with their traditional social structure. The Ponapeans, the Kusaians, the Marshallese, and the Polynesian inhabitants of Kapingamarangi and Nukuoro reveal equally distinct and divergent attitudes and local cultures. An attempt to administer these varied groups according to a single inflexible formula would invite disaster. Legislation respecting them should be confined to establishing a neutral and humane overall policy, allowing great latitude to local administrators in adapting it to variable needs and conditions.

Food Prices in Palo Alto

J. Murray Luck
Stanford University, California

IN 1944 A REPORT ON FOOD PRICES in Palo Alto, California, was published in *Science* (August 11, pp. 124–125). These surveys, annual in character and initiated in 1939, have continued to be made. Since it is possible that the results of the survey may be of more than local interest, the later data are now presented for publication.

It might first of all be pointed out that Palo Alto is a small university town, now having a population of about 22,000. The town is a typical university community except for those engaged in business in San Francisco, some who are retired, and quite a small proportion of the whole who are employed by industries in Palo Alto and adjacent communities. Most of the residents, it may be concluded, are engaged in activities that center about Stanford University.

The survey of food prices referred to here has been made among the retail stores in Palo Alto, in all cases during the third or fourth week of May. Year by year the same items were priced. To give a proper weighting to the list, the quantities of various foodstuffs required for a "liberal" diet were used. The cost of such a diet was determined for one week's maintenance of an adult man engaged in moderate physical activity. It is recognized, of course, that many different "liberal" diets could be devised, though all would be characterized, according to present concepts, by being comparatively low in potatoes and highly processed cereals and comparatively rich in so-called high-quality protein foods. The particular diet that we have priced contains an abundance of dairy products, fresh fruits and vegetables, and high-quality proteins. It is not, however, a "luxury" diet. Differences in regional dietary practices or in availability of foodstuffs would permit many variations without serious trespass upon the limiting characteristics of a liberal diet. The particular foods about which these surveys have centered would provide, per day, approximately 3,100 Cal, 137 gm of fat, 318 gm of carbohydrate, 107 gm of protein, 1.36 gm of calcium, 2.04 gm of phosphorus, 20 mg of iron, 15,000 units of vitamin A or its equivalent, 160 mg of ascorbic acid, 370 units of vitamin D, 1.4 mg of thiamin, and 2.7 mg of riboflavin. These values refer to the food as purchased and should be reduced by probably 10% to reflect the values for food as consumed. The list of foods, per adult per week, is as follows:

Bread	1	lb	Sweet potatoes	1	lb
Oatmeal	½	"	Potatoes	3	"
Cornmeal	½	"	Cabbage	2	"
Sugar	1.2	"	Lettuce	½	"
Milk	3½	qts	Carrots	1	"
Cheese	¾	lb	Beets	1	"
Butter	½	"	Canned corn	½	"
Eggs (large, grade A)	1	"	Oranges	2	"
Lard	¼	"	Apples	1	"
Bacon	¼	"	Bananas	1	"
Beef chuck roast	2½	"	Dried prunes	½	"
Salmon	1	"	Canned peaches	½	"

Five stores were included in the 1939 survey, 6 in 1940, 7 in 1941, and 9 in 1942 and subsequent years. Three of the stores in the 1939 list and four in the subsequent lists are members of chains. A large cooperative store was included. All small stores were deliberately omitted as well as one or two stores which cater to luxury trade and are recognized as atypical with respect to distribution costs and retail prices.

In the case of canned goods, the cheapest brands were priced. It is believed that the nutritive qualities were reasonably comparable. To obtain maximum economies in purchasing, quantity prices (up to 10 lbs) were used whenever feasible as the basis for the calculations (see Table 1).

The increases reported since 1939 are not to be considered as indicative of the extent to which the cost of living has increased. This is because cost-of-living indices include many items other than food and also because "liberal" diets are low in cereal products (which have increased the least) and rich in fresh

vegetables, fruits, fish, eggs, dairy products, and meat (which has increased the most). For example, while bread, oatmeal, and milk have approximately doubled in price since 1939, the present prices of beef and tinned salmon are about 4½ times those of 1939. Cheese, butter, eggs, and fresh vegetables are about 3 times as costly as in 1939. Table 1 gives the cost of the diet as listed.

TABLE 1

Year	Average cost *at retail price*	Percentage increase *over 1939*
1939	$2.28	
1940	2.28	0
1941	2.96	30
1942	3.59	57
1943	4.72	107
1944	4.26	87
1945	4.26	87
1946	4.40	93
1947	5.96	161
1948	6.81	199

Prices used for carrots and beets are those for the trimmed vegetables and represent strictly the cost of the edible portion. It is unfortunate that in most cases retail stores continue to sell these by the bunch rather than by net weight.

Since fortified margarine is now to be regarded as an acceptable substitute for butter and tinned mackerel is considerably cheaper than tinned salmon, even though somewhat lower in vitamin A, we have decided in the future to substitute these two items for butter and tinned salmon, respectively, in these dietary surveys. The hamburger now available locally, appears to be of higher quality than that sold in 1939, although in composition it is not yet satisfactorily defined. Nonetheless, it is widely consumed. If the list of foods published above were to be amended by the replacement of butter, salmon, and chuck roast of beef with margarine, tinned mackerel, and hamburger, respectively, the cost of the liberal diet would fall from $6.81 to $5.53 for 1948.

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Diversity of Amino Acids in Legumes According to the Soil Fertility

V. L. Sheldon, Wm. G. Blue, and Wm. A. Albrecht
University of Missouri, Columbia, Missouri

AGRICULTURE IS CONCERNED WITH the synthesis of food. Our ultimate goal in this industry has always been the increase of production, *i.e.* greater numbers and more pounds, per acre. Too often only such physical attributes of the products—even of people—are of prime consideration when some other criteria are of more fundamental importance. We neglect the quality of our food products and continue to measure our output only in bushels and tons per acre.

In accordance with the long-held belief that a specific crop is of value because it produces much bulk, we have imported many exotic plants in the hope of maintaining a high level of food production. While watching the delivery of bulk, we have kept up the synthesis of caloric compounds by plants, but much of their capacity to synthesize proteins has been lost. For these latter, or body-building, substances, more than good weather is necessary; plants, like animals, can be said to be, and to behave, only according as they are nourished via the soil.

When the soil fertility declines, our attempts to adapt crops to this lower level of plant nutrition become a fallacy in terms of the demands of the animal diet. Of the many requirements of any diet, protein presents itself for first consideration. In the production of healthy animals the major problem is this one of obtaining sufficient protein of the quality commensurate with nutritional demands. Just as the furnace must be constructed prior to its service in consuming fuel, so must the animal use proteins to build its body prior to any consideration of its expenditure of energy. In the animal the mere hanging on of fat is much of a luxury performance to which we have all wantonly subscribed. In agriculture we must become concerned with the biosynthesis of the building stones of the body, namely, the amino acids, making up the proteins and not be content to adopt as our criterion the photosynthesis of the carbohydrates composing the plant bulk.

While this plant bulk may reflect other factors of the environment, we have been able to trace many of