

THURSDAY, JANUARY 14, 1886

THE VEGETABLE GARDEN

The Vegetable Garden. Illustrations, Descriptions, and Culture of the Garden Vegetables of Cold and Temperate Climates. By MM. Vilmorin-Andrieux, of Paris.

English Edition. Published under the direction of W. Robinson, Editor of the *Garden*. 8vo, pp. 601. (London: Murray, 1886.)

THIS is an English edition of a book which under its original title of "Les Plantes Potagères" has been received with encomiums alike by gardeners and by men of science. Professedly addressed solely to practical gardeners, it is so conscientiously elaborated that it has become, and will remain, a standard book of reference for the naturalist. This is a great triumph for the author, M. Henry Vilmorin. The botanist would at first glance naturally be disposed to consider such a book as at best merely a descriptive trade catalogue of an eminent seed firm, and the biologist might perhaps look askance at the notion of deriving any information of value for purposes of pure science from its pages. But on further examination, it will be found that the merely trade element is ignored, and that the descriptions of the several plants treated of are so carefully drawn up that they will as far as they go meet the requirements of the naturalist.

These descriptions are founded, as we have personal reasons for knowing, not only on the observation of plants growing in the author's seed grounds near Paris, but also on the inspection and comparison of the same or allied forms in the market gardens of Europe generally. The experimental garden of our own Royal Horticultural Society at Chiswick has been utilised in this way, while even the smaller market gardens in the vicinity of Continental towns have not been left unvisited.

Those who have not previously attended to the matter will possibly experience a feeling of surprise at the large number of varieties here enumerated. They are familiar, perhaps, with broccolis and cauliflowers, though they would find it hard to distinguish between them. They might pick out savoy from cabbages, but for the most part they would roughly class such things as "greens," and not pursue the subject further.

While all vegetables are grown for food, subdivisions may be created among them in accordance with special requirements. There are, for instance, the supply of the markets, the exigencies of the exhibition table, the demands of private establishments, and, we might add, the demands resulting from the eager competition of commercial men. The rule of the survival of the fittest has to be applied with special modifications to each of these cases.

Quality is not so much an object of solicitude to the market grower as early or quick growth and abundant produce. The man who can send his produce to market earlier than his fellows has a distinct advantage, and thus it is that foreign competition is so serious an affair for the English grower. Not only from the Channel Islands but from the South of France and Algeria come immense quantities of salads, vegetables, and fruits to our markets. The smaller cost of labour

and the high prices obtained balance the expense of the long transit. The home-grower, on the other hand, can continue the supply after the Continental sources have become exhausted, and thus in some cases late varieties are preferred by our growers. But in any case for market purposes on a large scale—for the supply of the general public—the crops must be large, and hence it is that a market gardener will grow what he knows to be "a good cropper" rather than a plant of better quality but which is less productive.

The exhibition tables at our flower and fruit shows, although they foster a good deal of fantastic extravagance, nevertheless effect much good by allowing of the exhibition of numerous varieties, so that the grower may see which is good and which less good, or which is specially suited to his conditions and requirements. They also stimulate the zeal of the growers and powerfully promote good cultivation. This must have been remarked by many at the exhibitions held by the Royal Horticultural Society for the last two years in connection with the "Health" and with the "Inventions" Exhibitions. Such displays render great services to cottagers and others by bringing under their notice new and improved varieties often just as easy to cultivate as those of inferior quality. On the other hand, the "prize system" too often leads to the devotion of an inordinate amount of attention to mere size and external appearance. The bigger and the more symmetrical the exhibit the better the chance of a prize. The huge roots seen at the cattle shows, for instance, are in their way marvels of culture, but their feeding value is considerably less in proportion to others of more moderate size and perhaps less shapely appearance. Water, rather than starch and sugar or nitrogenous compounds, is the predominant element in these overgrown products. When such vegetables as these get prizes the judges are to blame and the societies are doing their work badly.

In private establishments the case is different. While the supply must of course be adequate, the quality of the vegetables is a matter of greater consideration than the mere quantity.

The different requirements we have alluded to entail a corresponding variation in the amount and character of the supply. In addition differences of soil, climate, and other local conditions necessitate other variations. What is suitable for one place is not so for another. When these facts are considered, the wonder that there should be so many varieties will pass off. In most instances these plants have been in cultivation for centuries. They exhibit, some more, some less, the tendency to vary which is the common attribute of all creatures. Having secured a variation suitable for his purpose, whatever it may be, the object of the grower is to fix it and perpetuate it, and only those who have visited our great seed-farms know with what jealous care and with what labour this is effected. When, as is the case with the Brassicas, the facilities for intercrossing are great, the difficulty of preserving a pure stock is intensified.

For scientific purposes, for the purpose of ascertaining the nature and possible range of variation within limited periods, and either under the same or under different conditions, a visit to an experimental garden like that at Chiswick, or to one or other of the great commercial seed-farms, is most instructive.

