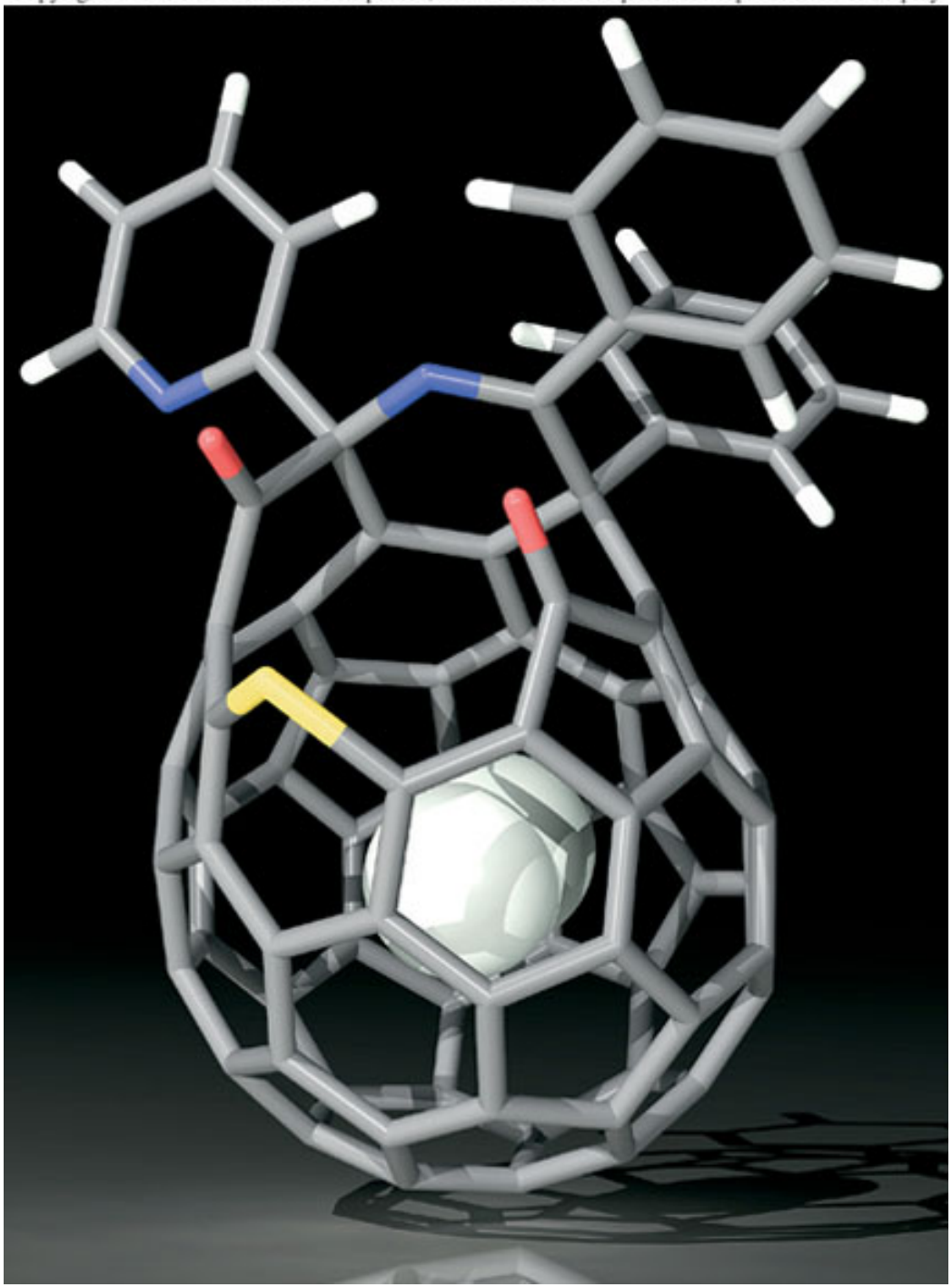
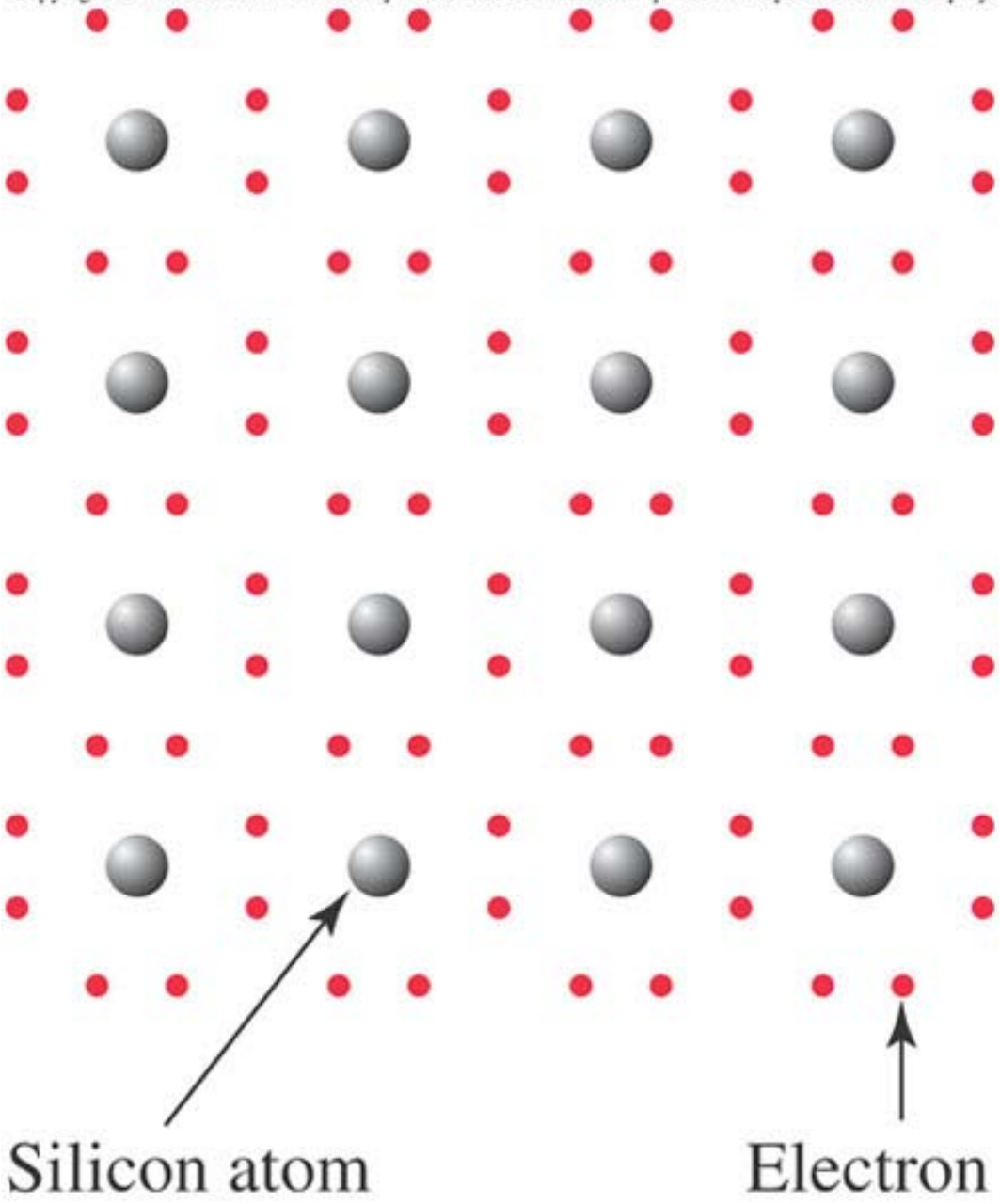
