

town library of Breslau. Two others—a map of Europe (finished in 1554) and one of England (of 1564)—are unique. Another is the large map of the world, of which there are only two copies in existence, the second one being at the Paris National Library. The Society has agreed to publish the details of Dr. Konrad Kretschmar's journey to Rome, undertaken in the Middle Ages for purposes of research.

THE LADIES' CONVERSAZIONE OF THE ROYAL SOCIETY.

THE Ladies' *Conversazione* of the Royal Society was held on June 18, and was, as usual, a great success. Many of the exhibits were the same as those shown at the *conversazione* on May 14. Among those which had not been previously shown were the following:—

Exhibited by the Director-General of Ordnance Factories:—Magazine rifle, Mark I. The new magazine rifle now being made for the British Army. It has a calibre of 6"303, is on the bolt principle, and is provided with a detachable magazine underneath, to hold eight cartridges; a cut-off on the right side enables it to be used as a single loader. It has two sets of sights, the ordinary ones are graduated up to 1900 yards, the long-range sights on the left side up to 3500 yards. The sword-bayonet, which is attached underneath the barrel, has a double-edged blade 12" long.

Exhibited by the Director-General of the Geological Survey:—Diagrams illustrating some of the most ancient topography of the British Isles. (a) Corry on Ben More, Assynt. The rough bossy ground in the middle is the Archæan gneiss, the most ancient rock in this country. Above it to the left comes the Torridon sandstone, forming a range of cliffs, and lying unconformably on the gneiss. At the summit of the Corry, on the crest of the ridge, lies the early Palæozoic quartzite, which steals across the sandstone until it rests directly on the gneiss. (b) Sleagach, Loch Maree. The pinkish bossy rock is the old gneiss, which rises into a group of hills that have been buried under the Torridon sandstone. By prolonged and enormous denudation of the overlying sandstone, the gneiss hills have been uncovered, and now reveal a portion of the oldest known topography of Britain. The gneiss hill to the right rises to a height of 2500 feet, and in ascending it one can walk along the ancient shore-line and traverse beach after beach that was piled up over the sinking land. (c) View from the south shoulder of Sleagach looking east. The bossy hills of gneiss rise towards the left hand to a height of 3000 feet above the sea. The overlying cover of Torridon sandstone, though enormously denuded, still forms a range of lofty hills, beneath which knobs of gneiss at different elevations may be seen protruding. The quartzite (coloured yellow) caps the mountains to the right until a mass of the old gneiss overlies it. This cack of the most ancient rock of the region has been torn up and thrust over the younger formation. The line of junction or "thrust-plane" between them descends into the plain, and runs for miles to the westward. (d) Meall a Ghubbais, Loch Maree. The upper part of the mountain is a cack of Torridon sandstone, which has been driven westward by the same gigantic terrestrial movements just referred to, and has been placed upon the quartzite group of rocks which ought really to lie above it. In the lower part of the diagram the sandstone is seen in its normal position below the quartzite. (e) Section of Meall a Ghubbais, to show the detailed geological structure of the mountain. It will be observed that the upper shifted mass of Torridon sandstone is traversed by several thrust-planes, and that portions of the old gneiss have likewise been driven westward underneath it.

Exhibited by Mrs. F. W. H. Myers:—(1) Platinotype photographs. (2) Photographs on fabrics.

Exhibited by Sir William Bowman, Bart., F.R.S.:—(1) Jubilee portrait of the late Prof. Donders, For. Mem. R.S., painted by Mrs. Donders (Hubrecht). Gold Medal awarded at the Exposition International, Munich, 1888. Ultimately destined for the National Museum, Amsterdam. (2) Uncompleted portrait of the same, 1873, by G. F. Watts, R.A.

