

The second part of the book contains an admirable detailed description of the ancient MSS., more than one hundred in number, which were exhibited. This catalogue, containing numerous extracts with references to other MSS. and printed texts, forms, beside its immediate value, an excellent guide to the treasures of this kind preserved in Italian libraries.

It would be out of place here to enter on the interesting questions relating to the history of medicine which are raised in this volume, but we desire to call attention to the important bearings of some of these ancient works, and especially of the illustrations reproduced in the atlas, on the history of botany.

It is well known that a considerable number of works on medical botany, written in late Roman times, have come down to us and are still preserved in MS. in several European libraries. The most celebrated and probably the earliest is the MS. of Dioscorides, of the fifth century, now at Vienna, but originally brought from Naples, which is illustrated with a large number of coloured figures of plants. Another work, bearing the name of "Herbarium of Apuleius Platonius," exists in many codices, and is always illustrated with the same series of figures, copied from one MS. to another. The ancient Anglo-Saxon version of this work, in the British Museum, with the same figures, has been printed in Mr. Cockayne's "Anglo-Saxon Leechdoms." There are others, which need not be mentioned here.

The text of these works has little botanical interest, being the work of mere servile compilers. But the illustrations have a peculiar and indeed unique value, and this *because* they are the work of copyists, who have transmitted to us, more or less accurately, a tradition of the way in which classical artists of the Roman period figured plants. The great MS. of Dioscorides is unique, or nearly so, and whether its figures were copied from still earlier figures we cannot say. But the earliest MSS. of Apuleius (ninth century) were probably copied from earlier works, and exhibit, therefore, a still earlier period in science and art.

These rich materials for a study of ancient botanical illustration have been most imperfectly explored, and have never been reproduced for the benefit of students in general. There is a printed edition of Apuleius issued by Philip de Lignamine at Rome about 1480, with rough copies of the figures in the original MS.; but the book is almost as rare as the manuscripts. The figures of the Vienna Dioscorides were copied on copper plates in the eighteenth century; but only two impressions are known to exist. A few were reproduced in Daubeny's "Roman Husbandry" and elsewhere, but they amount to very little. It would be a worthy, though costly, enterprise for some Government or academy to reproduce one of the old MSS., with its figures in their original colours.

We are therefore glad to see that Sig. Giacosa has copied in his atlas some of these ancient figures of plants. The chief characteristics of the school, viz. the diagrammatic representation of the plant with artificial symmetry, the disproportion of parts, the formal outline, and the decorative aim of the whole, can be well traced; while a comparison of figures of different dates shows the growth of conventionalism. Some realistic botanical figures of later schools form an instructive contrast.

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As an example, we can only refer to the figures of one plant, the celebrated *Atropa mandragora* or mandrake, of which so many fables have been told. A comparison of the representations of this plant at different periods shows the gradual development and embellishment of the legend.

The legend of the mandragora, a formidable plant which caused the death of whoever pulled it up, so that a dog was employed in this fatal task, as told by Josephus and others, is well known. We find here, however, from a MS. of the ninth century, a fuller account than we have met with elsewhere, which it may be of interest to translate:—

"Mandragora is a plant which the poets call *anthropomercas* [sic], since it has a root shaped like a man. It is given in wine to those who wish to undergo a surgical operation safely, as when stupefied by it they feel no pain. When you come to it you will recognise it because it shines at night like a lamp. When you see its head you must cut round it with a knife lest it should escape. For such is its virtue that on the approach of an impure man it quickly flees before him. Therefore you dig round it with a knife, which must not touch the plant, and carefully remove the earth with an ivory spade. And when you see the hand and foot of the herb, tie round it a new cord and fasten the cord to the neck of a dog which has been kept fasting, and a little way off place a piece of bread so that the dog (trying to seize the bread) may pull up the herb. But if you do not wish to kill the dog, since the herb has such a divine power that it kills in an instant whoever pulls it up, proceed as follows. Make a snare of a long rod, and tie the cord which is fastened to the herb to the top of the rod, and bend it down; so that when the rod springs up by its own force it will pull up the herb mandragora."

This merciful substitute for the dog we have not found mentioned elsewhere.

All the pictures of the mandrake accordingly show the dog and the cord, sometimes a spectator, stopping his ears, lest (according to another part of the story) he should hear the shriek uttered by the herb when pulled up, which it was death to hear. In some, presumably the older figures, the herb is merely a forked tap-root with arms, the extremities ending in fibres, and surmounted by a tuft of leaves. In later figures the tuft is replaced by a well-formed human head and the fibres by distinct fingers and toes.

There are other figures of plants which, without possessing the romantic interest of the mandrake, are well worthy of study, and furnish interesting, though difficult, problems in identification. Some old botanical glossaries are also worth attention.

We have quoted enough to show the botanical interest of Signor Giacosa's beautiful work. It is an important contribution to the history of science, and should find a place in all the greater botanical as well as medical libraries.

J. F. P.

#### THE ANDES OF PATAGONIA.

*Les Andes de Patagonie.* Par L. Gallois. Pp. 28 + plates (Paris: Librairie Armand Colin, 1901.)

THIS brochure treats almost entirely of the orography of Patagonia in its relation to the boundary-line question between the Argentine Republic and Chile, which is now *sub judice*, having been submitted to the arbitration of the English Government. The author claims that his "only object in this study is to assist in making better known one of the most curious regions of the globe";

but it is easy to see which side of the controversy he would espouse if he felt himself free to give his opinion.