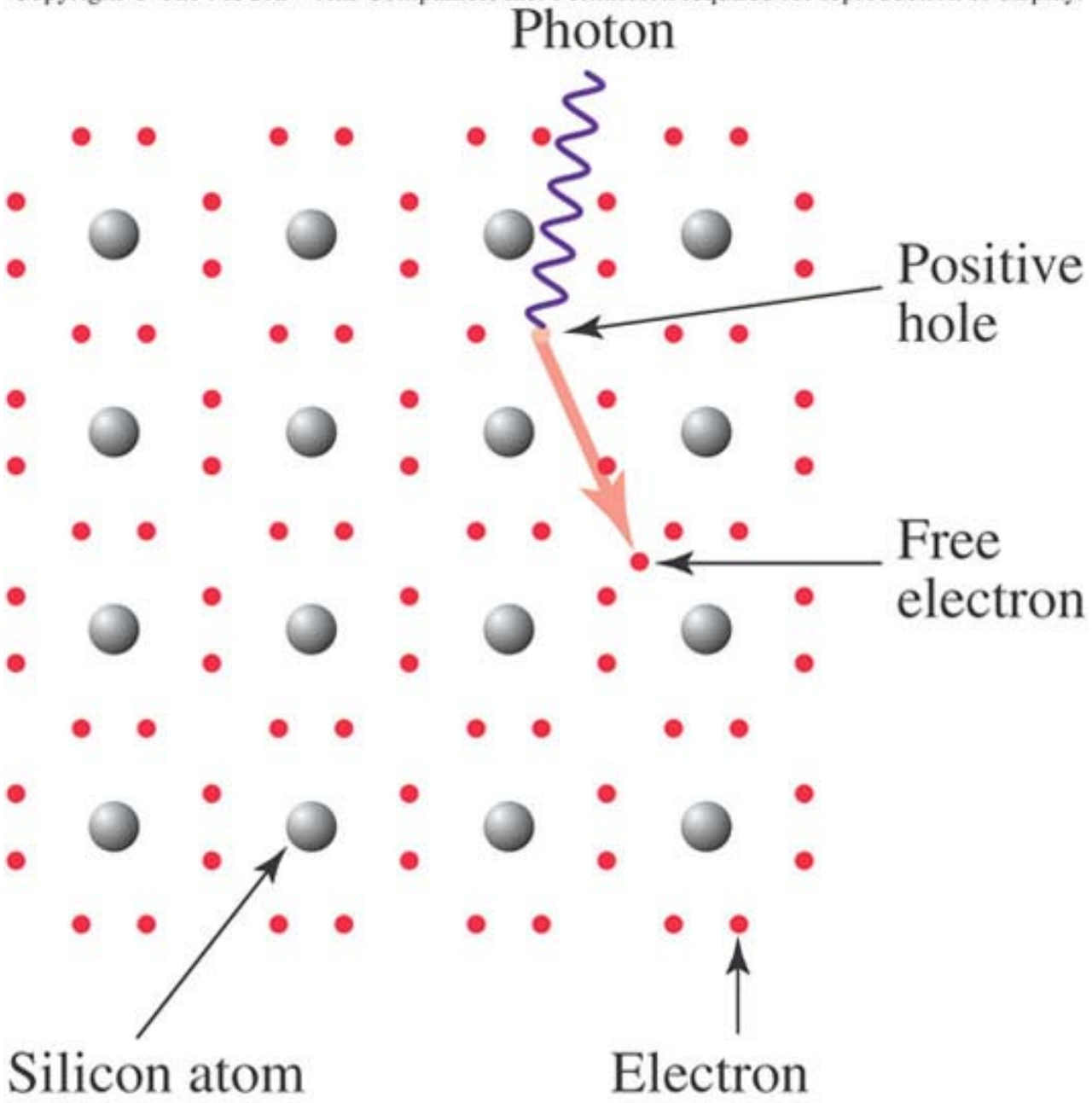


