pedagogy that the teacher’s knowledge of subject matter content might turn out to be far less than desirable. As I see it, the problem is one of proper balance. Some knowledge of the technique of teaching would, in my opinion, be highly desirable for the majority of college teachers.

I believe it is a vast oversimplification to state, as Helwig does, “that the two essential characteristics of a good teacher are (i) enthusiasm and (ii) thorough knowledge of and interest in his subject.” I believe that most people concentrate on “teaching” and forget that the important process is really its complement “learning.” This takes place within and only within the mind of the student. If our educators would exhibit more concern for learning, then teaching, as such, would take care of itself. I submit that the key factor in the education process is the motivation of the learner; I would venture further that the role of the teacher is primarily that of a motivator and only secondarily that of an imparter of knowledge. Actually the student may acquire knowledge from books, audio visual aids, direct experience, or other means.

College teaching, as contrasted with secondary school teaching, is concerned with the development within the student of the power to think, reason, appreciate, and discriminate; but the exercise of intellect necessary to become learned requires self-discipline on the part of the student, not enthusiasm and interest of the teacher, or only insofar as it makes the student want to learn.

There appears to me only a tenuous relationship between learning on the part of the student and either enthusiasm or thorough knowledge of and interest in the subject matter on the part of the teacher. If these two attributes of the teacher serve to motivate the student, so much the better, but one should not rule out other techniques of motivation. Unfortunately one can think of a number of teachers who possess these two qualifications and yet who are not considered by either their peers or their students to be very good teachers.

We must recognize also that college teaching embraces a wide range from the instruction of beginning freshmen to the occasional contact with the mature graduate student pursuing studies in either purely academic or professional fields. It is my personal opinion that teaching the elementary college level courses makes the greater demands on the motivation skill of the teacher; whereas, in graduate work, motivation may be more readily derived from the teacher who is both enthusiastic and possessed of great knowledge, because both of these qualities provide high motivation to the advanced student.

It is in this latter situation particularly that I fear that any state licensure might only serve to eliminate many of our greatest and most widely influential teachers.

MERRITT A. WILLIAMSON
College of Engineering and Architecture, Pennsylvania State University, University Park

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I am engaged in research requiring left-handed subjects of all mating patterns. We particularly need sinistral individuals at least 16 years of age with both parents left-handed.

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The Baron led the way

The great Baron Berzelius may well have sensed big game when he discovered pyruvic acid in 1835. The name comes from the Greek pyr, for fire, and the Latin aev, for grape. This figures. Pyruvic acid used to be prepared by dry distillation of tartaric acid. The oldtimers had it spotted as an intermediate in the fermentation of sugar. Such relationships had probably begun to look simple and straightforward.

It was just as well that no gypsy fortuneteller told the Baron that 72 years after his death work would begin in earnest on unraveling just how grape sugar breaks down into pyruvic acid and that this work would take 40 years until the phenomenon was at last understood as the first stage in the process by which chemists and other living creatures obtain from their food the energy with which to engage in all affairs, including ratiocination about biochemistry.

Anyway, the Baron was an excellent chemist. He prepared several salts of pyruvic acid, including the lithium. Now we wish to report that we, too, can prepare Pyruvic Acid Lithium Salt and, in fact, offer it as Eastman 8130, a standard for use in pyruvic acid determinations. Pyruvic Acid is Eastman 498, vintage unspecified.

Of very recent vintage is the new Eastman Organic Chemicals, List No. 42, which catalogs some 3800 organic compounds we stock. If you do not have a copy, why not? Write Distillation Products Industries, Rochester 3, N. Y. (Division of Eastman Kodak Company).

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Eastman Chemical Products, Inc., our subsidiary, sells the resin. Acme Backing Corporation, Canal and Ludlow Streets, Stamford, Conn., turns it to what others call film and we (for whom “film” has another meaning) call sheeting. Acme will gladly expatiate.

