

the various institutes in Europe. Those who are interested should address inquiries to the directors of the institutes, in accordance with the information which is published in this country on academic bulletin boards and in appropriate journals. Approximately 70 travel grants are made annually to about 30 NATO institutes.

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### Sorcerer's Apprentice in Academia

As part of a large-scale survey of opinion on vital questions in the field of higher education, the Carnegie Commission on Higher Education sent me, as a university professor, questionnaire number 29,872, containing 89 questions divided into some 230 separate parts. Since "the information . . . will be of help to . . . bodies concerned with public policy in this area . . ." it presents two real problems.

The secret or Australian ballot has demonstrated inherent advantages. Consequently I hesitate to complete a questionnaire which asks not only for my voting record and my preferences among convention candidates, but also for the political views of my father. When the depth of the questions continues, as in this case, to the point where I must state whether or not I have changed religions, I must consign it to the wastebasket, rather than to the "National Computer Systems Processing Center" as Clark Kerr requests.

The first problem arises as one detects in the questionnaire itself a screening device which automatically eliminates responses from those who react as I do. Although I am tempted to attribute a tendency toward conformity or even naivete to the majority of respondents, one must certainly caution that the results of the survey will contain a considerable bias, introduced by the very depth of the questionnaire itself.

Second, as a computer scientist concerned with invasion of privacy, such extensive probings of academia cause me to recall Norbert Wiener's fear that our computers might fall under the control of the sorcerer's apprentice.

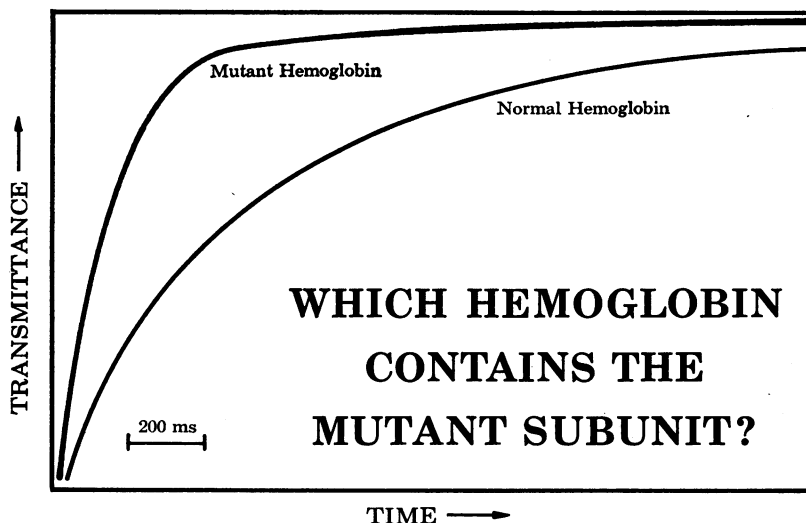
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Purdue University,  
Lafayette, Indiana 47907

25 APRIL 1969

## CHEMICAL PROFILES

... drawn by Durrum

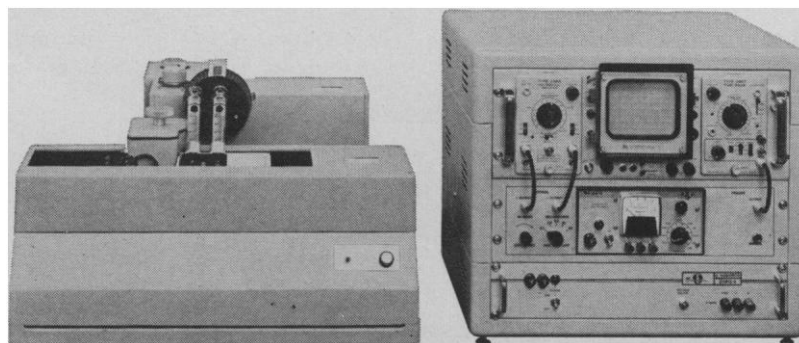


Even a minor molecular rearrangement can have a dramatic effect on chemical activity. These profiles\* recorded by a Durrum-Gibson Stopped-Flow Spectrophotometer reveal a 40-fold difference in azide-hemoglobin reaction rates. One reaction is with normal hemoglobin, the other with a mutant containing alpha-chain tyrosine residues in place of the usual proximal histidines.

Equilibrium constants would not have hinted at this difference; only kinetic tests with the Durrum-Gibson instrument permit the use of this new technique for classifying mutant types.

The Stopped-Flow Spectrophotometer is a versatile, general-purpose system that is widely used to determine the kinetic characteristics of reactions with half-times in the 5-millisecond to 50-second range. A temperature-jump accessory is available for studies involving even faster reactions, down to 10 microseconds or less. The accessory is uniquely designed to allow combination T-Jump/stopped-flow studies of pseudo-equilibrium reactions.

For complete information on the D-100 Series Stopped-Flow Spectrophotometer and its applications, contact . . . **Durrum Instrument Corporation, 3950 Fabian Way, Palo Alto, California 94303, Phone (415) 321-6302.**



\*AS REPORTED BY HENRY F. EPSTEIN AND LUBERT STRYER IN VOLUME 32 (1968) OF THE JOURNAL OF MOLECULAR BIOLOGY.

**D DURRUM**

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