Exhibited by Prof. W. C. Roberts-Austen, C.B., F.R.S.:—Measurement of high temperatures. Experimental determination of the melting-point of gold (1045° C.) and of silver (945° C.), by means of Le Chatelier's pyrometer. This consists of a thermo-couple, composed of wires of platinum and platinum alloyed with 10 per cent. of rhodium, connected with

a dead-beat galvanometer. The pyrometer scale has been calibrated by heating the thermo-couple to certain known temperatures determined by the air thermometer.

Exhibited by Prof. A. M. Worthington:—An apparatus for stretching a liquid and measuring simultaneously the stress and strain.

Exhibited by Mr. P. L. Sclater, F.R.S.:—Portrait of Dr. Emin Pasha, C.M.Z.S., and original letter from him, addressed to Mr. Sclater, dated Wadelai, April 15th, 1887.

Exhibited by the Postmaster-General:—Hughes's type-printing telegraphs, working to the Continent. This apparatus is mainly mechanical, the electrical action being confined to the sending a single short pulsation of current at the instant the type-wheel is in the proper position, and only one wave of current is needed to produce a letter. The sending and receiving instruments are combined. The key-board consists of as many keys as there are letters and signs to be printed. Connecting with the keys and corresponding with them, and also with the type-wheel, is a set of pins arranged radially in a circular horizontal plate. An arm revolves over these pins without touching them until a key is depressed, when a current is sent into the line. The instruments are caused to run approximately isochronously by means of suitable adjustments, and they are afterwards maintained in synchronism automatically by the actual working. The instrument is eminently suitable for Continental message traffic, for which purpose it is largely used. The three working instruments shown were connected with Paris, Berlin, and Rome. In the course of the evening the President held communication with Profs. Helmholtz and Du Bois-Reymond in Berlin, Prof. Mascart in Paris, and Prof. Cannizzaro in Rome.

Exhibited by Mr. Walter Gardiner, F.R.S.:—(1) Specimens of aquatic fen plants and algae occurring in the neighbourhood of Cambridge. (2) Specimens illustrating the exhibitor's paper on a new method of printing photographic negatives, employing living leaves in place of sensitive paper.

Exhibited by Dr. Pole, F.R.S.:—Diagrams in illustration of colour-blindness.

Exhibited by Dr. Karl Grossmann:—Tests for colour-blindness.

Exhibited by Prof. J. W. Judd, F.R.S.:—Specimens of a remarkable nickel-iron alloy (awaruite), of terrestrial origin, from New Zealand, and of the minerals and rocks with which it is associated. Sent by Prof. G. H. F. Ulrich, of the Dunedin University, N.Z. This curious mineral, consisting of 2Ni + Fe, was analyzed and named by Mr. W. Skey, in 1885, having been detected by him in specimens of sands obtained from streams in the south-western part of the South Island of New Zealand. Prof. Ulrich has since been able to show that the grains of this alloy are found over a considerable area, disseminated in peridotite and serpentine rocks; which rocks are intrusive in the metamorphic schists of the district, and form the Red Hill and Olivine Ranges. The substance which awaruite most closely resembles is the Oktibehite meteorite, consisting of Ni + Fe: and the occurrence of this remarkable alloy in terrestrial rocks is comparable to the presence of nickel-iron alloys in the basalts of Ovikak and other localities in Greenland.

Exhibited by Prof. A. H. Church, F.R.S.:—A selection of Japanese sword guards, or *tsuba*, made of malleable iron, and variously decorated with chased, hammered, and pierced work, or with incrustations in gold, silver, shakudo, shibuichi, and bronze. The majority of the examples shown represent plant forms, and were executed between 1650 and 1850.

Exhibited by Prof. W. C. Roberts-Austen, C.B., F.R.S.:—Japanese art metal-work. The specimen is interesting as a modern example of flat inlaying in metals. The plate is of bronze, and the bird is of *shakudo*, or copper alloyed with a small quantity, about 2 or 3 per cent., of gold. The isolated feathers are of a darker variety of this alloy.

Exhibited by Dr. W. J. Russell, F.R.S.:—Ancient Egyptian colours discovered by Mr. Flinders Petrie in the Fayoum, and modern imitations of them; and colours from Hawara in the Fayoum.

