have been paid, and here it may be recalled that Newton placed him beside Wallis and Huygens as one of the leading geometers of the age.

Sir Philip Magnus, Bt.

THE many friends of that veteran educationist, Sir Philip Magnus, Bt., will be interested to learn that on Oct. 7 he celebrated the ninetieth anniversary of his birth. Sir Philip attended University College School, London (possibly he is now the oldest of its scholars), graduating afterwards at the University of London. He was secretary of the City and Guilds of London Institute from 1880 until 1888, and within this period was a member of the Royal Commission on Technical Instruction. Afterwards, for some thirty years, he was superintendent of the Department of Technology, City and Guilds of London Institute. Long devoted to the interests of the Royal Society of Arts, Sir Philip was elected its chairman of council in November 1927, succeeding Sir Thomas Holland. An inaugural and most comprehensive address delivered in that capacity was entitled, "The Royal Society of Arts : its Services to Trade and Training".

Prof. H. L. Le Chatelier

CONGRATULATIONS are also extended to Prof. Henry Louis Le Chatelier, the distinguished French chemist, who this week (Oct. 8) celebrates his eighty-second birthday. Elected a foreign member of the Royal Society in 1913, the distinction of the Davy Medal was conferred on him in 1916. As the result of prolonged investigation, he introduced the Le Chatelier thermoelectric couple, and inaugurated a new period in the measurement of high temperatures. One of the pioneers of micrometallurgy, he was among the first to provide exact methods in the science of industrial silicates. His scientific work has always been closely related to practical applications. Prof. Le Chatelier is the author of many memoirs and papers in scientific journals.

The Gregorian Reformation of the Calendar

THIS week is the 350th anniversary of the reform of the calendar ordained by Pope Gregory. The day following Oct. 4, 1582, was called Oct. 15. It is not always remembered that, in addition to the calendar changes, greatly improved lunar tables were introduced for the purpose of computing the date of Easter. An article in the *Southwark Record* notes that the necessary calculations were executed by Luigi Giglio (Aloysius Lilius), Ignatius Danti, and Christopher Clavius. It also points out that the ten days stolen from October are now being slowly repaid, as the 'Summer Time' reckoning gives October an additional hour each year.

Lighting of Picture Galleries

MANY visitors to picture galleries must have noticed that pictures are often hung on the walls of most galleries in such a way as largely to defeat the very object for which these expensive institutions exist. It is about 120 years since Prof. Henry in America first directed attention to the need for collaboration between architects and men of science in planning buildings suitable for music and speech. Gradually the inertia of professional conservatism in this matter has been partially overcome ; there remain, however, important optical problems relating to the lighting of rooms in which pictures are to be displayed. Here the physicist can help, and already authorities in London are making experiments. At the Tate gallery, for example, may be seen the advantage of hanging pictures on only one wall of a room, and various schemes of artificial lighting are being tried at the National Gallery itself. It is now generally agreed that pictures in London should be glazed if only to keep them clean and free from deleterious gases. But there are other reasons too ; experience has shown that enthusiasts cannot refrain sometimes from touching a canvas, and that pins or other things projecting from the headdress of lady visitors to a gallery have been known to scratch the pictures and do incalculable damage. Since it is the practice to hang all pictures flat against the walls, the reflection of those on the opposite wall, as well as that of an observer, frequently renders it very difficult to make out detail in a painting. For example, in Room 25 of the National Gallery, Trafalgar Square, the large equestrian portrait of Charles I reflects well all the other pictures in that room, a good deal of the roof and the large and extremely ugly warming device and seat in front of it.

Reflection from Glazed Pictures

IN directing attention to the question of avoiding reflection from glazed pictures, Mr. Robert Howden has rendered a useful service both to artists and the public. His paper, read before the Royal Society of Arts on Oct. 3, clearly stated the elements and difficulties of the problem, and it is significant that Sir Edwin Lutyens was in the chair. Mr. Howden recommends replacing the usual flat glass by a sheet bent into a parabola. The adaptation of this device to shop fronts has recently been developed by Mr. G. Brown, and the effectiveness of such a scheme may be seen by viewing the interior of a motor show-room at 88 Regent Street, London, through the curved plate glass windows. No reflection of the street can be seen and only the contents of the show-room is visible from without, so that the window itself does not seem to exist. If this could be applied to pictures in public galleries, it would indeed be a boon. But there is the question of cost and the ever-haunting thought that perhaps some other and simpler solution of the problem may not be out of reach. In order to be effective, pictures hung high up would require a different curvature of glass from those on a level with the eye, and then all the varieties of sizes and shapes of canvases or panels would offer further difficulties. Would it not be as well to try first the simple device of tilting the pictures a little forward ? Why is that not done in the public galleries ? We think this would at least be an improvement on existing conditions and, if sufficiently successful under the usual system of lighting, the walls of new galleries could be built so as to lean a little

inwards. It might be worth while to construct a light wooden framing that would cover one of the smaller walls of the National Gallery, to hang upon it pictures with dark backgrounds and then to tilt the screen forwards and note the improvement in visibility under the conditions of top lighting in use there.

