

As touching the coloration of the panda in relation to its haunts, we have little to build on at the moment, for while some tell us it is found among the rocks, others tell us that it is arboreal. Probably it affects both environments as circumstances may determine. The racoons, to which tribe it belongs, display a similar versatility. The general hue of the upper part of the body is of a lively chestnut-red, with white markings on the face, while the legs and belly are black. The tail, nearly as long as the body, displays the rings characteristic of the racoon. Since it is largely a vegetarian, with a fondness for fruit, this coloration must be regarded as protective: and it may bear some relation to the positions assumed during sleep when protection of this kind is most needed. But here again we are in need of further observation; for it is said to sleep coiled up like a cat with the bushy tail over its head, but at other times resting on its haunches with the head tucked under the chest, and between the fore-legs, after the manner said to be common with the racoons. Here, surely, is a matter which can be settled at the Gardens.

#### Photoelectric Exhibition at the Science Museum

A SPECIAL exhibition devoted to photoelectric cells and their practical applications will be opened at the Science Museum, South Kensington, on March 25, and will remain on view for three months. Photoelectric cells are now being widely applied both in pure science and in industry, and the exhibition is intended to give an illustration of the great variety of these applications. Besides exhibits showing the construction of the three main types of light-sensitive cell, some simple working experiments have been arranged to demonstrate their properties and to illustrate some of the methods of amplifying the small currents yielded by the cells under varying illuminations. The practical applications of photoelectric cells can be roughly classified into those involving only the detection of light and those involving its measurement. The first class is illustrated in the exhibition by a number of working models showing the use of the cells, for example, for counting small packages on a conveyor belt, and in burglar alarms, while, as an illustration of the way in which a comparatively large amount of power can be controlled, there is a door which is automatically opened whenever a certain beam of light is interrupted by the visitor. Applications involving the measurement of light intensity are also illustrated. These include the measurement of daylight or of indoor lighting, the automatic switching of street-lamps, and the measurement of the density of factory smoke, while the ability of photoelectric cells to respond to rapidly fluctuating light is shown by their well-known applications in the reproduction of sound from sound-films, and their use in television.

#### Early American Bridges

AT a meeting of the Newcomen Society held at the Caxton Hall, Westminster, on March 15, Capt. L. N. Edwards, of the United States Bureau of Roads, read a paper on "The Evolution of Early American Bridges" in which he dealt with the work of the

bridge pioneers of America down to the time of the Civil War of 1861-65. All the early settlements, he said, were situated on sheltered bays, tidal inlets or navigable streams and "the water was the first American highway". When roads came to be constructed, it was natural that the necessary bridges should be simply tree trunks felled at the site. Transportation developments were a challenge to those engaged in bridge building and the art of carpentry became of immense importance. In the eighteenth century, pile and trestle bridges came into use and these were followed by arched and trussed structures, some of great span. The Upper Ferry Bridge over the Schuylkill River built by Louis Wernag in 1812 had a wooden arch of 340 ft. span and the McCalls Ferry Bridge over the Susquehanna River built by Theodore Burr in 1814 had a central span of 364 ft. Especially important were the trusses patented by Ithiel Town, 1820, Col. S. H. Long, 1830, William Howe, 1840 and the two Pratts, 1844. A wrought-iron chain suspension bridge was built by James Finley in 1801, while in 1842 Col. Charles Ellet built the first wire suspension bridge in America. Cast iron was successfully used for a bridge in 1836. Sixty-seven patents for bridges were issued by the United States Patent Office between 1797 and 1860. The first books on bridge work were by Herman Haupt, 1842, and Squire Whipple, 1847. Capt. Edwards's paper, which was illustrated with many lantern slides, is a notable addition to the history of the subject of American bridges.

#### Cosmic Radiation

IN his Symons Memorial Lecture delivered before the Royal Meteorological Society on March 15, Mr. P. M. S. Blackett dealt with "Cosmic Radiation". The study of what is now known as cosmic or penetrating radiation began more than thirty years ago with the experimental investigation of the conductivity of the air in closed vessels. By 1932, measurements of the ionisation had been carried out up to heights of 28 km. in the atmosphere and down to depths of 230 m. under water. The ionisation is found to be 100,000 times more intense at the highest point reached compared with that at the greatest depth. More than four hundred papers have been written on the subject and still the nature of the primary radiation is not certain and its origin quite unknown. The ionisation is constant in time to within two per cent at any one place, but is about twelve per cent less intense at the equator than in latitudes of 50° N. and S. From these latitudes to the poles it is nearly constant. It is probable, but not certain, that the primary radiation incident on the earth's atmosphere consists of an isotropic corpuscular radiation with a mean energy of more than 10<sup>10</sup> volts. The actual ionisation at sea level is due to fast particles, mainly electrons, protons and 'positive electrons'. The tracks of these particles can be photographed by the cloud method and such photographs have shown that very complex phenomena of great variety and interest occur in connexion with the absorption of the primary cosmic rays by matter.