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Though the Kodak Retina Automatic III Camera can be bought in the camera shops for less than $130, it is not the cheapest camera they sell. We advertise it here in Science to show scorn for the notion that scientists must be poor or at least act poor. When a scientist goes out to buy a new camera for his pleasure, why shouldn't he feel that he has as good claim as any member of today's society to the choicest of its goods?

This camera is dubbed “the expert's automatic.” This is just a phrase. (Don't let little things like that bother you.) The phrase tries to say that despite the luxury of fully automatic exposure control, the user has override privileges if he chooses to seize the initiative. He can expose for some part of the scene instead of the whole. He does this by holding the camera up to that part and letting the diaphragm set itself and hold there while he walks back to make his picture. Whether manually or automatically set, he knows what f/number he is using. There is a coupled rangefinder that can focus the Kodak Retina-Xenar Lens down to 31/2 feet. Five shutter speeds to 1/500 and B. Film speed settings from 10 to 1250. Microscope adapter kit and many other aids available.

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For an honest purpose these able gentlemen have consented to the indignity of posing a tableau in supercharged staring.

Because they and numerous unpictured coequals are personally involved, they wish to call attention to a certain technical area in which we think we are good. It deals with the art of projecting information into human eyes, the final transfer from machine to man.

The black rectangle labeled “Special Kodak screen” stands for a multitude of possibilities, some which we have already demonstrated and others needing more study. Study, as is well known, costs money. It would be smarter use of the money to do the studying in the context of specific viewing and display requirements—review of vast volumes of reconnaissance photography, for one currently popular example. The composition and design of the screen should not be considered in isolation from the projectors, the eyes, the restrictions on their location, the ambient light, the nature of the visual task, and all the other pertinent factors.

On this broad and subtle subject we have neither off-the-shelf literature nor off-the-shelf products, but we are anxious to be in contact with those whose interest in it is more urgent than academic. Such persons should communicate with Eastman Kodak Company, Apparatus and Optical Division, Rochester 4, N. Y.

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Meetings

Migration of Marine Organisms

A Latin-American symposium on migration of marine organisms was held in Guayaquil, Ecuador, from 27 June to 1 July, 1956. It was organized jointly by the UNESCO Science Cooperation Office for Latin America and the University of Guayaquil.

It was the fifth of the series of meetings on marine sciences which the Office has held since its foundation in 1949. The previous meetings, like the Guayaquil meeting, had the double character of symposium and working-party session. They were held at Concepcion, Chile, in 1954; Sao Paulo, Brazil, in 1955; Montevideo, Chile, in 1956; and Montevideo, Uruguay, in 1957.

Enrique Roja (Mexico) was elected chairman of the Guayaquil symposium, and Hugo Ferrando (Uruguay) acted as secretary. Thirteen marine scientists, from the following countries, participated: Argentina, Brazil, Chile, Cuba, Ecuador, Mexico, Peru, and Uruguay. The UNESCO Science Cooperation Office for Latin America was represented by Angel Estabiler.

The program of the meeting included sessions on the following subjects: (i) migration of marine organisms (fish; invertebrates; cephalopods; birds; other vertebrates); (ii) environmental factors (oceanographic and biological) that cause migration; (iii) standardization of methods for studying migratory phenomena, with a view to comparing results; (iv) establishment of regional programs for work on migration of aquatic populations; and (v) other problems related to migration of marine organisms.

At the conclusion of the symposium, the following recommendations were unanimously approved by the participants:

1) The symposium, considering that the study of the migration of marine organisms by its very nature requires a joint effort on the part of the countries concerned, recommends regional action. The following delimitation of problems common to a number of countries is made with a view to their being undertaken regionally. Argentina, Brazil, and Uruguay: Thunnidae, Scombridae, Clupeidae (Sardineles sp.), Galeorhinidae (Galeorhinus vitaminicus), and Mugilidae (Mugil sp.). Chile and Argentina: Merluccidae (Merluccius sp.), Decapoda (Macrura: “langostinos” shrimps, and “langostas” de Juan Fernandez). Peru and Chile: Thunnidae (Neothunnus macropterus), Engraulidae (Engraulis sp.), Scombridae (Sarda sp.), and Decapoda (Munida sp.). Peru, Ecuador, and Colombia: Thunnidae (Katsuwonus sp.; Neothun-

Forthcoming Events

December


The following 52 meetings are being held in conjunction with the AAAS annual meeting.

