improper, since many of the objective check-list items measured behavior more adequately designated as distress, disturbance, yearning, and displaced aggression. The term disturbance index could be substituted for emotionality index without semantic loss and, probably, without semantic gain.

HARRY F. HARLOW
Department of Psychology,
University of Wisconsin, Madison

Small Colleges and Small Minds

The lack of interest of some teachers in research, discussed in the editorial of 8 January [Science 131, 71 (1960)], is disturbing, but so also are some aspects of the editorial itself.

The heading "Small colleges and small minds" implies that these go together. This guilt-by-association technique is used several times in the editorial, though the man whose views are cited as the basis for the editorial is the president of a "small college." Is there evidence for a larger proportion of so-called small minds in small colleges?

The following statement is perhaps the worst part: "The core of the argument for scientific research is that while there may be good research scientists who are not good teachers, the evidence is that there are no good teachers whose competence is not increased by good scholarship." Ostensibly this places the research scientist above reproach and leaves the incubus on the teacher. Actually, the statement is a non sequitur, and its converse is equally true—and unfair, in turn, to the research scientist. It is suggested that the reader substitute the word editors for teachers (he will find it equally correct). Competence in any profession would be increased by good scholarship, as the editorial in question seems to illustrate.

After this unfair statement the editor changes from "good scholarship" to "research" in the next sentence, which again helps to put the research scientist beyond criticism and implies criticism of the teacher. Had he chosen to make a straightforward statement of what he implies it might have read something like this: "While there may be good research scientists who are not good teachers, the evidence is that there are no good teachers who are not good research scientists." This is, I suggest, rather untenable.

In the next paragraph we are told: "A prominent figure on many campuses is the instructor who is forever marking exams, grading papers, and drawing curves representing his students' performance." With our present grading system instructors are inevitably marking exams, and so on, but the editor is deprecating the teacher with the guilt-by-association technique again, for he indicates that these instructors have "schemes" of a detrimental nature. But the scientist could be given the same unjust treatment, in very similar phrases: "A prominent figure in many research laboratories is the scientist who is forever looking at figures, evaluating data, and drawing curves representing his results. He is full of schemes . . . that if instituted would require the assistance of all his colleagues." Though, curiously, in this case involving one's colleagues becomes a virtue and is extolled under the name of "scientific teamwork."

But this is not all. Having implied that no research means no scholarship, the editor completes his degradation of the teacher in the next sentence by suggesting that those concerned with students' performance are even against reading books!

In the last paragraph the editor proposes the right question, but for the wrong schools, when he asks: "But why in small colleges should some instructors oppose the recognition of good research as a consideration second to good teaching?" In so far as this opposition exists, it is typical not of the small school but of the large school with an extensive graduate program, where some instructors want recognition of good research first and of good teaching second, if at all. In large measure the apparent hostility toward research in the small college is manifested by instructors who do not oppose research as such, but oppose the evaluation of good teaching as a consideration second to good research, because they have seen the unfortunate results of this practice, especially since all too often a department finds itself with "research scientists who are not good teachers."

WILLIAM K. NOYCE
University of Arkansas, Fayetteville

It was with considerable interest that we read your editorial "Small colleges and small minds," for here at Wilkes College the subject of research in small colleges has been of more than academic interest. Wilkes, I believe, would fulfill your criteria for a small independent liberal arts college. Our experience in the initiation and conduct of a research-teaching program has been satisfactory and rewarding. A summary of our findings may be of interest
Gelatin responsibly dyed

A rich legacy of heuristic nonsense has been accumulating for generations in the next region of the electromagnetic spectrum over from the infrared, where the eye reigns supreme as the receptor and has qualified every seeing, thinking man to hold opinions. Even the mighty Johann Wolfgang Goethe, author not only of "Faust" but also of "Die Farbenlehre," put in his zweifelnennig worth.

