

Mr. Debus discusses the influence of Quercetanus (known to his contemporaries exclusively by this Latin form of Duchesne) who wrote in Latin (so that he was accessible to the learned) and whose works were also speedily translated into English. But he does not mention Basil Valentine (some of whose works were available in Latin in this period) nor the text-book of Jean Beguin, well known in England, and does not seem to appreciate the importance of Oswald Croll, very influential for the reliance on chemical drugs which developed in this period. In fact, chemical remedies seem to have crept into the English pharmacopoeia without great opposition; the great battle between the orthodox College of Physicians and the Society of Chemical Physicians belongs to the 1660's. One cannot help wishing that, on all counts, Mr. Debus will choose to write another book on English medical chemistry after 1640; it would surely provide more scope for his scholarship, more important and influential books than those examined here, and some opportunities for dipping into the manuscript sources. This is an effective account of the way in which English medical writers before 1640 accepted medical chemistry while rejecting Paracelsan mystic theory; but the history of common sense cannot be by its nature intellectually exciting.

MARIE BOAS HALL

SOUTH OF THE BORDER

Latin America

An Economic and Social Geography. By Dr. J. P. Cole. Pp. xviii + 468. (London: Butterworth and Co. (Publishers), Ltd., 1965.) 57s. 6d.

A RECENT development in many British universities, both new and old, is the institution of courses or schools in area studies. In particular there is renewed attention to Latin America, where British capital played so large a part in such early developments as railways, ports and trade. There followed a long period, perhaps of disillusion, when Latin America was much neglected, both in commercial circles and in academic studies. The renewed interest recognizes the vast potential of one of the least-developed world regions—14 per cent of the Earth's land surface, but only 7 per cent of world population.

Dr. Cole, at present lecturer in geography in the University of Nottingham, has travelled in most of the Latin American countries—by which he includes all the New World south of the United States border—over a period of 10 years, and in so doing has acquired a good working knowledge of Spanish and a Peruvian wife. He makes the latter his excuse for naïvely apologizing to his readers for a possible over-emphasis on Peru.

Recognizing that there are some excellent general text-books on the geography—notably Preston E. James's *Latin America*, which has been described as one of the best geographical descriptions of any area in the English language—Dr. Cole wisely concentrates on a snapshot picture of the early sixties, in which he relies heavily on the census returns of 1960–61 and the statistical information collected by United Nations agencies. Almost half *Latin America* is devoted to Latin America as a whole—population, physical background and resources, history, present political and economic development, transport, agriculture, mining and manufacturing—the remainder to a treatment by countries. Throughout the book there are certain unusual features. Many of the very large number of simple thematic maps or cartograms ignore the conventional north-south orientation: indeed, Latin America as a whole can be shown with economy of page space if depicted obliquely. However, even the initiated may be forgiven for hesitation in recognizing the U.S.S.R. shown (for comparison) on end. There are no photographs; instead the author's father, Mr. P. Cole, has

skilfully translated photographs into effective line drawings.

Dr. Cole recognizes that he is writing not only of a vast and very varied area but also one in a state of rapid evolution. At present no political unit in the world can show the range of conditions exhibited by Brazil—from literally unexplored depths of the Amazonian forest to the ultra-sophisticated life of skyscraper São Paulo, Rio and Belo Horizonte, or the imaginative creation of Brasilia, but daily new motor highways are being pushed across the 3 million square miles of national territory. As the long-discussed Pan American Highway becomes a reality so the Latin American Free Trade Association assumes a major significance. The final chapter is appropriately devoted to foreign trade and economic union. The total value of Latin American foreign trade in 1961 was 17,210 million U.S. dollars with exports worth slightly more than imports, which may be compared with United States foreign trade for the same year of 35,323 million dollars. It comes as a surprise, perhaps, to find that Venezuela leads the nations with 20 per cent of the whole, but this serves to emphasize the huge importance of oil. Oil in fact accounts for 28 per cent of the total exports of all Latin America: it is followed by coffee, 17 per cent.

It is perhaps invidious to pick these few details from a book that is packed with information, well presented, and commendably up to date.

L. DUDLEY STAMP

PNEUMATIC CONTROL DESIGN

Components for Pneumatic Control Instruments

The Static and Dynamic Characteristics of Pneumatic Resistances, Capacitances and Transmission Lines. By L. A. Zalmanzon. Translated by R. Hardbottle. Translation edited by F. P. Stainthorp. Pp. xv + 321. (London and New York: Pergamon Press, Ltd., 1965.) 110s. net.

COMPONENTS for *Pneumatic Control Instruments* is a misleading title, in that it might lead one to expect detailed description of the wide range of pneumatic components used in process control. The sub-title gives a better clue to the contents and, within the limits indicated by the sub-title, the coverage is comprehensive. There is room for a range of books of this standard under the main title, each covering a limited number of specialized topics.

The process control engineers with their pneumatic controllers were pioneers in automatic control. Because of the early development of the three-term-controller with its wide range of adaptability, there was no urgent need for detailed analysis of design and process, and thus to some extent progress slowed down on pneumatic while hydraulic and electrical systems became the centres of interest. If the pioneer does too well initially he may satisfy immediate demands but fail to develop quickly enough as demands increase.

While the major factors in the development of control systems were, of course, the requirements of the process industries and of the armed services, an important factor is the educational equipment of the designers. Most engineers are well qualified to extend their knowledge in the fields of general mechanical and electrical engineering including hydraulics and electronics; but only a few study aerodynamics, and some of the basic ideas of aerodynamics are essential to the development of pneumatic theory. This book should satisfy the need and is timely since pneumatic control is well into its second stage of development, which includes general applications, transmission of information, optimization and certain logical and computational functions.

The sub-title gives an admirably precise description of the contents. The chapters are headed "Theory of Restrictions"; "Pneumatic Chambers—Static Characteristics"; "Dynamics of Pneumatic Chambers"; and