SCIENCE

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AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Beckman / Spinco Model 120

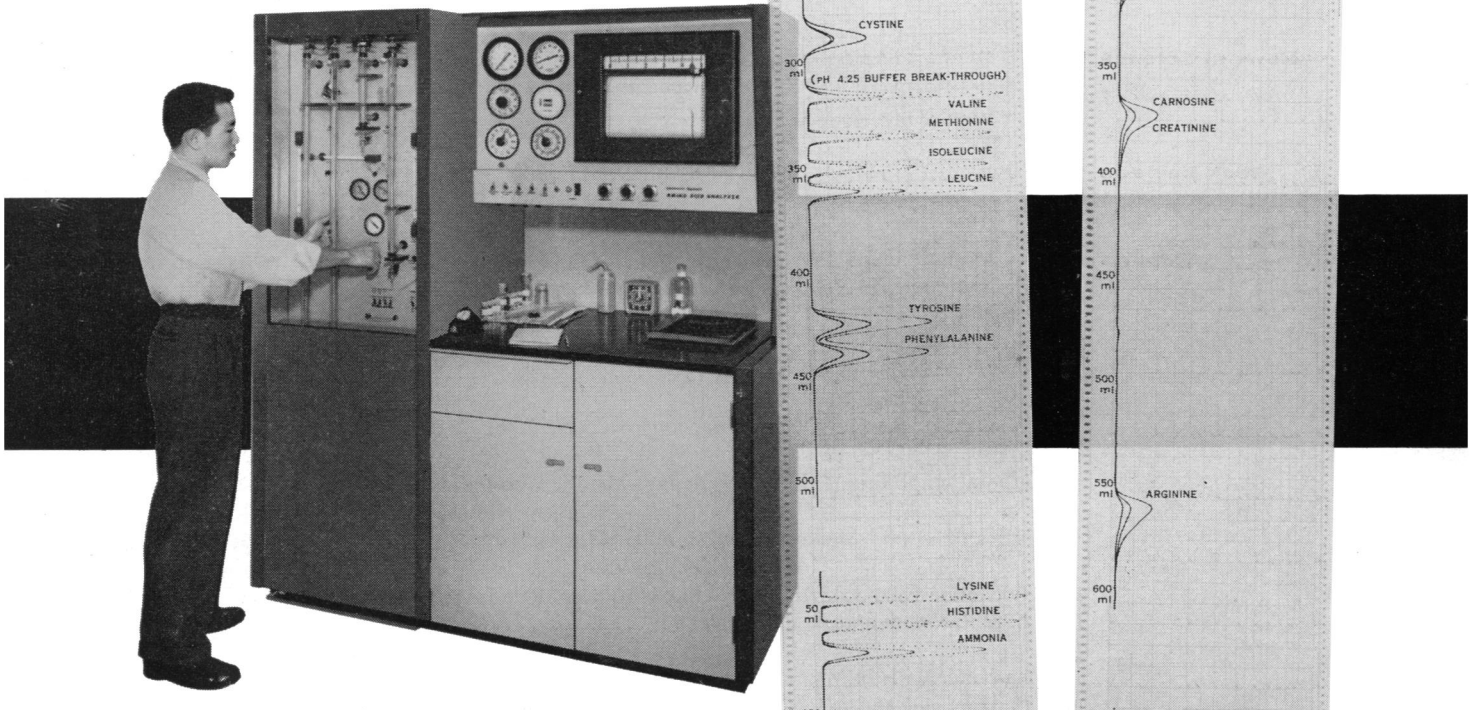
AMINO ACID ANALYZER

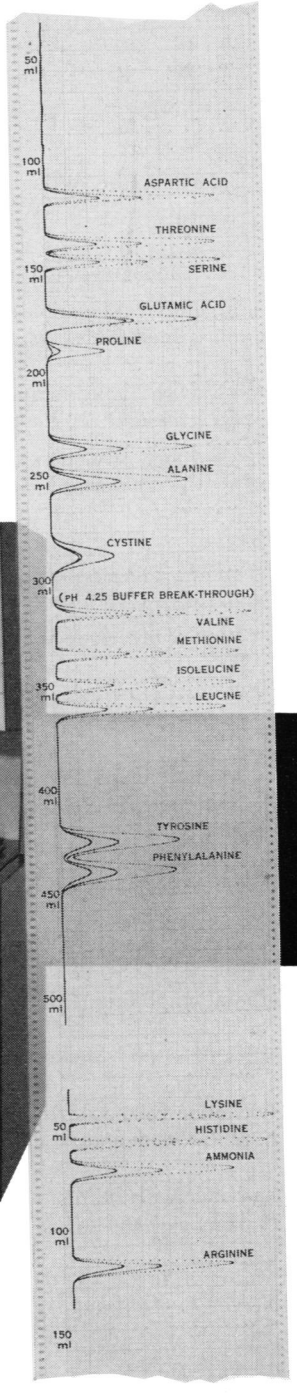
By providing automatic instrumentation for the Spackman-Stein-Moore technique of amino acid chromatography, the Model 120 Amino Acid Analyzer has proved an invaluable aid to the biochemist.