Amid rampant intellectuality, it has behooved us to tread lightly and confine our thinking to such farbenlehre as will fit us the better to flood the earth with color photography, myriadscolored Tenite plastics, color-locked Chromspun fibers, and Eastman textile dyes. Plus another field of dye art, tiny in economic comparison and disproportionately demanding in technical patience but important to those who, whatever their theories or purposes, wish to modify spectral distribution or overall intensity of light in systematic, quantitative, reproducible, simple, and inexpensive fashion. We refer to the celebrated little marvel of precision dye chemistry, the Kodak Wratten Filter of uniform gelatin, with or without glass mounting.

The reason we refer to it is that the new 20th edition of "Kodak Wratten Filters for Scientific and Technical Use," containing 81 pages of curves, data, and other useful information, is now obtainable from well-stocked photographic stores for 75c or from Eastman Kodak Company, Sales Service Division, Rochester 4, N. Y.

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- Miscellaneous analytical methods like polarography
- Miscellaneous physical testing methods

Aside from creating an impression, these procedures generate strips of paper bearing wiggles. That there would be produced many such useful strips of wiggles to keep and compare had justified the acquisition of the instrument. The truer this has proved, the worse you may need help. We ourselves did. Fortunately, as we approached the brink of madness in coping with the sheer volume of spectrophotometric curves generated at the research laboratories of our division, Tennessee Eastman Company, we were able to call on our subsidiary, Recordak Corporation.

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filming with punched cards. They say they are willing to help you, too. They suggest you write them at 415 Madison Avenue, New York 17, N. Y., for a copy of "The Use of Aperture Cards for the Consolidation of Spectrophotometric Data."

Suggestion to Ames, Iowa

Cyanamide (note the "e"; very, very, VERY important) is not stable. On that, Walter R. Hearn of Iowa State University and we agree. Dr. Hearn is interested in guanidination of amino groups in peptides and protein, i.e.

\[
\text{RCHCOOH} \rightarrow \text{RCHCOOH} \quad \text{NH}_2 \quad \text{NH} \quad \text{C} = \text{NH} \quad \text{H}_2\text{N} \\
\]

This can be accomplished with cyanamide (H$_2$NC=N) and some of its derivatives. There was a problem. In thinking of well-known chemical houses with whom to take up a problem involving cyanamide, one doesn't necessarily think first of us, but Dr. Hearn had somehow formed the impression that we were friendly fellows. Another factor which might have contributed to his decision to write us was the fact that six bottles of cyanamide in his stockroom, which showed melting points as much as 150° higher than they were supposed to, happened to bear our P1995 label.

Well, sir, we did prove friendly.

We pointed in a friendly way to the "Practical" on that label as an open admission that the Cyanamide probably wasn't all cyanamide, though it had been originally. We said that to retard dimerization we kept our stock of Cyanamide under refrigeration and advised him to do likewise. We suggested he reclaim the undimerized portion of his stock by dissolving in ten parts or more of ether, filtering off any dimer, and concentrating the filtrate below 35°C at all times. We warned him not to dissolve in less ether because he'd get dimer into solution.

We also answered his question of why our Cyanamide (Practical) was 25 times as expensive as one of the cyanamide derivatives that he used, our S-Methyl-2-thioxoendurea Sulfate (Eastman 1231),

\[
\left(\text{NH}_2\text{C} = \text{NH}\right) \cdot \text{H}_2\text{SO}_4 \quad \text{SCH}_3
\]

by explaining we did not make the latter from pesky cyanamide.

We further suggested how he might obtain the oxygen analog of this isothiouroinuim salt which he preferred for some of his guanidination operations. We referred him to a paper by one of our cousins at Kodak Limited in England (Journal of the Chemical Society, 1955, 3551), where cyanamide is by-passed by smooth methylation of urea with methyl tolunene-p-sulfonate to give a good yield of readily isolated product. Finally we proposed that if he did not want to try this himself we would, for 96 bucks, cash on the barrelhead, deliver to him 500 grams of O-methyl-2-pseudoure a sulfate.

That ought to teach Walter R. Hearn of Ames, Iowa, not to begin a letter with, "Since you have not acknowledged my letter of September 22, I thought perhaps you had gone out of business."

