and the activity of the experimental animals was not depressed by the amino-acid supplements.

Apparently the specific dynamic effects of isolated nutrients fed as such have very little if anything to do with the specific dynamic effects of mixtures of nutrients, particularly balanced mixtures. Without being able to specify the exact causes of the metabolic stimulation induced by the consumption of food, we may nevertheless conclude reasonably that its intensity is dependent primarily upon the degree of accumulation of the end-products of digestion within the tissues, which is in turn dependent for any given intake of food upon the rate of utilization of these products by the tissues. Their rate of utilization will be determined by the proportions existing among them, such that the better the balance with reference to the requirements of the animal the more rapid the rate of utilization and withdrawal from the cellular fluids. The metabolic stimulation thus occurs only when there is an excess of nutritive material in the tissues, and is to a considerable extent proportional to this excess. It is possibly a mechanism operating merely for the removal of excess food material from the body cells in the interests of physiological efficiency.

These speculations are now being investigated experimentally in the Division of Animal Nutrition of the University of Illinois.

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A COLOR TEST FOR VITAMIN C

WHEN ascorbic acid is boiled with HCl, CO_2 is given off, apparently the molecule loses water and furfural is formed. That furfural is formed in this reaction may be demonstrated by the use of the aniline, phloroglucinol and orcinol tests. The reaction with aniline, in which a pink color is produced when the acid solution, after boiling with HCl, is brought to a pH of 5 to 6 by adding aniline, is quantitative and may be used for the estimation of ascorbic acid. Pentoses, pentosans, hexoses and hexosans are interfering substances, but various procedures may be used to obviate the interference by these materials. Efforts are being made to develop a quantitative method, based upon this reaction, for the determination of ascorbic acid in plant and animal tissues.

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ITALIAN WORK ON LIVER THERAPY

IN none of the publications concerning the award of the Nobel Prize for their work on liver therapy in anemia by Dr. George W. Whipple, Drs. Minot and Murphy, is mention made of the carefully controlled experiments on dogs and rabbits (1910–1912) carried out by Professor Alfonso Pirera,[1] of Naples, under the direction of the late Professor Pietro Francesco Castellino (1864–1933), of the University of Naples. They proved, clinically and experimentally, the value of liver, liver juice and liver extract in the treatment of anemia. They also demonstrated that liver injections increased the leucocytes, particularly the granulocytes. Liver injections are now being given in the treatment of granulopenic conditions, malignant neutropenia, or agranulocytosis.

While a student and associated with Professor Gaetano Salvioli (1853–1888) at Genoa, and working with Professor Edoardo Maragliano, Professor Castellino already recognized, at that time (1886–1892), the value of liver in the anemia of tuberculosis and spoke of liver stimulating bone marrow activity and the regeneration of blood.[2]

To Whipple, Minot and Murphy goes the credit for establishing, on a scientific basis, the general use of liver in the treatment of anemia. *Priority* for the early observation and *the discovery* (experimentally and clinically) of the value of liver and *liver injections* in the treatment of anemia should, in all fairness, go to the late Professor Castellino and his associate, Professor Alfonso Pirera.

In this connection, I may add the following references of interest:

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Prof. G. Bonvicini, *Wiener Med. Wochenschrift,* 83: 43, 1219, October 21, 1933.

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S. La Franca, *Rivista Sanitaria Siciliano,* 21: 20, 1600–1606, October 15, 1933, Palermo, especially page 1605, lines 23–49, page 1606, lines 1–2.

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[1] Il Tommasi (*Napoli*), 7: 26, 601–617, September 20, 1912, and 7: 27, 625–636, September 30, 1912.

[2] Pietro Castellino, *Nuova Vita* (Torino, Roma, Societa Editrice Nazionale Di Propagande I gienica), 3: 15, December 12, 1912.