

Part II

Heat Exchange

The second part of this volume deals with the exchange of heat from one flowing stream, whether it be solid, liquid, or gas, to another, and the many different kinds of devices, called heat exchangers, which can be used to do this. But before we get to this, we first introduce the three mechanisms of heat transfer and consider their interaction. Chapter 9 thus presents some of the findings on these three mechanisms of heat transfer. Chapter 10 then shows how to treat situations which involve more than one mechanism of heat transfer, and Chap. 11 considers unsteady state heating and cooling of objects. Chapter 12 onward then uses this information for the design of the three major types of heat exchangers: the recuperator, the direct contact exchanger, and the regenerator. Finally, Chap. 16 presents a collection of problems which uses ideas and findings from various chapters in this book.