We thought everybody knew that we're still in business. After all, don't we keep advertising that there are some 3800 organic chemicals available from Distillation Products Industries, Rochester 3, N. Y. (Division of Eastman Kodak Company)?

Prices quoted are subject to change without notice.

This is another advertisement where Eastman Kodak Company probes at random for mutual interests and occasionally a little revenue from those whose work has something to do with science.
to a general scientific audience. We published a fuller description in the AIBS Bulletin [8, 16 (1958)].

We found at Wilkes that the minimum prerequisites for establishing a research program are: teachers with an interest in conducting investigations and with the ability to communicate that interest to students; a sympathetic attitude on the part of the college administration; realization that the merit of a given piece of research is not measured only by the magnitude of the study or by the amount of technical apparatus it requires; selection of a problem suitable for investigation by a group; adaptation of student laboratory equipment for special needs and utilization of existing classroom space by appropriate planning; enlistment of the librarians of the college in seeking the cooperation of local hospital and industrial libraries and that of university and governmental library loan and microfilming services; use of undergraduate assistants—under supervision they have often proved as valuable as the average technician working solely for a salary; and, finally, invitation of scientists residing in the community to participate in the research-teaching program.

Sheldon G. Cohen
Charles B. Reif
Department of Biology, Wilkes College, Wilkes-Barre, Pennsylvania

From my limited experience it would seem that problems of opposition to research on the part of any college staff member are minor. The real problem, as usual, is one of finance or stimulation of interest. Small colleges are not even in the running when it comes to the money spent by the larger institutions just to line up federal grants, to lobby the legislature, or to secure research money from industry or philanthropical organizations.

The faculty and students in most colleges are usually a step or two ahead of the administration and sources of income both as to the desirability of research and the time and minor facilities necessary to be devoted to studies.

A. D. Monat
Colorado State College, Greeley

It is easy to agree with Wiggers [Science 131, 942 (25 March 1960)] that "larger colleges do not have a monopoly on students with ability, curiosity, and desire." This is a truism. What he overlooks in asserting that smaller colleges do not supply their share of the scientific talent of the country is that they have, in fact, provided a disproportionate share of scientific personnel. As reported in the October 1948 issue of Fortune and in the study of the origins of American scientists by R. H. Knapp (1952), one of the anomalous conclusions was that most Ph.D.'s in science received their undergraduate training in small and even obscure colleges. The productivity of these smaller colleges, measured as a proportion of the number of graduates, contrasts strangely with the low productivity of larger institutions favored for not producing scientists when they have produced scientists and scholars in larger proportion than their numbers, faculty, facilities, or financial status would seem to warrant.

Robert P. McIntosh
University of Notre Dame,
Notre Dame, Indiana

The responses of Wiggers and of Allen to the editorial "Small colleges and small minds" reflect two views on the subject of teaching and research in the small college neither of which are entirely realistic. I am in a position to know that research of a serious nature not only can be pursued in a small college but serves as a potent stimulus to student curiosity and interest and gives the staff member a sense of fulfillment which teaching alone seldom does. Allen's rather cynical comment that "teaching should be more than a meal ticket for researchers" should not be considered a universal attitude among college scientists.

At this college and in this department the research program during the academic year is necessarily curtailed because of teaching duties. But there are virtually 4 months of summer during which research is pursued without interruption. In the early stages support must be had from the college itself, but if the caliber of the research is sufficiently high, outside support in the form of grants is available.

No matter how much this subject of college research is kicked around.
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however, the fact remains that, wherever he may find himself, the scientist who pursues research out of a deep inner urge to do so will find ways and means of satisfying his needs. It is this individual and not the opportunist who does research for what he may get out of it; in the way of promotion who will, with some support, reveal the new almost hidden sources of research talent that are present in our small colleges.

J. Kenneth Donahue
Department of Biology,
Utica College of Syracuse University,
Utica, New York

Obesity and Steroid Hormones

In the May 1959 issue of Science [129, 1546 (1959)] there appeared a report on "Storage of steroid hormones by adipose tissue in two experimental obesities," by Zomzely, Asti, and Mayer.

