accommodation. They must not be so handicapped in the more pressing times to come. The Council of the Royal Society has appointed a committee to consider the needs for fundamental researches in physics; no doubt other departments of science will have similar needs. The primary duty of the Royal Society is to aid researches which seek the advancement of knowledge without immediate reference to its use, though it appreciates clearly that such progress is often necessary to practical advances. Finally, Sir Henry referred to the need of the Royal Society for a home more worthy of its importance; he spoke of investigations which have been made, with the help of the assistant secretary, Mr. Griffith Davies, of the different homes the Society has occupied. Elsewhere in this issue (p. 649) we print Sir Henry's remarks on this topic.

Scientific Work in India

IN the August number of *Discovery*, Sir Lewis Fermor gives an interesting account of the history and development of pure and applied science in India. It is well known that India possesses a very ancient culture and civilization. As regards ancient science, the Hindus made important contributions to mathematics, and, as Sir Lewis points out, they possessed a considerable knowledge of zoology, medicine and chemistry. Sir Prafulla Chandra Ray's book on the "History of Hindu Chemistry" from the earliest times up to the middle of the sixteenth century A.D. provides valuable information concerning this branch of science. The conquests of Alexander the Great gave India an important stimulus to intercourse with Europe, but, as Sir Lewis observes, much ancient Indian science antedates this Greek influence. Moreover, it must not be forgotten that when the Arabs brought science to Europe, their knowledge derived from Indian as well as Greek sources. Although in its earlier days the East India Company did not employ scientific men as such in India, it is a striking fact that James Prinsep, one of the Company's official assayers, deciphered in 1838 the ancient Brahmi script used in the rock-cut inscriptions or edicts of the Indian Buddhist king, Asoka (died *circa* 237 B.C.).

According to Sir Lewis Fermor, the modern development and study of science in India began with the coming in 1783 of the Puisne Judge of the Supreme Court, Sir William Jones, who in 1784 founded the "Asiatick Society", later to become the Royal Asiatic Society of Bengal. A portrait of Sir William Jones accompanies the article. Concerning the very great development of Government services depending on applied science, universities and colleges, scientific societies, scientific journals, and academies of science, which has taken place in India during the nineteenth and especially the twentieth century, readers will find here an excellent account. The universities, colleges, and academies of modern India, including the Indian Institute of Science at Bangalore, founded by the eminent Parsee family of Tata, make important contributions to the advance of pure and applied science. A number of these discoveries are referred to by Sir Lewis, who adorns his article with the photographs of eight eminent Indian men of science, namely, Dr. H. J. Bhabha, Sir Shanti Swarupa Bhatnagar, Dr. K. S. Krishnan, Sir C. Venkata Raman, Prof. M. N. Saha, Prof. B. Sahni, the late Sir J. Chandra Bose (all fellows of the Royal Society), and Sir P. Chandra Ray.

Insulin Colour Code

NOTEWORTHY steps in the direction of co-operation in production and distribution have been made by the four firms (Allen and Hanburys Ltd., Boots Pure Drug Co. Ltd., British Drug Houses Ltd., and Burroughs Wellcome and Co.) entrusted with the manufacture of insulin in Great Britain. These firms, mindful of their special responsibilities to the diabetic community, have throughout the War period pooled their research, manufacturing and distributive facilities to ensure an adequate and uninterrupted supply of their products to those in daily need of them and to reduce their prices, in the face of rising material and labour costs, to the lowest practicable level. Three distinct types of insulin—Unmodified Insulin, Protamine Zinc Insulin and Globin Insulin (with Zinc)—are in regular use in Great Britain. Alternative strengths of two of these make a total of six different preparations, and confusion between them might easily be attended by serious consequences. To reduce this possibility to a minimum, the British insulin manufacturers have agreed to adopt a uniform design for labels and cartons, by which each type and strength of insulin, of whatever make, will be readily identifiable by a distinctive colour scheme. In addition, the unit strength per c.c. will be displayed in bold figures on both label and carton. An explanatory card, printed in colours, is obtainable from any of the manufacturers on request. The change, which will take place on January 1, was made after consultation with leading authorities and with the approval of the Ministry of Health.

Animal Population of a Seaport

AN exhibit entitled "The Population of a Seaport" was recently installed in the Zoology Department of the National Museum of Wales. It is based on the fact that any great city to-day is a habitat characterized by a particular community of animal species; in this case including, and largely dependent on, man. Examples of this urban fauna—certain birds, domestic animals, rodent and insect pests, etc.—are shown; and the interrelationships of the species, between themselves and with man, illustrated by coloured tapes running from one animal to another and thence to a small bust representing man. As man created the habitat for this community, he can control it for the better, notably by improved town-planning, whereby, for example, desirable bird-life may be increased, and improved house-building, whereby rats, cockroaches, etc., may be diminished. As indicated in the labels, these and some other urban pests were originally introduced by shipping, and specimens are displayed of the numerous alien species that thus reach our seaports; those which have established themselves, however, have mostly spread inland and are to-day familiar in all large towns. As about 80 per cent of the population of Britain are urban dwellers, such an exhibit should assist the majority of visitors to envisage this biological background to their environment, and the advantages to be achieved by its improvement and control. An article describing the exhibit appears in the October number of the *Journal of the Royal Institute of British Architects.*

Recording Cathode Ray Oscillograph Traces

THE technique of recording cathode ray oscillograph traces was the subject chosen for the November meeting of the Association for Scientific Photography, the speakers being Mr. W. Nethercot (E.R.A.) and

Mr. N. Hendry (Rotax, Ltd.). Mr. Nethercot's paper dealt with the recording of high-speed transient phenomena by hot-cathode glass-bulb tubes, and examples were shown of wave-forms of 20 Mc./sec. and above. In single transient recording the beam traverses the screen only once, and the exposure time of the film is therefore determined by the duration of the glow from the screen, since the actual traverse time may be only a fraction of a microsecond. Photography by direct contact of the film with the screen has so many disadvantages that it is only suitable for transients of simple wave-shape where blurring of the trace and curvature of the screen do not affect the result appreciably. The most satisfactory method is by means of a specially designed camera.

