

The Eastman Universal Colorimeter.

THE Eastman Kodak Company, of Rochester, N.Y., U.S.A., has placed on the market a very useful colorimeter (Fig. 1) which has a greater range of utility than many other instruments of this kind. Originally designed by L. A. Jones (*Journal of Optical Soc. America*, 4, 420, 1920) for use in connexion with war-time problems of visibility and the measurement of the colours of sea and sky, it has been adapted, by the addition of various accessories, for the majority of laboratory and industrial requirements.

The fundamental basis of its action is the phenomenon of the so-called "subtractive colour mixture."

blue-green in order to obtain a series of greens varying from blue green to yellow green, and so on; the use of all three wedges in considerable thicknesses will produce the darker colours. A neutral wedge and supplementary colour filters are added to increase the colour range, which includes all hues and saturations up to high values. Only some of the most highly saturated colours cannot be matched, such as, for example, a very strong emerald green.

The colorimeter is so built that light derived from a standard electric lamp and passing through the wedges illuminates one half of the field of view, while

the other half is illuminated by light from the object under test. Thus the colours of objects may be measured *in situ*, or samples may be specially mounted and illuminated for examination in the fittings which are provided; these include one designed for opaque objects, another for colour filters, and another which is designed to intensify the hue component in colours of low saturation by the use of multiple reflections from the coloured surface.

The colour scale is necessarily arbitrary, but it is claimed that an adequate permanency of the wedges has been secured, so that the instrument as it stands should be of utility for such industrial purposes as the standardisation of

paints in manufacture and the like, but it is not easy to judge how far the scales of separate instruments of this kind would agree.

In order to convert the readings of the instrument into the usual colorimetric terms of 'hue, saturation, and brightness,' a special calibration of the wedges would be necessary; the accurate transformation would always be a somewhat cumbersome process, though time could be saved by suitable tables and graphical methods.

The instrument is well made and finished, and is very simple in operation. Provided that the difficulty of dealing with highly saturated colours is borne in mind, it should meet the needs of many who have to make colorimetric measurements.

L. C. M.

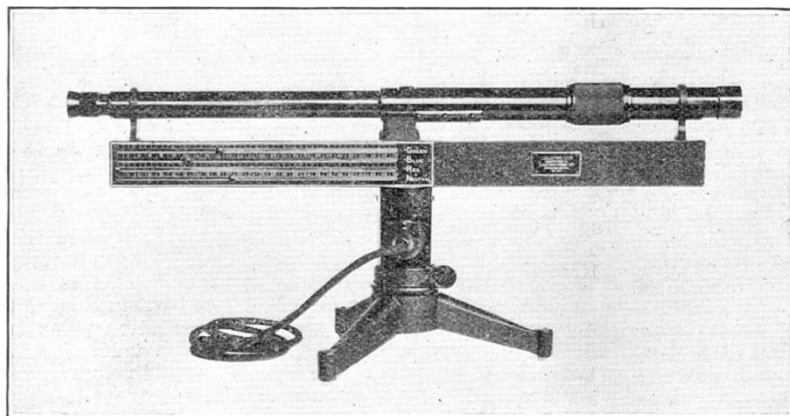


FIG. 1.—The Eastman colorimeter.

To illustrate this we may imagine three colour filters for which, in turn, the main absorption is in the red, green, and blue parts of the spectrum; thus the filters will appear blue-green, magenta, and yellow, respectively. It will easily be understood that by using these in pairs, the primary colours red, green, and blue may be produced in the transmitted light.

For the purposes of the colorimeter these subtractive primaries (blue-green, magenta, and yellow colour filters) are used in the form of long and thin wedges of dyed gelatine, suitably mounted so that various thicknesses of the absorbing medium can be introduced into the light beam by sliding the wedge parallel to its own length. By this means it is possible, for example, to 'mix' varying amounts of yellow with

The World's Forestry Congress.

THE World's Forestry Congress was held at Rome on April 29-May 5. The meeting was preceded by a visit on April 27 to the Milan Exhibition, at which a certain number of delegates inspected the forestry exhibit and a section dealing with wood-utilising machinery. Fifty-eight countries were represented at the Congress, most having from two to five Government delegates and a varying number of others who represented their countries but were not specially deputed to do so. Most of the European countries had strong deputations, as also had the United States of America. The heads of the delegations representing Great Britain and the Government of India respectively were Lord Lovat and Prof. E. P. Stebbing.

At a preliminary meeting of the Technical and Scientific Committee on April 28, the honorary presidents, president, and vice-president of the Congress were elected, and afterwards the presidents and vice-presidents of the five sections into which

the Congress was divided for working purposes. The presidents of the Congress were Italians. The vice-presidents were from Germany, United States, Great Britain, Dutch East Indies, Japan, and Norway, and the presidents of sections from Sweden, Czechoslovakia, Spain, France, and Brazil.

The opening meeting of the Congress was held on April 29, H.M. the King of Italy and M. Mussolini being present. This was followed by a general meeting, and later by a meeting of heads of delegations at which the work to be carried out was finally sanctioned. Two days, May 31 and June 1, were devoted to a visit to the Forest School at Florence, and to an excursion to the forest of Vallombrosa. Three days were allowed for the work of the sections, each section having three meetings of three hours each. Sections I. and III. met at the same hours, and sections II., IV. A and IV. B. It was not therefore possible for any one delegate to attend all the meetings of each section. Since many Governments were well

represented this would have been immaterial had the agenda of each section been confined to well-defined branches of forestry. Unfortunately, however, there was a certain amount of overlapping, and this proved somewhat of a hardship. Some transfers of subjects were made between sections, at the request of presidents and vice-presidents. It became inevitable, but proved rather confusing for the rank and file of the delegations.