This otherwise admirable article contains an inaccuracy in its reference to the studies of Gallagher, Fukushima, Barry, and Dobriner [Recent Progr. in Hormone Research 6, 131 (1951)]. In the last three sentences of the article by Zomzely et al. it is stated that a large amount of fat in obese individuals may favor retention of their own steroid hormones, and that storage of administered hormones in fat depots might have therapeutic significance. The work of Gallagher et al. is cited in connection with this statement.

I did not detect any reference to this point of view in my examination of the article by Gallagher et al. However, an explicit prediction of the findings contained in the Science article, and of the probable importance of this in the control of obese patients, was adumbrated by S. G. Margolin in a communication to me in 1953.

With Margolin's permission, his hypothesis was summized in a chapter of a book in the editing of which I collaborated at about that time [E. D. Wittkower and R. A. Cleghorn, Eds., Recent Developments in Psychosomatic Medicine (Lippincott, Philadelphia, 1954)]. It may be of some importance to draw attention to this, particularly because of one suggestion contained therein—namely, that in the dieting of obese patients, a reinforcement of the biological instinctual appetite to eat may occur with the release of steroid hormones as the patient reduces weight. No attention seems to have been paid to this point in the literature, and it is a suggestion of sufficient interest to be entertained.

Robert A. Cleghorn
Allan Memorial Institute of Psychiatry, Montreal, Canada
Meetings

Pacific Division, AAAS

The 41st annual meeting of the Pacific Division of the AAAS will be held at the University of Oregon, Eugene, 13–18 June 1960. Arrangements are in charge of a local committee headed by Bradley T. Scheer, head of the department of biology, to whom inquiries regarding the meeting should be addressed.

The president of the Pacific Division is Henry P. Hansen, dean of the Graduate School, Oregon State College, Corvallis. The retiring president is Henry Eyring, dean of the Graduate School of the University of Utah, Salt Lake City. The president elect is Wilbert A. Clemens, professor of zoology, emeritus, University of British Columbia, Vancouver.

Among highlights of the Eugene meeting will be the divisional symposium on man's exploration of space and the presidential address, entitled "Cycles and Geochronology."

The 40th annual meeting, held in San Diego, 15–19 June 1959, was hosted by five local institutions: San Diego State College, the Scripps Institution of Oceanography (University of California), the U.S. Navy Electronics Laboratory, the Zoological Society of San Diego, and the San Diego Society of Natural History. Local arrangements were ably handled by a committee headed by George E. Lindsay, director of the San Diego Museum of Natural History. Most of the sessions were held on the campus of San Diego State College.

Outstanding among the many excellent programs were the divisional symposium on results of the International Geophysical Year, moderated by Joseph Kaplan, chairman of the U.S. Committee for the IGY, and the presidential address of Henry Eyring entitled, "The Chemist Looks into the Future."

The total registered attendance of 1448 included representatives of 37 societies affiliated with the Pacific Division, a number of societies not affiliated, and 207 persons who failed to note their society affiliations. The registrants represented 17 states, the District of Columbia, the Virgin Islands, the Canal Zone, and 13 countries other than the United States and Canada.

ROBERT C. MILLER
California Academy of Sciences,
San Francisco, California

ROBERT C. MILLER
California Academy of Sciences,
San Francisco, California
Forthcoming Events

July

3-5. American Assoc. of Colleges of Pharmacy, Boulder, Colo. (G. L. Webster, College of Pharmacy, Univ. of Illinois, Chicago 12)


10-14. Pan American Tuberculosis Cong., 12th, Bahia, Brazil. (F. D. Gómez, 26, de Marzo, 1065, Montevideo, Uruguay)


11-18. Earthquake Engineering, 2nd world conf., Tokyo and Kyoto, Japan. (K. Muto, Organizing Committee, 2nd World Conf. on Earthquake Engineering, Science Council of Japan, Ueno Park, Taito-ku, Tokyo)


18-25. French Assoc. for the Advance ment of Science, 79th cong., Grenoble. (Association Française pour l'Avancement des Sciences, 28 rue Serpente, Paris 6e)


25-6. International Assoc. of Physical Oceanography, 13th general assembly, Helsinki, Finland. (B. Kullenberg, c/o Oceanografiska Institutet, P.O. Box 1038, Goteborg 4, Sweden)


30-6. Institute on Religion in an Age of Science, 7th annual conf., Star Island, N.H. (R. Burhoe, American Acad. of Arts and Sciences, 280 Newton St., Brookline 46, Mass.)

