The history, as opposed to the prehistory, of South Wales begins with the Roman conquest. The Romans made contact with the local tribe, the Silures, in A.D. 47 and fighting continued for thirty years or so. As usual, the Romans built forts and roads to facilitate the policing of the region. The remains of a typical fort is the Gaer, near Brecon. It comprised at first a rectangle of about eight acres with defensive earthen walls and ditches. Stone walls and gate-houses were added during the second century A.D. Towns grew up around the forts; for example, at Caerwent, where there was a regular street lay-out, public buildings, baths, houses and shops. Part of the defensive wall there still stands, 17 ft. high. At Caerleon, which became an important base about A.D. 75, there are also the remains of an amphitheatre in good condition.

From the departure of the Romans in the late fourth century to the Norman Conquest the history of the region is obscure, but during that time Christianity was introduced and the kingdom of Morgannwg established.

It was Morgannwg that opposed the Normans, under Robert fitz Hamon, Lord of Gloucester, during 1090–93, and he built a moated fort on the site that was later to be Cardiff. Fitz Hamon established feudal manors all over the plain close to the sea, but the mountains were left to the native Welsh.

Throughout the twelfth and thirteenth centuries Glamorgan was the scene of prolonged squabbles and wars, in which the Clare family and Llewellyns were greatly involved. The Clare family gradually gained control of the whole country but they lost it in 1314, and until the Act of Union under Henry VIII it was a pattern of mistake by the various Earls and their officials and rebellion by the Welsh. The new shire of Glamorgan, created by Henry VIII, had Cardiff as its county town.

To-day, Cardiff is the capital of Wales and has one of the finest civic centres in Britain. Adjoining the civic centre is the castle in 400 acres of parkland which was presented to the city in 1947 by the Marquess of Bute. Cardiff is still a major port for South Wales, and the dock area is an important part of the city. The notorious Tiger Bay is no longer what it was, and a recent film with that name was much criticized as not presenting a true picture of the city. Llandaff, a suburb of Cardiff, has been a religious centre for more than 2,000 years, and its fine cathedral dates from the twelfth century. It has been restored many times, and the most recent restoration after bomb damage in the Second World War includes the great choir arch bearing the Epstein "Majestas"—a figure of Christ in aluminium.

The Cardiff region has a remarkable variety of landscape in a small area. To the north is the South Wales Coalfield with its characteristic densely populated valleys—Rhondda, Cynon, Taff, etc.—reaching up into the moorland. Unlike the Midlands and South Lancashire, no one in the South Wales conurbation is far from open country. Farther to the north are the gaunt bare Brecon Beacons, nearly 3,000 ft. high. The steep northern scarp of the Brecon Beacons commands the valley of the Usk, in which the market town of Brecon lies, and to the east are the Black Mountains, less broken up, and more of a natural barrier than the Beacons. The Beacons, Fforest Fawr, the Black Mountains and the Usk Valley form the Brecon Beacons National Park.

To the north-west of Cardiff are the valleys of the Wye and the Monmow—a region rich in medieval buildings. There are Chepstow Castle on its limestone cliff, overlooking the Wye, the great Cistercian abbey of Tintern dating from the thirteenth century, and the bridge over the Monmow at Monmouth—the only one in the country with a two-storey fortified gate-house. Closer to the sea, the land is flatter and intensively farmed. The lower Usk Valley is one of the best cattle-fattening areas in Wales.

All in all, the Cardiff region, besides fine scenery, provides things of interest to all sections of the British Association. For the physicists there is the Department of Physics at the University and the Post Office Radio Research Laboratory. For the chemists, works of Pilkington Bros., Imperial Chemical Industries, Ltd., and Monsanto. For the geologists, there is the South Wales Coalfield: and for the zoologists, the coast, dunes, caves and mountain lakes. No section is short of interesting excursions.

BRITISH ASSOCIATION PRESIDENT FOR 1961: SIR WILFRID LE GROS CLARK, F.R.S.

SIR WILFRID LE GROS CLARK, Dr. Lee's professor of anatomy in the University of Oxford since 1934, and Fellow of Hertford College, has been elected president of the British Association for the Advancement of Science for 1961. That year, the annual meeting will be held in Norwich.

Sir Wilfrid has achieved world fame as a human anatomist with special reference to palæontology and anthropology. Moreover, recognizing that the scientist should be interested not only in the science of discovery but also in scientific exposition and teaching, he has played a major part in the re-orientation of human anatomy as an academic discipline. This is exemplified by the organization of the new Department of Human Anatomy which was opened in Oxford last year (*Nature*, 183, 1572; 1959).

Sir Wilfrid is also director of the Medical Research Council Unit for Research on Climatic and Working Efficiency and a member of the Royal Naval Personnel Research Committee. His earliest years of professional work were spent in medicine. During 1920–23 he was principal medical officer of Sarawak, and later he was professor of anatomy in St. Bartholomew's Hospital Medical College (1927–29), followed by St. Thomas's Hospital Medical School until 1934, when he transferred to Oxford.