Fig.08.20a



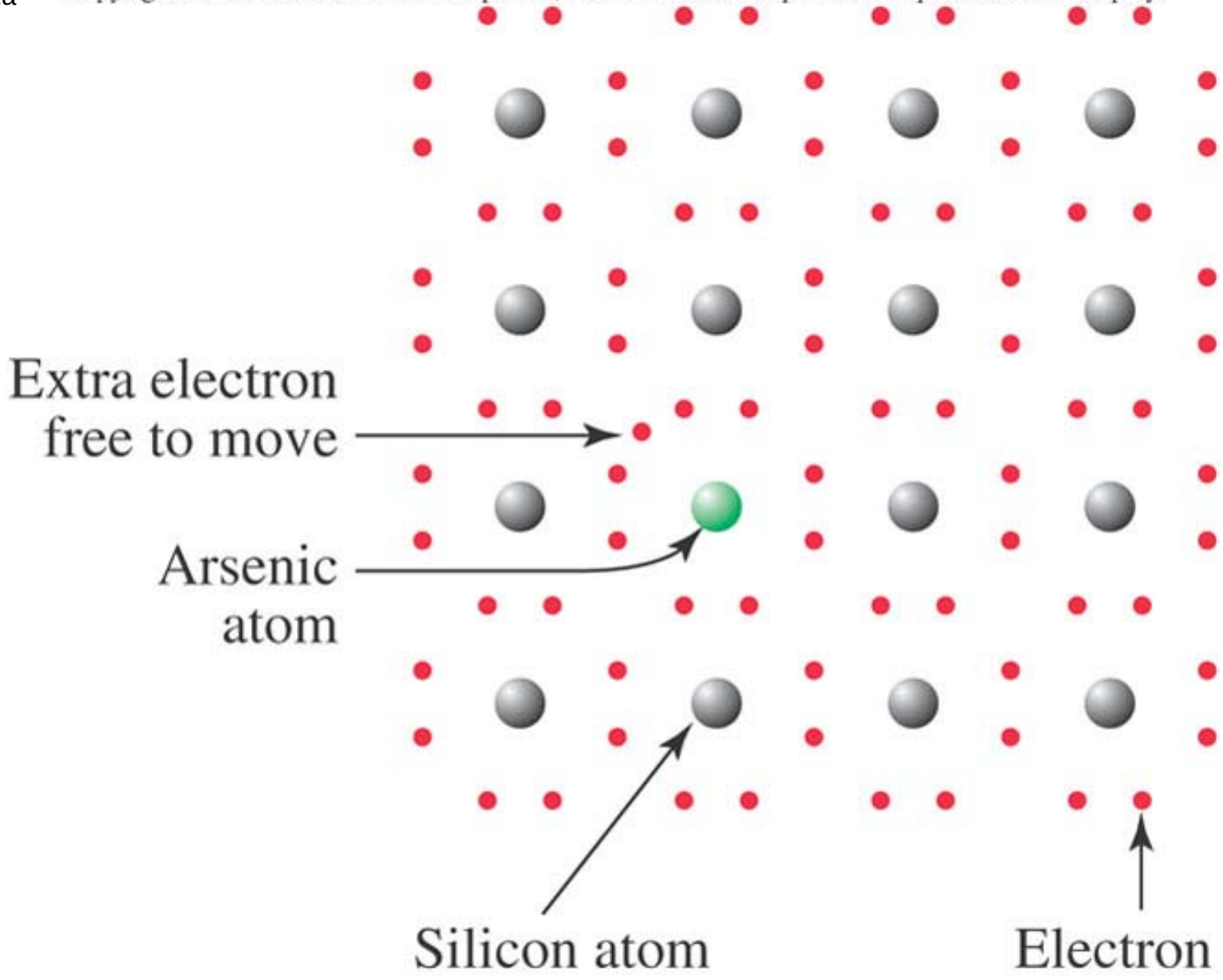
(a)

