

Royal Photographic Society's Exhibition.

THE sixty-eighth annual exhibition of the Royal Photographic Society was opened on Saturday, September 15, at the Society's house, 35 Russell Square. It will remain open until October 27, and admission is free.

The scientific and technical section is, this year, divided into nine subsections, and it would have been a great improvement if this division had been maintained in the exhibition itself, for those interested in these matters prefer a clear classification to symmetrical hanging. There is a total absence of astronomical exhibits, and the exhibition is the poorer for it. Still, the space available, which is more than heretofore, is well filled with good and interesting work. Any one who delights in animals of all sizes, birds, insects, etc., will find a selection of work that probably has never been excelled. Of special interest is Mr. Oliver G. Pike's demonstration of the use of kinematography in his enlargement from a film showing in eight stages at half-second intervals a cuckoo approaching a meadow pipit's nest, taking out one of the eggs, laying its own egg, and flying off with the stolen egg, which it then eats.

The American Raylo Corporation illustrate Mr. H. C. J. Deek's three-colour process, which does for colour prints on paper what the introduction of gelatin plates did for ordinary negative making. It simplifies the operations and eliminates many of the difficulties. The three negatives are taken consecutively, side by side, on a small plate, but the changing of the screens and the shifting of the plate are done mechanically, and the total time occupied may be as short as one quarter of a second. Each record on the triple negative measures 1 in. \times 1½ in. Development is done in a metal box, no dark room being necessary. The final prints are 5 in. \times 7 in. The negative is enlarged upon a sheet which has upon it side by side the necessary red, yellow, and blue pigmented and sensitised gelatin films, each on a thin sheet of celluloid. It is developed in warm water, and the superposition of the three is done by means of a special adjusting frame, so that the accurate register is very easily secured.

The radiographic prints exhibited are specially note-

worthy. The human hand taken with an exposure of one-twentieth of a second by Mr. A. A. Campbell Swinton is compared with the radiograph made by Mr. Campbell Swinton in 1896 (the first made in England) which required 20 minutes' exposure. Dr. Robert Knox shows, among others, radiographic records of the movement of the left border of the heart, in a normal condition and in a case of heart block. These are taken with a slit diaphragm and a moving film.

There is a considerable section of photomicrographs which includes examples of almost every possible kind. Mr. F. Martin-Duncan has prepared specimens of the hairs of the primates by a special mounting process and illuminated them in a special manner, so as to show the extremely delicate cuticular scales on the outer surface. These are of great importance as a certain means of identification and classification. Mr. J. H. Pledge shows a series which demonstrates the variation of stem structure in successive years of a twig of mistletoe.

Specimens of the use of the Low-Hilger Audiometer are shown by Prof. Low and also by Messrs. Hilger. These include the Melba trill, the Melba exercise for the cure of corns on the vocal chords, and sound wave records of several musical instruments.

The Royal Air Force has a series of photographs taken from aeroplanes, which demonstrate to what a wonderful degree of perfection this method of work has been developed. Two aeroplanes in collision at Northolt last June were photographed at the critical moment by Mr. G. V. Grundy. Mr. H. Roussilhe shows drawings of the apparatus used for the correction of aerial photographs and the production from them of plan maps, with specimens of the steps in the process.

Among the stereoscopic prints, lantern slides, and colour transparencies will be found many of excellent quality. The "Cine-Kodak" and the "Kodascope," which reduce the cost of taking "moving pictures" to one-fifth that of the standard apparatus, will be demonstrated at 11.30 A.M. and 3 P.M. each day. These machines have already been referred to in these pages (NATURE, September 1, p. 333).

The European Drought of 1921.