His brochure is richly embellished by numerous beautiful plates of mountain chains, scenery around the lake districts and along the Andean foothills, taken from the Argentine "case," as presented to the Arbitrator, in five large folio volumes. He also reproduces several Argentine Government maps on a reduced scale.

M. Gallois sets forth the salient features of the various treaties and protocols which have, during a score of years, resulted from this question, and he justly regrets that "La formule que les diplomates adoptèrent fut donc tout simplement la formule traditionnelle." "S'il y avait un pays au monde où les vieilles formules dussent être avec soin évitées, c'était la Patagonie." In this opinion he is not alone, for every student of South American politics and geography must lament the interminable blunders made by diplomatists and lawyers when they rely upon their own language to determine frontier lines instead of submitting their description to scientific experts.

M. Gallois especially criticises the ignorance of the framers of the treaties regarding rivers which eat back until they have established their determined vertical curve of equilibrium. Herein is the crux of the whole dispute between the Argentine Republic and Chile. The former claims that the boundary line should be traced along the highest crests and peaks of the main Andean chain; and the latter claims that the treaties demand the tracing of the line along the continental *divortia aquarum*. But some of the rivers which flow into the Pacific Ocean have sawed back through the Cordillera and now have their sources upon the Patagonian plateau to the east of the Andean main chain. Thus the rival claims are in direct conflict. Many cases of this tendency of rivers may be found in almost every country in South America, and Colonel Church, in his "Physical Geography of South America," has given us numerous instances of it, especially in Ecuador, Perú, and Bolivia.

The brochure has a laconic but excellent description of Patagonia in a few pages, and gives due credit for information to Chilian as well as Argentine explorers. A long line of cliffs borders the Atlantic coast, interrupted at rare intervals by great valleys which open on to the sea. The surface of the immense Patagonian plateau rises gradually towards the west up to the vicinity of the Cordillera. Here and there a depression is filled with saline waters, and, especially towards the south, the country is covered with immense sheets of basaltic lava. Deep valleys, too immense for the existing streams of water, cut the plateau in certain parts and have a labyrinth of affluent cañons.

"The aspect rapidly changes along the approaches to the Cordillera. . . . It is a broken region, often mountainous, rich in prairies; rich, above all, in sheets of water, the smallest of which equals the area of our great European lakes. A privileged country, where the climate is free from extremes, where moisture is sufficient, where forests, easily penetrated, adorn the mountain sides. It is there that Argentine colonisation has been developed, and also *there* are the disputed territories.

"More to the west, but without the transition being suddenly established, commences what we call, without prejudging anything, the main chain.

"The Cordillera drops suddenly to the sea from 42° south latitude. Up to 47°, it dominates a long submerged depression which visibly continues the interior plain of Chile. . . . Further to the south the outline is less defined."

He notes the marked resemblance of this Pacific coast to that of Alaska and Norway—scored and penetrated by fjords and channels cutting the coast-line into islands and presenting numerous glaciers. Many rivers find their way to the Pacific Ocean through deeply carved valleys in the Cordillera, but so violent and broken in their course that none of them are navigable except for a very short distance from the sea.

Such is the outline that M. Gallois gives of Patagonia, and it enables the reader to acquire a very fair general knowledge of the orography and topography of the country without studying the voluminous works which have been prepared for the empires in the boundary-line dispute. It is to the credit of M. Gallois that, however difficult, he has found it possible to preserve an impartial attitude in his instructive and ably-written brochure.

G. E. C.

#### WIRELESS TELEGRAPHY.

*Wireless Telegraphy.* By G. W. de Tunzelmann. Pp. iv + 104. (London: Office of Knowledge, 1901.) Price 1s. 6d.

MR. DE TUNZELMANN, in writing a popular account of wireless telegraphy, has attempted the double task of describing its historical development and of giving an account, which shall be intelligible to the lay reader, of the fundamental principles of the subject. The descriptive parts are based mainly on the papers which have been read by Mr. Marconi, and explain in an interesting manner free from superfluous detail the system which he has worked out. It is to be regretted that the work of other experimenters is hardly adequately recognised; Prof. Slaby, for example, deserves more than the half dozen lines allotted to him. Moreover, such information as is given is easily accessible in Mr. Marconi's published papers, whereas a careful comparison of the systems devised by the various workers would be a valuable addition to the literature of the subject.

In the theoretical portions of the book the author has largely drawn his inspiration from Prof. Lodge's "Modern Views of Electricity." Without wishing in any way to disparage Mr. de Tunzelmann's explanations, we doubt whether they would be intelligible to readers who, as he says in the preface, "know little or nothing of electrical theory." A clear comprehension of the constitution of the ether and the mechanism of ether waves is not to be obtained without serving a long and severe apprenticeship in the study of physical science. Yet it is supposed that the lay mind, because it is attracted by the wonderful results of wireless telegraphy, is capable of appreciating the intricate physical theories with which the subject is bound up. It is as though a man should be expected to be able to weigh the merits of the electrolytic dissociation theory because he admires the electroplate upon his dinner-table. We doubt whether any useful end is served by such "popular" expositions, which can only lead to the spread of pseudo-scientific ideas based on ill-digested theories. It must be admitted, however, that on the whole Mr. de Tunzelmann has treated the subject broadly and clearly, and his explanations should at any rate be of considerable service to the student.

M. S.