Fig.08.20b



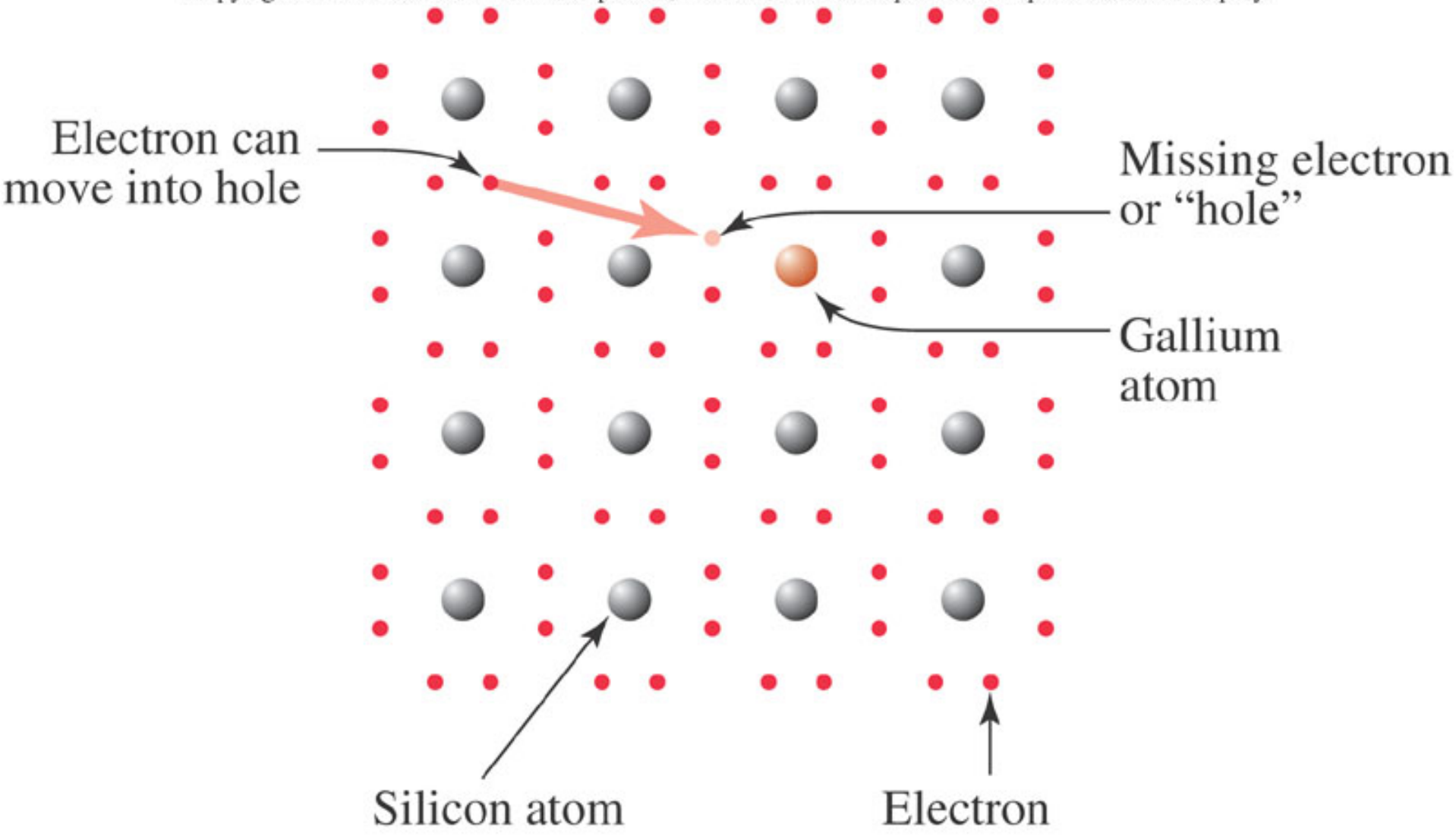
(b)

Fig.08.21a



(a)

Fig.08.21b



(b)

