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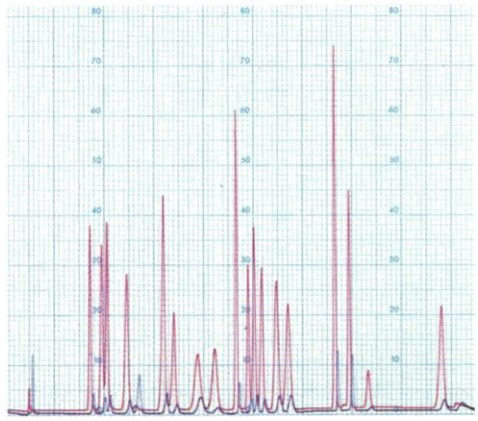

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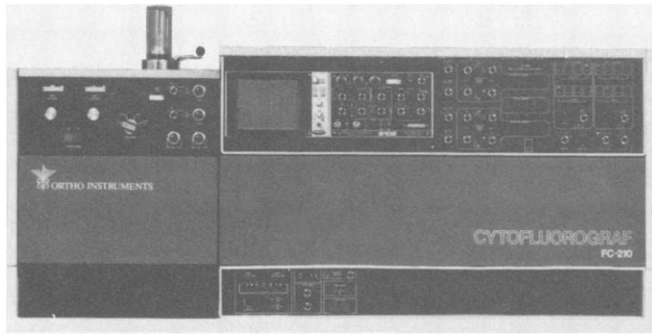
A page of information on flow cytometry from Ortho.

State-of-the-art cell sorting and analysis



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Ortho announces the most powerful, precise, and versatile instrument for cell sorting and analysis ever available commercially: the Ortho Cytofluorograf™ System 50. It combines a rapid cell sorter (based on the electrostatic droplet deflection principle) with a flexible, wide-ranging analysis package in a single versatile unit.

Ortho System 50 for analysis.

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Complete details of System 50 are available in a new brochure available from your Ortho Instruments representative or direct from Ortho Instruments.

Protocols No. 25 describes discrimination of mitotic phases by cytofluorographic analysis.

We would like to bring your attention to an application note: *Discrimination of G_0, G_1, S, G_2 and M phases by Cytofluorographic Analysis* contributed by Z. Darzynkiewicz, Ph.D. of Memorial Sloan Kettering Cancer Center, New York, No. 25 in the Ortho Protocols series.

It includes some interesting computer-drawn histograms in its description of how to distinguish mitotic cells from cells in interphase based on differences in chromatin structure. Methods and results are described, with discussion and references.

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For any of the information offered on this page, or for additional data about Ortho Cytofluorograf instruments, accessories, and technology, write or phone the Research Instruments Division.

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CYTOFLUOROGRAF

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SCIENCE

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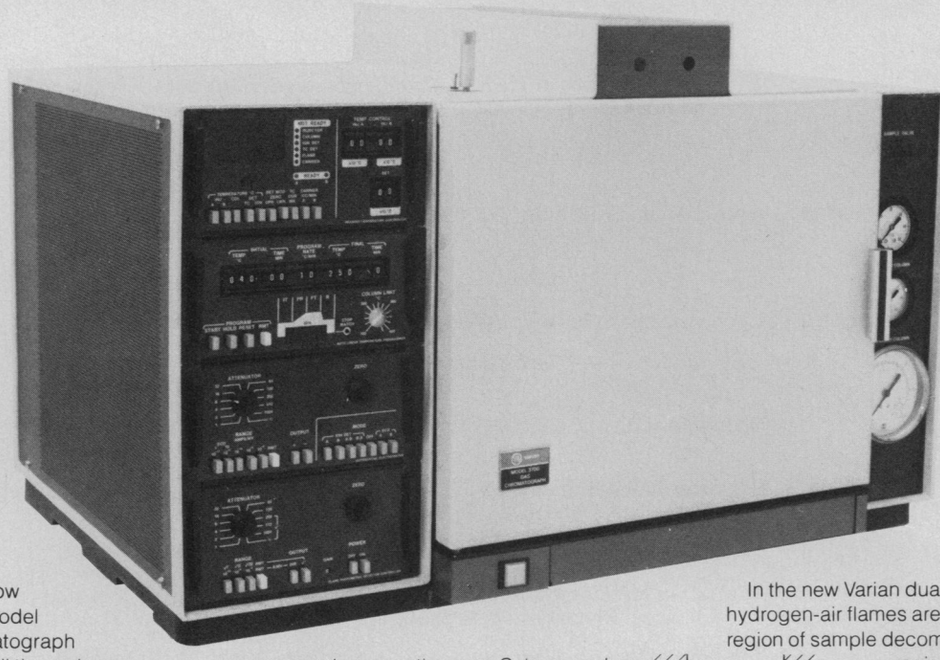
COVER