This aspect of the matter is treated of in the original preface, but we regret to see that it has been omitted from the English version. This is an injury to the book from the point of view of science, and an injustice to the reader, who would value the opinion of so careful an observer as M. Henry Vilmorin. It must suffice here to say that although he recognises the "unstable and perpetually changing characters" of plants, especially when submitted to cultivation, this variation, vast as it is, does not, in his opinion, affect either the number or the position of "legitimate species." M. Vilmorin's natural qualifications and his exceptional opportunities, of course, entitle him to be heard with very great respect, but we suspect most English botanists and cultivators would arrive at different conclusions from the same premises.

Of the value of this book to practical men it is not necessary to speak here: it is because it offers so valuable a storehouse of carefully observed facts of value to the biologist that we have alluded at such length to a volume which might at first be thought to be of interest to gardeners only, but which, we may repeat, is eminently worthy the attention of all those interested in the vast questions connected with variation and inheritance.

There are many points on which we should have liked to have commented, but the exigencies of space forbid. We have only to add that the translation has been well done by Mr. W. Miller, that some practical details have been added to adapt the book for English use, and that a very copious index is provided.

MAXWELL T. MASTERS

PROFESSOR MARSHALL ON THE FROG

The Frog; an Introduction to Anatomy and Histology.

By Prof. A. Milnes Marshall, M.D., D.Sc., M.A., F.R.S., Beyer Professor of Zoology in Owens College, Manchester. Second Edition. (Manchester: J. E. Cornish, 1885.)

THE teaching of biological science never received a greater impetus than that which took its origin in the establishment, fourteen years ago, of the laboratory at South Kensington, now associated with the Normal School of Science and Royal School of Mines; and the publication, some three years later, in connection therewith, of Huxley and Martin's "Elementary Biology," marks an epoch no less definite or important. The large number of teaching laboratories which have since been founded, wherever the English tongue is spoken and even on the Continent, have almost without exception been modelled directly or indirectly upon the Kensington plan. Practical directions for working have been issued in connection with most of them, compiled along the lines of Huxley and Martin, but specially adapted to the requirements of the individual schools. Of these, most are still alone used in the dissecting rooms for which they were written; some few have, however, been published separately, the volume before us being one of their number.

The author's name is a guarantee of the thoroughness of the work, and he has done well in taking such a prototype for a guide. We read in the preface that the book is a first instalment, to be followed by a second dealing with "types of the principal zoological groups;"

as the ultimate success of the project will depend upon the selection of these types, and especially upon the evenness of balance maintained in dealing with them, we reserve full criticism until the completed work is before us.

The present edition is mainly noteworthy for the introduction of illustrations—fifteen in number. The original ones are for the most part somewhat rough, though accurate in detail, and they have the merit of representing the structures as they will meet the eye of the student. Fig. 10, however, would bear recutting, for if the bones are "represented black" why not the columella-auris; and continuity should certainly be shown between the brain and very sketchy labyrinth. The maxillo-palatine commissure—described (p. 84) in its proper place—should also find a representative in Fig. 13, and in connection with the renal-portal vein of Fig. 4 afferent renal branches might be advantageously introduced. The relation of the mesentery to the kidneys in Fig. 2 also needs looking into.

The text bears the mark of a writer in full sympathy with the difficulties which beset a beginner; more importance might, however, well be given to a consideration of those matters of symmetry, locality, and general utility, which must be mastered before studying anatomy proper. The customary restrictions put upon at least the terms *anterior*, *posterior*, *lateral*, should be clearly set down in addition to those given on p. 13 and elsewhere, and the positions of the organs should be described accordingly. If this were so, the description of the liver given on p. 17 would, for example, be more accurately rendered than it is.

It would facilitate the demonstration of the bile ducts in so small an animal, if the student were directed to simply squeeze the gall-bladder after having opened up the intestine, instead of risking the insertion of a destructive bristle as advised on p. 20.

A special feature has been made of the histological section of the work, but, granting its thoroughness, we would fain see some of the frog's tissues retained for those supplemented from other animals, especially in the case of bone, where so highly instructive an example as that of the long bone is to hand. In describing the nerve fibre the nodes of Schmidt have been overlooked, but here our author is not alone; considering the years that have elapsed since their discovery, it is strange that they should only recently have found mention in our English text-books. Reflecting on the doubtful nature of the so-called non-medullated nerve-fibres, it is a pity that the ultimate ramifications of a medullated fibre in so out-of-the-way a place as the cornea should be made (p. 89) to do duty for them.

The book is neatly and carefully got up, but a future edition should not be published without an index. The description of the mesentery in relation (p. 18) to the alimentary canal, and those of the attachments of the corpus adiposum and testes (p. 17) might well be much modified; and the like is true of the statement that the skeleton gives (p. 45) "precision to the movements" of the body. The heading (p. 48), "peculiar vertebræ," is bad, and olfactory *sacs* reads on p. 49 "olfactory nerves," in error. A somewhat remarkable typographical error is the "mpanic cavity" of p. 98.