Fig.08.22

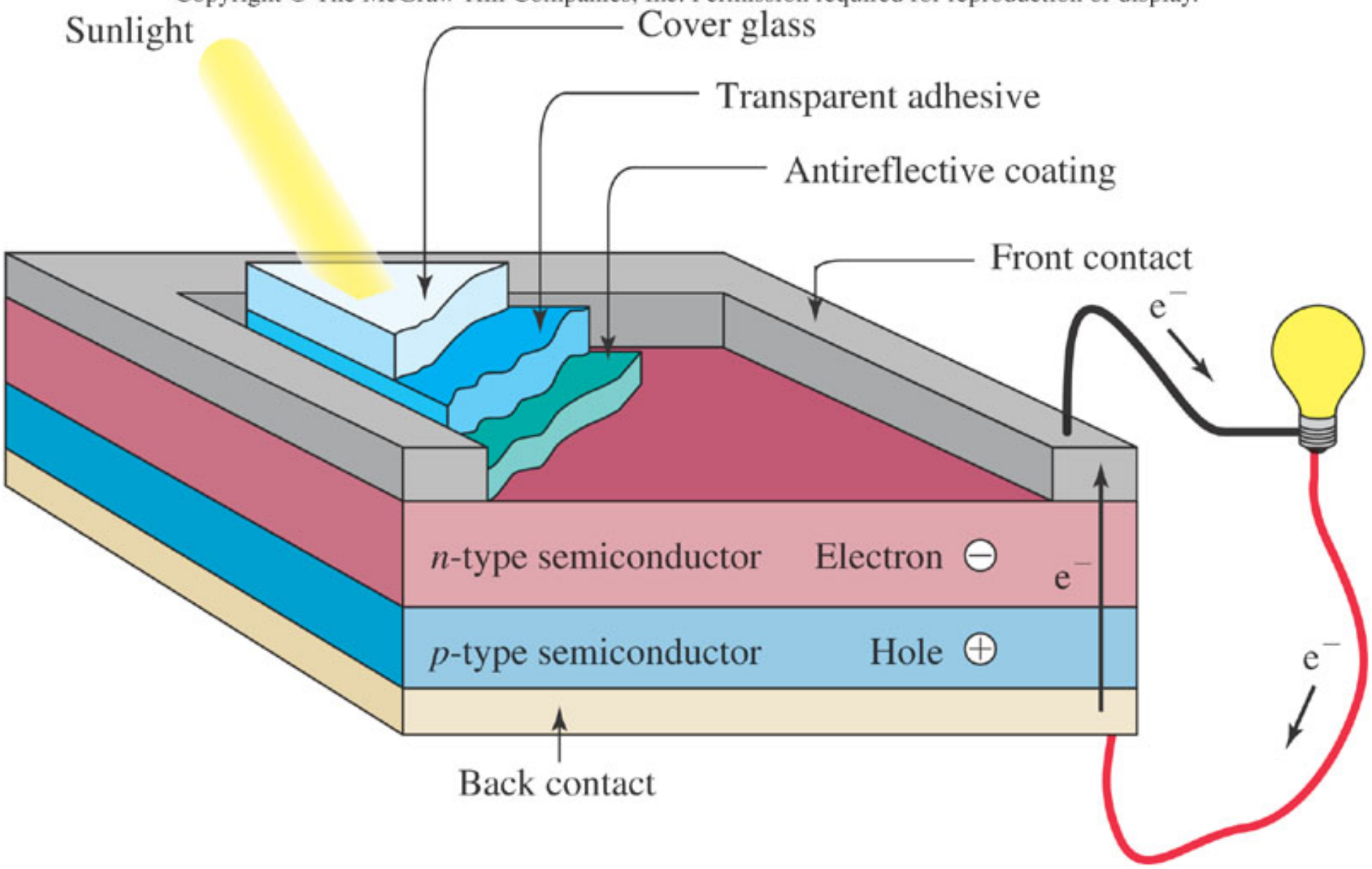


Fig.08.24

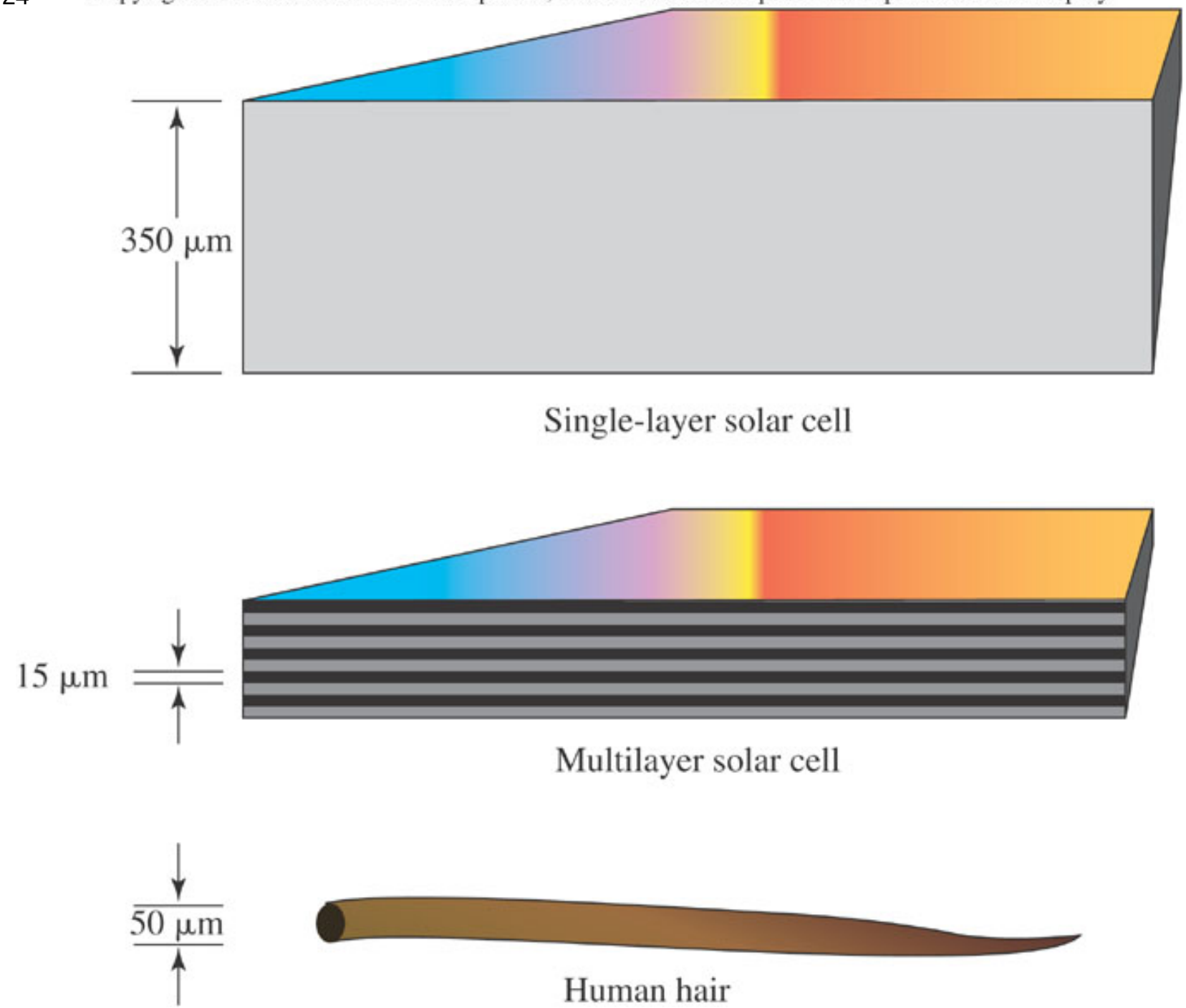


