One would further gather the impression that while the citrus industry of California is beyond danger, that of Florida is liable to be wiped out completely. While it is true that the freeze of February, 1895, killed a large part of the orange trees to the ground, the few groves then existing in the southern part of the state, where citrus planting is now most active, largely escaped, and most of the groves further north have long been in bearing again. In other words the grower of citrus has learned what Mr. Palmer has not learned, *i. e.*, that there is a difference in climate between northern and southern Florida, and has accordingly shifted the center of the industry a hundred miles further south. He has further learned to copy the methods of the California grower in being prepared to heat his grove in case of need.

As to the frost at Miami, the author knows from personal observation that tomatoes were not injured and every gardener knows that a frost that will not kill tomatoes does not cut much of a figure. Furthermore the temperature given for San Francisco and Los Angeles (42) is perilously near the danger point for frost, a fact that Mr. Palmer fails to mention.

While every night may not be a "June" night, in the writer's opinion our coldest days, even in this part of the state, so far as personal comfort is concerned, compare very favorably with some "June" days he has experienced on the shores of Lakes Erie and Michigan.

One should not attempt to draw conclusions as broad as his on such limited data. Figures of minimum temperatures, although valuable, fall a long way short of telling the whole story as to the desirability of a state as a winter resort. The average temperature during daylight, for instance, is a point much more important.

I am impelled to write this protest because of the amount of harm such an unjust article can do to a community.

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SCIENTIFIC BOOKS

The Mechanics of the Aeroplane. A Study of the Principles of Flight. By Captain Duchene. Translated by Ledeboer and Hubbard. Longmans, Green & Co. 1912. 231 octavo pages, 91 diagrams, 4 tables in the text and 5 in the appendix.

This is an elementary technical work on the principles of the aeroplane. It is neither accurate enough nor comprehensive enough to be called a popular treatise. It presents in rough and ready practical form the latest results of theory and experience, and therefore should prove welcome to engineers who practise aviation professionally, rather than investigate profoundly or precisely.

It is divided into four parts aggregating six chapters. The first part treats of flight in still air; the second part treats of equilibrium of the aeroplane in still air; the third discusses the effect of the wind on the aeroplane; the fourth presents one chapter on the theory and design of the screw propeller. In all the text care is taken to preserve the theoretical nature of the work, and not to cumber it with descriptions of machines, details of construction, or historical references.

The work would be improved by eliminating certain misleading passages. Thus the author states that the wind force on a plane at small angles of incidence is almost normal to the surface, whereas it is well known that the force may be very oblique at small angles, being actually tangential to the surface at zero incidence. Again he states that many constructors design their propellers with a curved leading edge because the streaky marks on the propeller-blade made during rotation, by dust particles and oil, assume this shape. As the author presents without protest or repudiation this absurd reason of the practical designer, the reader naturally infers that the author either endorses the absurdity or suspends judgment. One skilled in aerodynamics can not entertain such a reason for curving the leading edge of a propeller blade.

On the whole the book is a good presentation of the most advanced information on the

physical basis and the mechanical theory of aviation, and contains many useful and concisely solved problems that will appeal to amateurs and professionals devoted to the practical study of the aeroplane. A special commendation of the work is that it was awarded the Monthyon prize in 1911 by the French Academy of Sciences.

A. F. ZAHM

Smoke—A Study of Town Air. By J. B. COHEN and A. G. RUSTON. New York, Longmans, Green & Co. 1912.

Among the principal disadvantages attendant upon our modern civilization is the smoke produced wherever soft coal is burned. As in so many other cases, the possibility of doing away with the evil rests, to a great extent, upon the sufficient arousal of public opinion; in this instance, that there may be enacted the legislative measures necessary for the enforcing of the smokeless combustion of soft coal.

The means and methods of burning soft coal without smoke, having been the subject of numerous publications, are well known. But attention to other phases of the subject, which are so necessary for the enlisting of public sympathy, are remarkably lacking.

In point of fact, this little book by Cohen and Ruston is the first attempt to gather what little information we already possess along these lines into such form as to be accessible to and easily comprehended by the general public.

This book, therefore, takes one into a field, new to the average reader, and gives him a point of view different from that to which he is accustomed. It is, thus, eminently worth while.

The first chapter has to do with the chemical composition of soot and shows why it is obnoxious and injurious. Reliable figures are given for the amount of soot formed from a definite amount of coal burned, for the solid impurities in the air—and for the daily soot fall in various towns in England.

The effect of smoke on vegetation is treated with considerable detail and is shown in many cases to be decidedly injurious.

The effect of sulphuric acid in the air upon metal work and vegetation, here gone into at length, while interesting to know, is somewhat out of place, as the smokeless combustion of soft coal will not do away with the acid emitted from our chimneys.

The study of the diminution in the transparency of the air and the increase in fogs due to smoke forms an instructive discussion.

The chapter on the influence of coal-smoke upon health, by Dr. Ascher, is a valuable addition to the book, showing that, "there can be little doubt that coal dust smoke and soot increase the death rate from acute lung diseases."

Altogether it is a clear, concise and, above all, trustworthy collection of data concerning smoke and soot and the damage done by them.

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General Index to a Hand-list of the Genera and Species of Birds. [Nomenclator avium tum fossilium tum viventium.] Volumes I.–V. Edited by W. R. OGILVIE-GRANT. London: Printed by order of the Trustees. Sold by Longmans & Co., 39 Paternoster Row, E. C.; B. Quaritch, 11 Grafton Street, New Bond Street, W.; Dulau & Co., Ltd., 37 Soho Square, W.; and at the British Museum (Natural History), Cromwell Road, S. W. 1912. All rights reserved. 8vo. Pp. vi + 199.

Dr. Richard Bowdler Sharpe's "Hand-list of the Genera and Species of Birds" (5 vols., 8vo) was completed in 1909.[1] Although each of the five volumes (except the first, indexed with volume II.) was supplied with an index, a general index has been prepared, under the editorship of Mr. W. R. Ogilvie-Grant, Dr. Sharpe's successor in charge of the ornithological collections in the British Museum, "to supply a much-felt want." The task of amalgamating the indexes to the five volumes was done mainly by Mr. Grant's chief assistant, Mr. Thomas Wells. We are told in the

[1] Reviewed in SCIENCE, N. S., Vol. XXXI., No. 790, pp. 265–267, February 18, 1910.