flame length, temperature and emissivity. The proper distribution of heat transfer throughout the kiln also requires attention.

The problem in gas turbine combustion chambers, as pointed out by Prof. Saunders, is the reverse of that in industrial furnaces—that is to say, to limit the transfer of heat from the flame to the surfaces in order to avoid overheating. The small amount of

information at present available suggests that whereas the flames of the lighter fuels used are almost non-luminous, those of the heavier fuels emit considerable luminous radiation. However, the high-rate heat release type of chamber as used in aero-engine design probably minimizes radiation transfer from the flame and for this reason may find favour for industrial use.

J. H. BURGOYNE

OBITUARIES

Prof. Léon W. Collet

PROF. LÉON W. COLLET died peacefully in his seventy-eighth year at Geneva on October 13. His health had been failing sadly of recent years. "Born with a rucksack on my back", he used to say; and he attributed much of his latter-day troubles to previous strenuous exertion.

In his passing, British and American geologists see the end of a career largely devoted to their service; for Collet will long be remembered as an apostle, spreading the *nappe* theory of the Alps throughout the English-speaking world. Most of the amazing discoveries made since 1893 in regard to the structure of the Alps have been published in French or German. Moreover, as a problem in field-geology, the subject has been bewilderingly confused for outsiders by essential local detail, both geographical and stratigraphical. The findings, too, have been of such an unbelievable nature that to risk an opinion upon their veracity without special introduction and guidance might well seem foolhardy. It was this introduction and guidance that Collet delighted to furnish, by leading excursions, from 1909 onwards, by publishing his "Structure of the Alps" (1927, 1935) and by delivering lectures, especially those at Harvard (1928–29).

Collet's Swiss colleagues may perhaps protest that there are more fundamental reasons for gratitude. There are, for example, many original contributions towards the unravelling of the Alpine story, chief among which stands Collet's description, with Paréjas, of the Jungfrau (1931). Here, indeed, we find work of first-rate geological ability, coupled of necessity with adventurous climbing. There are also his many valuable essays on physical geology and geography, among which must be reckoned his books, "Les Dépôts Marins" (1908) and "Les Lacs" (1925).

It so happens that these two books bring us back to the British connexion. In 1904, immediately after taking his D.Sc. at Geneva, Collet joined the temporary, in part international, staff of the Murray-Pullar Survey of the freshwater lochs of Scotland—the Murray concerned was Sir John Murray, of *Challenger* fame. This often brought Collet to Edinburgh, where in two formative years he responded whole-heartedly to the spell cast by Peach and Horne; and their influence remained with him to the end of his days.

Collet at Geneva had been brought up in a die-hard school of Alpine interpretation, still struggling against the new ideas announced by Schardt in 1893; and it is remembered in Edinburgh how, during his sojourn there, he maintained in a lecture that it was possible that his teachers might yet prove correct. Soon after his return, however, to Geneva in 1906

as *Privatdozent* he saw with delight that the new interpretations were irresistible, and he at once joined the happy throng developing the profitable field thrown open to all-comers.

The rest must be put very briefly. During 1912–18 Collet was director of the newly established Federal Hydrographical Survey of Switzerland. During 1918–44 he occupied with great distinction the chair of geology and palaeontology at his *alma mater*. He received many honours, but probably none was more highly valued than the foreign membership of the Royal Society of Edinburgh and the LL.D. bestowed on him by the University of Glasgow.

E. B. BAILEY

Colonel E. E. B. Mackintosh

COLONEL E. E. B. MACKINTOSH, a former director of the Science Museum, South Kensington, died on November 25. He was the last of a line of distinguished Royal Engineer officers who directed the fortunes of the scientific collections at South Kensington from 1858 until 1945. He and his predecessors, Donnelly, Festing, Abney, Ogilvie and Lyons, brought the Museum to its present fame, as one of the most visited museums in the world.

Mackintosh's contribution to this development was to encourage the organization of special temporary exhibitions, lasting for a few months each, on such subjects as "Noise Abatement", "Very Low Temperatures" and "Science in the Army". These, with their formal opening ceremonies by some public figure, at which Mackintosh was in his element, gave wide publicity to the Museum; and his friendly bonhomie gained much goodwill for the Museum among those who were in a position to support its activities.

Ernest Elliott Buckland Mackintosh was born in 1880 and was educated at Eton and the R.M.A., Woolwich, from which, in 1899, he was commissioned in the Royal Engineers. He served in the Sudan and Egypt before taking part in the First World War in France, for which he was awarded the D.S.O. and appointed to the Legion of Honour. After a period, first in Hong Kong and then as chief engineer, Eastern Command, he was appointed director of the Science Museum in 1933. Almost immediately he became concerned with plans for the proposed new centre block of the Museum, which was to include a planetarium; but all his plans were frustrated by the Second World War and its preliminary crises. From 1939 onwards, except for a short period in 1939 and 1940 when he was commandant of the School of Military Engineering at Chatham, his energies and organizing ability were directed towards the evacuation and preservation of

the Museum's collections. The War had only recently ended when, in 1945, he retired on reaching the age limit.