Fig.08.25

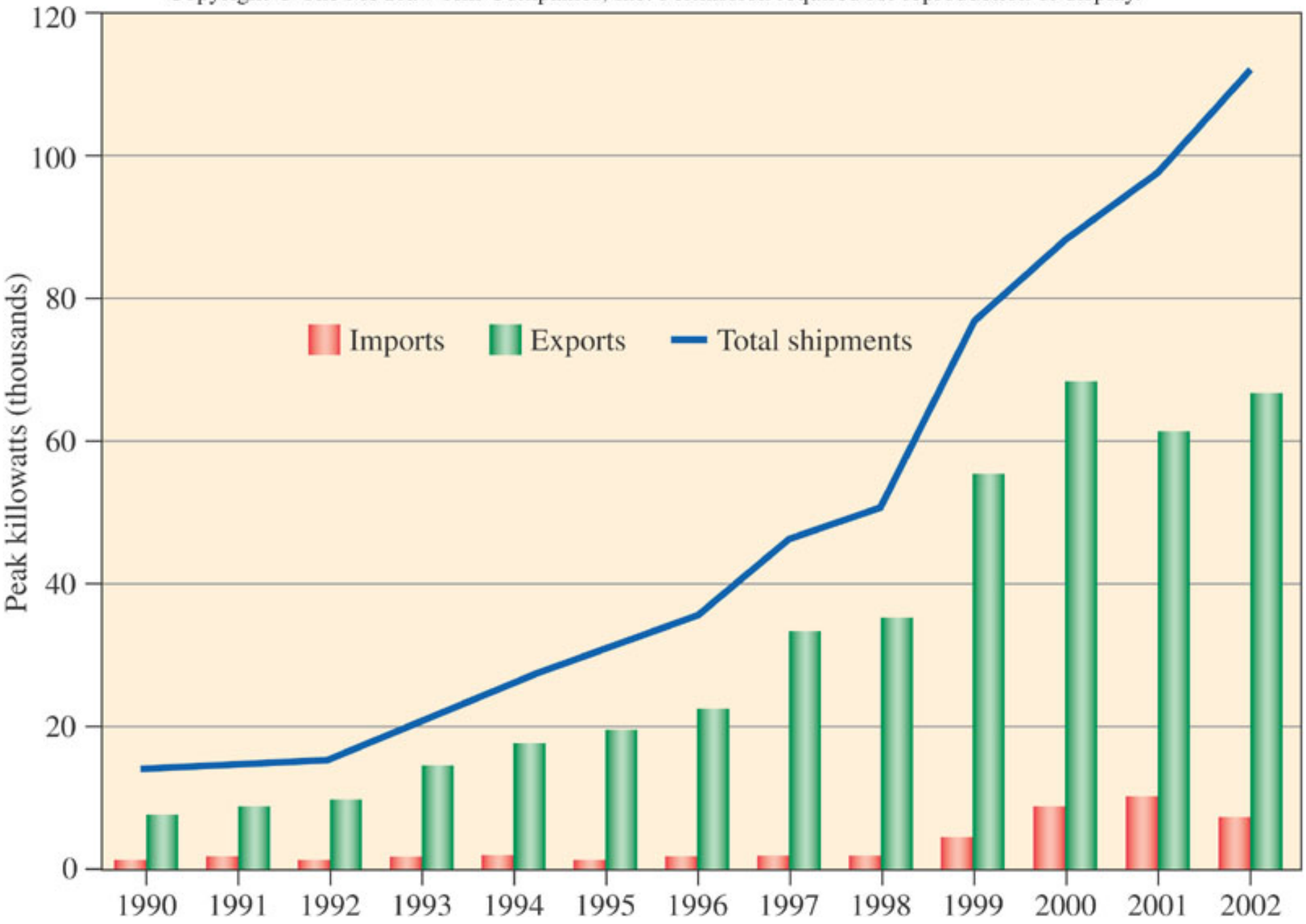


Fig.pr08.29