Oldest known New World fly from the Late Triassic–age rocks of North Carolina. See page 729. [David Holbrook, Peabody Museum of Natural History, New Haven, Connecticut 06520]

Model 3700, the greatest gas chromatograph, gets greater all the time.

Varian announces the first capillary system that is easy to use and the first dual-flame FPD for high selectivity

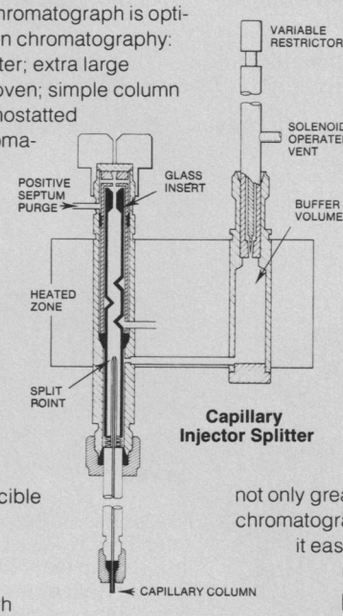


Both advances are now available on Varian Model 3700, the gas chromatograph that brings together all the major chromatographic breakthroughs and offers new applications capabilities in every component.

NEW CAPILLARY SYSTEM

The entire Model 3700 Chromatograph is optimized for capillary column chromatography: the all-glass injector-splitter; extra large 1350 cubic inch column oven; simple column installation; special thermostatted pneumatics; and full automation capability including the only single channel data system that can handle 0.5 sec peak widths.

The new all-glass capillary injector-splitter provides four sample-injection modes. It features a unique positive septum purge to prevent septum bleed problems and a buffer volume for more reproducible splits.



Capillary Injector Splitter

Easy capillary column installation. In the past, only those with super dexterity and patience could install capillary columns. Now, the 3700 capillary system changes all that. Columns can be installed in a few minutes without straightening the ends and without using a costly cage. Column ends slip directly into the fittings at the glass lined injector and detector inserts. All types of capillary columns can be used: WCOT, SCOT, PLOT, and others. This new column installation design saves at least three hours everytime you install a new column.

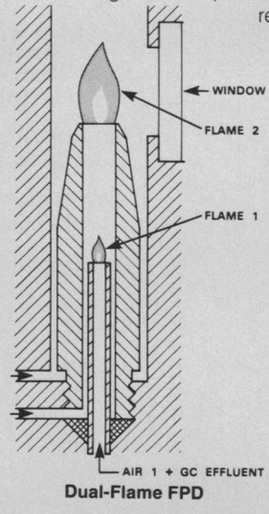
Capillary and packed column chromatography in one instrument. The 3700's large column oven, and widely separated and independently heated injectors, make it possible to do both capillary and dual packed column chromatography in the same chromatograph. This not only greatly increases the utility of the chromatograph for many labs; it also makes it easier to relate packed column methods to capillary methods.