A LENGTHY discussion of diverse aspects of the great drought is afforded by Prof. Filippo Eredia in a paper entitled "La Siccità del 1921," published on the authority of the Ministry of Public Works, Rome, in 1922. Although the dry weather of that year appears to have affected in varying degrees practically the whole of Europe, and in conjunction with the political situation led to the terrible famine in Russia, the region dealt with in this communication is limited to Italy, Switzerland, France, and Britain, and for the last-named country the author avails himself of the material supplied by Messrs. Brooks and Glasspoole (Quart. Journ. Roy. Meteor. Soc., vol. 48, 1922).

In Ireland, and in Scotland except on the east coast, the rainfall of 1921 did not, as a rule, fall below 80 per cent. of the normal, and as over much of these two countries the normal amount is heavy, the deficiency of 20 per cent. did not mean any real condition of drought except, perhaps, for quite brief periods now and then during the course of the year. But in eastern and southern England, and the major portion of France, the total fall in 1921 only amounted to from 60 to 50 per cent. of a much lower average,

so that the economic consequences of a deficiency equal to half the average were very serious. Locally in the extreme S.E. of England the rainfall of 1921 was less than 50 per cent. of the average, while in many places in southern and eastern France, Switzerland, and northern Italy it barely exceeded 40 per cent., *i.e.* a deficiency of nearly 60 per cent. In London the rainfall of the year was the lowest for at least 150 years, and was actually less than the evaporation—a very rare occurrence in the damp, cool climate of England. But whereas in England, France, and Switzerland the most intense phase of the drought coincided with the midsummer heat of June and July, in Italy the dearth of rain did not become acute before September, after which in northern or continental Italy there was practically no rain till the beginning of 1922, the month of October, normally the wettest in the year, being absolutely rainless at Milan and other places—a unique occurrence for that month.

In central and southern Italy, on the contrary, the deficiency of rainfall in the last three months of 1921 was less marked than in the north, while the normal summer Mediterranean drought of peninsular and

insular Italy was actually less rigorous than usual. In continental Italy the snowfall both in the mountains and plains during the early months of 1921 was very light, and this coupled with the almost entire absence of rain in the autumn caused the Alpine streams at the end of the year to fall lower than had ever been remembered. Perhaps the most interesting feature in the geographical distribution of the drought, as concerns the four countries named, is the general intensification from England in the N.W. to Italy in the S.E.—that is from a more oceanic to a more continental regimen of climate. (See article in *NATURE* on "Climatic Continentality and Oceanity," April 21, p. 549.) It is known that both excesses and deficiencies of rainfall with respect to the average are normally more marked in continental than in maritime regions, and the reason is not difficult to understand when one reflects that rainfall is but a by-product of the circulation of the atmosphere and the changes of temperature, in the several strata, associated therewith. Hence, one would expect vicissitudes of rainfall to bear some relation to continentality, because all variations of temperature, seasonal, diurnal, or irregular, tend to be accentuated on land and damped out on sea.

In France and England the drought, which was essentially a summer one, commencing about February and terminating about November, was connected with a marked excess of barometric pressure over central Europe. There seems to be no doubt that the normal Mediterranean high pressure was in the summer of 1921 displaced northward, permitting secondary depressions to develop now and then over the Mediterranean Sea, with alleviation of the ordinary summer drought in that region as stated above. In England during the summer we were commonly located in the northern portion of the French anticyclone, with the usual westerly winds but without the usual moisture. More usually we lie farther towards the polar edge of the south-westerly winds, which are then associated with the convergent air-streams of barometric depressions; but evidence has been adduced ("British Rainfall, 1921") that in 1921 there was a greater preponderance of divergent air-currents.

It is important that students endeavouring to understand something of the origin of rainfall in England should co-ordinate the more distant point of view of the physical geographer who associates our rainfall with the abundant moisture supplied to the south-westerly winds by the warm Atlantic Drift, with the more immediate point of view of the meteorologist who relates it to the incidence of barometric depressions, that is, of convergent and ascending air. Students, too, accustomed to think of the proverbial dryness of east winds in Great Britain, are often greatly puzzled by the persistent rain we not infrequently experience with wind from that quarter. There is no discrepancy, however; for in many cases of rain with east wind on the northern side of a depression, the moisture is supplied by an Atlantic current above the drier easterly current through which the rain is falling.