AAAS Committee on Science and the Promotion of Human Welfare (B. Com- moner, Shaw School of Botany, Washington Univ., St. Louis 5, Mo.), 26, 28, 29 Dec.

AAAS Cooperative Committee on the Teaching of Science and Mathematics (J. R. Mayor, Director of Education, AAAS, Washington, D.C.), 28, 29 Dec.
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American Assoc. of Clinical Chemists (H. Goldenberg, Dept. of Biochemistry, Hillside Hospital, P.O. Box 38, Glen Oaks, N.Y.), 26-27 Dec.


American Economic Assoc. (K. E. Boulding, Dept. of Economics, Univ. of Michigan, Ann Arbor), 26 Dec.


American Psychiatric Assoc. (P. H. Knapp, Boston Univ. School of Medicine, Boston, Mass.), 29, 30 Dec.

American Soc. of Criminology (D. E. J. MacNamara, New York Inst. of Criminology, 115-117 W. 42 St., New York 36), 26, 27 Dec.


Association for Computing Machinery (W. F. Cahill, NASA, 8719 Colesville Rd., Silver Spring, Md.), 29 Dec.


Beta Beta Beta Biological Soc. (Mrs. F. G. Brooks, P.O. Box 515, Ansonia Station, New York 23), 27 Dec.

Biomedical Information Processing Organization (R. S. Ledley, Natl. Biomedical Research Foundation, Silver Spring, Md.), 30 Dec.

Committee on Cosmetics, American Medical Assoc. (J. B. Jerome, 535 N. Dearborn St., Chicago 10, Ill.), 29 Dec.


Conference on Scientific Manpower (T. J. Mills, Natl. Science Foundation, 1951
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New York Acad. of Sciences (D. Purpura, College of Physicians and Surgeons, Columbia Univ., New York, N.Y.)


Sigma Delta Epsilon (Mrs. E. Cortelyou, Aerojects Inc., W. Chester, Pa.) 27-29 Dec.

Society for General Systems Research (C. A. McClleland, Dept. of History, San Francisco State College, 1600 Holloway Ave., San Francisco, Calif.)


Society for Industrial and Applied Mathematics (J. Griesmer, IBM Research Center, Box 218, Yorktown Heights, N.Y.)

Society for Industrial Microbiology (J. A. Ramp, 11 Van Dyke Rd., Waldwick, N.J.)

Society of the Sigma Xi (T. T. Holme, 56 Hillhouse Ave., New Haven 11, Conn.)


Tau Beta Pi Assoc. (R. H. Nagel, Tau Beta Pi Assoc., Univ. of Tennessee, Knoxville).

Torrey Botanical Club (Miss A. Hervey, New York Botanical Garden, Bronx Park 56, N.Y.)


27-29. Conference on Strong Interactions, Berkeley, Calif. (A. C. Helmholtz, Dept. of Physics, Univ. of California, Berkeley)

27-29. Northwest Scientific Assoc. and Idaho Acad. of Science, joint meeting, Moscow. (E. J. Larrison, Dept. of Biological Sciences, Univ. of Idaho, Moscow)

27-14. Bahamas Surgical Conf., Nassau. (B. L. Frank, P.O. Box 4037, Fort Lauderdale, Fla.)

28. Association for Education in International Business, St. Louis, Mo. (J. N. Behrman, Univ. of Delaware, Newark, Delaware)

28-30. American Economic Assoc., St. Louis, Mo. (J. W. Bell, Northwestern Univ., Evanston, Ill.)

(See issue of 18 November for comprehensive list)
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**Joshua Stern**

National Bureau of Standards,
Washington, D.C.