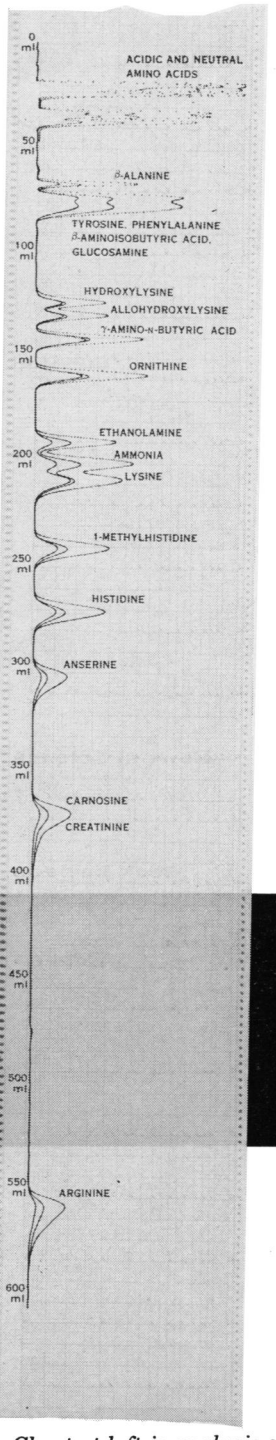
Savings in time and labor have been so significant that many of the instruments are operated 7 days a week. One laboratory reports 180 complete 24-hour analyses in the first 7 months of operation ...another, 125 analyses in 135 days.

As with all major Spinco instruments, installation, operator training, and service are included at no extra cost.

Whatever your studies with amino acids—protein structure, tissue extracts or physiological fluids from plants and animals, or food quality and enrichment—let us send you literature on the Model 120 Analyzer. Write Spinco Division, Beckman Instruments, Inc., Palo Alto 5, California.







Reference: *D. H. Spackman, W. H. Stein, and S. Moore, "Automatic Recording Apparatus for use in the Chromatography of Amino Acids", Anal. Chem., 30, 1190-1206, 1958.*

Chart at left is analysis of amino acids found in protein hydrolyzates: top run on 150-cm column at 50°C and pH 3.25 buffer, with changeover to pH 4.25 buffer at 6 hours; lower run on 15-cm column at 50°C and pH 5.28 buffer

Chart at right shows components in physiological fluids: 50-cm column at 30°C and pH 4.26 buffer, with changeover to 50°C at 14 hours.

Results are reproducible to better than 3 percent.

Beckman® / **Spinco Division**
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S-64A2

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Meetings

Forestry

"Forestry and People" is the theme of the 59th meeting of the Society of American Foresters, to be held in San Francisco, Calif., 15–18 November. Headquarters will be the Sheraton-Palace Hotel.

George A. Garratt, president of the society and dean of the Yale University School of Forestry, will open the general session on 16 November. He has announced that all foresters and friends of forestry will be welcome, whether members of the professional society or not.

Nine technical sessions have been scheduled. They will include 60 papers on the subjects of forest management, silviculture, forest products, forestry education, forest recreation, wildlife management, range management, watershed management, and forest economics and policy.

The society expects an attendance of some 1500 members and guests. This meeting holds special interest because of the extraordinary pressures on forest lands created by the rapidly expanding population in the West.

John Callaghan, assistant secretary-manager of the California Forest Protective Association, is general chairman of the meeting, and R. Keith Arnold, director of the Pacific Southwest Forest Experiment Station at Berkeley, Calif., is program chairman. B. H. Payne of the U.S. Forest Service, San Francisco, is the chairman of the arrangements committee. For information write to the society headquarters, Mills Bldg., Washington 6, D.C.

Machine Searching

An International Conference for Standards on a Common Language for Machine Searching and Translation, sponsored by Western Reserve University and the Rand Development Corporation of Cleveland, Ohio, will be held 6–12 September at the Tudor Arms Hotel in Cleveland. International interest has been demonstrated by the submission of 52 papers from ten countries for presentation at the conference. Senator Hubert H. Humphrey of Minnesota will deliver the keynote address at a dinner on 9 September.