Exhibited by Mr. A. P. Laurie:—Colours used by the fifteenth century painters.

Exhibited by Mr. W. F. R. Weldon, F.R.S. (on behalf of the Marine Biological Association):—Larvæ of certain food-fishes, together with other animals of interest inhabiting Plymouth Sound.

Exhibited by Prof. A. C. Haddon, on behalf of Mr.

A. Haly, Director of the Colombo Museum:—Some tropical fishes preserved in a mixture of gum and glycerine, as a means of displaying their natural colours. The results, although not as good as with some of the specimens located in the museum itself, represent the outcome of a series of experiments extending over a number of years, full details of which are to be found in the "Ceylon Administration Reports." Gum and glycerine have long been used in combination in microscopy, as a substitute for Canada balsam; on account, however, of the difficulty experienced with air-bubbles, their use is now very generally given up. Mr. Haly's experiments have shown that if the specimens preserved in the mixture which he employs be placed in a medium which will precipitate the gum, all colour is quickly lost, wherefore the preservation of the latter would appear to be due to the gum's influence. Mr. Haly is still prosecuting his experiments, and his latest researches show that the employment of pure glycerine for mounting (a well-nigh prohibitory condition) is no longer indispensable. He now finds that gum and glycerine are miscible with alcohol in all proportions necessary for his purposes, provided certain precautions be taken in the manipulation. He is thus enabled to check the ravages of fungoid organisms which earlier impeded his progress; and, by reducing the syrup to the necessary specific gravity with proof spirit, he is enabled to successfully preserve frogs, reptiles, and other organisms with which he originally failed, to no small degree as the result of the excessive dehydrating powers of his original medium. Mollusks, sea anemones, and jelly-fish, are among those forms of life with which the method has been least successful. Mr. Haly tells us, however, that for the Alcyonidæ his mixture is a good preservative, and that seawater saturated with bichromate of potash has been found excellent for hardening jelly-fish. The power to preserve the natural colours of plants and animals is now the desideratum of the museum curator. Some of Mr. Haly's exhibits have stood the test of from two to three years' exposure to the light in a tropical climate. The outlook is a hopeful one; and the facts show the colonial worker, who is apt to be lost sight of in these days of competition and aggrandisement, to be fully abreast of the times, and alive to the best interests of the public.

Exhibited by the Zoological Society of London:—Eggs of a large python (*Python molurus*) laid in the Zoological Society's reptile-house. The pythons lay about thirty to fifty eggs at one time, and incubate like birds. The female python on the present occasion has "declined to sit," but on former occasions this process has been carried on in the gardens (see Proc. Zool. Soc., 1862, p. 365). Abnormal heat is developed by the sitting python as by the sitting hen.

Exhibited by Prof. A. Macalister, F.R.S.:—Two mummy heads of priests (12th and 18th Dynasties) from tombs near Assouan, Upper Egypt.

Exhibited by Sir Archibald C. Campbell, Bart:—Photographs of musical sparks, done at Blythswood, Renfrewshire, by the exhibitor.

Exhibited by Dr. Augustus D. Waller:—Demonstration of the electrical variations of the heart of man and of the dog.

The following demonstrations by means of the electric lantern took place in the meeting room:—

Animal and bird studies, photographed from life, exhibited by Mr. Gambier Bolton.

The orientation of some ancient temples, exhibited by Prof. J. Norman Lockyer, F.R.S.

Experimental demonstrations on electro-magnetic repulsion phenomena, and a series of experimental demonstrations illustrating the principal facts of the phenomena of electro-magnetic repulsion, discovered by Prof. Elihu Thomson, and their applications in alternate current electro-magnetic motors, as exhibited in the Paris Exhibition, exhibited by Prof. J. A. Fleming and Mr. Ernst Thurnauer.

THE SUNDAY SOCIETY.

