Sample M-90 was taken from a pit that appears to equate with the latest expressions of archaic Red Paint. It assayed at 3350 ± 400 yr, or 1400 B.C.

A more complete description of conditions and associated artifacts will appear in the January 1956, issue of *American Antiquity*.

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15 February 1955.

To Users of the Hunter Color and Color Difference Meter

Since there has been a considerable amount of interest in our paper "New method of presentation of food samples to the Hunter color and color difference meter" [*Science* **120**, 666 (22 Oct. 1954)], we have prepared detailed blueprints of the spinning attachment described in the article. Those who wish to build the instrument for use in their own laboratories may obtain copies of these drawings from the Department of Food Technology, Oregon State College.

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21 March 1955.

On Hazards of Nuclear Power Plants

Weil's article, [*Science* **121**, 315 (1955)] was very interesting, although some details of the case of the Chalk River misfortune would have brought the discussion more into the realm of the here-and-now than the apparently purely theoretical.

I would like to suggest a type of design for power reactors that would confine disaster by-products to the premises and, perhaps, save the major portion of the plant from contamination.

If a reactor were built of massive construction as to tensile strength and mass of the walls and top, if the floor of the containing building were of similar construction, and if the whole were hermetically sealed, with the floor of the reactor relatively weak, blow-out and gravity would express the contents downward. Underneath, a large water trap would receive the debris and gas, the walls of the building extending well down into the reservoir, with a moat of sufficient dimensions around the building to accommodate the water displaced from the reservoir. A sufficient air-filled space above the water in the reservoir would act as a pneumatic cushion during the initial surge in order to permit the water mass to be displaced without undue shock.

Dimensions should be such that all gases would be confined to the inner chamber; excess volume and pressure would only reduce the reservoir chamber level to the point where it would pass under the intervening wall and up through the deep water in the moat. Condensation by cooling and by going into solution under the conditions of turbulence and pressure would greatly eliminate the initial volume of gas produced.

Confining the radioactive materials to the underground chamber, with only flat surfaces to be decontaminated, would greatly facilitate reconditioning; and the floor and tunnel across the moat of heavy construction would insure maximum protection to personnel and would permit early reactivation.

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11 March 1955.

Graphic Determination of Averages

In describing the graphic procedure for determining a simple arithmetic average, S. I. Askovitz [*Science* **121**, 212 (1955)] reports his inability to discover an applicable precedent in the relevant literature. This deficiency probably results from greater interest in graphic moving averages, which statisticians occasionally employ. To my knowledge, McChesney (*1*) has been the only investigator to deal with the subject formally. A brief elaboration should in no way detract from Askovitz' sound logic.

Suppose the points at the coordinates (x_1,y_1), (x_2,y_2), (x_3,y_3), and (x_4,y_4) are A, B, C, and D, respectively. Let b be the point at one-half the distance from A to B; and, similarly, let c be the point at one-half the distance from B to C. Connect b and C with a ruler, and at $x=2$ designate m_1 (*2*). Next connect c and D, and at $x=3$ designate m_2. The readings for m_1 and m_2 express the two three-point moving-average values for the four y's. This technique can be adapted to other types of moving averages, including those reiterated.

After plotting a series of (equally weighted) observations on a scatter diagram, an analyst usually wants prompt answers to two questions before proceeding to more detailed objective treatment: (i) Are the data normally distributed? (ii) What would a smoothing disclose concerning the trend, or curve, of mean relationship? The analyst would answer the first question by passing perpendiculars through the two medians and seeing how the observations are arranged. In the absence of any compulsion to start over again with the y-values, x-values, or both transformed into more tractable form, an appropriate moving average may afford the basis for drawing a freehand curve, or provide a clue to the function that will best depict the central tendency.

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References and Notes

1. R. McChesney, *J. Am. Stat. Assoc.* **23**, 164 (1928).
2. I located m_1 in the process of arriving at a simple average.

24 February 1955.