Museum Improvements

Two articles of real value to museum curators appear in the *Museums Journal* for September. The first, by Dr. L. J. Spencer, discusses the artificial lighting of museum cases, and recommends the use of strip lights along the upper portion of the case, and the painting out of shadows cast by solid shelves. The assumption in such a case is that ordinary daylight lighting is ignored. Diagrams illustrate some of the cases of minerals in the British Museum lit by the method described, one tall (10 ft.) case showing a specially neat method of making use of the otherwise useless upper portion, by the fitting of transparent pictures illuminated from behind. In a second article, Mrs. Jean C. Stevens suggests a way of replacing the very expensive jointed figures used (where they can be afforded) for the display of costumes. With a little ingenuity effective figures can be made at a small cost, with cylinders of rabbit netting. The cylinders, head, arms, body, etc., can be 'bent' into shape as desired, and in proper position can be supported by strengthening struts of wire or wood. If the illustrations represent the results of this process, the home-made figures should find a comfortable home in many a museum, impoverished or otherwise.

British Commercial Gas Association

THE British Commercial Gas Association, founded for co-operative publicity effort in the gas industry, held its coming-of-age meeting in Leeds during the past week. Prince George, after seeing something of the manufacture of gas and gas appliances in the city, attended the dinner on Tuesday evening and gave an interesting review of the achievements of the industry. Major Geoffrey Kitson, in his presidential address, set forth further particulars of the present conditions, stating among other things that there are now five million 'slot consumers' on the books of the industry; that £180,000,000 of money and a yearly consumption of 18,000,000 tons of coal, are involved; and that 100,000 workmen are employed. He alluded to the advances being made in new directions, and in the afternoon, Mr. A. W. Smith, general manager and secretary of the Birmingham Gas Department, stated in his paper that authority has been obtained from the Home Office to run a test vehicle on the road with special steel cylinders containing gas at a pressure of 3000 lb. a square inch. It is hoped that gas so supplied may also be used for country houses and farms in districts remote from gas mains.

The executive chairman, Sir Francis Goodenough, at the opening of the Conference, spoke of the difficult days sure to follow upon the completion of the electricity grid, controlled by the Central Electricity Board. He foresees a desperate effort to get business for the grid "backed up more and more from Whitehall". It was in the gas industry that Sir Francis gained his first laurels as an authority on salesmanship and he insisted on the importance of perfecting the commercial side and of practising individual as well as collective enterprise. Major Kitson, who is chairman of the Leeds City Gas Department, urged the importance of gas and electricity, by co-partnership and concentration, setting themselves at once to achieve a national ideal of service in the most economical extraction of the potential heat, light and power from the great reservoir of energy—our sole native source—the coal fields. If the spirit and demeanour exhibited by Major Kitson prevailed more generally it would be a matter for congratulation. Extravagant *ex parte* statements by the advocates of the two agencies where their services overlap are greatly to be deplored, and they appear to be increasing. Among other things it is to be remembered that the exact measurement of the efficiency of heating appliances is still a subject of difficult scientific investigation. It is appropriate to say that in this and other technical problems, the University in the city where the Conference was held has long co-operated in a fruitful way with the Institution of Gas Engineers and that it has a chair of coal gas and fuel industries founded as a memorial to a great gas engineer, the late Sir George Livesey. In this and one or two other university centres in Great Britain, the scientific education of the gas engineer is now seriously taken in hand and is producing a long-needed type of recruit.

International Scientific Investigation of Population Problems

THE first World Population Conference was held under the auspices of the International Union at Geneva in 1928 and the second Conference at London in 1931. The proceedings of these Conferences have been published. In addition, three standing committees organise and to some extent subsidise research (The International Union for the Scientific Investigation of Population Problems: its Foundation, Work, Statutes and Regulations. Pp. 28. London: c/o Royal Geographical Society, 1932). It might perhaps be a matter for debate whether the results so far published justify a new and cumbrous organisation. But it is another matter when we take into account the value of an attempt to look at population problems from an international angle. All population problems have two aspects—a domestic and an international. The problem of emigration is a case in point. It may be that too much importance has been sometimes attributed to population movements, when, for example, war has been traced to over-population. But there can be no doubt that in many subtle ways population movements do affect international relations very profoundly. Thus if the Union can keep international aspects to the front, it will be justified whatever may be the value of the research which it directly advances. It may perhaps be said that in the long run the successful