ripened 9 days earlier than those on unsprayed branches, and those sprayed with a 100-ppm concentration ripened approximately 12 days earlier than the controls. Another early variety, Williams, was sprayed on June 28 and produced ripe fruit by July 5. Unsprayed fruits of this variety were not ready for harvest until July 18.

Each of these early-season apple varieties has shown marked foliage injury at 100-ppm spray concentration, and only slight or no injury at 50-ppm. It was noted that unpicked sprayed fruits failed to drop even after the fleshy parts had decayed and fallen away. In general, the early varieties seemed to respond more quickly than did Rome Beauty, a late-fall variety, although the advance in ripening date was less.

The development and maturation of fruits of six varieties of peaches have been accelerated considerably by spray applications of 2,4,5-T to the foliage and fruit. Fruits of the Elberta peach, for instance, that were sprayed on July 1, 1949, with 75-ppm concentration of the chemical were soft and colored by July 20, although the usual harvest date for this variety is late August. Golden Jubilee peaches that received 25-ppm spray concentration on May 20 were ripe by June 27, about one month ahead of the usual time of ripening. In all instances peaches that were sprayed one month or more in advance of harvest have been misshapen and reduced in size and quality. In other experiments, when sprays were applied closer to the usual harvest period for the variety, the size and quality of the fruits were but slightly affected or not affected at all. Elberta fruits that had been induced to ripen one month ahead of the usual harvest date had embryos in the seed with well-developed cotyledons, in contrast to very poorly developed cotyledons in the seeds of untreated fruits. The evenness of ripening of peaches on the sprayed branches was in contrast with the usual unevenness on untreated branches. Redhaven peaches selected at random from branches that received 50-ppm spray concentration on July 5 showed on July 18 a range in pressure test of 6.0–9.5 lb for individual fruits, while a similar sample selected from unsprayed branches showed a pressure test variation from 9.0 to 21.7 lb. Fruits that tested 10 lb or less were soft.

In the case of peaches, marked ripening effects have been obtained with spray concentrations of 25-, 50-, and 75-ppm of 2,4,5-T. Moderate to severe damage to foliage has resulted from all applications that contained 75-ppm of this substance. A mild ripening response has resulted from spray application of 5-ppm concentration on the varieties Erly-Red-Fre and Golden Jubilee.

The use of 2,4,5-T as a fruit ripening agent is not recommended at present for commercial practice or large scale tests, since there is considerable danger of immediate or permanent fruit tree injury. Results thus far, however, show promise that warrants further careful study.

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Partogrid, Proportional Divider for Use in Paper Chromatography (Partography)[1]

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The authors' Partogrid,[3] shown in Fig. 1, was prepared as follows. Double-thickness lines (2.5-cm intervals) and triple-thickness lines (5-cm intervals) were drawn as accurately as possible with India ink on a sheet (50 cm × 50 cm) of Eugene Dietzgen's "perfect" cross section millimeter paper. Scale readings in increments of 0.1 R_f units were placed as shown on each short side of the scale. The drawing was mounted parallel to a camera lens (corrected for spherical aberration) and photographed (5 in. × 7 in. negative). Prints of three sizes (5½-, 7-, and 10-in. hypotenuses) were prepared. The Partogrid, swabbed with a solution of 25% alcoholic Carbowax 400[4]

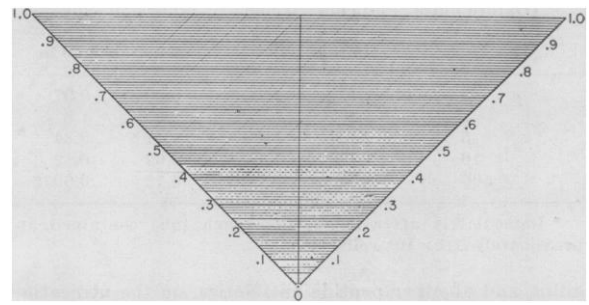

Fig. 1. Partogrid.

to increase the transparency, was mounted on an etched glass window lighted by a 100-w bulb cooled with a small fan.

A pin is inserted through the center of the initial spot (amino acid or other solute) on a filter paper strip (*4*) and the zero point of the Partogrid. The paper strip is rotated until the solvent boundary line intersects the 1.0 horizontal line on the Partogrid and the R_f values of the solute spots are read from the scale. Reliability of estimated R_f values may be increased by using both scales.

The word *chromatography* has been employed to describe the separation of substances by partition (*2*) as well as by adsorption processes. In order that these procedures may be differentiated, the word *partography* is suggested to denote the partition of colored and colorless solutes between solvents one of which may be a stationary phase. Dent (*1*) has proposed recently that filter paper partition chromatography be designated as *papyrography*. Related terms which have been suggested include *evography* (*5*) and *papergram* (*6*).

