writing that "He found the knowledge of iron, and of the ores from which the metal is derived, wrapped in the darkness of barbarism; he evolved and brought to light the true principles of both by a series of experiments, in which the most patient investigation and untiring bodily labour were combined".

At a time when so much thought is being devoted to technical education, it is worth recalling that the earliest modern technical colleges were those founded by the French Government in the eighteenth century. One of these was the *École des Ponts et Chaussées*, inaugurated just two hundred years ago by the administrator, Daniel Charles Trudaine, with the famous engineer, Jean Rodolphe Perronet (1708-94), "the Telford of France", as its director. The Corps des Ponts et Chaussées had been organised in 1716 for the maintenance of the roads, bridges, canals and harbours of France; and the School was for preparing likely candidates for the Corps. "The Corps and the School," said Mr. S. B. Hamilton, "closely associated, formed a professional body of men specializing in civil engineering, as distinct from military engineering, and from architecture. From this period, therefore, we may regard the separation of the three professions as having become effective." The School had many students who distinguished themselves, and one of these was Jacques-Élie Lamblardie (1747-97), who succeeded Perronet as director and held that position at the time of the Revolution, when for a time the School was merged in the *École Centrale des Travaux Publics*. He had previously done good work on the rivers and harbours of Normandy, erected a bascule bridge at Le Havre, and commenced a series of large-scale tests on timber, which were after his death continued by his colleagues.

Of never-ending interest is the period which saw the work of Huygens, Newton, Boyle, Leibniz and Hooke, and the founding of the Royal Society and the Academies of Sciences in Paris, Berlin and elsewhere. All these men and institutions are recalled by the lives of Denis Papin and Mårten Triewald. Papin was born three hundred years ago, and Triewald died two hundred years ago. At various times the assistant of Boyle, Huygens and Hooke, correspondent of Leibniz, curator of the Royal Society and the first to show how to construct an atmospheric machine having cylinder and piston, Papin once wrote to Leibniz in 1696: "The number of machines and new inventions which I have in my head becomes ever greater, and I have no stronger desire than to live to see their effect, which they will produce as soon as they can be properly constructed". One of the things Papin sought to do, Thomas Newcomen achieved, and part of Triewald's fame is due to the construction by him of the first Newcomen atmospheric pumping engine seen in the Swedish mines. His stay of ten years in England had made him known to Newton and Desaguliers, and back in his own country he lectured here and there on experimental science. He also made a collection of instruments still preserved in the University of Lund. An active, energetic and versatile man, he was one of the six founders of the Royal Swedish Academy of Science. A translation of his "Short Description of the Atmospheric Engine" (1734) was published by the Newcomen Society in 1928. Papin was born at Blois, France, on August 22, 1647, and died some time after 1712. Triewald was born in Stockholm, being baptized on November 21, 1691;

he died on August 8, 1747. Papin is also remembered for his invention of the digester known by his name. It is recorded by Evelyn that Papin cooked a meal for some fellows of the Royal Society in his digester: "This philosophical supper caused much mirth amongst us and exceedingly pleased all the company".

In 1908 the tercentenary of the birth of Evangelista Torricelli was celebrated at Faenza. Later on, under the auspices of the municipality of that town, his collected works were published in three volumes; a review of them appeared in *Nature* of January 29, 1920. This year marks the tercentenary of his death, and also of that of his countryman, Bonaventura Cavalieri, who was born ten years before Torricelli. One has an assured place in the history of science for his discovery of the pressure of the atmosphere and his invention of the barometer; while the other is remembered among mathematicians for his method of indivisibles. The two men were friends of Galileo, through whom Cavalieri was appointed to the chair of mathematics in the University of Bologna. In France, the year 1647 saw the death of Claude Mydorge, an associate of Descartes and Fermat, and a member of the small society from which sprang the French Academy; while in Copenhagen on October 8, 1647, the death occurred of Christian Longomontanus, who worked during 1589-98 with Tycho Brahe at Uraniborg, and from 1605 until his death held the chair of mathematics at Copenhagen.

Finally, looking back yet another century, in 1547 Johann Schoner, the contemporary of Copernicus, died at the age of seventy. For many years he was a professor of mathematics in Nuremberg, and wrote on the globes, geography, dialling and astronomy. It was to him that the enthusiastic Rheticus wrote after visiting Copernicus: "Believe me, most learned Schonerus, that this man, my instructor, in all kinds of learning, and in the science of astronomy, is not inferior to Regiomontanus. I freely compare him to Ptolemy; not that I think Regiomontanus less than Ptolemy, but because my preceptor has a felicity in common with Ptolemy, that, by the Divine Assistance, he would finish the Reformation of Astronomy; whereas Regiomontanus, O cruel fate! died before he had erected his pillars".

OBITUARIES

Dr. Hugo Obermaier

WITH the death of Hugo Obermaier, which has recently taken place at Fribourg in Switzerland, prehistorians have lost a pioneer colleague of international reputation, the author of at least two widely known books and numerous important articles which have appeared in learned journals; his friends a figure beloved for the unselfish dignity and fidelity of his nature; and the Continent of Europe one of those, alas, now all too rare learned men to whom frontiers are unimportant. He was a good European—if a saddened one.

Born in 1877, the son of the civic librarian of Ratisbon in Bavaria, he studied in Vienna under Hoernes and others, and early developed a flair for prehistory, working at pleistocene geology with the famous Albrecht Penck. In 1904 he went to Paris, and there first met his life-long friend, the Abbé Breuil. The latter has told me the following anecdote of Obermaier at this time which is characteristic of his fine personality. It appears that he was hoping

to be elected to a chair at Fribourg, not knowing that his new friend, too, had similar ambitions. When he learnt the position, he told Breuil at once that he was no longer a candidate, adding: "I indeed prefer your friendship to this chair".

