

## OBITUARY: PROFESSOR M. DAMODARAN

BY the death of Professor M. Damodaran last December, Biochemistry lost one of its great pioneers. He had long been recognised as a leading Biochemist in India. He was educated at the Presidency College, Madras. After a brilliant academic career he received preliminary training in research at the Indian Institute of Science, Bangalore. The award of a research scholarship by the Government of Madras enabled Damodaran to continue his studies in Germany and England. In Germany (1928) he had the unique privilege of working with Abderhalden—the father of Protein Chemistry—on the preparation and enzymic digestion of myristic acid peptides. Later, under the inspiring leadership of Professor A. C. Chibnall, Imperial College of Science and Technology, London, he continued the work in the domain of Protein Chemistry. During 1929-32, he established the first direct proof of the 'Amide Hypothesis' in proteins, by isolating asparagine and glutamine from enzymic digests of edestin and gliadin respectively. This remarkable contribution gained him the Degree of D.Sc. (London).

Returning to India towards the close of 1932, he was appointed first Reader of Biochemistry at Madras University. Subsequently, he became Professor and held the post till 1948, when he was invited to assume Directorship of the Biochemical Division at the National Chemical Laboratory, Poona (then temporarily housed at Delhi). Later, he assumed the Deputy Directorship of the Laboratory and his retirement due to ill-health in the middle of 1956 was very much regretted by all his colleagues.

Professor Damodaran's scientific publications are legion and cover a wide range of problems

in Biochemistry. Demands on brevity restrict one from presenting a detailed account of his work. During the thirties one notices his work on proteins from seeds, viz., cashew-nut, water-melon seeds, canavanine from *Canavalia obtusifolia*, isolation of l, 3:4-dihydroxy-phenyl alanine from the seeds of *Mucuna pruriens*, enzymic proteolysis, amino acids of casein phosphopeptone. He demonstrated for the first time the presence of glutamic dehydrogenase in germinated seedlings. This was followed up by his finding succinic dehydrogenase in germinated seedlings.

Though a Protein Chemist at heart, Professor Damodaran gave prominence to problems having economic or medical application—in keeping with the need of the day. To this difficult and exacting task he has given freely and unstintingly of his time, of his vast store of experience and of himself. He bred a remarkably active strain of *Aspergillus niger* for the production of citric acid from sugar. Another notable achievement is his synthesis of ascorbic acid from sorbitol, with a 99% intermediary yield of sorbose. His gelatin plasma substitute preparation, based on a tryptic digestion, is undoubtedly his most spectacular contribution towards alleviation of human suffering. This has been clinically tested with excellent results.

Professor Damodaran was an expert analyst. He brought his great scientific skill and precision to bear on methods of separation, isolation and identification in the immensely complicated chemistry of living matter. His students, and all who knew him will mourn the loss of this truly great leader in science.

K. RAMAMURTI.

## THE PROPERTIES OF THROMBINOGEN

IN a paper that has appeared in *Canadian Journal of Biochemistry*, Vol. 36, 75, 1958), evidence is given which demonstrates the existence of an intermediate, designated thrombinogen, during the conversion of prothrombin to thrombin. The conversion of prothrombin to thrombin requires thrombin, though other tryptic enzymes can replace thrombin. The properties of thrombinogen have been studied.

"As a result of observations on the properties of thrombin the author suggested that an in-

termediate, designated thrombinogen, is formed during the conversion of prothrombin to thrombin. Shulman and Spaet on independent grounds, also recognized the inadequacy of a simple conversion of PT to T. The validity of the proposal has now been demonstrated. As a guide to isolation attempts, the studies reported were undertaken to determine some of the chemical and physical characteristics of this intermediate.