Goiter Conference Travel Funds

The fourth International Goiter Conference will be held 5–9 July 1960 in London, England, under the auspices of the London Thyroid Club and the American Goiter Association. The American Goiter Association plans to make available to worthy candidates a limited number of travel grants to enable them to participate in this meeting. Application blanks are available from Dr. John C. McClintock, 149½ Washington Ave., Albany 10, N.Y. Applications will be received until *1 January 1960*.

Forthcoming Events

September

27–30. American Inst. of Chemical Engineers, natl., St. Paul, Minn. (F. J. Van Antwerpen, AICE, 25 W. 45 St., New York 36.)

28–30. American Oil Chemists' Soc., fall, Los Angeles, Calif. (Mrs. L. R. Hawkins, AOCS, 35 E. Wacker Drive, Chicago 1, Ill.)

28–30. Telemetering, natl. symp., San Francisco, Calif. (G. L. Larse, Lockheed Aircraft Corp., Missile Systems Div., Sunnyvale, Calif.)

28–1. Recent Developments in Research Methods and Instrumentation, 9th annual symp. and exhibit, NIH, Bethesda, Md. (J. B. Davis, National Institutes of Health, Public Health Service, Bethesda 14.)

28–2. American College of Surgeons, 45th clinical cong., Atlantic City, N.J. (R. M. Cunningham, Jr., ACS, 40 E. Erie St., Chicago 11, Ill.)

30–1. Industrial Electronics, 8th annual symp., Pittsburgh, Pa. (R. H. Delgado, 954 Brentview Dr., Pittsburgh 36.)

30–1. Mississippi Valley Medical Soc., St. Louis, Mo. (H. Swanberg, 510 Maine St., Quincy, Ill.)

October

1–4. American Soc. of Industrial Designers, Asheville, N.C. (Mrs. R. R. Larisch, ASID, 15 E. 48 St., New York 17.)

1–4. Electrochemical Thermodynamics and Kinetics, annual intern., Vienna, Austria. (M. P. Van Rysselberghe, CITE for the U.S., Dept. of Chemistry and Chemical Engineering, Stanford Univ., Stanford, Calif.)

4–7. American Inst. of Mining, Metallurgical and Petroleum Engineers, fall, Dallas, Tex. (E. O. Kirkendall, AIMMPE, 29 W. 39 St., New York 18.)

4–9. Society of Motion Picture and Television Engineers, semi-annual conv., New York, N.Y. (C. S. Stodter, SMPTE, 55 W. 42 St., New York, 36.)

5–7. Aeronautical Communications, 5th symp., Utica, N.Y. (L. G. Cumming, Inst. of Radio Engineers, 1 E. 79 St., New York 21.)

5–7. Chemical Engineers, annual, Essen, Germany. (Dr. Miessner, VDI-Fachgruppe, Verfahrenstechnik, Rheingauallee 25, Frankfurt-am-Main.

5–7. National Assoc. of Corrosion Engineers, Northeast regional, Baltimore, Md. (T. J. Hull, NACE, 1061 M & M Bldg., Houston, Tex.)

5–8. American Acad. of Pediatrics, Chicago, Ill. (E. H. Christopherson, 1801 Hinman Ave., Evanston, Ill.)

5–9. American Soc. of Anesthesiologists, Bal Harbour, Fla. (J. W. Andes, 188 W. Randolph St., Room 1101, Chicago, Ill.)

5–9. Audio Engineering Soc., 11th annual, New York, N.Y. (AES, P.O. Box 12, Old Chelsea Station, New York 11.)

5–10. Society of Automotive Engineers, aeronautical meeting and aircraft manufacturing forum, Los Angeles, Calif. (R. W. Crory, Meetings Operation Dept., SAE, 485 Lexington Ave., New York 17.)

5–16. Institute of the Aeronautical Sciences, biennial Anglo-American conf., New York, N.Y. (R. R. Dexter, IAS, 2 E. 64 St., New York 21.)

6. American Assoc. of Poison Control Centers, 2nd annual, Chicago, Ill. (A. S. Blank, AAPCC, Connecticut State Dept. of Health, Hartford 15.)

6–8. Aeronautical/Astronautical Problems of High Speed Flight, Stanford, Calif. (E. Haynes, Deputy Director, Aero Sciences Directorate, Air Force Office of Scientific Research, Washington 25.)

6–9. High Temperature Technology, intern. symp., Asilomar, Calif. (Public Relations Office, Stanford Research Inst., Menlo Park, Calif.)