Briefly, Section I. confined itself to questions dealing with forestry statistics, policy, economics, legislation and instruction in silviculture; Section II., trade and industry in timber, and in forest products in general; Section III., technical problems relating to silviculture and forest management; Section IV, A, control of torrents, reafforestation of mountain areas, plant diseases and wind damage, forestry propaganda and improvement of game and fisheries; Section IV, B, tropical forestry resources, silviculture, protection and management and research in tropical forests, uses and export of tropical timbers. Resolutions on these matters were passed by each section and were accepted at the final general meeting of the Congress on May 5.

Linguistic difficulties were of course a great trouble, and resulted in an enormous waste of time. The languages declared for use were French, English, German, Italian and Spanish. The last two were given up at the outset. French was the language used from the chair at all meetings, and was the language (with English) used in the daily reports of agenda, etc., issued during the meeting. But translations into English or German had constantly to be made during the meetings. It is obvious that a certain responsibility rests on Governments in this matter, and that however eminent a man may be in his own branch of study, he loses the greater part of his utility to his Government, and wastes the time of an International Congress, if he can only speak his own language.

Some 247 papers were presented to the Congress, a proportion only being read in *précis* form. That the Rome Congress was a success is beyond doubt. A careful study of the proceedings will show that work of a very valuable character was accomplished, which should prove of use to the Governments of the various countries which have forest areas of importance to conserve.

University and Educational Intelligence.

CAMBRIDGE.—Mrs. Pilcher, sister of the late Prof Lewis, has offered her brother's house, 2 Fitzwilliam Road, to the University in accordance with his wishes. The rent is to be devoted to the Mineralogical Museum, particularly to the purchase of specimens and books.

Mr. A. J. Dorward, Trinity College, has been appointed University lecturer in moral science. Dr. Cobbett, Trinity College, has been re-appointed University lecturer in pathology. Mr. A. Hutchinson, Pembroke College, has been elected professor of mineralogy in succession to Prof. Lewis, who died on April 16 last.

The Council of Trinity College is inviting applications from Bachelors of Arts, or those admitted to the title of a degree, for a Rouse Ball travelling studentship in mathematics, the purpose of which is to enable the student to study mathematics or the application of mathematics in a foreign university or school.

The Master and Fellows of Pembroke College announce that they will shortly make an election to a Stokes Studentship for research in physics or subjects cognate thereto. The value of the studentship is between 400*l.* and 450*l.* a year, and the tenure

will be for three years with the possibility of renewal for a further period not exceeding five years. Candidates may be of either sex and must be between 23 and 30 years of age. They must have shown capacity for research in mathematical or experimental physics or in subjects cognate thereto, such as physical chemistry or the study of physical laws in relation to living matter. Preference will be given to graduates of the University of Cambridge.

The Henry P. Davison scholarships have been awarded to F. P. R. Howard, Trinity College, A. Macdonald, St. John's College, and C. D. G. Nicholson, Jesus College. The scholars will proceed to Harvard, Yale, and Princeton Universities respectively.

GLASGOW.—At the graduation ceremony on Wednesday, June 23, busts of the late Sir William Macewen were presented to the University and to Lady Macewen.

The following were presented for the degree of Doctor of Science (D.Sc.): Mr. R. V. Hansford, for a thesis entitled "A Description of a High Frequency Generator utilising Thermionic Valves and forming part of a Modern High-Power Radio-Transmitting Station," with additional papers; Mr. J. P. M'Hutchison, for a thesis entitled "Researches in Radio-activity with the Radio-Elements Radium D and Radium E."

LONDON.—Mr. Justice Tomlin (chairman), Sir Amherst Selby-Bigge, Sir Cyril Cobb, Sir Josiah Stamp, Sir Cooper Perry, Mr. A. D. Lindsay, Miss Bertha S. Philpotts, and Prof. T. P. Nunn are, according to the University of London Bill recently introduced in the House of Lords by Lord Balfour, to be the first Commissioners of the University of London.

Sir William Beveridge, Director of the London School of Economics, has been elected Vice-Chancellor for 1926-27 in succession to Prof. E. A. Gardner.

Mr. W. C. Clinton has been appointed as from August 1 to the University chair of electrical engineering tenable at University College. Mr. Clinton was educated at the Central Foundation School, the Technical College, Finsbury, and the City and Guilds College. In 1894 he was appointed assistant in the Electrical Engineering Department at University College, and since 1907 has been assistant professor of electrical engineering. His published work includes "Electric Wiring," "The Science of Illumination" (translated and modified from the German of Dr. L. Bloch); and numerous articles in the *Proc. Phys. Soc.*, *Phil. Mag.*, and other scientific and technical papers.

Mr. P. A. Buxton has been appointed as from August 1 to the University readership in medical entomology tenable at the London School of Hygiene and Tropical Medicine. Mr. Buxton was a fellow of Trinity College for the period 1916-21. In 1921-24 he was medical entomologist to the Palestine Government, and in 1924-25 leader of the expedition from the School of Tropical Medicine to the South Pacific. Since March last he has been Director of the Department of Medical Entomology at the London School of Hygiene and Tropical Medicine. He has published a book entitled "Animal Life in Deserts" (London, 1923), and numerous articles in scientific journals.

The title of reader in pharmacognosy in the University has been conferred on Mr. T. E. Wallis, in respect of the post held by him at the School of Pharmacy. Mr. Wallis was educated at Owen's School, Islington (1885-1892), and Birkbeck and King's Colleges (1899-1900). His published work includes "Analytical Microscopy, its Aims and Methods," "Botany: an Outline of Classification" and "Practical Pharmacognosy."