NEW DUAL-FLAME FPD

The new flame photometric detector for the 3700 features a proprietary dual-flame design that overcomes many of the limitations of single-flame FPD's such as quenching and compound dependency, and provides high selectivity, linearity and detectivity.

In the new Varian dual-flame design, two hydrogen-air flames are used to separate the region of sample decomposition from the region of emission. Since Flame 1 provides the energy to break down the large molecules in the effluent, Flame 2 can use all of its energy for S and P emission. Consequently, there is no quenching and much less compound dependency. An important benefit of the new design is the greatly improved selectivity of S and P with respect to hydrocarbons and with respect to each other. P/C*>10^5; S/C: 10^3 to 10^6.

*C in n-hexadecane



Dual-Flame FPD

Other major 3700 performance features include: New ESP* monitor. New non-contaminating FID. New highest sensitivity TCD. New ^{63}Ni ECD with a *linear* dynamic range > 10^4 and an MDQ < 0.1 pg of lindane. And new carrier gas flow stability because all critical flow control elements are isolated in an independently heated oven.

*Electro Sensor Panel

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LETTERS

Horatio Alger on Work

Carl N. Degler, in reviewing (7 July, p. 42) *The Work Ethic in Industrial America, 1850–1920* by Daniel T. Rodgers, writes that "None of Alger's heroes was ever shown working," an observation that he has apparently drawn from Rodgers' book and that he finds both startling and crucial. Unfortunately, the observation is incorrect. The second scene of Alger's first novel (*Ragged Dick*, 1867) shows the title character hard at work shining shoes on a public street, a scene repeated a number of times in the novel. While it is true that adventure occupies more of the plot than does the graphic description of work, a more important observation than this concerns the shift of values Degler reports: in writing about the accommodation to the new technology that obviated much independent work, Alger consciously substituted a new kind of mental work, a fact neither Degler nor Rodgers seems to notice. Here, for example, are the words of Dick's patron-to-be recounting his own rise from poverty: " 'I entered a printing office as an apprentice, and worked some years. . . . But there was one thing I got while I was in the printing-office which I value more than money. . . . A taste for reading and study' " (chapter 11). The shift from physical to mental work gives the plot its shape, Dick's final triumph in this first novel of the series being his successful writing of his proper name, Richard Hunter, in a "hand so free" that he is hired for indoor work as a trusted clerk. Throughout the book we see graphically depicted a sort of work that AAAS members must all recognize: late-night study.

ERIC S. RABKIN
Department of English Language and Literature, University of Michigan, Ann Arbor 48109

Moscow Genetics Congress

The freedom of science and of scientists is a matter of grave concern to researchers throughout the world. In recent months, the government of the U.S.S.R. has unleashed an unremitting attack against our Soviet colleagues. Shcharansky, Orlov, Begun, and Goldshtein have all been given harsh sentences of imprisonment and/or exile. Sadly, these trials are only one part of a large-scale campaign of intimidation.

In Shcharansky's trial, science itself was used as a weapon by his prosecutors. He was accused of having arranged for the transmission to Western intelligence agencies of "secret information" pertaining to Soviet research in genetic engineering. This is a politicization of science which we cannot countenance. Such accusations do not provide an atmosphere conducive to holding an international conclave that will surely be focusing on recent advances in recombinant DNA research.

We are convinced that at this time the most effective means by which Western geneticists can demonstrate the depth of their concern over these circumstances is to refrain from participating in the 14th International Congress of Genetics. Among the leading dissidents and refuseniks who concur with this view are Academicians Sakharov and Levich.

We therefore urge Western geneticists not to participate in this Congress, which is being held in Moscow so soon after these trials.

Having said that, we recognize that Western scientists are a heterogeneous group. Some geneticists will choose, for various reasons, to attend the conference. We hope that they will express their concern, both by discussing the issues with our Soviet colleagues and by visiting with the ostracized dissident and refusenik scientists.

