

After retirement, Sharples devoted his leisure to writing an up-to-date book on the "Diseases and Pests of the Rubber Tree" (Macmillan and Co., Ltd., London, 1936). This was a most notable addition to books on the diseases of tropical crop plants; it is, in fact, a treatise on the principles of plant pathology with particular reference to rubber cultivation, and is eloquent testimony to the enlightened outlook which Sharples had on the problems of disease in plants. Unfortunately his health began to fail shortly before the publication of this book, and he died at the early age of forty-nine years. It is sad to think that after such a strenuous life in the East he did not live to enjoy the leisure he had so richly earned.

Personally, Sharples was something of a 'rough diamond', albeit his outspokenness became mellowed with age. He was entirely sincere and courageous in his opinions, and no one was ever a more loyal and kindly friend than he. His high achievement in spite of early handicaps is striking testimony to his sterling character. In an enervating climate he maintained his energy in an astonishing manner: tropical ennui never affected him. In any joint investigation he always pulled his weight, and generously shared credit with his colleagues. As a young man, he was keen on association football and in later life he was fond of tennis and golf. He married Edith Thornton in 1917, who survives him. There were two sons of the marriage, one of whom died a few years ago.

Prof. J. G. Thomson

PROF. JOHN GORDON THOMSON, director of the Department of Medical Protozoology at the London School of Hygiene and Tropical Medicine, whose death took place in London on August 13, was one of the few outstanding medical protozoologists in Great Britain. In addition he was, and continued to be until shortly before his death, a well-known investigator of tropical disease in the field.

Prof. Thomson commenced his career at the University of Edinburgh, where he graduated M.A. in 1903 and where he qualified in medicine with honours in 1908. Two years after qualifying he was appointed Durning-Lawrence research fellow in tropical medicine at Liverpool and later, 1912-13, pathological research fellow at the Liverpool School of Tropical Medicine. During his time at Liverpool, where he worked under Sir Ronald Ross, he carried out many researches on trypanosomiasis and on cultivation of the malaria parasites. His work in this last connexion, which was done largely in collaboration with his brother, Dr. D. Thomson, was perhaps that for which his name was best known.

In 1914 Prof. Thomson was appointed lecturer in protozoology at the London School of Tropical Medicine, but on the outbreak of the Great War he joined the Forces and proceeded in 1915 to Egypt, first as member of a commission to study bilharzia in that country and later as protozoologist to the Central Military Laboratory at Alexandria. On his

return to England he was appointed officer in charge of the Malaria Research Laboratory at the War Office, where again he was associated with Sir Ronald Ross. Whilst in Egypt and later, he published many papers on amoebic dysentery and other intestinal protozoal conditions, as well as studies directed to the finding of satisfactory serological tests for malaria.

In 1918 Prof. Thomson took up the duties of the appointment at the London School of Hygiene and Tropical Medicine which he held at the time of his death; there he worked in post-graduate teaching and in the carrying out of many researches. In 1921 and again in 1922 he went on an expedition to study blackwater fever in Rhodesia. The results of these investigations were presented in a memoir, published by the School, which is now one of the best-known standard accounts of this disease. In 1924 he visited the West Indies, Honduras, Guatemala, Costa Rica and Panama. In 1934 he visited and carried out investigations in Nyasaland, studying more especially the indigenous malaria, and at various times he visited other tropical countries. In the intervals of travelling and demands made on his time by teaching, he published many papers on protozoological subjects and was joint author in Thomson and Robertson's "Text Book of Protozoology", a very useful and condensed source of information on the subjects dealt with.

Though Prof. Thomson worked at many different problems, the malaria parasites were always his favourite study, and even up to shortly before his death the nature of malarial immunity and drug treatment in malaria were much engaging his attention. Prof. Thomson's name is one familiar to research workers in tropical medicine both of British and of other nationalities, and his death will be a loss not only to his colleagues and many friends but also to a very wide circle where his work was known and appreciated.

Prof. Luigi Pernier

WE regret to record the death of Prof. Luigi Pernier, professor of archaeology and the history of ancient art in the University of Florence, which took place in Rhodes at the age of sixty-two years in August last, while he was attending the Dante Alighieri course of "Alta Culture". His death is a great loss to archaeological studies in Italy, more especially in connexion with the investigation of the sites of the early civilizations of the Mediterranean area.

