

of scenery and exceptionally fine pieces of woodland or individual trees. Cold wisdom may do much; a genuine interest in Nature's productions, an enthusiastic love for them, can do more. To keep what will serve us is one motive; to keep what delights us is quite another; and both must work together in this case if we wish not only to do the best for ourselves but to respect the lawful rights of posterity.

Now, really to love a thing we must know it. There is no way in which a vital interest in it can be quickly and surely excited except by changing a vague and imperfect knowledge of its qualities into full and accurate knowledge. It is not the casual summer tourist, but the landscape gardener, who knows how impossible it is to create a bit of landscape like Nature's best, that protests most vigorously against the desecration of such bits. It is the botanist, the dendrologist, the trained student and practised lover of Nature, who cries out most loudly against the folly of mountain denudation — not the farmer or manufacturer, though his may be the material interests immediately at stake. To save our forests and landscapes and administer them wisely we must love them, and to love them we must know them. But those who have traveled farthest among them best understand how difficult it is to gain real acquaintance with them. Who among the other travelers or the residents we meet can tell us about our trees — whether a species is common or rare, what is its natural range, what is its adaptability to cultivation in other places, what the value of its various products, what its relative importance among the score of other species around it? And where are the books from which we can gather such information?

In fact, the first volume of the first book to meet the wants of Americans in this important direction has just been published. But the work promises to be, when complete in its twelve volumes, so adequate to every need, scientific and popular, that it merits an especially hearty welcome.

The time was ripe for an exhaustive and accurate survey of the arborescent species of our country, but only just ripe. Until the great West had been opened up in all directions by the railway, no botanical collector could feel sure that he had reaped the full riches of its forests, no systematic botanist could regard the families and genera of North American trees as more than provisionally established. Fortunately the advent of the time of full knowledge is now being recorded by a dendrologist who has played an important part in bringing it about. Professor Sargent's connection with the North Transcontinental Survey, his journeys in the service of the National Government when charged with the preparation of that volume of the Tenth Census Reports which treats of the forests of our country, his work in forming the Jesup Collection of Woods in the New York Museum of Natural History, and his present position as director of the Arnold Arboretum, which he has made the richest dendrological collection in America and to which he has given international scientific importance — all these labors furnished him with unequalled opportunities to fit himself for writing "The Silva of North America"; and he tells us in his preface that during them all the intention to write it was steadily in his mind. No one else, at home or abroad, was so well equipped as Professor Sargent to do this special piece of work.

His book, as we have implied, will replace no existing work — it will fill a crying vacancy. All that had previously been written about American trees was either fragmentary or to some degree incorrect; and the best of it was hidden away from the ken of the public in botanical monographs or the files of scientific journals. The only general work which could rightly pretend to the name of a *Silva* of North America has been the one first published by Michaux in 1810, and supplemented in 1842 by Nuttall; and this, of course, is sadly antiquated — incomplete in scope, and imperfect even as far as it goes. Other *Silvas* have been begun and not finished, or have been mere incorrect compilations from the writings of various authors. Even local handbooks, like Emerson's "Trees and Shrubs of Massachusetts," have not been numerous or often good. No botanist has hitherto been able fully and accurately to compute, distinguish, and understand our trees. No horticulturist or landscape gardener has had it in his power to select among all the species possible of cultivation in a given locality. No architect or cabinet-maker has had an explanatory list of all the woods he might advantageously use. And the lover of Nature has been perpetually balked of his wish to identify the species he has found in his travels. Nothing was more needed in our literature than a complete and detailed work, written from first-hand observation, which should systematize our trees for the scientific student and explain and illustrate their appearance and qualities for the public.

#### The Railway Zone-Tariff of Hungary.

THE extent to which the nations of the earth are sharing one another's life is illustrated not merely by the economic exchanges which no barriers of hostile legislation quite succeed in suppressing, but also by the contributions of political and industrial experience which each is making for the benefit of all. Some of the most useful of these come from quarters to which we might not have looked for original suggestions. For the method of ballot reform which is so widely adopted we are indebted to Australia; and now from Hungary we have a suggestion of reform in railway management which promises to revolutionize the passenger business.

The "Zone-tariff," as it is called, was put in operation in Hungary on the 1st of August, 1889. It has, therefore, but a brief experience to justify its practicability; but the results thus far have been so remarkable that its success seems to be assured. The method consists of a division of the territory of Hungary into fourteen concentric zones, Budapest, the capital, being the center. The first zone includes all stations within 25 kilometers — 16½ miles — from the center; the second, all more than 25 and less than 40; all the zones except the first, the twelfth, and the thirteenth are 15 kilometers, or a little more than 9 miles in width; the three named are 25 kilometers in breadth, and the fourteenth includes all stations more than 225 kilometers from the capital. The fare is regulated by the number of zones which the traveler enters or crosses during his journey. Reducing guldens to cents, the rate is 20, 16, and 10 cents per zone, for first, second, and third class passengers respectively. If one starts from Budapest and crosses three zones he travels,



therefore, 55 kilometers, or about 34 miles: if he goes first-class, his fare will be 60 cents; if second-class, 48 cents; if third-class, 30 cents.