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*Cochairmen, Committee of Concerned Scientists.

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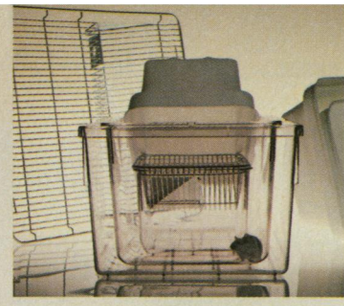

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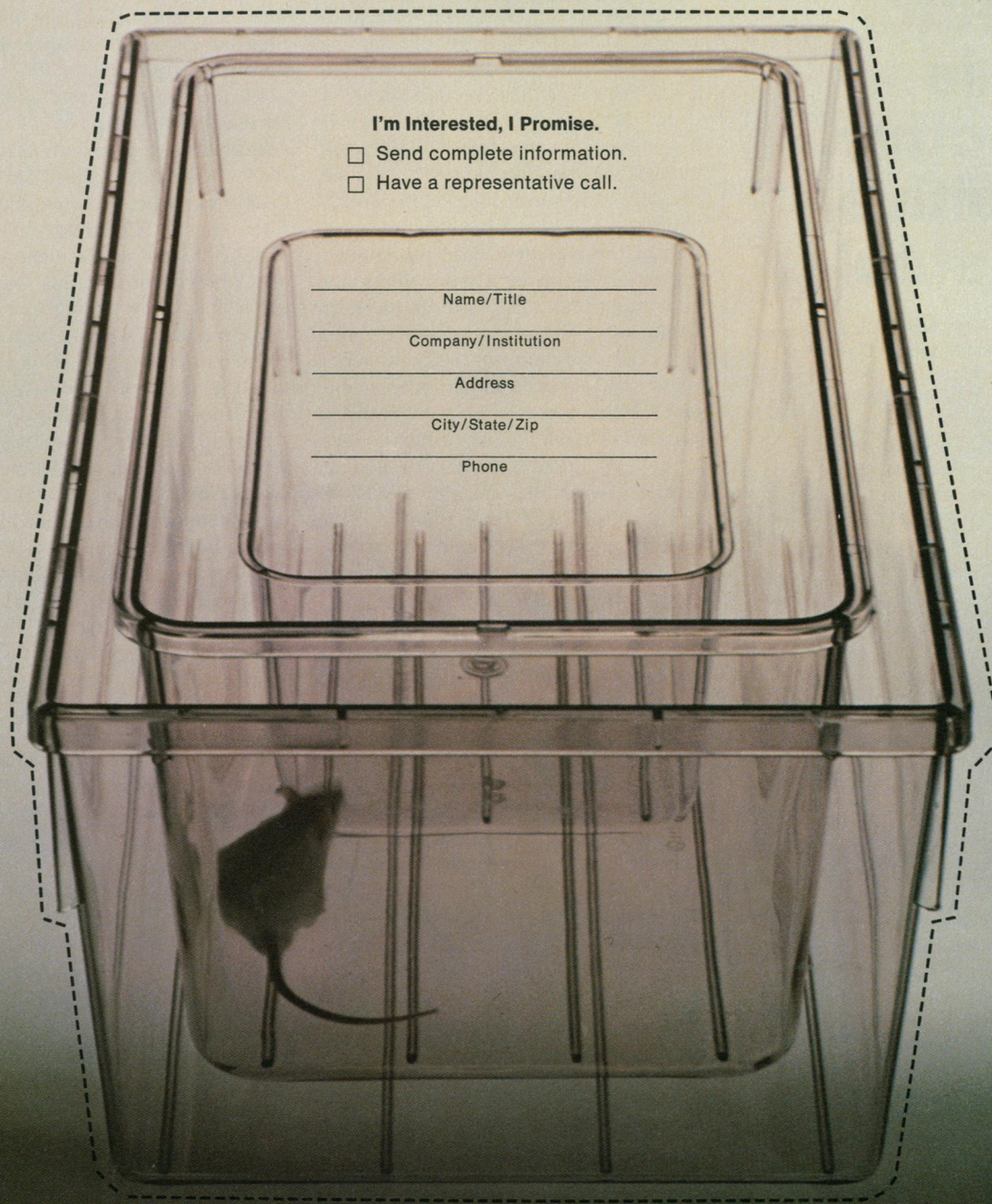