Luigi Pernier was born in Rome on November 23, 1874. On completing his education, he was appointed to the Administration of Antiquities, and took part in the Italian archaeological mission to Crete in 1900, acting as director of the excavations at Festos. In 1909 he was appointed director of the Royal Italian School of Archaeology at Athens and of the "Missioni Italiani in Oriente". While he was head of the School, archaeological explorations were carried out in Crete, Delos, the Sporades and Euboea under his direction. In 1916 he was appointed director of the

Archæological Museum of Florence and of the Musei i Scavi dell'Etruria, when he was responsible for the excavation of Vetulonia, Arezzo, Cortona and Orvieto, investigations of the first importance for our knowledge of the Etruscan civilization. After his appointment as professor of archæology in the University of Florence in 1922, he also became head of the archæological mission to Cyrene, where important excavations were carried out under his charge.

WE regret to announce the following deaths :

Prof. A. J. Ewart, F.R.S., professor of botany and plant physiology in the University of Melbourne, aged sixty-five years.

Miss A. Lorrain Smith, O.B.E., formerly of the British Museum (Natural History), known for her mycological studies, on September 7, aged eighty-three years.

News and Views

Heavy Nitrogen

At a recent meeting of the American Chemical Society Prof. H. C. Urey reported that he had prepared heavy nitrogen in considerable quantities (see also p. 512). Ordinary nitrogen has long been known to consist of two isotopes of mass numbers 14 and 15, the heavier one being present, however, to only four parts in a thousand. Isotopes of several elements have been already separated in a fairly pure state ; of these hydrogen and deuterium are the best known, but other examples are lithium 6 and 7, and neon 20 and 22. The difficulty of the problem solved by Prof. Urey can be appreciated by comparing it with that presented by the neons, where the percentage difference in mass is greater and also the heavier isotope is naturally present to the extent of nearly 10 per cent, instead of the half per cent in the case of nitrogen. It is stated that the heavy isotope is being separated at the rate of a quarter of a litre a day. The separation of pure heavy nitrogen will undoubtedly lead to a great deal of important work in nuclear physics. Nitrogen 15 differs from nitrogen 14 simply in the structure of its nucleus, there being one more neutron present in the heavier type. Ordinary nitrogen has already proved most interesting, since it can be disintegrated in a variety of ways by bombardment with α -particles, neutrons, protons and deuterons. The investigation of the behaviour of heavy nitrogen under the same conditions should lead to valuable conclusions about the effect of the extra neutron in the nucleus. It has also been suggested that heavy nitrogen will be of great service for research in physiological chemistry, since various substances which are important in the body can be made containing some heavy nitrogen instead of ordinary nitrogen, and while their behaviour will be unaltered, these particular molecules can always be identified later by means of the heavy nitrogen atoms.

Mentality of Fish

DR. J. GRAY'S evening discourse to the British Association delivered on September 6 at Nottingham shows how closely the reactions of fishes resemble those of man. In the behaviour of man the involuntary machine-like reflex plays a very important part, and in a fish that is swimming freely the movement involves a high degree of co-ordination between a

large number of muscles ; the whole of this highly co-ordinated mechanism being completely independent of that part of the fish's brain which corresponds to our cerebral hemisphere and therefore to that part of the brain which is associated with consciousness in ourselves. It is well known, however, that a fish may be trained to make mental associations, and in the last few years the problem has been subjected to rigid scientific investigation. By experiment it is found that a fish is sensitive to a great variety of gentle stimuli such as a very slight change in temperature and the shape and colour of objects in its vicinity. Fish are also capable of carrying out highly complicated migratory excursions. In these types of behaviour Dr. Gray asks us if we do not see most if not all the activities of the human race. Almost certainly the association powers of a fish are on a much lower level than those of man, but the power is there, and it is difficult if not impossible to put our finger on any one of our mental powers and say, "Herein are we a race apart, elevated above the rest of the world". Dealing with the migratory experiments with the Pacific salmon, in which that fish is proved always to return to its own native waters, he says, "I venture to think that if we were to have carried out comparable experiments on a race of human beings, and got similar results, we would have said 'They do it, as you or I would do it, consciously noting the landmarks, memorising them, and so retracing their steps'—in fact they are performing a conscious act, a premediated, thoughtful, and purposive act. Are we to apply the same conclusions to the fish—if not, why not ?"

Rivers and their Formation

IN connexion with the recent British Association meeting at Nottingham, a public lecture on "Rivers", which was abundantly illustrated, was delivered by Mr. R. Kay Gresswell in Lincoln on September 3. Mr. Gresswell pointed out that when a river has once been formed, by virtue of its motion the water is able to carry a load consisting of rock actually dissolved in the water and also of finely powdered rock and pebbles of all sizes, which serve as eroding agents. When it has acquired a load, the river can use it as a kind of file or battering-ram with which to erode its banks and bed and so add to the quantity