7–8. Advanced Propulsion, 2nd symp. (classified), Boston, Mass. (Lt. Col. P. Atkinson, Propulsion Div., Air Force Office of Scientific Research, Washington 25.)

7–9. Vacuum Technology, symp., Philadelphia, Pa. (American Vacuum Soc., Box 1282, Boston, Mass.)

7–11. International Conv. on Nutrition and Vital Substances, 5th, Konstanz-Zurich, Switzerland. (Secretary General, Benmeroderstrasse 61, Hannover-Kirchrode, Germany.)

8–10. American Assoc. of Textile Chemists and Colorists, natl. conv., Washington, D.C. (G. P. Paine, AATCC, P.O. Box 28, Lowell, Mass.)

8–10. American Ceramic Soc., Bedford, Pa. (F. P. Reid, ACS, 4055 N. High St., Columbus 14, Ohio.)

8–10. American Soc. of Tool Engineers, semi-annual, St. Louis, Mo. (H. E. Conrad, ASTE, 10700 Puritan Ave., Detroit 38, Mich.)

8–10. Biology of Pyelonephritis, intern. symp., Detroit, Mich. (E. L. Quinn, Henry Ford Hospital, W. Grand Blvd. at Hamilton, Detroit 2.)

8–10. Optical Soc. of America, annual, Ottawa, Canada. (S. S. Ballard, Dept. of Physics, Univ. of Florida, Gainesville.)

9–13. American Soc. of Civil Engineers, Los Angeles, Calif. (E. S. Kirkpatrick, ASCE, 33 W. 39 St., New York 18.)

11–16. American Acad. of Ophthalmology and Otolaryngology, Chicago, Ill. (W. L. Benedict, 15 Second St., SW, Rochester, Minn.)

11–16. American Inst. of Electrical Engineers, fall general, Chicago, Ill. (N. S. Hibshman, AIEA, 33 W. 39 St., New York 18.)

11–16. American Soc. for Testing Materials, Pacific area natl., San Francisco, Calif. (R. J. Painter, ASTM, 1916 Race St., Philadelphia 3, Pa.)

12–14. Clay Conf., 8th natl., Norman, Okla. (C. G. Dodd, Eighth Natl. Clay Conf., Univ. of Oklahoma, Norman.)

12–14. Electronics Conf., 15th annual natl., Chicago, Ill. (NEC, 228 N. La Salle St., Chicago 1, Ill.)

(See issue of 21 August for comprehensive list)

APPLICATION FOR HOTEL RESERVATIONS

126th AAAS MEETING

Chicago, 26-31 December 1959

The four hotels for the AAAS Chicago meeting have established special low rates and have reserved large blocks of rooms at each level within the price ranges quoted. Thus everyone making room reservations for the AAAS meeting is assured substantial savings. Further, all confirmations will state the room rate assigned.

The list of hotels and their rates and the reservation coupon below are for your convenience in making your hotel reservation in Chicago. Please send your application, *not* to any hotel directly, but to the AAAS Housing Bureau in Chicago and thereby avoid delay and confusion. The experienced Housing Bureau will make assignments promptly; a confirmation will be sent you in two weeks or less.

If desired, the hotels will add a cot at $3.00 per night—except that all children under 12 are free. Mail your application *now* to secure your first choice of desired accommodations. All requests for reservations must give a definite date and estimated hour of arrival, and also probable date of departure.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

For a list of the headquarters of each participating society and section, see page 228, *Science*, 24 July.

Rates for Rooms with Bath

Hotel	Single	Double Bed	Twin Bed	Suite
Morrison	$6.50– 9.00	$9.00–13.00	$11.00–15.00	$30.00 and up
Hamilton	6.50– 9.50	9.00–13.00	11.00–15.00	25.00 and up
La Salle	8.00–10.00	10.50–13.00	12.50–15.50	35.50 and up
Sherman	7.45–12.45	11.45–16.45	14.45–19.50	28.50 and up

THIS IS YOUR HOUSING RESERVATION COUPON

AAAS Housing Bureau
Suite 900
134 North La Salle Street
Chicago 2, Ill.

Date of Application .....

Please reserve the following accommodations for the 126th Meeting of the AAAS in Chicago, 26–31 Dec., 1959:

TYPE OF ACCOMMODATION DESIRED

Single Room ..... Desired Rate ..... Maximum Rate .....

Double-Bedded Room ..... Desired Rate ..... Maximum Rate ..... Number in party .....

Twin-Bedded Room ..... Desired Rate ..... Maximum Rate .....

Suite ..... Desired Rate ..... Maximum Rate ..... Sharing this room will be:

(Attach list if this space is insufficient. The name and address of each person, including yourself, must be listed.)