Such is the high esteem in which his work is held that Sir Wilfrid has given numerous special lectures at home and abroad, and he has been the recipient of several medals and honorary degrees.

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together with mitochondrial counts revealed a number of important modifications occurring after feeding 3′-methyl-dimethylamino-azobenzene. When 2′-methyl-dimethylamino-azobenzene was substituted for the former dye, the changes were quite different in the early part of the experiment, but approached those observed with 3′-methyl-dimethylamino-azobenzene at later stages. Allard also described a number of electron-microscope observations made on pre-cancerous liver. Particularly interesting were some images suggestive of mitochondrial division and others indicating the appearance of small granules closely associated with ergastoplasmic membranes.

Some problems of mitochondrial regulation were discussed by F. Lynen (Munich) and by J. D. Judah (Philadelphia). Lynen examined in detail the theory, proposed a number of years ago by himself and by M. Johnson, to account for the Pasteur effect in yeast. The mainspring of this theory is that glycolysis and oxidative phosphorylation compete for the limiting amounts of inorganic phosphate and adenosine diphosphate available in the cell. Thus, glycolysis is depressed aerobically and enhanced by anaerobiosis or by inhibition of aerobic phosphorylation. While this interpretation is supported by the results of phosphate analyses, it cannot explain the decreased aerobic utilization of glucose. To account for the latter phenomenon, Lynen has suggested that the adenosine triphosphate, formed aerobically in the mitochondria, may not be as readily available to the phosphokinases of the glycolytic system as the adenosine triphosphate formed in fermentation. Investigations aimed at verifying this possibility have confirmed the existence of an adenosine triphosphate shuttle between the particulate and the non-particulate phases of the cells, but have also revealed that phospho-fructokinase appears to be inhibited preferentially to hexokinase in aerobiosis. At present, there is no satisfactory explanation for this finding. In the discussion which followed this interesting paper, the possible organization of the ground plasm was brought up for consideration by several speakers.

J. D. Judah described a series of recent investigations carried out in relation with the finding that several anti-histamine drugs act as powerful protectors against experimental liver injury. It was observed that these drugs inhibit the swelling of isolated mitochondria, as determined by a variety of conditions, and that they also inhibit the reversal of this phenomenon under the influence of adenosine triphosphate. In addition, anti-histamines were found to have no effect on respiration or on oxidative phosphorylation, but to inhibit the transfer of phosphate from adenosine triphosphate to phosphoprotein. When added to liver slices, previously incubated anaerobically, the drugs prevented the extrusion of water and restoration of the level of phosphoprotein which normally occur when oxygen is allowed to enter into the system. Judah put forward the hypothesis that the reversible changes in the water content of the mitochondria may be determined by changes in their content of phosphoproteins and that anti-histamines may prevent both types of changes by inhibiting a reversible protein phosphokinase.

In the general discussion which concluded the meeting, the necessity for a closer co-operation between electron-microscopists, histochemists and biochemists was stressed. It was also pointed out that further progress in our knowledge of the organization of the cell will be greatly dependent on the development, in all three fields, of new methods of greater accuracy and increased power of resolution.

C. DE DUVE

THE PHYSICAL SOCIETY

THE principal contents of the 1959 Year Book of the Physical Society (pp. vi+124. London: Physical Society, 1959. 12*s*. 6*d*.), the fifth in the annual series, consists of the presidential address, entitled "Recent Trends in the Theory of the Ionosphere", which was delivered by J. A. Ratcliffe on May 21, 1959, following the annual general meeting of the Society, and the texts of the lectures and addresses given by the recipients of the various medals and prizes of the Society. Details are also given of the discourses delivered at the fifty-third Physical Society exhibition of scientific instruments and apparatus; the proceedings of the meetings of the Society during the period September 1958–June 1959; and the report of the Council of the Society for 1958. In addition, there are obituary notices of ten Fellows, including Sir Alfred Egerton, Prof. E. O. Lawrence, Prof. O. W. Richardson and F. Twyman.

In his presidential address, Mr. Ratcliffe gave a survey of recent ideas concerning the formation of the upper part of the ionosphere, known as the *F* layer. From measurements of the atmospheric density at great heights and computations of the electron distributions, it would appear that the layer is produced by the absorption of a solar ionizing radiation in atomic oxygen, which is distributed through the atmosphere as it would be if mixing were nearly complete up to heights of about 400 km. at least. When the radiation is incident normally, the absorption coefficient of the radiation is such that electrons are produced most rapidly at a height of about 180 km. Small alterations in the amount of mixing can produce marked changes in the electron distribution, and changes of this kind could be the cause of the observed winter anomaly in middle latitudes.

The forty-third Guthrie lecture, which was delivered by Sir Harrie Massey on April 8 at Oxford, was entitled "Collisions", and was confined to a discussion of a selected number of atomic collision phenomena including the elastic and inelastic collisions of electrons and of positrons with atoms, recombination and charge transfer processes in the upper atmosphere, and the dissociation of molecular ions by impact with gas atoms. The subject of the fifteenth Charles Vernon Boys Prize address given by Dr. D. West, of the United Kingdom