cent acetone is the most effective dilution from which to adsorb chlorophyll on talc or any other adsorbent.

The total shifts in the bands are: 95 A. for the first, 50 A. for the second, 27 A. for the third, and 47 A. for the fourth.

Upon successive dilutions, ethyl alcohol (95 per cent) extract of chlorophyll from fresh green corn leaves shows the same shift of the absorption bands toward the red end of the spectrum: 98 A. for the first, 52 A. for the second, 27 A. for the third, and 57 A. for the fourth. A 95 per cent ethanol extract of chlorophyll from dry nettle leaves does not show a shift in the spectrum upon dilution with water, probably because of allerimization.

The reason for the shift in the spectrum as a result of dilution with water is not known definitely, but it appears that it may be due to the adsorption of (or the chemical union with) water on the surface of the chlorophyll molecule.

The absorption spectrum of chlorophyll adsorbed on the different adsorbents moistened in water is quite similar to that of chlorophyll in 55 per cent acetone or in solutions with less percentage of acetone. There is a shift toward the red end of the spectrum, quite similar to that in living leaves. The absorption spectra of chlorophyll on dry talc and on dry cotton show no change in position of the bands as compared with that of adsorbed chlorophyll on water-moistened talc and cotton. Thus, the water which possibly originally caused the shift may be retained and may be the principal factor causing the chlorophyll to adhere to talc, cotton, or any adsorbent.

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Daily Nitrogen Urinary Excretion in People of the Working Class of Caracas

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Studies on the elimination of nitrogen and on nitrogen balances are as old as the science of nutrition. The first investigators who involved themselves in these problems had the opportunity of working with very exact methods, and many of their results fit perfectly into the science of today. The work of Boussingault (*3*), Liebig (*10*), Bidder and Schmidt (*1*), and especially Voit and his collaborators (*11*) showed the relationship between nitrogen ingestion and eliminated nitrogen. The notion of nitrogen ingestion equilibrium was established.

It is well known not only that the diet of the Venezuelan people is poor in high-protein-content foods and especially low in proteins of rich biological value (*5*), but also that total serum proteins in the popular class are low, resulting in a high incidence of hypoproteinemia (*7*), especially during pregnancy (*4*) and lactation (*6*). For this reason it seemed interesting to establish the daily urinary excretion of nitrogen, this being the most exact procedure available for determining the amount of metabolized proteins in the body. These determinations were recommended by the International Conference of Berlin in 1932 (*12*) as a very accurate measure of protein intake, although, as Bigwood (*2*) stated, it is sometimes difficult to obtain a complete sample.

For the whole group it was found that 53 per cent of the determinations were under the average value, and 85 per

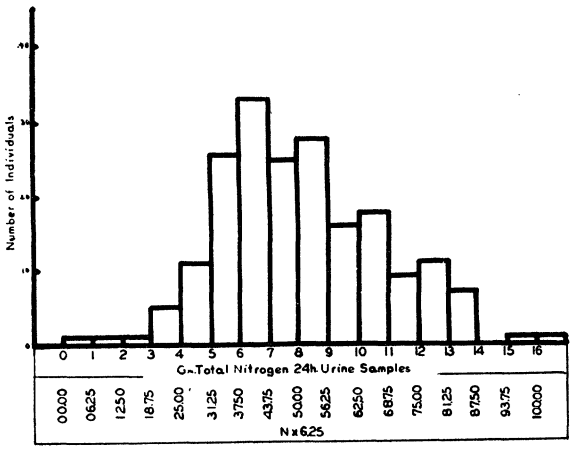

FIG. 1

cent eliminated less than 11 grams of nitrogen in the urine over a period of 24 hours.

METHODS

Determinations were made of total nitrogen in urine eliminated over a period of 24 hours by 194 apparently healthy people attending the Health Certificate Service. Of these, 118 were females and 76 were males. The ages ranged from 11 to 57 years, but the majority were young adults. Special care was taken in order to obtain complete