.....

.....

First Choice Hotel ..... Second Choice Hotel ..... Third Choice Hotel .....

DATE OF ARRIVAL ..... DEPARTURE DATE .....
(These must be indicated—add approximate hour, a.m. or p.m.)

NAME .....
(Individual requesting reservation) (Please print or type)

ADDRESS .....
(Street) (City and Zone) (State)

Mail this now to the Housing Bureau. **Rooms will be assigned and confirmed in order of receipt of reservation.**

Letters

Soviet Scientific Publications

The member organizations of the National Federation of Science Abstracting and Indexing Services are very pleased that through the excellent and informative editorial "In perspective" [*Science* **130**, 7 (1959)], the attention of the entire scientific community has been drawn to the improvements in the communication of science information that have been brought about during the past 18 months. However, lest some readers ascribe to Russia more scientific diligence and industry than is justified, I should like to correct one point.

My estimates of the annual abstract and citation coverage by abstracting and indexing services in the United States and Russia referred to the scientific and technical publications *of the entire world,* not the publications of the Soviet Union alone. The total annual Soviet output of such literature probably represents about 10 percent of the world's total; certainly it is no more than 15 percent.

G. MILES CONRAD
Biological Abstracts, *Philadelphia*

Titration Curves

The report "Linear titration curves of acids and bases," by N. R. Joseph [*Science* **129**, 1493 (1959)] calls for comment. A transformation is proposed consisting of the substitution of the operator p for the operator "–log" in the standard Henderson-Hasselbalch equation. The resulting straight-line plot, pA–pB against pH, does not differ except in labeling of the axes from a plot of log B/A against pH. This plot has undoubtedly been used often to show roughly the goodness of fit of an experimental set of points on a titration curve of a monovalent acid, or of polyvalent acids with widely separated proton donor groups. The transformation per se does not avoid the use of a logarithm table, for how else can one obtain the p values? If semilogarithmic graph paper is used, it is the logarithmic scale which makes a logarithm table unnecessary, not the "transformation." When such a graph is used, division is needed to obtain A/B instead of the subtraction of the two logarithms that is necessary when regular grids are used.

In the particular illustrative example used, four reactions involving H^+ are stated and "four transformed mass action law equations" are given. It is apparent that $A_2 = B_1$, $A_3 = B_2$, and $A_4 = B_3$. The author's statement that his Fig. 1 "clearly indicates the distribution of electrical charge over the molecule as a function of pH" is misleading, because of the failure to make these identifications (*1*). The figure indicates that the four mass action law equations are independently solvable when in fact they are simultaneous equations and only if the pK's are far apart is it possible to make the necessary approximations to solve them independently. The lines given end arbitrarily at pA–$pB = \pm 2$ and give a discontinuous appearance to what is in fact a smooth continuous titration with only a slight "break" between the third and fourth group as given in the original paper (*2*).

A very important feature of traditional titration curves is lost in Joseph's transformation." It is difficult or impossible to "add" the segments of titration for the four pK's in the transformation, whereas this is a simple matter with traditional plots. Thus, it is awkward to obtain a valid comparison between experimental and constructed curves in the form used by Joseph for any polyvalent acid when the groups are not widely separated.

The usefulness of the d'Ocagne nomogram proposed is not apparent. Most people would find it easier and more accurate to do the simple subtraction necessary to determine the difference between pH and pK rather than to use the nomogram. The same is true for the other possible combinations for which the nomogram might be used. D'Ocagne nomograms are useful when relationships are complex, but not when the arithmetical relations are as simple as the one demonstrated.

MILTON LEVY
Department of Biochemistry,
College of Dentistry,
New York University, New York

References and Notes

1. J. T. Edsall and J. Wyman, Jr., [*Biophysical Chemistry* (Academic Press, New York, 1958), vol. 1, chap. 9] point out that for each charge type there are a number of "microscopically different species" differing in the location of the charge(s) but not in net charge. Thus, in the example used by Joseph there are four microspecies included in $A_2(B_1)$, six in $A_3(B_2)$, and four in $A_4(B_3)$. This important aspect of distribution of charges on a molecule is neglected here, as it was by Joseph.
2. J. P. Greenstein and N. R. Joseph, *J. Biol. Chem.* 110, 619 (1935).

In his letter Levy has criticized some of the procedures and results described in my recent report. The questions raised are of two kinds, mathematical and chemical, and will be discussed in that order.

A glance at the earlier report [*Science* **128**, 1207 (1958)] would have shown Levy that the symbols pA and pB were used to explain the construction and op-