For local traffic, when the traveler does not cross the boundary of any zone, there are special rates; if he goes only to the nearest station, the charges will be 12, 6, and 4 cents; if to the second station from his starting-point, 16, 9, and 6 cents; if to the third station, the full rates of the zone are charged.

The greatest reduction, however, is in the long distances. For all stations more than 225 kilometers — 150 miles — from Budapest the rates are the same. All stations beyond that distance are reckoned in the fourteenth zone. It costs no more to travel from Budapest to Brasso, which is 729 kilometers distant, than to Nagy Varad, the distance of which is only 245 kilometers. To this farthest point, 442 miles from the capital, the fares of the three classes are, for ordinary trains, \$3.20, \$2.32, and \$1.60. At this rate the first-class fare from New York to Chicago would be only about \$7.00, and the third-class fare about \$3.50.

The former rates of the Hungarian railways between the two points now under consideration were \$16.84, \$11.56, and \$7.68. The fare is, therefore, less than one-fifth of what it was under the old system.

It is in these long distances that the reduction is most sweeping; but even the shorter journeys are greatly cheapened. To Arad, which is 253 kilometers from Budapest, the former fare for the three classes was \$6.16, \$4.32, and \$3.08; the present fare is \$3.20, \$2.32, and \$1.60, a reduction of almost 50 per cent.

Besides the reduction in rates, the new system offers great advantages in the way of convenience and simplification. The number of distinct tickets always kept on sale in every important hotel office was formerly about 700; the greatest number required in any office is now only 92. This reduces considerably the expense of printing and of handling tickets. They are now sold like postage stamps, at news-stands, post-offices, hotels, cigar-shops, and other such places. Any traveler knows what his fare will be if he knows how many zones he is to cross; he simply multiplies the number of the zones he is to enter or cross by the normal rate of fare per zone, which is, as has been explained, twenty, sixteen, and ten cents for the three classes respectively.

For a large number of places within fifty-five kilometers of Budapest ticket-books containing from thirty to sixty tickets are issued at rates still lower. Thus for a group of stations averaging about twenty-one miles from Budapest books are sold which make the trip fares sixteen, twelve, and eight cents. These books are transferable, and the owner of the book may pay with these tickets the fares of persons accompanying him. Evidently the purpose of this system is to extend these concessions and conveniences as widely as possible, and not, as often in America, to limit and circumscribe them so that the smallest number of people shall get the advantage of them.

The reader will be interested in knowing what re-

sponse has been made by the Hungarian public to these liberal measures. The Hungarian public is not particularly responsive, the population of the country is sparse, they are a poor, unenterprising, home-keeping people; but they seem to know a good thing when they see it. The increase in the passenger traffic has been very great. For the first eight months of the new system the number of passengers carried was 7,770,876; for the corresponding months of the previous year the number carried was 2,891,332. It may be supposed that this increase was mainly due to the great reduction in the long-distance rates. On the contrary, the gain is the largest in the traffic between neighboring stations. Of such passengers there were under the old system 255,000; under the new, 4,367,586.

This vast increase of business has also been accompanied by a substantial increase of revenues. Comparing the receipts from passengers and baggage of the first six months of the new system with the corresponding months of the previous year, we find a gain of \$361,880. It is also stated that there has been no material increase in operating expenses. Under the old system the cars were not often more than one-third full.

It is not to be wondered at that railway managers from all parts of the world are hastening to Hungary to study on the ground this remarkable phenomenon. It is to be hoped that some of our own may go and return with new light on a great question.

To what extent the experience of Hungary could be made available in America it is not easy to say. Part of the Hungarian railways belong to the state, but part of them are under the control of private companies; it would appear, however, that the right of the state to regulate fares must be conceded. The document from which this information is derived is published by the Hungarian government, and it consists of an elaborate but very intelligible compilation of the rules and methods of classification under which the business is done.

One fact is clearly demonstrated—that reduced passenger fares greatly stimulate passenger traffic, and are advantageous to the companies. There are indications enough of this fact in the experience of American railways, but the managers are slow to act upon them. Perhaps this striking illustration from Hungarian railway history may quicken their apprehension.

The economic and industrial advantages of such low fares should be obvious to all. Whatever tends to promote the mobility of labor is in the interest of thrift and peace. Especially is this true in these times when through changes of fashion production is constantly shifting: if the work-people thrown out of employment in one place could easily and cheaply remove to some other place where laborers are wanted, suffering would be relieved, pauperism diminished, and the congestions of labor, out of which many difficulties arise, greatly reduced. The high rates of railroad fare prevent the free movement of labor, and aggravate many of our social ills.