In 1909 Obermaier was associated with Breuil and the late Prince of Monaco in excavating the great prehistoric home-site at Castillo in North Spain, and a few years later, when the Prince founded the Institut de Paléontologie humaine at Paris, he was named as one of the professors. He travelled much with Breuil at this time both in France and Spain, studying sections, home-sites and cave art. The fateful year 1914 found him concluding the excavations at Castillo, and he remained in Spain throughout the First World War, being granted a small post at Madrid. Later he accepted Spanish nationality. Between the wars he worked in Spain, until the Spanish civil war drove him to Switzerland, with the loss in Madrid of many valuable papers. When the Second World War broke over Europe, he was occupying a post in Fribourg, where he was laid low by a stroke some months ago, and has recently died. Like Breuil, he was a Roman Catholic priest, but, again like his colleague, he never held a cure of souls.

Prof. Obermaier's quaternary geological work, both in the Pyrenees and the Cordillera Cantabrica, was a real contribution to knowledge, as, too, were his numerous excavations and his work at the painted cave of Pileta in the extreme south of Spain. The personal impact of the tragedy of three wars in his learned life may perhaps have prevented the full stature of his mind from making itself felt as widely as it might otherwise have done; but those who knew him always felt and deeply respected the relentless integrity of his mental powers as much as they loved his personal qualities. They can only regret his passing—knowing that science has lost in him an honest and tireless investigator.

M. C. BURKITT

Prof. J. Bečka

THE November issue of *Chemické Listy* records the death at Mauthausen camp on February 25, 1942, of the biochemist, Dr. Jan Bečka, three days after his fifty-third birthday. Prof. Bečka graduated at Prague in both medicine and the natural sciences, and his first researches established the chemical and physical identity of certain types of keratin from various sources. In 1919 he became lecturer in chemistry at the Brno Veterinary College and was appointed professor in 1926, which post he held until the College was closed in 1939.

Bečka's later researches related to problems of ion exchange in pathological conditions, and he studied the effects of calcium and phosphorus in cases of narcosis. He was especially interested in mineral metabolism, and made elaborate studies of the effects of magnesium in animal metabolism. Most of his publications (eighty-six in all, or more than a hundred if those with students are included) appeared in Continental journals, and though some of his earlier researches were known to British colleagues, his last two books on the biochemistry of healing (1940) and the biochemistry of cancer (1941) probably remain unknown outside Czechoslovakia.

Bečka frequently visited Britain, Canada and the United States; he was responsible for introducing the use of insulin into Czechoslovakia.

J. K. Lubanski

JOZEF KAZIMIERZ LUBANSKI, a Polish physicist who was working at the Laboratory for Aero- and Hydrodynamics of the Technical University at Delft, died on December 8, at the age of thirty-two. After having obtained the degree of *magister philosophiae* at Wilna in 1937, and worked for two years as an assistant in theoretical physics at Polish universities, Lubanski obtained a grant in order to travel to Holland and to work under Prof. H. A. Kramers at Leyden. His original intention was to go to Copenhagen in the following year; the War prevented this, and for some time he worked with Prof. L. Rosenfeld at Utrecht. A number of papers dating from this period, mostly in *Physica*, one in the *Arkiv för Matematik, Astronomi och Fysik*, deal with the properties of mesons and similar particles considered in relation to quantum mechanics.

Since the autumn of 1945, Lubanski had been assistant at the Laboratory for Aero- and Hydrodynamics of the Technical University at Delft. He studied with considerable success the theoretical aspects of this subject, but he had not yet published any of his work.

Lubanski's death is felt as a great loss by his many friends; he was much liked both for his personal character and for his scientific knowledge, as well as for that of philosophy and general literature.

J. M. BURGERS

Prof. J. G. Koenigsberger

News has been received of the death of Prof. Johann Georg Koenigsberger, 33 Wildtalstrasse, Freiburg i. Breisgau (17B), French Zone, Germany, in his seventy-first year. Prof. Koenigsberger was well known for his work on the magnetic properties of minerals, and at the time of his death he was in communication with physicists in England with regard to the publication of a paper which he submitted in 1939 and which was held up during the War; the paper was concerned with changes of coercivity with grain size.

Prof. Koenigsberger was suspended from his chair in 1933 and dismissed from the University of Freiburg i. Breisgau in 1934 for having been republican deputy in the Diet of Baden and because of his partly Jewish ancestry. His daughter came to Britain in 1935 and served in the A.T.S. during the Second World War. Koenigsberger was reinstated as professor at the close of hostilities, and carried on theoretical research work under difficulties until the time of his death.

L. F. B.

WE regret to announce the following deaths:

Mr. William Barnicot, M.B.E., secretary of Rothamsted Experimental Station since 1920, on December 30, aged seventy-four.

Prof. Paul Langevin, For.Mem.R.S., director of the École de Physique et Chimie Industrielle, Paris, on December 19, aged seventy-four.

Prof. Edward L. Mark, emeritus professor of zoology in Harvard University, aged ninety-nine.

Mr. C. C. Robertson, formerly chief research officer and professional assistant to the chief conservator of forests, Department of Forestry, South Africa, on December 3, aged sixty-two.

Mr. R. N. Vyvyan, formerly engineer-in-chief of the Marconi Co., and one of the pioneers of radio-communication, on December 14, aged seventy.