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University and Educational Intelligence.

LONDON.—An attractive series of free public lectures during the Michaelmas term has been arranged at King's College. Prof. A. Dendy is giving nine lectures on Wednesdays, commencing October 17, on the biological foundations of society; Mr. R. Aitken, five lectures on the geography of Spain and typical Spanish institutions, on Thursdays, commencing November 1; Prof. H. Wildon Carr, four lectures on

the Hegelian philosophy and the economics of Karl Marx, on Tuesdays, commencing October 9; and Miss Hilda D. Oakeley, three lectures on the roots of early Greek philosophy, on Tuesdays, commencing November 27. In addition, Prof. R. J. S. McDowall, of Edinburgh, is giving an inaugural lecture in the Department of Physiology on the position of physiology in science and medicine on October 4, and Prof. W. T. Gordon is giving the Swiney lectures (12) on geology on Mondays, Wednesdays, and Fridays, commencing November 19, taking as his subject "Gem Minerals and their Uses in Art and Industry." The lecture hour in every case is 5.30 P.M.

At University College, the list of public lectures includes the following: introductory lecture by Sir Flinders Petrie on religious life in Egypt, on October 4 at 2.30 P.M.; three lectures on the new Babylonian creation and flood stories, by Dr. T. G. Pinches, beginning on October 4; an introductory lecture by Prof. C. Spearman on psychology as transfigured behaviourism; and a course of lectures by Prof. J. A. Fleming on ionic and thermionic valves, beginning on October 24. Single lectures are to be given by Miss Margaret Murray, on primitive religion, on October 5; by Prof. G. Dawes Hicks, on the philosophy of Bernard Bosanquet, on October 8; by Mr. Morris Ginsberg, on the sociological work of the late Dr. W. H. R. Rivers, by Mr. A. H. Barker, on the heating equipment of a small house, and by Miss I. C. Ward, on the application of phonetics to the curing of speech defects, at various times on October 10; and an inaugural lecture by Prof. A. V. Hill, on the present tendencies and future compass of physiological science, on October 16. Particulars of the lectures and courses should be obtained from the Secretary of University College.

A COURSE of six lectures on the bearing of psychoanalysis upon sociological problems has been arranged by the Sociological Society, Leplay House, 65 Belgrave Road, Victoria, S.W.1. The lectures are to be given on Tuesdays, and commence on October 9 with an introductory lecture by Dr. Ernest Jones. Succeeding lectures will deal with man as an individual, the family, politics, education, and vocation. Half-price tickets are available for a limited number of students.

A SERIES of "Celebrations," arranged by Dr. F. H. Hayward, Inspector of Schools, of 87 Benthall Road, London, N.16, will be held during the winter on certain Saturday evenings (6 o'clock) at the Birkbeck Theatre, Birkbeck College, Fetter Lane, E.C. Four of these in particular may be of interest to readers of *NATURE*, namely: Two homage celebrations, "The Geologist," December 1, and "The Scientist" (in general), March 1, 1924, and two memorial celebrations, "Leonardo da Vinci," January 12, 1924, and "Goethe," February 9, 1924. All these four have a predominant scientific interest. Though we understand that Dr. Hayward has found it difficult to discover music and poetry that can be effectively employed in the glorification of science and its devotees, he has discovered some, and he thinks that the main purpose of the celebrations will be achieved, namely, the creation of emotional associations in connexion with the history and the methods of science. Recent studies in psychology and sociology have pointed to the conclusion that knowledge and reason are more closely related to instinct and emotion than was formerly believed. Without an emotional basis, they cannot flourish or even receive adequate recognition among the mass of mankind. Hence the importance of Dr. Hayward's attempt to employ "mass" methods and other devices.