



## A New Concept in Ion Exchangers

### CM-Sephadex®

Introduction of ionic groups into SEPHADEX, a hydrophilic insoluble product derived from cross-linking the polysaccharide, dextran, makes possible an entirely new series of ion exchangers. The SEPHADEX ion exchangers have

- High capacity
- Low nonspecific adsorption

SEPHADEX ion exchangers make possible the purification, separation and fractionation of a wide range of low molecular weight, complex organic compounds, proteins, and related nitrogenous substances with high yields.

A diversity of types, both anionic and cationic, are available to meet specific requirements. Have you investigated—

### CM-Sephadex

Active group character capacity	carboxymethyl cationic, weakly acidic 4-5 meq/g
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CM-SEPHADEX is prepared in two forms: C-25, which is highly effective for separating low molecular weight, complex organic substances, and C-50, which has a far greater binding capacity than C-25 for large size molecules—particularly useful for purification of proteins, enzymes, and related nitrogenous compounds.

This product is available in the following sieve fractions: Coarse, Medium, and Fine.

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moon much less pitted with craters than the near side. The argument is that if the moon tends to focus meteor streams on the earth, the earth must, to a much greater extent, focus meteor streams on the face of the moon that is toward us. This seems likely to be true; in any case, we shall have better evidence on the roughness of the far side of the moon in the near future.

One regrets that Adderley and Bowen decided not to publish their data at once. However, the reasons for their decision are clear.

CHARLES H. SMILEY  
Ladd Observatory, Brown University,  
Providence, Rhode Island

#### References and Notes

1. D. A. Bradley, M. A. Woodbury, G. W. Brier, *Science* **137**, 748 (1962).
2. E. E. Adderley and E. G. Bowen, *ibid.* **137**, 749 (1962).
3. C. H. Smiley, *Nature* **173**, 397 (1954).
4. L. Rodés, *Memorias del Observatorio del Ebro No. 7* (Tortosa, Spain, 1937).

### Effect of 1953 Fallout in Troy, New York, upon Milk and Children's Thyroids

The report of Ralph Lapp on the fallout from Nevada testing in Troy, New York, on 26 April 1953 [*Science* **137**, 756 (7 Sept. 1962)] has led to publicity in newspapers and has aroused public concern in the Troy-Albany-Schenectady area. Lapp estimated the level of iodine-131 contamination in Troy and calculated that individuals drinking milk from this area could have received a total dose up to 30 rad. He suggests a thyroid survey of children in this area who were under 2 years of age in 1953.

The records of the New York State Department of Agriculture and Markets for 1953 reveal that, on the average, cattle were first turned out to pasture on 12 May. While some farmers may put their cattle on pasture earlier than the average date, the variation tends to be small, for too early pasturing leads to damage to the turf if the ground is so soft that the hooves of the animals sink into it. Thus, the iodine-131 had 17 days, or more than two half-lives to decay to something less than 25 percent of the activity deposited on 26 April.

Moreover, the period from 26 April to 12 May was exceptionally rainy that year, even for spring. A total of 5.36 inches of rain fell during this period, in which there were four storms of more than ½ inch each. Weathering

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may be many times more effective than decay in reducing the amount of fallout activity. Certainly the weather in that period was most favorable to such reduction.

The New York State Department of Health receives reports of cancer cases from physicians. A recent review of these records for residents of counties of Albany, Schenectady, and Rensselaer (where Troy is situated) who were under 2 years of age in 1953 revealed no cases of thyroid cancer. There have been no deaths from thyroid cancer in children from these areas since 1953. Taken together, case reports and death certificates identify approximately 90 percent of the cancer cases occurring in New York State. A study of the files of a surgeon (John C. McClintock) who does most of the thyroidectomies in the Albany-Troy-Schenectady area revealed one thyroid carcinoma in a Troy child who was 20 months of age in April 1953. This is, as Lapp points out, the number to be expected in the population at risk.

While a continuing surveillance of this age group will be maintained by this department, it seems most unlikely that an event which has resulted in no increase of thyroid carcinoma during the ensuing 9 years will lead to such an effect in the future.

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## Population Biology

Ehrlich and Holm in their article "Patterns and populations" [*Science* 137, 652 (1962)], finding life as a whole to be too complex to be conveniently programmed for a computer, conclude that the only biological unit worth considering is the individual organism, and at one moment of its existence. Even so, there is some doubt as to whether head and tail of the same individual form a congruent whole!

It is easier to get exact quantitative data from a dead animal than from a live one, so we need only take the final step and declare life itself to be a useless concept. This inability to nail life down, once and for all, in a statistical formulation is perhaps analogous to the problem behind the "uncertainty principle" in physics.

Since human culture began it has been obvious to scientist and layman

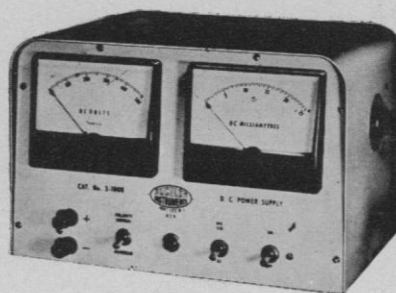
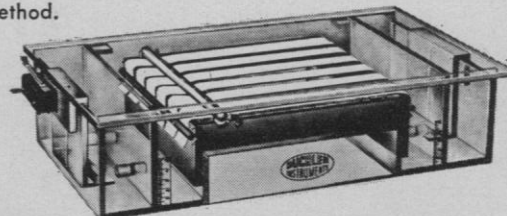
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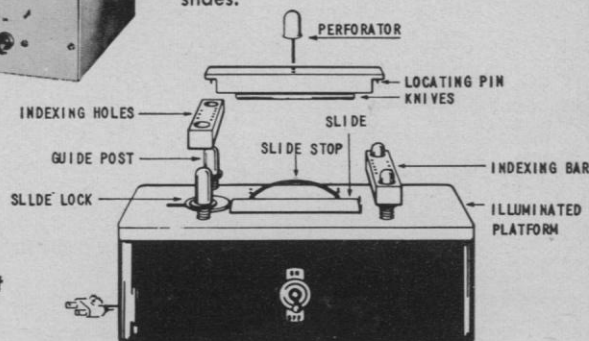
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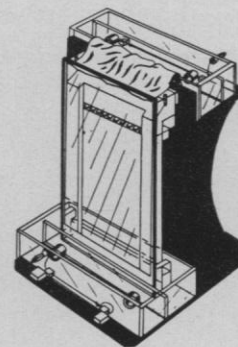
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