cant part being played by these nuclei in the production of hypoglycæmia. The numerous facts and observations of Bard (1928) and Foulton (1929) and Ingrahm (1929) led De to believe that all the general anæsthetics release the sympathetic hypothalamic centre from the cortical control. The poorer the cortical depression, the less the hypoglycæmia, and with the deepening of anæsthesia, as more and more of the cortical control was withdrawn, the greater and greater was the rise of blood-sugar.

From the foregoing statements, it is clear that the hypothalamus plays a very important part in the body and controls a large number of body reactions. The results of observations on this subject, especially their association with the automatic nervous system, though quite extensive, are still very incomplete and await further work.

N. N. De.

THE INSIDIOUS TYPE OF LEAD POISONING*

IN his Presidential Address, Dr. Bagchi has presented some of the important features of his investigations on lead poisoning and its bearing on the post-war industrial reconstruction. By the term lead poisoning or plumbism is meant that one has imbibed lead in quantities larger than what is normally ingested with food and drink or inhaled with air or otherwise absorbed, and has been adversely affected or intoxicated by it. Lead poisoning, like all other kinds of poisoning, may be acute or chronic. Dr. Bagchi has discussed only the chronic form of lead poisoning, which is mostly of occupational or industrial origin and to a less extent accidental. He then goes on to describe the toxicity of lead and lead compounds. Lead, in whatever form it is introduced in the system, acts as a poison. Even metallic lead is a potent poison—the toxicity depending on the extent of its surface exposed to the tissues. The route by which lead is introduced into the system is also a determining factor in the causation of the toxic symptoms. It has been proved that lead is absorbed in larger quantity and much more quickly through the lungs than through the alimentary tract or the skin and that lead introduced into the system by inhalation is about 100 times more toxic than when it is swallowed. Discussing the insidious type of lead poisoning—its pathology and symptomatology—the speaker says that the classical type of lead poisoning or plumbism in which all the characteristic signs and symptoms described in the text-books develop, offers no difficulty in diagnosis. But quite a large number of people who happen to absorb only very small amounts of lead over a long time either from drinking water, cooking utensils, vermillion or similar other sources do not develop any of these symptoms and yet are known to suffer from plumbism. These cases have lately attracted the attention of the workers in this line and have been proved by chemical and therapeutic tests to belong to the insidious types of lead poisoning, which had hitherto escaped the notice of the clinicians.

There are many difficulties that stand in the way of diagnosing cases of lead poisoning. In the diagnosis of plumbism, the history of exposure to lead is a very important factor. This guides the physicians in the right direction and the laboratory findings confirm his suspicion, while clinical features help him to clinch to his diagnosis. The laboratory tests include examination of urine and fæces by modern methods of chemical analysis and chemical examination of tissues, *e.g.*, liver, kidney, heart, lungs, intestine, spleen, cartilage, skin, brain and bone. Hair has been found to be a suitable material for the detection of abnormal lead absorption in the system. The chemical examination of blood does not help in any way in cases of insidious type of poisoning; in chronic cases, even with well-developed symptoms, the blood lead does not usually exceed the normal limits. Amongst other signs and symptoms may be mentioned blue line in the gums, and punctate basophilia, but unfortunately, both these are most unreliable and even when present they do not indicate lead intoxication but only lead absorption. Wrist drop, arteriosclerosis, and vascular spasms may be found only among those who absorb lead in heavy doses; rarely these are to be expected in insidious types.

Before concluding Dr. Bagchi laid stress on the importance of lead poisoning, particularly of the insidious type and its implication. As it is mostly of industrial origin and as rapid industrialisation is expected early, he puts it forward as a plea for reorientation of the system of Public Health Administration and Medical Education in this country. Dr. Bagchi impressed on the importance and development of Industrial Hygiene and felt that the establishment of a Central Research Institute for Industrial Hygiene, creation of an Industrial Health Research Board and raising the standard of teaching in Medical and Public Health Sciences will be helpful in bringing about the solution of new problems of health and disease arising from the industrialisation of the country and thus to protect and improve the health of the workers.

N. N. De.

* Abstract of Presidential Address to the Section of Medical and Veterinary Science, delivered by Rai Bahadur K. N. Bagchi, before the 33rd Session of the Indian Science Congress, Bangalore, 1946.

DEVELOPMENT OF KIDNEY IN FISHES*

WHILE the kidney in all vertebrates is, more or less, derived from the same embryological source, the precise mode of its development varies in different classes of vertebrates. The first developed part of the kidney which is functional in the larval life of frogs, bony fishes and some other fishes is very rudimentary amongst sharks. The larval kidney serves the larva for some time. But as development proceeds, the succeeding portions of kidney develop and this development takes place in two stages. The first stage represents the whole kidney in all fishes except sharks where the hinder elements alone function in the adult and in this respect the sharks resemble the

* Abstract of Dr. Moghe's Presidential Address to the Section of Zoology and Entomology, Indian Science Congress, Bangalore, 1946.

higher vertebrates. Dr. Moghe dealt with the development of kidney in all groups of fishes such as the sharks and fishes, ganoids and bony fishes. In the last group his own investigations point to a different mode of development from the commonly accepted one found in the text-books. The accounts in text-books are based on the investigations of Felix published in 1896 and 1902 and these place the bony fishes in a separate class from other fishes and vertebrates. Dr. Moghe, however, considers that the development of kidney in the bony fishes is of the same order as in other vertebrates. Another controversy emphasised by Dr. Moghe relates to the larval kidney of most fishes. Is the kidney duct formed first or the kidney tubule? In the opinion of some workers the duct is formed first and the anterior end of the duct differentiates to form the kidney tubule; others consider that the kidney tubule is formed first and its terminal end opens into the duct which is independently formed.