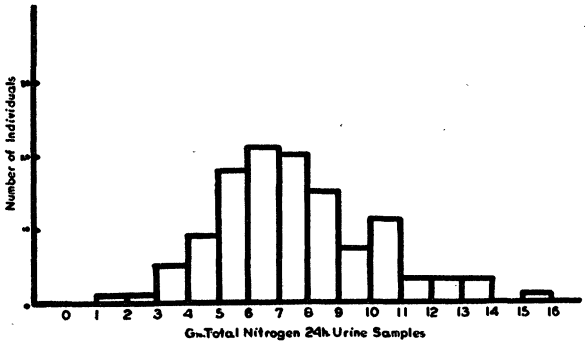

FIG. 2

24-hour samples. The subjects were notified that daily elimination is greater than one liter, and bottles for the purpose were provided. Samples suspected of being incomplete were rejected. Determinations of creatinine were made in all the samples. In a group of 37 women eliminating less than one liter of urine the average creatinine value was the same as that in a group of 92 women eliminating more than one liter. The variation coefficient was smaller in the first group. Almost all the men eliminated more than 1,000 cc. of urine.

The amount of urine in the samples was carefully measured. The found average for the whole group was 1.066 cc. with a S.D. 1.42. The determinations of total nitrogen were

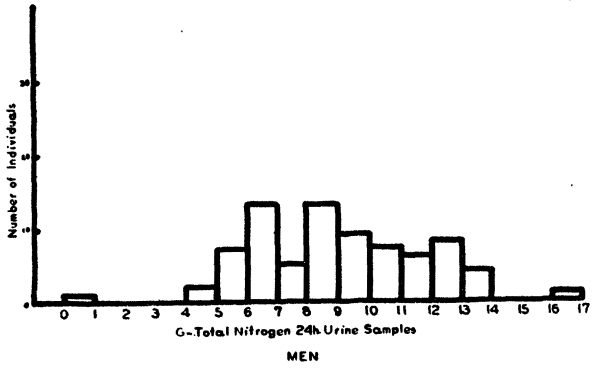

FIG. 3

made with the macro-Kjeldahl technique (*9*), using Gunning's modification (*8*). The determinations, carried out in duplicate in 80 per cent of the cases, checked well.

RESULTS

The histograms for the whole group, the female group, and the male group are shown in Figs. 1, 2, and 3, respectively.

In Fig. 1 the values are expressed in grams of nitrogen and in calculated metabolized proteins (N × 6.25). Table 1

TABLE 1

	No. Individuals	Averages (grams N/day)	S.D.	N × 6.25	Modes (grams N/day)
Whole group.....	194	8.03	2.80	50.2	6–7
Female.....	118	7.46	2.56	46.6	6–7
Male.....	76	8.89	2.74	55.6	6–9

shows the averages, standard deviations, calculated metabolized protein corresponding to the averages, and the modes of the distributions of the found values.

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Heterologous Transplantation of Human Tumors

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Two human tumors of the same type, both questionable lymphosarcomata or leukemias, were transplanted into mice after passage through tissue culture. One animal developed a tumor which metastasized to the liver and was identical to the human tumor. Another developed a similar tumor at the site of inoculation, but the cells infiltrated the adjacent breast tissue, initiating in it an adenocarcinoma which metastasized rapidly. Another mouse presents a leukemic picture with an absolute white count of 37,000. The suspected lability of these difficult-to-diagnose lymph-node tumors is thus experimentally demonstrated. Preliminary passage through tissue culture permitted transplantation of the human tumor to the animal without previous passage through the anterior chamber of the eye.

Inhibition of Heating and Lipolysis in Seeds

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Heating and deterioration of moist seeds has constituted a problem in those processing industries where seeds must be stored in bulk for extended periods of time. Damage resulting from heating is manifested not only by visible discoloration of the seeds but also by reduction of the quantity and quality of the processed products. For example, cottonseed which has been damaged by heating during storage will yield less oil than prime cottonseed, and the oil which is obtained will contain an increased percentage of free fatty acids.

Heating in seeds during commercial storage is minimized by one of the following procedures: (1) predrying prior to storage, (2) forced aeration during storage, or (3) stacking bagged seeds in a manner that provides natural circulation of air in the interspaces. Reduction or prevention of deterioration may also be effected by treating the seeds with chemicals to inhibit the biological processes which are responsible for heating and deterioration (*1, 3, 4, 5*). An investigation has been made to determine the effectiveness of a wide variety of chemicals as such inhibitors. Preliminary results of this survey are presented here, and detailed reports on the calorimetric method used and its application to problems of seed storage will appear elsewhere.

[1] The authors wish to acknowledge the invaluable aid given them by the many chemical manufacturers who suggested and furnished many of the compounds tested to date. The free fatty acid determinations were made by Miss Claire Lesslie.

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