The sixth and seventh sections contain instructions for mineral analysis, and one is struck by the very complete account given of methods by which the decomposition of the mineral is effected by heating in a current of gas, *e.g.* oxygen, hydrochloric acid, or bromine. The eighth section is taken up with silicate analysis, whilst the concluding section gives an account of the estimation and separation of the halogens and of many other analyses which do not naturally find a place in the earlier portions of the work.

Although it is clear that the author has taken great pains in the preparation of his book, it may be questioned as to whether the selection of exercises has been uniformly judicious, and as to whether the author's own processes do not occupy a too prominent position, so leading to the exclusion of standard methods of analysis with which every student should be familiar. For example, the author's process for the separation of manganese and zinc by means of hydrogen peroxide in alkaline solution, although found unsatisfactory by other investigators, is fully described to the practical exclusion of the more usual method. The same criticism applies to the larger proportion of the other "hydrogen peroxide separations" which here figure so largely. Again, in the section dealing with silicate analysis, the author's methods of decomposition, especially the one employing boric anhydride, are given at great length, whilst the ordinary method of alkali-carbonate fusion, which is constantly employed both in technical and scientific analyses, is given in a not very happily modified form, and in a subordinate position.

Although the book presents very many excellent features, and should, when used in conjunction with other works, be of great value, it is hardly considered likely that a student who derives his information solely from this source would possess a competent knowledge of the *general* methods of analytical chemistry.

H. D. D.

Practical Slide Making. By G. T. Harris, F.R.P.S. Pp. 134. (London: Iliffe and Sons, Ltd., 1904.) Price 1*s.* net.

NEARLY every photographer at some time or another makes his own lantern slides, and so numerous are the methods available, and so varied are the results that can be obtained, that another handbook on the subject is very welcome. In these pages the author successfully attempts to supply trustworthy information on the subject in a concise form, describing the best known methods for obtaining these transparencies. He lays stress on the great efficiency of some of the older processes, and with the hope that they may be revived he includes them in this book. The first two chapters deal with the apparatus for exposing the plate, and the remainder treat of the development by the several methods described, and of the various other manipulations required before the slide can be considered properly finished. No pains seem to have been spared to obtain accuracy in the formulæ and to render clear the methods of procedure, so that the book forms a trustworthy guide.

Botany Rambles. Part ii. *In the Summer.* By Ella Thomson. Pp. 130. (London: Horace Marshall and Son, 1904.) Price 1*s.*

THE young learners for whom this little book is intended are urged persistently to see for themselves, by examining plants, that what is told them in the lessons is true. They are instructed in simple language how to set about this work of verification and are urged to make use of their own eyes to find out additional facts for themselves. It is evident that the writer understands children and knows how to arrest their interested attention.

LETTERS TO THE EDITOR.

The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. *No notice is taken of anonymous communications.*]

The Exradio Spectrum.

FROM a private communication from Mr. Baxendall, I learn that he has noticed the following correspondences between the spectrum of the emanation from radium (exradio) and the spectra of "bright line stars" (Campbell, *Ast. and Ast. Phys.*, vol. xiii. p. 468):—

"Exradio."	Bright Line Stars (Campbell).
5805	5813
5595	5593*
4690	4688
4650	4652
4630	4633

With the exception of 5593*, these stellar lines are all strong and characteristic. Another of the exradio lines, 5137, may correspond with 5135.

I am very ignorant of stellar spectra, and send this note merely to direct attention to a possible correspondence.

University College. WILLIAM RAMSAY.

The Occurrence of Radium with Uranium.

A LITTLE time back, Mr. B. B. Boltwood published in this Journal (May 26, p. 80) a preliminary notice of an investigation of the ratio of uranium to radium in various minerals. I have for some time been engaged in a similar investigation, which, though the results are not yet matured, seems to be leading to the conclusion that this ratio is constant, as in Mr. Boltwood's experiments. An interesting case is the mineral torbernite, or copper uranite. This mineral forms transparent green tetragonal crystals the composition of which is accurately represented by the formula $CuO.2UO_3.P_2O_5.8H_2O$. The substance dissolves easily in sulphuric acid, forming a perfectly clear green solution. This solution, when boiled, gives the radium emanation, and the quantity of emanation produced in one day is about the same as that yielded by the same weight of Joachimsthal pitchblende. The percentage of uranium is also about the same. If the radium in this mineral has been produced since the formation of the mineral (and the recent quantitative experiments of Sir W. Ramsay and Mr. Soddy on the absolute rate of production of the emanation seem to make that certain), there is practically no choice as to what the parent substance should be. Uranium is the only candidate. The great complexity of most of the radio-active minerals may make it difficult to obtain conclusive evidence by studying them. But here there seems to be no alternative but to conclude that uranium is the parent.

R. J. STRUTT.

Residual Affinity.

SIR OLIVER LODGE'S highly suggestive letter (June 23, p. 176) will be welcome to the many chemists who have been endeavouring to interpret chemical phenomena in terms of the electronic theory of the physicist. The proposition that the "Faraday tube" may be subdivided would appear to be capable of being widely applied in connection with many of the most interesting phenomena of chemistry. Thus not only would the existence of water of crystallisation and the formation of so-called molecular compounds be thereby brought into line with the more typical manifestations of valency, as pointed out in Sir Oliver's letter, but it would appear that it may possibly enable the hitherto conflicting hydrate and dissociation theories of solution to be harmonised. Thus in the case of an electrolyte such as sodium chloride, we should in the dry state regard the sodium atom united to the chlorine atom by means of a Faraday tube or bundle, as it may more appropriately be designated, the union leading to the great stability of the compound as such. On the addition of water, however, some of the constituent fibres or strands of the bundle become deflected in such a way that the sodium