B. S. B.

OBITUARY

THE LATE MR. KAPILRAM H. VAKIL
M.Sc. (Tech.), F.R.I.C., A.M.I.Chem.E.

ON the 28th of January 1946, the death occurred at Mithapur, of Mr. Kapilram H. Vakil, and with his passing away from our midst, scientific and industrial India lost one of her most eminent sons. Mr. Vakil was a self-made man. After graduating from the Elphinstone College, Bombay, he proceeded to England for further studies in technological subjects and very soon obtained the M.Sc. (Tech.) degree of the Manchester University as also several other diplomæ in applied chemistry. Mr. Vakil was very early recognised as an expert in oil and soap technology and was immediately absorbed by the Tatas. His passion and desire to expand his knowledge to the benefit of the country soon found Mr. Vakil conducting work on problems relating to salt and alkali industries. He was mainly instrumental in setting up the huge alkali factory in Dharangadhara State as also the Tata Chemicals plant at Mithapur, the latter being the largest unit in India producing marine chemicals. To keep himself abreast of the terrific strides made in America and Europe, he visited these continents over a dozen times and personally visited important works to get himself acquainted with the latest developments in processes as also in machine design.

On numerous occasions, Mr. Kapilram Vakil was approached both by Government and non-official bodies to preside at or to be a member of several committees. Important among these may be mentioned the Subjects Committee of the Indian National Congress, the Indian Merchants' Chamber, the Technical Education Committee (Government of Bombay), the Heavy Chemicals Committee (C.S.I.R.), the Electro-Chemicals Committee (C.S.I.R.), the Heavy Chemicals Panel (P. & D. Department of the Government of India), the Bombay Provincial Industries Chemical Sub-Committee and the Provincial Industrial Research Committee. Mr. Vakil was a member of the Advisory Board which was set up to guide the recent Fertiliser Mission. He was also a member of the Advisory Board of the Royal Institute of Science, Bombay, and the Council of the Indian Institute of Science, Bangalore. Mr. Vakil's diverse interests will become evident when it is mentioned that he took an important part in the framing of the Santa Cruz (East) Town Planning Scheme.

As the author of several important papers and books on technical subjects, Mr. Vakil's name was a by-word with scientists and industrialists alike. Several of his industrial processes are patented and are in use even now in India as well as abroad.

His devotion to science was to the very extreme and he dedicated all his time, nay his very life, to the cause of the scientific and industrial development of his country. It will be very difficult to fill the void created by his sad demise. May his soul rest in peace and may we be given the sense of duty to keep on burning the torch of enlightenment which he has lit!

MATA PRASAD.

PROF. JOHAN IVAR LIRO

HOSTILITIES having been ended, news have begun to trickle down from Europe about the happenings during the past six years. Sad news has reached us that Prof. Johan Ivar Liro has been lost to Mycological Science by his sudden death on September 16, 1943, at the age of 71.[1] Known to most of the earlier mycologists by his former name, Lindroth, Prof. Liro was the Professor of Plant Biology and Plant Pathology at the University of Helsinki, Finland. He occupied many important posts including the Directorship of the University of Turku in 1922.

Few persons were endowed with such keen intellect and insight in the study of smuts as late Prof. Liro. In addition to his numerous papers on the smuts of the world, his two comprehensive works, *Die Ustilagineen Finnlands,* Parts I & II, would remain for many years to come, the most authoritative treatise ever written on the subject. His clear and analytical way of judging scientific matters often made him appear to err against the world though right to himself. His treatment of the genus *Urocystis* as a synonym of *Tuburcinia* aroused quite a sensation among the mycologists. While most of the workers in the European continent accepted the views put forward by Prof. Liro about the genus *Tuburcinia*, he was sharply criticised by the American and English schools who preferred to bring Article 4 of the International Rules of Botanical Nomenclature into force and thus conserve the name *Urocystis.* He made valuable contributions to the study of rusts of Finland. In addition to these, he was deeply interested in entomology having made detailed studies in the gall mite genus *Acarina.* Two genera were named in his honour, *Liroa*, a genus of smuts, by Prof. R. Ciferri, and *Lindrothia* (= Puccinia), a rust genus, by Dr. H. Sydow.

M. J. THIRUMALACHAR.

1. E. Kitunen in *Ylipainos Maataloustieteellinen Aikakauskirja*, 1943, 15.