

ticular item of information required. Our author has a breezy style of expression which adds largely to the pleasure of reading the book. Take, for instance, his treatment of that all-important worry of the motorist, the "police." Mr. O'Gorman says, "to pass unchallenged at a speed in excess of the legal limit—a thing which is daily accomplished by carts, hansoms, and even by the London omnibuses on almost every run when the gradients favour them—and by almost every other vehicle everywhere—remember that by sitting upright with a calm face (on a quiet car) you produce no impression of speed except on turning a corner. If you turn a corner without being able to see down the road you are entering at over 20 miles per hour you deserve to be punished. If, however, you stoop forward (this gives the impression that you are withstanding and endeavouring to avoid a high wind pressure), jamb your hat over your eyes, screw up your face, stare intently and anxiously, do a great deal of steering with visible swinging of your body, blow your horn in such a manner as to say 'Get out of my way' frequently, instead of pressing it slowly and peaceably, you will invariably be arrested. I think a couple of good actors could safely wager to be stopped by an otherwise inoffensive constable at a pace of 10 miles per hour, especially if mounted on a machine the teeth of whose gear 'gave tongue' like a siren, after the manner of certain makes, they would as surely be fined."

The above description is quaint but true, as every motorist knows. On the other hand we find admirable descriptions and explanations of the all-important details of car management, design, &c. Our author's treatment of electric ignition is excellent, the accompanying diagrams being particularly clear. On the subject of accumulators we find much useful information, and, generally, the work contains those hundred and one wrinkles the knowledge of which goes to constitute the successful and trustworthy driver of a motor car, and we cordially recommend to all such the possession and careful perusal of this pocket-book.

N. J. L.

*Weather Folk-Lore and Local Weather Signs.* Prepared under the direction of Willis L. Moore, Chief U.S. Weather Bureau, by Edward B. Garriott. Pp. 153. (Washington, U.S.A.: Government Printing Office, 1903.) Price 35 cents.

This volume is divided practically into two parts, the first dealing solely with weather folk-lore gathered from many available sources, the second with summaries of local weather signs as based on special reports of observers to the chief of the U.S. Weather Bureau. The latter are arranged alphabetically as regards the names of the towns from which these reports are received, and deal for the most part with the prospect of fair or foul weather as indicated by the appearance of clouds, direction of wind, movements of barometer, &c. In fact, weather-folk-lore, as such, is naturally conspicuous by its absence. This portion of the work will not be of much interest to Britishers, as the signs only hold good for the particular parts of the country in question. The first portion, on the other hand, is of more general interest, as many of the quaint sayings were, so far as can be judged, the results of observation of long experience. The subject is subdivided under several different titles, according as the weather was foreshadowed by wind, barometer, clouds, humidity, temperature, &c., or by the peculiar effects of these on objects animate or inanimate. Many curious sayings, probably unfamiliar to British readers, are here collected, but one, with regard to the effects of atmospheric moisture that precedes rain, is

rather gruesome. "When the locks turn damp in the scalp house surely it will rain" (American Indians).

Reference is also made to the moon as a weather prophet, to many weather proverbs of a miscellaneous kind, and to recent work on possible long-range weather forecasting.

The book concludes with a series of charts which illustrate the local weather signs as observed at regular stations of the Weather Bureau.

W. J. S. L.

*The Principles of Mechanism.* By Herbert A. Garratt. Pp. viii+166. (London: Edward Arnold.) Price 3s. 6d.

IN this book the author has brought together his notes of lectures delivered in connection with a course of instruction in mechanism at the Northern Polytechnic Institute, Holloway. The work is divided into two parts, dealing respectively with the kinematics and the dynamics of machines.

These notes are no doubt valuable to the compiler and useful to the students under his charge, but they seem too fragmentary to be of much service to the general reader. The descriptions of the various mechanisms are concise and to the point, but the mathematical treatment, where given, is often unsatisfactory. Moreover, there is sometimes a want of perception of the relative importance in the several items which have been introduced. Thus in the second chapter, dealing with circular and straight line motion, the fundamental subject of simple harmonic motion is not properly defined, and is dismissed with a meagre treatment extending only over one page, whilst nearly three pages are devoted to the comparatively unimportant problem of finding the crank position which corresponds with the maximum piston velocity in a steam engine, answers being given in degrees, minutes and seconds. Special constructions for velocities and accelerations such as Mohr's and Klein's are given, but these are not well explained, and the reasoning is difficult to follow; the author seems to be unaware of the fact that he is here dealing with vector quantities.

In chapter iii. the treatment of wheel teeth seems unsound. The chapter is somewhat redeemed by descriptions of gearing chains for cycles, and modern machines for cutting worm wheel teeth and bevel wheel teeth. A number of valve gears are described in chapter iv., with some applications of the Zeuner valve diagram.

Part ii. opens inauspiciously, for in the first chapter, which enunciates the general principles that are to guide the student, power and work are confused with one another, and an equation of energy is written down which involves the addition of power and kinetic energy as if they were quantities of like kind. This part includes a casual treatment of speed regulation as affected by fly wheels and governors, one or two problems on balancing, water motors, and friction. Two useful examples of axial flow turbines, with numerical data and good diagrams, are given, the information being supplied to the author by Messrs. Günther and Sons, of Oldham.

*Calculating Scale, a Substitute for the Slide Rule.* By W. Knowles, B.A., B.Sc. Pp. 29. (London: E. and F. N. Spon, Ltd.; New York: Spon and Chamberlain, 1903.) Price 1s. net.

IN this book the author provides and explains the use of two graduated scales, placed adjacent to each other for comparison and fixed together, on one of which numbers can be read off, and on the other the logarithms of the numbers, or *vice versa*. This compound scale is 100 inches long, and is cut up into