tered a disease in parrots that subsequently was shown to be induced by a filterable agent. According to their reports, the etiological agent passes Berkefeld N candles, is not cultivable on ordinary media, produces areas of necrosis in the liver and spleen in which are found acidophilic nuclear inclusions similar to those seen in *herpes febrilis* and Virus III infections, and is not pathogenic for pigeons, chickens, mice, guinea pigs, or monkeys. Moreover, these workers state that the clinical picture observed in infected birds is similar to that seen in avian psittacosis, and believe that the strict adaptation of the virus to the *psittacidae* accounts for the absence of human psittacosis in Brazil.

Dr. Pacheco sent me some of his virus in order that its activities might be compared with those of a virus known to have caused psittacosis in human beings. This comparison has been made, and I can confirm the results of the experimental work reported by the Brazilian investigators. The virus is not retained by Berkefeld V and N candles, nor is it cultivable on ordinary media. Parrakeets are susceptible, while canaries, chickens, rats, mice, guinea pigs, and rabbits are insusceptible. Numerous acidophilic nuclear inclusions are found in the specific lesions. I do not agree, however, with the conclusions that the strict adaptation of the virus to parrots and parrakeets accounts for the absence of human psittacosis in Brazil. On the contrary, my experiments with the virus indicate that another filterable virus disease of parrots has been discovered. Its difference from psittacosis is manifested by the facts that the causal agent is nonpathogenic for mammals and produces lesions in avian livers and spleens in which numerous acidophilic nuclear inclusions are found, instead of the "minute bodies" first described by Levinthal[5] as characteristic of psittacosis.

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## Cumulative Effects on Protein Utilization of Highly Milled and Whole Wheat Flours.

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When digestibility of food constituents is determined by the conventional method the experiment is of such short duration that

[5] Levinthal, W., *Klin. Woch.*, 1930, **9**, 654.

only acute effects of the food on the animal have time to appear. Chronic effects are absent. Tests already reported[1] show that the habitual use by white rats of a ration consisting of white flour, potatoes, lean beef, milk, fats, and salts in the proportions customary for human dietaries, resulted, after several months, in a protein utilization somewhat lower than that found for a similar ration but containing whole wheat meal instead of white flour. Since white flour has been found to be more digestible than wheat meal[2] it seemed probable that a change gradually develops in the condition of the animal as a result of the continued use of the dietaries whereby digestion becomes less effective on the white flour ration or more effective on the wheat meal ration. To test these ideas digestion trials were made, at intervals, upon the same animals, maintained upon rations which varied only in the kind of flour used or in the amount of fiber or of yeast.

Five rations were compared. Ration I contained, white flour 45.5, dried potatoes 13.7, dried beef 11.9, sucrose 11.2, butter 5.2, lard 5.1, dried skim milk 4.7, and salt mixture 2.7. The crude fiber content of this ration is about 0.8%, protein 16.5%, and fat 12.0%. Presumably it is deficient in the antineuritic vitamin. Ration II contained enough ground filter paper to raise its fiber content to about 3.0%, otherwise it was like Ration I. Ration III contained both filter paper and 4.4% of dried brewers' yeast. Ration IV contained brewers' yeast but no paper. Ration V contained wheat meal in place of the white flour of Ration I. All 5 rations were fed to young white rats taken from the same litters, 3 rats being used on each ration. The digestibility of protein in the several rations at different times in the life of the rats is shown in Table I.

TABLE I.

*Cumulative Effects of Wheat Flour, Cellulose or Yeast Upon Protein Digestibility.*

| Ration | Coefficients of Protein Digestibility After | | |
|---|---|---|---|
| | 1 month | 4 months | 6 months |
| White Flour | 86.1 | 84.4 | 83.2 |
| " " + Paper | 83.5 | 82.7 | 81.6 |
| " " " + Yeast | 83.3 | diarrhea | 86.7 |
| " " + Yeast | 85.6 | 84.3 | 80.5 |
| Whole Wheat Meal | 77.1 | 88.0 | 86.9 |

As shown in the table, protein utilization decreased slightly as a result of the habitual use of white flour in the particular food com-

[1] Lyman, J. F., *Am. Med.*, 1928, **23**, 794.

[2] Atwater, Helen W., Farmers Bul., 389, U. S. D. A.

binations used here. On the other hand the habitual use of whole wheat meal, in a similar food combination resulted in a very decided improvement in protein utilization. Whereas at the beginning of the experiment the protein of the white flour ration was much better utilized than that of the wheat meal ration, at the end of 6 months the digestibility coefficient of the latter exceeded the former. The effect of additions of cellulose only and of yeast only upon protein utilization was detrimental and this effect was cumulative. Cellulose and yeast together, added to the white flour ration, appears to be somewhat beneficial upon protein utilization, although the condition of the animals fed this combination was not as good as that of the other groups and there was some diarrhea, something never observed with the other diets.

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## Avitaminosis. VI. Vitamin B Lipemia Versus Inanition Lipemia in the Lactating Rat and its Nursing Young.*

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The purpose of this study was to determine the effect of a deficiency of vitamin B *per se* on lipid metabolism of the lactating albino rat and its nursing young. The avitaminosis was produced according to technique previously described.[1] The experiments were conducted in triads. The pathological group received autoclaved dried baker's yeast as a source of vitamin G. Litter mates were restricted to the same amount of food and water of the same diet as consumed by the avitaminotic group, but the yeast in the ration was untreated. The plane of nutrition was the same in this diet, and the only limiting factor was the destruction of vitamin B in the process of autoclaving. Another group of litter mate lactating rats was fed the same ration, containing the untreated yeast, but the daily intake of food and water was unrestricted. As the only limiting factor between the second and third groups was the plane of nutrition, the difference is due to inanition.

One-half a cc. of blood was used for the determination of fatty

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[1] Sure, B., and Smith, M. E., *J. Nutr.*, 1929, **1**, 537.