Since the majority of the light emitted from a blue-screen tube (the optimum material for recording) is in the blue-violet region, it is not necessary to use an achromatic lens; further, the corrections necessary for a high-grade camera lens are not required for oscillographic recording at a fixed distance. The best results are obtained with ortho emulsions; with panchromatic films the glow of the tube cathode frequently caused fogging on the centre of the record. Mr. N. Hendry, in dealing with the requirements of both cameras and tubes for recording, pointed out that small changes in the setting of the brilliancy control make large differences in the apparent recording sensitivity due to change in spectral emissivity of the screen with beam current. For many purposes, particularly where the reproduction of records is not required and the highest speed is not necessary, recording paper is as satisfactory as film, and more economical. The usual mercuric iodide intensifier gives good results, as does also a silver intensifier. In the discussion which followed, Dr. H. Moss (A. C. Cossor) spoke of the correction necessary for screen curvature of the tube, and Mr. G. Parr (*Electronic Engineering*) showed four simultaneous traces on recording paper taken from two gas-focused tubes with electronic switching of the beam.

The Clinical Society of London, 1868–1907

In his recent presidential address on this subject before the Clinical Section of the Royal Society of Medicine, Dr. J. D. Rolleston said that the formation in 1868 of the Clinical Society of London, the parent of the Clinical Section of the Royal Society of Medicine, was mainly due to Dr. Headlam Greenhow and Dr. (afterwards Sir John) Burdon Sanderson, who were both assistant physicians of Middlesex Hospital, the latter being afterwards appointed Waynflete professor of physiology and eventually regius professor of medicine at Oxford. According to Dr. Rolleston, the most interesting historical event connected with the Clinical Society was the first medical description in Great Britain of X-rays, which was made before it nearly fifty years ago. Early in 1896, the Society invited Prof. Silvanus Thompson to tell its members about the new discovery; a special meeting was held on March 30, 1896, and was attended by nearly four hundred members. Later, numerous cases illustrating the diagnostic and therapeutic value of X-rays were reported at meetings of the Society and recorded in its *Transactions*. A remarkable custom in the practice of the Society was the frequent establishment of special committees to discuss various subjects or individual cases. The most important of these committees were those on myxœdema, the periods of incubation and contagiousness of certain infectious diseases and the antitoxin of diphtheria. The course of the Society was successful from the first. At the time of its amalgamation in 1907 with sixteen other societies it numbered 572 ordinary members and 17 honorary members. The first meeting was held on January 10, 1868, under the presidency of Sir Thomas Wilson, who was regarded at the time as the greatest English physician of the century and was author of a text-book on medicine which was without a rival for more than thirty years.

Early Science in the United States

Two recent issues of the *Proceedings of the American Philosophical Society* (No. 1, vol. 86, 1942, and No. 3, vol. 87, 1943) contain some interesting historical material and illustrations. The first, bearing the title "The Early History of Science and Learning in America with Especial Reference to the Work of the American Philosophical Society during the Eighteenth and Nineteenth Centuries", contains papers read before the Society at its mid-winter meeting in February 1942, and is inspired by the fact that that year saw the close of two hundred years of activity by the Society, which was organized by Franklin in 1743. It certainly seems a good plan to prepare for such a celebration as a bicentenary by the preliminary presentation of papers of this kind, in which various contributors deal with the Society's early activities in a wide range of fields, including, among others, agriculture, meteorology, climatology, engineering, vertebrate palæontology, and so on; there is also an interesting biographical study of James Logan (1674–1751) and a carefully documented account of a memoir by Rafinesque that has been generally overlooked.

The other issue, entitled "Thomas Jefferson", contains papers read before the Society in celebration of the bicentenary of its third president, that great American, Thomas Jefferson, in April of 1943, at the actual bicentenary of the foundation of the Society, which was also the bicentenary of Jefferson's birth. Various contributors ably discuss Jefferson's life and times, his political philosophy, and his many scientific interests and pursuits. Dr. Harlow Shapley's paper on Jefferson as a natural philosopher was printed in NATURE of August 14, p. 178. The figures of Franklin, Jefferson and Rittenhouse stand out once more in these pages, and fitly in these days we are reminded of Jefferson's oath of "eternal hostility against every form of tyranny over the mind of man". It is perhaps strange that in two places there recurs the old claim that Hadley's quadrant, "with the aid of which the European nations traverse the globe", was invented by the American, Godfrey, although this matter has been cleared up long ago.

The High-Frequency Marine Radio Unit

An original conception of the Federal Telephone and Radio Corporation, now being adopted by ship architects in the United States, is the marine high-frequency unit—an entirely self-contained, complete, high-frequency ship installation, including transmitter, receiver and power equipment in a single housing with projecting shelf for operating purposes. In addition to providing a simple, flexible and effective way of supplying long-distance communication facilities over a continuously variable frequency range of 2–24 m.c. to any ship, it possesses advantages as regards installation, training, operating and servicing comparable with the marine radio unit. The development of these two units enables ship designers