tural qualities and representative uses. These will prove of value to both expert and amateur.

From its title one might be led to suppose that the book was an addition to the literature of strict forest botany, but the preface states that "It is intended for those who are not foresters or botanists, but who use woods or desire a knowledge of their distinguishing properties." The preface further states that "Although great care has been taken to check each fact, errors no doubt exist, although it is not believed that there are important ones." We cannot entirely agree with the author in this. For example, in the introduction we are told that a true wood fibre originates from several cells, "a resin duct is a cell structure or a fibre," "a vessel is a short wide tube joined vertically end to end with others of its kind."

Inaccuracy and vagueness of expression are to be found elsewhere in the book. For instance, "Europeans regard the Ash for ornamental purposes, but Americans value it for wood" is an error that may perhaps be excused in an American writer, but why should the leaves of Eucalyptus be described thus?—"Those of young blue gums are bright blue, oval and stalkless, while leaves of older trees have stems (*sic*), are dark green and sickle-shaped."

Attention is further directed in the preface to the fact that "Allusions to trees, historical and other references, aside from those directly regarding woods, are made for completeness and in order to mark, distinguish, or separate the species." The author fails to realise this object. The distinguishing characters given are far too vague and general to be of any practical value.

On the whole the book contains much useful information and statistics regarding the various species of wood, both broad-leaved and coniferous. It would have been much better, however, had the author confined himself to the treatment of this aspect of the subject alone, leaving out all botanical and other technical matter.

Lehrbuch der Mikrophotographie. By Dr. Carl Kaiserling. Pp. viii + 179. (Berlin: Gustav Schmidt, n.d.) Price 4 marks.

ALTHOUGH there are several well-known treatises on this subject, it is doubtful whether any exceed in thoroughness the one now under notice. The essential conditions for the production of photomicrographs of the highest class are carefully described, and each part of the process is treated fully.

There is no more important point than the illumination of the object itself, and both the source of light and its colour should be selected to bring out the desired points in the resulting photographs.

This part of the subject is generally treated all too briefly, but in the present instance its importance is evidently recognised. The various ways of making light filters and their use with coloured preparations are described. The method of arriving at the proper filter to use with a given preparation is stated to be by determining the absorption spectrum of the dye used for staining, by aid of a hand spectroscope, and then adapting the light filter to give the result desired. This is undoubtedly the only scientific method of using colour screens in photomicrography, and one which we have adopted with success for some time past.

The various types of apparatus by the leading makers are fully described, prominence being naturally given to continental firms. Instructions as to the use of substage apparatus, methods of centring, choice of objectives, and the combination of microscope and camera are included, while it is satisfactory to note that no space is unnecessarily wasted over purely photographic processes. Altogether the book may be recommended to photomicrographers as one of the best yet published. J. E. B.

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 Source of Radium Energy.

THE novel and unforeseen property of radium of producing energy, which purely kinetic theories, in opposition to the notion of inherent force as a transcendental element, do not seem able to explain, is perhaps destined to give a fresh impetus to discussion from the two distinct points of view. It is meanwhile to be noted with regard to this, that the notion of force acting at a distance from point to point, being equal and reciprocal between the various material points, does not appear to be any better met by the manifestation of the unfailing energy of radium than the simple movements of the kinetic theory. This remark justifies attention being directed to a view of the natural physical forces presented by the present writer more than ten years ago (see Lagrange's "Study of the System of Physical Forces," forming vol. xlviii. of the *Memoirs* of the Royal Academy of Sciences of Belgium). It is there shown that forces exist of such a nature that static equilibrium is impossible, on the impact of bodies of different composition, at their surfaces of contact. They are forces making a body, after the example of radium, emit rays unceasingly without apparent loss of substance. A force of repulsion is referred to here, emanating from the surface, and not from the centre of the mass of atoms, acting on opposed surfaces, and the varying intensity of which is nothing else than what is known to science as absolute temperature. That repulsive force, acting in the inverse ratio of the volume of matter (or of the cube of the distance), just as Newtonian gravitation acts in the inverse ratio of the surface (or as the square of the distance), takes its immediate development, and to some extent visible shape, in Mariotte's law of the relation of pressure to volume in gases. The memoir establishes the existence of a continuous interatomic medium of transcendental qualities not yet understood, conveying the effect of a force acting at the surface of atoms, and the real seat of luminous and electromagnetic wave motion, according to the views to which clearly Lord Kelvin has of late returned. The view now presented is entirely deduced from analysis of the actual facts, worked out at length, and justified by the memoir, and new so far as the case of the impossibility of an equilibrium due to the surface force of repulsion, which gives rise to an exhaustless emission of energy. The reflecting attention of physicists may therefore be legitimately directed to the subject, because it seems certain that the new properties which radium manifests are not explainable by the kinetic hypothesis, but, on the contrary, are of a nature henceforward to modify considerably the speculations of modern physics.

Brussels, July 14. CH. LAGRANGE.

A New Case of Phosphorescence induced by Radium Bromide.

IT is known that salt (NaCl) at a temperature of 200° C. is phosphorescent (*vide* Phipson on "Phosphorescence," p. 20); during a course of experiments in June last I found that radium bromide induces phosphorescence at ordinary temperatures. The following is a convenient way of observing the phenomenon. Fill a wooden match-box with table salt removed from the inner portion of a block; press the radium bromide tube into the yielding mass and just barely cover it with the substance. If it be now put on one side for a few hours, say into one of the compartments of a chest of drawers, on opening the box in the dark all round the tube will be found to phosphoresce with a white light, but, unlike zinc blende and barium platinocyanide, the salt continues visibly to phosphoresce after removal of the radium bromide. The portions of salt round the tube are turned of a faint buff or ochrey tint. The image of the visible portion round and where the radium bromide tube has lain is impressed on a photographic plate in thirty