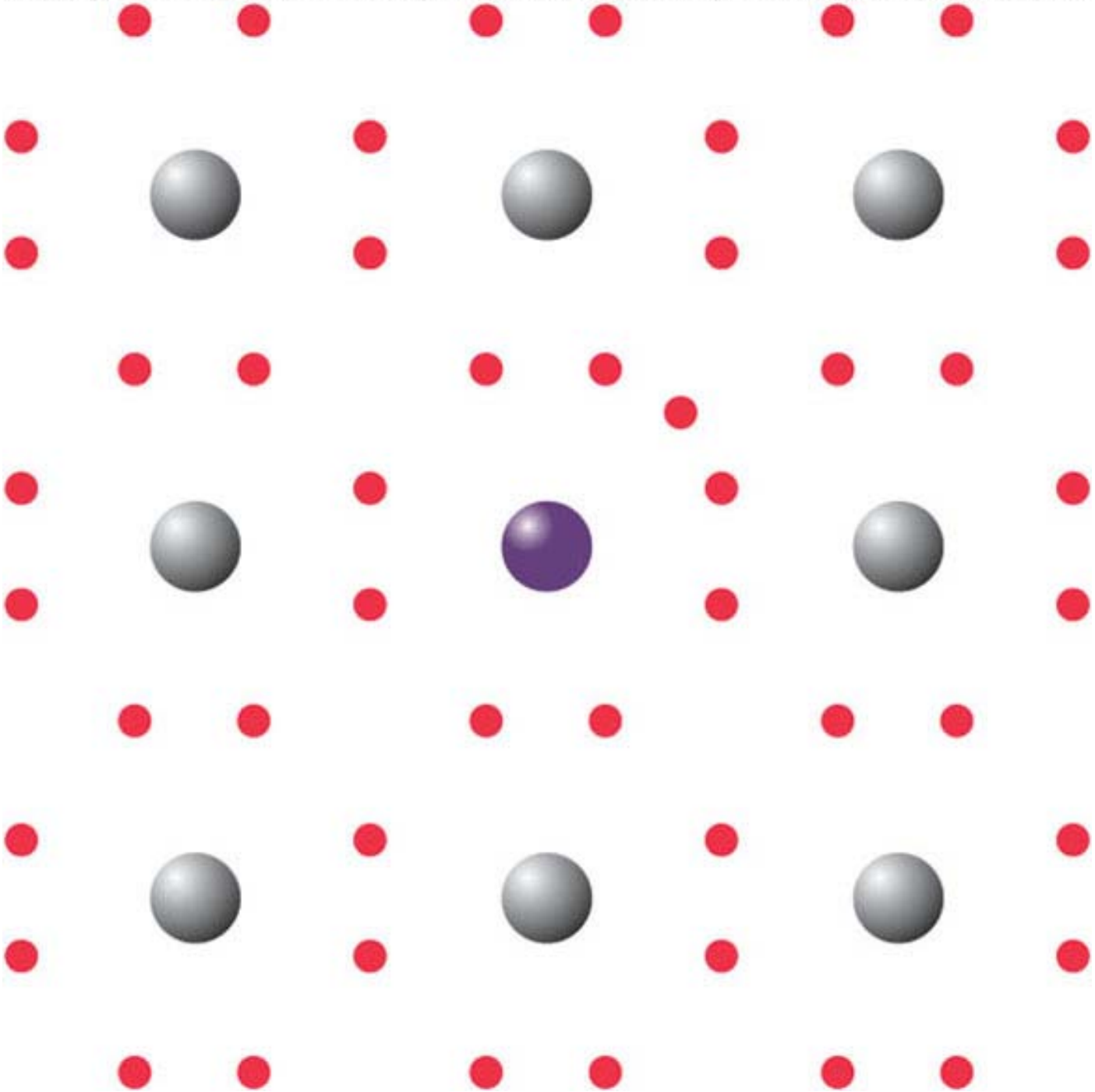
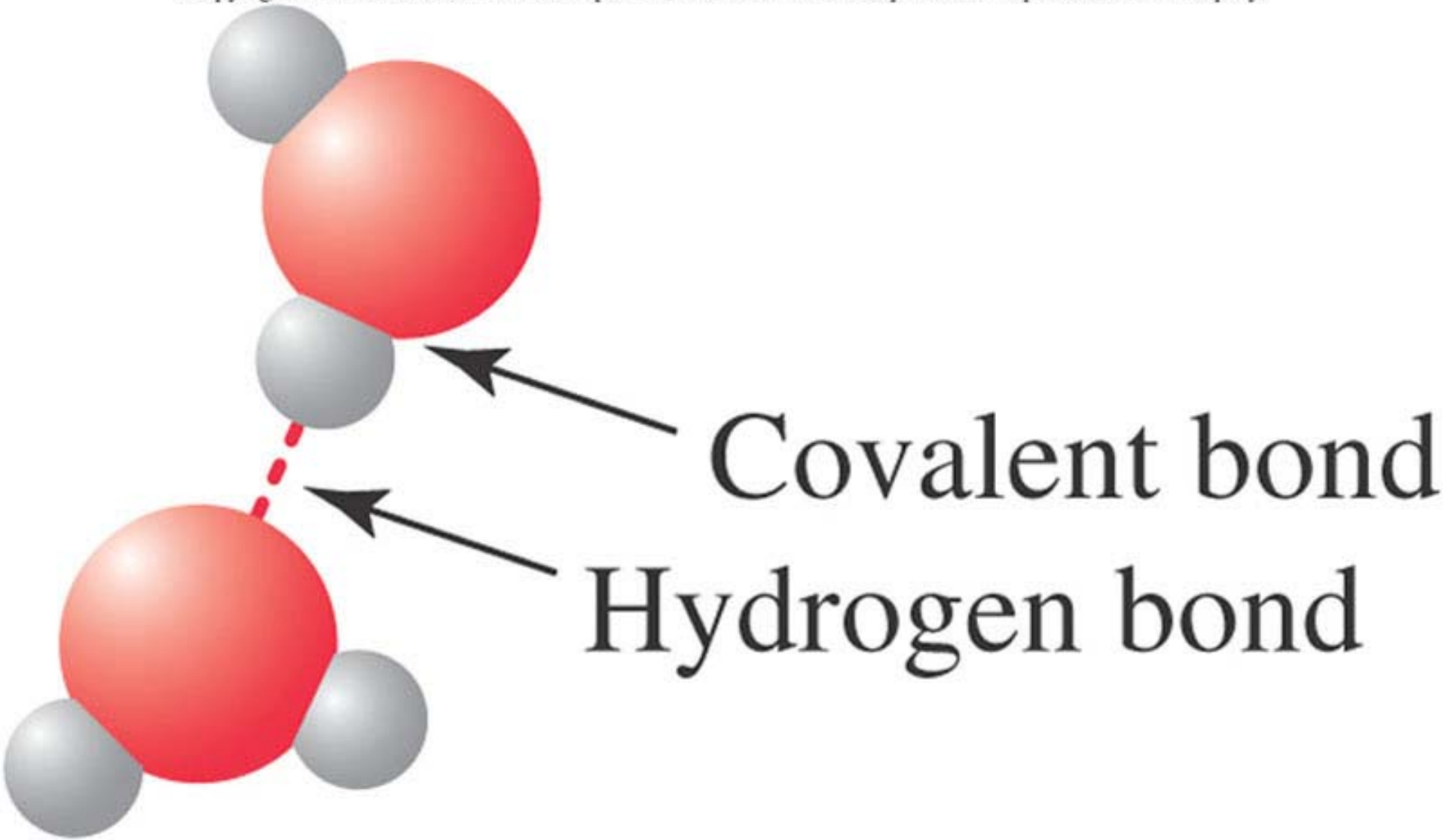