ON June 21 the Sunday Society held its fifteenth annual meeting in Prince's Hall, Piccadilly. Prof. G. J. Romanes delivered his address as President of the Society. After a brief analysis of the Sunday question in general, he spoke as follows:—

As you will see from the fifteenth Annual Report which is now in your hands, the present year is one of unusual activity on the part of our Society. First of all, it has been marked by a wise

stroke of policy in sending a deputation to the French Ministry for the purpose of obtaining information as to the practical results of opening the great Exhibition of Paris on Sundays. Moreover, as explained in the Report, the Committee desired to ascertain whether there be any reality in "the great bugbear of the Sabbatarian mind"—viz. that the Continental Sunday is a day of irreligion to the masses, and of overwork to the Government employes. As you will see from the Report, the result has been conclusively to prove the unreality of the bugbear, so far at all events as the specific question of the opening of national galleries and museums is concerned. With the more general aspects of the Continental Sunday we have not, as a Society, anything to do; but I may remark in passing that we must here remember differences of national taste and feeling. What would be irreligious levity in one community need not be so in another; and it would be absurd to attribute these differences of sentiment to differences in the matter of Sunday observance.

Next, you will find from the Report that the Trustees of the People's Palace received a memorial from the Working Men's Lord's Day Rest Association, which was promptly responded to by a counter-memorial from this Society. The latter document may best be left to speak for itself; and as it speaks with so much good English common-sense, I scarcely feel it desirable to move a vote of thanks to the Trustees of the People's Palace for having listened to us rather than to our opponents: I prefer to take it for granted that the Trustees perceive as plainly as we do on which side of this matter the truth and the wisdom lie.

Again, you will learn from the Report that, in addition to the public institutions previously opened on Sundays, several others have been this year added to the list, which now comprises 23 in all. Moreover, this year has likewise witnessed the great reform of throwing open the British Museum on certain week-day evenings; while both the authorities there and those at the National Gallery have expressed, not only their willingness, but their desire to throw open to the public on Sundays these by far the greatest of our national collections. In my opinion it is impossible for us as a Society to over-estimate the importance of having thus gained the express and cordial support of the most representative museum on the one hand, and of the most representative art gallery on the other. It now only remains that the Treasury should allow a small grant to defray the comparatively nominal expenses, and our cause would be won throughout the length and breadth of the land. For if once the British Museum and National Gallery were opened on Sundays, no other museum or art gallery could afford to resist any pressure that might be put upon them to follow so overwhelming an example. Our big guns, therefore, are at last fully charged and ready to fire; only the trigger waits to be pulled, and this it is that we are now about to attempt.

For you will observe, in the last place, that the Report in your hands contains a very weightily worded memorial which was sent to the Chancellor of the Exchequer in the middle of April. Where so many forcible considerations are comprised within so small a compass, one is much tempted to read the whole. But as other speakers are to follow me, I shall merely indicate one or two of the points in this memorial which appeal to me as of most importance.

First, then, I would have you observe how strong a ground the appeal is based upon, where it calls attention to the fact that the House of Commons has already and amply recognized the principle of their obligation to open on Sundays our national museums, galleries, gardens, &c., by having already furnished the funds requisite for the purpose to Kew, Hampton Court, Greenwich, Dublin, and Edinburgh. Again, as another very notable feature in this memorial, I may mention the enormously strong support to which it draws the attention of Mr. Goschen as having recently been given to the objects of this Society by the London County Council, who passed an almost unanimous resolution in favour of our policy. Yet once more, can anything be more calculated to sway the mind of a Minister than the anomalous state of matters to which the memorial draws attention, where it indicates that the governing bodies of the British Museum and National Gallery are expressly desirous of making arrangements whereby the priceless collections under their charge may at last become in very truth, or without any restriction, the property of the British public? When provincial institutions of incomparably less importance have already succeeded in obtaining funds from the Treasury for this purpose, is it right or fitting that the great Metropolitan institutions should be