His own collecting instinct manifested itself by an interest in glass, of which he formed a small private collection. In the latter part of 1937 he was instrumental with others, including W. A. Thorpe, of the Victoria and Albert Museum, and John M. Bacon, in founding the Circle of Glass Collectors, of which he

became, in 1947, one of the five honorary vice-presidents.

During his time at the Science Museum he was also a governor of the Imperial College of Science and Technology and one of the trustees of the Imperial War Museum.

He is survived by his widow and one daughter. His only son was killed in action in 1944.

H. R. CALVERT

NEWS and VIEWS

Psychology at University College, London :

Prof. R. W. Russell

It is now a little more than a year since Prof. Roger Russell resigned from the professorship of psychology at University College to take up an administrative appointment with the American Psychological Association. His decision has occasioned the most lively regret among his many friends and colleagues in Great Britain. In his six years at University College, Prof. Russell transformed his Department into a most active centre of research in experimental and comparative psychology. He will be remembered especially for his work on behaviour disorders in animals and for his more recent studies of the effects of greatly reduced body temperature upon learning and memory in the rat. Prof. Russell also gave devoted service to a variety of bodies concerned with the organization and applications of psychology. In spite of his return to the United States, Prof. Russell hopes to retain his many contacts—personal and scientific—with his psychological colleagues in Britain.

Prof. G. C. Drew

GEORGE DREW, who has been appointed to the chair of psychology in University College, went to the Cambridge Psychological Laboratory from the University of Bristol in 1935 as the holder of the Viscount Haldane of Cloan Studentship. He worked there with Sir Frederic Bartlett, finding his main interest in the study of animal behaviour. The award of a Rockefeller Fellowship took him to Harvard, where he worked for two years under Prof. K. S. Lashley. On his return to Cambridge, it was intended that Drew should further develop his animal studies. Unfortunately, the War intervened and he found himself increasingly drawn into the programme of work on human skill and fatigue which became the main war-time preoccupation of the Department. His work with the late Dr. Kenneth Craik on the 'Cambridge Cockpit' is deservedly well known. In 1942 Drew was appointed psychological adviser to the Air Ministry, a post which he successfully held for the remainder of the War. After the War, Drew returned to Bristol as lecturer in psychology. His promotion was rapid; by 1951 he had been appointed professor of psychology with a small independent department. The latter was broadly conceived, embodying genetic and clinical no less than experimental interests. It has also developed as a promising centre of experimental research, some of it undertaken in conjunction with the Road Research Laboratory. Drew has also served as a consultant to the Medical Research Council Applied Psychology Research Unit at Cam-

bridge. To a subject not always noted for its sanity, Prof. Drew brings a resourceful and level-headed approach. By virtue of his background and interests, he would appear particularly well fitted to develop the experimental trend in psychology at University College so courageously initiated by Prof. Russell.

Discovery

THE January issue of *Discovery* is the first in the new format. This journal has always been well produced, yet the larger size is a distinct improvement. It allows for the use of bigger type and better spacing. The illustrations are also bigger and the half-tones are consequently most impressive. There is a new lay-out for the page of contents, though this does not seem to show much improvement on the old one. Any scientific journal which has to attract non-scientists must be in itself attractive. *Discovery* is now produced in such a way that many potential readers will be attracted by its illustrations, typography and lay-out. The first issue in the new form contains five articles, all of which are well written and interpret science for the non-specialist in a very desirable way. They are: "Diamond: Fiction, Fancy and Fact", by Prof. S. Tolansky; "The Fascination of Numbers", by W. J. Reichmann; "British Science and Technology for the Brussels Exhibition, 1958", by J. Gardner and Caroline Heller; "A Swiss Guided Missile", by E. Stehli; "The International Geophysical Year: Month by Month", by Angela Croome.

The journal opens up with long notes entitled "The Progress of Science", which deal with recent advances and expression of opinion. They include a well-illustrated account of Marcoule—centre of French atomic power; electronic music; oil under the Sahara (illustrated); Oskar Minkowski (who established the cause of diabetes), and an account of the Symposium on Biological Productivity in Britain which was held under the auspices of the Institute of Biology. The first note under "The Progress of Science" takes the form of a leading article pleading for the need for a strategy of science. This issue also contains a number of useful and authoritative book reviews together with science news. One very useful feature which is being continued is "Science on the Screen".

The Editor and publishers of *Discovery* are to be congratulated on the attractive changes which have been initiated in a very useful journal.

Numbers of Medical Students and Practitioners

THE Willink Committee, which was appointed in February 1955, has now reported to Ministers on "the number of medical practitioners likely to be