Fig.pr08.45



Tbl.08.01

Table 8.1 Some Common Galvanic Cells

Type	Voltage	Rechargeable?	Examples of Uses
Alkaline	1.54	No	Flashlights, small appliances
Lithium–iodine	2.8	No	Camera batteries, pacemakers
Lithium ion	3.7	Yes	Laptop computers, cell phones, digital music players
Lead–acid (storage battery)	2.0	Yes	Automobiles
Nickel-cadmium (NiCd)	1.25	Yes	Consumer electronics
Nickel-metal hydride (NiMH)	1.25	Yes	Replacing NiCad for many uses; hybrid vehicles
Mercury	1.3	No	Formerly widely used in cameras, other appliances

Tbl.08.02

Table 8.2 Comparison of Combustion with Fuel Cell Technology

Process	Fuel*	Oxidant	Products	Other Considerations
Combustion	H_2	O_2 from air	H_2O, heat, light, and sound	Rapid process, flame present, lower efficiency, most useful for producing heat
Fuel cell	H_2	O_2 from air	H_2O, electricity, some heat	Slower process, no flame, quiet, higher efficiency, most useful for generating electricity

*Compounds containing hydrogen, such as natural gas or alcohols, can be used as fuels. Since these compounds contain carbon as well, CO or CO_2 (or both) are released as products.