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25 August 1978, Volume 201, Number 4357 **SCIENCE**

Renegotiating the Society-Academy Contract

The contract between society at large and the academy—the learned professions and the institutions in which they work—is being rewritten. The stakes in renegotiation are high.

The original contract—made in Europe, where the modern research university was born—was simple and well understood. Society would give support and independence to the learned professions because learning, like art and music, was intrinsically good. To that end the academy would teach, seek the truth, and stay out of politics. But this relatively simple exchange was not enough for American society. The America of Franklin and Jefferson early recognized the practical value of learning for business and industrial activity and the growth of a continental nation. Furthermore, education would ensure an enlightened citizenry to bear the responsibility for governance. Thus two new features were added to the simple contract between professors and princes. First, from the Northwest Ordinance of 1787 and the Morrill Act to the National Science Foundation and the National Institutes of Health, American society supported the university as—to borrow Dael Wolfle's phrase—the home of science. Second, egalitarian elitism, an American invention, expanded access to higher education beyond Jefferson's dreams. Society, science, industry, and such central public purposes as national security and public health all prospered. Above all, an educated citizenry proved to be a better repository for sovereignty than kings or priests.

But the old bargain is coming unstuck, largely because of the success of the American additions to the original European contract. Higher education, like government and health care, has become big business, and the general distrust of large institutions has reached the campus as well. The signs of deterioration of support and erosion of the contract are visible to all: the steady decline in support of the premier research and teaching institutions in the state-supported systems of higher education; the end of low or even free tuition in public institutions; severe budget problems in private colleges and universities; the declining use of merit pay for faculty; increasing government restrictions on and new disincentives to philanthropic support of the arts and education; the attack on peer review; politicization of boards of regents in public institutions; the invasion of institutional responsibility for priority setting; direct intrusion into university decisions by federal, state, and local government; and efforts to make university endowments and properties subject to direct political control.

To date, the university response has been little more than a cry that our ox is being gored too. Our claim that we are different from big labor, big welfare, big business, and big government is obscured by our affluence and our success. While recognizing that the contract will never be the same again, we must nevertheless try to renegotiate it on better terms than those now being proposed. In this effort, university presidents, regents, faculty leaders, students, and concerned alumni have an immense task, perhaps the most important in the modern history of higher education. For the terms of the new contract will be hard fought, and some of them have already been traded away. The new contract must include as much recognition of the autonomy of the academy as possible, not because the administration and faculties *want* it, but because the university's contribution to society depends on it. In return, the academy must prove that its autonomy will be exercised with a new sense of accountability for the resources made available by society and with a demonstrated capacity to use these resources wisely. The public demands performance, not public relations. For this task neither timid hand-wringers nor above-the-battle elitists need apply. We must drive a hard and responsible bargain in the face of hard fiscal and political realities.—BREWSTER C. DENNY, *Dean, Graduate School of Public Affairs, University of Washington, Seattle 98195*

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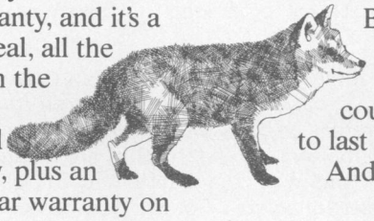

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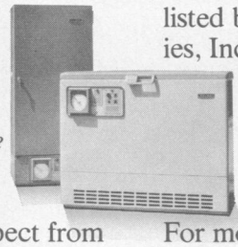

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