them, but, again, this problem cannot be considered as settled.

According to Erulkar, Rose, and Davies (*3*), 34 percent of the units isolated in auditory cortex cannot be driven by sounds, and, in fact, only about 14 percent are reliably and securely activated by acoustic stimuli. The cats used by these workers were under light general anesthesia, and so it may be presumed that the attention units under discussion here were included in their class of nonresponders. It is not easy to understand why the auditory cortex, in the anesthetized or intact cat, should be populated with so many cells that fail to respond to auditory stimuli. Perhaps these cells become activated only when certain other conditions are simultaneously met. Thus, from our data one may conclude that the neural processes responsible for attention play an important role in determining whether or not a given acoustic stimulus proves adequate. Unfortunately attention is an elusive variable that no one has as yet been able to quantify. It may be that studies in which cortical unit activity is examined during the course of conditioning and learning will illuminate these matters.

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Distribution of Radioactivity in Wheat Plants Grown in the Presence of Strontium-90

Abstract. Thatcher wheat grown in soil to which Sr^{90} had been added showed that accumulation of radioactivity in the kernels was about one-tenth the accumulation in leaves and stems. Experimental milling of the kernels gave brans with the largest amounts and flours with the least amounts of activity, the Sr^{90} concentrations being related practically linearly to the weights of total ash in the various milling products.

Because of the current interest in the possible contamination of plant products by strontium-90 from fallout from nuclear explosions, a study was made of the distribution of Sr^{90} absorbed from the soil by wheat plants (*1*). Single plants of the Thatcher variety were grown in individual pots in the greenhouse. Each pot contained 450 g of Saskatchewan Oxbow loam soil, the analysis of which showed 19.2, 6.5, 1.9, and 0.1 milliequivalents of exchangeable Ca, Mg, K, and Na, respectively, per 100 g of soil. The soil moisture was kept at its field capacity of 35 percent by daily watering throughout the period of growth of the plants. At various stages of growth, an aliquot of 1, 2, or 3 ml of a solution of $SrCl_2 \cdot 6H_2O$ (0.1 mg/ml) with Sr^{90} activity of about 2.5×10^6 count/min ml was added to the soil in each pot. The plants were harvested at maturity and separated into kernels, heads, leaves, and stems. Some of the kernels were reserved for milling studies. The remaining fractions, each containing 5.0 mg of added inactive strontium chloride as carrier, were wet-ashed with concentrated sulfuric acid and perchloric acid.

After practically all the excess mineral acids had been evaporated off, each residue was taken up in water, neutralized, and made slightly basic before the strontium was precipitated as strontium phosphate. The precipitate was collected by centrifugation, transferred to a sample pan, and dried, and the activity was counted. Standard samples were prepared in the same way by wet-ashing fractions of nonradioactive wheat to which known quantities of Sr^{90} were added. From such standard samples, the Sr^{90} activity originally introduced into the soil was ascertained, and the uptake of Sr^{90} by various parts of the wheat plant was calculated. The results, summarized in Table 1, indicated that under the conditions of these experiments, the accumulation of Sr^{90} in the kernels was only a few thousandths of 1 percent of the amount added to the soil, while the uptake by the leaves or stems was about ten times as high as the uptake by the kernels. This is in agreement with findings of other workers (*2*) that Sr^{90} taken up from the soil by various types of plants generally appeared in high concentration in leaf tissues and in low concentration in seeds.

It is of interest to determine what portion of the Sr^{90} in the wheat kernels would appear in flour, the product consumed by man. Two crops of kernels from these experiments, each weighing about 7 g, were experimentally milled to give flour, shorts, and bran. The mill used was one similar to that described by Geddes and Frisell (*3*). The radioactivity and ash of the three milled fractions from each crop were measured. The flours contained 9 and 16 percent, the shorts, 29 and 31 percent, and the brans, 62 and 53 percent, respectively, of the total activity of the two crops. Though the flour fraction had the highest weight, it contained the least radioactivity. The largest portion of the activity was found in the bran. This is not surprising since the bran has the highest level of mineral matter, as is indicated

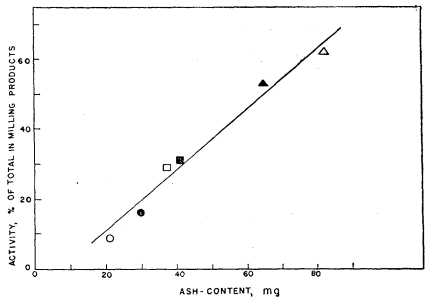

Fig. 1. Relationship between total ash and Sr^{90} concentration in milling products of Thatcher wheat. Circles, squares, and triangles represent flours, shorts, and brans, respectively—open symbols, crop 1; closed symbols, crop 2.

Table 1. Uptakes of Sr^{90} by various parts of Thatcher wheat.

Duration of Sr^{90} in soil before harvest (days)	Av. uptake of added activity (10^{-3} percent)			
	Kernels	Heads	Leaves	Stems
73*	2.9	2.3	30	14
73†	2.2	1.4	19	10
44‡	1.6	2.0	21	38
29‡	1.1	2.5	9.5	33

* 1 ml of Sr^{90} solution added per plant.
† 2 ml of Sr^{90} solution added per plant.
‡ 3 ml of Sr^{90} solution added per plant.

by its ash content. Actually, there was a direct relationship between Sr^{90} activity and total ash in the milling product—namely, the higher the total ash, the greater the Sr^{90} concentration (Fig. 1). One of the criteria of a high-grade patent flour is its low ash content. The results given here would indicate that one may reasonably expect that possible contamination by Sr^{90} from uptake of fallout debris should be lower for higher-grade flours.

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