[1] Grants in support of this work have been received from the U. S. Public Health Service and the University of California.

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[3] Phillips (*3*) has described a device for the rapid measurement of R_f values but it is subject to deterioration.

[4] A polythelene glycol polymer obtained from the Carbide and Chemical Company, New York City.

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Effect of Neoplastic Tissue on the Turnover of Desoxypentose Nucleic Acid[1]

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In the course of a general investigation of desoxypentose nucleic acid turnover rates, a striking difference was found between the tissues of normal mice and those bearing transplants of mammary carcinoma.

The general plan of these experiments was similar to that used by Hevesy (*1*). The relative nucleic acid turnover rate was measured by giving a tracer dose of radioactive sodium phosphate, sacrificing the animals after 2 hr, and isolating the desoxypentose nucleic acid from the tissues to be investigated. The animals used were female A strain mice bearing bilateral transplants of Strong's mammary carcinoma.

From Table 1, it is evident that there is a very significant increase in the specific activity of the nucleic acid in the livers, spleens, and kidneys of tumor-bearing animals. The increase is proportional to the tumor size, but is not linear. For the small intestines, there is a significant lowering of nucleic acid specific activity of host animals. Tissue examinations showed no metastases.

Sodium phosphate was given intraperitoneally. The mice were sacrificed 2 hr later, the tissues were dissected out as rapidly as possible, and the isolation of the nucleic acid was begun. In order to obtain enough purified desoxypentose nucleic acid, the tissues from three animals had to be pooled.

The method used for isolation of the desoxypentose nucleic acid was essentially Levene's, as modified by Klein and Beck (*2*). Some changes were necessary to make the method suitable for a tracer experiment.

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Five to 10 g of tissue was ground with sand in mortar and pestle and mixed with 10 ml of 5% NaCl solution. The tissue was then boiled in a water bath for a few minutes, 0.25 ml glacial acetic acid was added and then made basic with 0.5 g NaOH and 0.1 g sodium acetate. The basic mixture was boiled for about 1 hr, or until the organs were almost completely dissolved. One ml of glacial acetic acid and 0.7 ml of a 5% dialyzed ferric hydroxide solution were then added. After standing a short time, another milliliter of acetic acid was added and the solution was centrifuged. The supernatant was treated with an equal volume of methyl alcohol, and the crude nucleic acid was centrifuged off.

In order to purify the desoxypentose nucleic acid, it was dissolved in 5 ml of N-NaOH solution, and the following solutions were added: 0.2 ml of a saturated solution of disodium phosphate, and an equal volume of methyl alcohol. After heating in a water bath at 65° C for 15 min, the impurities were centrifuged off. The supernatant solution was placed in an ice bath, acidified with 3 molal HCl, and diluted with an equal volume of methyl alcohol. The nucleic acid was then centrifuged off. The purification was repeated six times.

TABLE 1

AVERAGES OF DESOXYPENTOSE NUCLEIC ACID SPECIFIC ACTIVITIES $\times 10^3$

Tumor weight per animal	No. of animals	Liver*	Spleen*	Kidney*	Intestine*	Tumor*
0 (controls)	24	0.745 ± 0.06	36.0 ± 1.9	0.315 ± 0.027	15.1 ± 0.87	—
0.084 g	24	2.10 ± 0.32	57.8 ± 3.8	0.927 ± 0.132	17.5 ± 0.46	—
1.2 g	188	3.83 ± 0.19	—	—	—	25.0 ± 0.45
2.8 g	24	4.16 ± 0.49	67.2 ± 1.4	0.930 ± 0.11	13.0 ± 0.8	—

* The values given represent the number of P^{32} counts per milligram of phosphorus divided by the number of counts injected, normalized for the weight of the mice. Errors quoted are $1\sigma_M$.

After this the nucleic acid was dissolved in NaOH solution and reprecipitated with HCl and methyl alcohol four more times, and finally dissolved in about 5 ml of 0.1 *N* NaOH solution.

Klein and Beck found that the nucleic acid was pure by chemical criteria after only three repurifications. However, as can be seen from the values given here, eight to ten precipitations were found necessary in this experiment in order to attain constant specific activity of the nucleic acid upon successive reprecipitation. In a typical liver sample, the following values were obtained on aliquots taken after the stated number of precipitations.

No. of precipitations	Specific activity
3	27.1×10^{-4}
6	4.9×10^{-4}
8	3.7×10^{-4}
10	3.9×10^{-4}

Individual specific activities of tissues measured in this manner after ten precipitations show considerable reproducibility, as can be seen from the relatively small