of carbohydrate being reduced in proportion to the fat until ketone bodies show a definite increase in the urine.

The following table shows the percentage relationship of fat and carbohydrate and total available carbohydrate in the diet of the patients at the point in the experiment where the ketone body excretion shows a marked increase.

| Case No. | Per Cent. of Total Calories Yielded by | | | Gms. Avail CH. | Gms. Fat. | Ratio. |
|---|---|---|---|---|---|---|
| | Fat. | CH. | Avail. CH. | | | |
| 101 | 79 | 4 | 14 | 60 | 150.6 | 1 : 2.5 |
| 102 | 87 | 4 | 9 | 25.1 | 111.0 | 1 : 4.4 |
| 103 | 78 | 11 | 17 | 40.9 | 80.4 | 1 : 1.9 |
| 104 | 87 | 3 | 9 | 31.4 | 140.1 | 1 : 4.5 |
| 105 | 84 | 5 | 12 | 25.4 | 80.5 | 1 : 3.2 |
| 106 | 83 | 5 | 12 | 25.6 | 80.1 | 1 : 3.2 |
| 107 non diabetic | 89 | 4 | 8 | 51.6 | 235.3 | 1 : 4.6 |
| 109 | 87 | 3 | 8 | 28 | 129.9 | 1 : 4.0 |
| 110 | 78.1 | 5.5 | 15 | 36.6 | 84.1 | 1 : 2.3[4] |

[3] Total available carbohydrate calculated by taking 58 per cent. gms. protein and adding to grams carbohydrate.

[4] Case No. 103 re-admitted seven months later.

The results suggest that the ratio of carbohydrate to fat necessary for complete oxidation of the fat may be about the same as Zeller obtained in normals.

## 52 (1634)

## The nutritive value of extra-yeast bread.

By **PHILIP B. HAWK, CLARENCE A. SMITH,** and **OLAF BERGEIM.**

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Eleven albino rats were placed upon a diet containing besides inorganic salts and butter fat in adequate amounts, a bread made from white flour in the ordinary manner containing the usual amount of yeast, the liquid used in preparing the dough being half milk and half water.

Another group of eleven rats of the same average weights were placed upon a diet similar to the preceding, except that 5 per cent. of dried yeast was added to the flour and some extra fresh yeast added to raise the dough.

The rats on the ordinary bread grew very poorly, gaining on the average only 18 grams in 9 weeks. The rats on extra-yeast bread grew much better, gaining 59 grams on the average in 9 weeks.

The superior nutritive value of the extra-yeast bread was ascribed to its high content of water-soluble B and to the supplemental action of the complete protein of the yeast.

## 53 (1635)

## Evidence for sex-linked lethal factors in man.

By C. C. LITTLE and MARION GIBBONS.

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Among the points brought to light during the investigations which followed the rediscovery of Mendel's Law of Heredity were two of especial interest to medical men. These were lethal factors and sex-linked inheritance.

A lethal factor is a Mendelian unit which can be carried by a normal individual as can any recessive, but which when present without its normal allelomorph to balance it, causes the death of the individual possessing it. Among those lethal factors demonstrated for mammals is that for yellow coat color in mice. The color of the wild house mouse is called by geneticists "black agouti." It has as an alternative condition or allelomorph, a type in which almost if not all, black and brown pigment has disappeared from the coat leaving only the yellow pigment unmodified. When black agouti mice are crossed together yellows are never produced. When yellows are crossed together however, yellows and black agoutis are produced in a ratio of 2 to 1. If the yellows had been ordinary mendelian heterozygotes, the ratio should have been 3 to 1, but it is clear that the 2 to 1 ratio is the one involved.

The yellows so produced are never homozygous, as they should be in 33 per cent. of the cases, were unmodified mendelian inheritance involved. The obvious hypothesis is that the homozygous yellow individuals start their development, but perish in early