Although our ideas have undergone changes and notable advances have been made since Liebig's days, the original theory is still valid. But the humus theory which prevailed a century ago is again coming into its own but in a qualified manner. The developments of the past century direct pointed attention to one important aspect, namely, the differentiation between soil fertility and soil fruitfulness. Organic manures and organic fertilisers build up and maintain soil fertility for artificial fertilisers to be fruitful. It is in the recognition of this truth lies the reconciliation of the opposing views. There is also the growing recognition that we are at the beginning of new knowledge and that workers in plant and animal nutrition may increasingly find common interests in the studies on cell metabolism. We are indebted for our present knowledge to the pioneers of the past and look forward to future developments which may give us more knowledge and control over soil fertility.

[1] *Proc. Roy. Soc.*, (B), 1914, **88**, 237.
[2] *Ibid.*, 1917, **89**, 508.
[3] *Ann. Inst. Past.*, 1914, **28**, 21.
[4] *Ann. Bot.*, 1924, **38**, 723.
[5] *Jour. Madras Agric. Student's Union*, 1926, **14**, 19.
[6] *Ind. Jour. Med. Res.*, 1926, **14**, 351.
[7] *Mem. Dept. Agric. Ind. Chem. Series*, 1927, **9**, 85.
[8] *Proc. Roy. Soc.* (B), 1937, **124**, 1; *Nature*, 1937, **161**.
[9] *Chem Ind.*, 1937, **57**, 49.
[10] *Jour. Gen. Physiol.* 1934, **18**, 23.
[11] *Bot. Gaz.*, 1937, **98**, 816.
[12] *Nature*, 1937, **140**, 507.
[13] *Loc. cit.*
[14] *Biochem. J.*, 1930, **24**, 199.
[15] *J. S. C. I.*, 1938, **57**, 210.
[16] *Ibid.*, 1940, **59**, 181.
[17] *Chem. and Ind.*, 1938.
[18] *Nature*, 1940, **145**, 905.
[19] *Mem. Acad. Ital. Boil.*, 1932, **3(1)**, 5.
[20] *Ohio Exp. Stn. Ann. Rep.*, 1928.
[21] *Univ. Arizona Tech. Bull.*, 1927, **16**.
[22] *Proc. Amer. Soc. Hort. Sci.*, 1937, **34**, 599.
[23] *Landw. Jaharb.*, 1927, **66**, 781.
[24] *Kuhn. Arch.*, 1927, **15**.
[25] *Bodenk. Pflanz.*, 1938, **9/10**, 708.
[26] *Phytopath Z.*, 1937, **5**, 207.
[27] *Boden. U. Pflanz.*, 1939, **12**, 129.
[28] *Biochem. Jour.*, 1934.
[29] *Biochem. Z.*, 1934–39.
[30] *Nature*, 1940, **145**, 905.

OBITUARY

Mr. NOSHIR S. DOCTOR, M.Sc., A.I.I.Sc.

A PROMISING scientific career was tragically cut short by the death on May 26th last of Mr. Noshir Shapoorji Doctor, as a result of injuries sustained in a motor-cycle accident at Bangalore. Mr. Doctor was working for the PH.D. at the Indian Institute of Science.

Born on March 4th, 1914, at Broach, near Bombay, Noshir Doctor was educated at the Government High School, Broach, and matriculated in 1931. He joined St. Xavier's College, Bombay, in that year and except for a short break in 1933 at Karachi, was there till 1936, when he graduated with a First Class and Distinction in Chemistry, securing the College Gold Medal. He then joined the Indian Institute of Science, Bangalore, and three years later, secured the M.Sc. degree of the Bombay University and the Associateship of the Indian Institute of Science.

Possessed of sterling qualities of head and heart, Noshir Doctor had won the regard of both his Professors and colleagues. He was a good sportsman and, both at school and college, distinguished himself on the field. He won a number of prizes in sports at the Centenary Celebrations in connection with the anniversary of the late J. N. Tata.

Such a premature death at the age of 26 and at the very threshold of a career that held every promise of being very successful, the news of his tragic death came as a great shock to his many friends at Bombay and Bangalore. To his bereaved parents and relatives we offer our sincere condolences.

J. P. DE SOUZA.

LETTERS TO THE EDITOR

A Note on the Analysis of a Special Complex-Experiment

Sometimes it happens that the number of different treatment-combinations of a manurial complex-experiment is $[(p-1)\,q+1]$ and not pq. Thus, for example, taking the case of a manurial experiment which involves p manures (including no manure) and q times of application, the number of different treatment-combinations is $[(p-1)\,q+1]$. The analysis of such an experiment cannot be carried out in the usual way. This note indicates briefly the method of analysis of such an experiment.

The sums of squares for blocks, the treatment-combinations and the residual error are calculated in the usual way by fitting constants, as explained in a previous paper.[1] To get more information about the manures, the time of application and the interaction, the sum of squares for the treatment-combinations is split up as follows:—

Variance due to	*Degrees of freedom*
1. No manure *versus* all the other manures taken together	1
2. Between the different manures (excludes no manure)	$(p-2)$
3. Between the times of application	$(q-1)$
4. Interaction	$(p-2)\,(q-1)$

The sum of squares for the different items mentioned above can be calculated as noted below:—

1. Reduction in the s.s. by fitting constants for block effects, no manure and all the different combinations taken together—s.s. for blocks.

2. Reduction in the s.s. by fitting constants for block effects, no manure and the different manures—(s.s. for blocks + item 1).

3. Reduction in the s.s. by fitting constants for block effects, no manure and the different times of application—(s.s. for blocks + item 1).

4. S.s. for $[(p-1)\,q+1]$ treatment-combinations—total of items 1, 2 and 3.

P. V. Krishna Iyer.

Imperial Agricultural Research Institute, New Delhi,
November 29, 1940.

[1] *Proc. Ind. Acad. Sci.*, **11**, 369.