31-5. Alcohol and Alcoholism, 26th intern. cong., Stockholm, Sweden. (A. Tongue, Bureau International contre l’Alcoolisme, Case Gare 49, Lausanne, Switzerland)

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- SHAFT-ANGLE ENCODER gives angular-position data in 17-digit cyclic-binary code with accuracy said to be ±1 digit. The encoder consists of a glass disk coded by opaque and transparent segments. A flash lamp illuminates a radius of the disk for photoelectric reading. The 10-in. diameter unit includes 17 transistORIZED amplifier channels and power supplies. Parallel output is standard but serial output can be provided. (Wayne-George Corp., Dept. Sci576, 588 Commonwealth Ave., Boston 10.)

- RADIOPHYSICAL TEST SUBJECTS are plastic man-equivalent stand-ins that duplicate body reactions. An emitter model and an absorber model are both equivalent to an average man in size and contour. They are made of radiolucent shells and filled with a solution having the radiation-interaction properties of human soft tissues. The absorption model is equipped with a skeleton and a system of parts and ducts for insertion of dosimeters within the long bones and spinal column and into most soft-tissue regions. The emitter or calibration model does not contain a skeleton but is fitted with any specified combination of organs. Each organ may be loaded separately with radioactive materials, and the body as a whole may be given a separate generalized burden. (Atomic Accessories Inc., Dept. Sci578, 244-02 Jamaica Ave., Bellerose 26, N.Y.)

- GAS-SAMPLING VALVES for chromatography applications are six-way types designed for injection of precise volumes. Holdup volumes are said to be less than 0.1 ml. Five models available include one heated type that allows injection of compounds of boiling points to 250°C. (Wilkins Instrument & Research Inc., Dept. Sci584, P.O. Box 313, Walnut Creek, Calif.)

- WATTMETER combines a Hall-effect device with a contact-making D'Arsonval movement. The Hall-effect solid-state device furnishes a voltage output proportional to the power in a load circuit. This voltage is fed into a meter-relay movement calibrated directly for power measurement. Full-scale sensitivity of 500 mw is available in standard instruments with 100-mw sensitivity said to be possible. Both d-c models and a-c models for frequencies up to 1000 cy/sec can be supplied. (Assembly Products Inc., Dept. Sci585, Chesterland, Ohio.)

- TEMPERATURE CONTROL CHAMBER is designed to make possible tensile and compression tests at a temperature range from −95° to +1000°F. When used with the manufacturer's tensile testing instruments, the chamber permits the use of most normal jaws and accommodates 10-in. sample with up to 80 percent rupture extension. Temperature constancy is said to range from ±1° to ±2°F over the entire range. Working space dimensions are 12 by 9.5 by 26 in. (Custom Scientific Instruments Inc., Dept. Sci588, Kearny, N.J.)

- BERYLLIUM OXIDE CERAMIC TUBING is available in lengths to 21 in. from stock and to 24 in. on special order. Standard inside diameters are 5 mm, and 1/4, 3/8, and 7/16 in. Tubes are supplied with both ends or only one end open. The tubing is said to be essentially gas tight, and melting point is given as 4650°F. (National Beryllia Corp., Dept. Sci582, 4501 Dell Ave., North Bergen, N.J.)

- CODE CONVERTER is a solid-state device that will translate up to 14 bits in Gray code to ordinary binary code, simultaneously providing the binary complement as well. The encoder output is filtered and clipped to eliminate brush-bounce noise. Dimensions are 4 1/2 by 6 1/4 by 7/16 in. (Datex Corporation, Dept. Sci583, 1307 S. Myrtle Ave., Monrovia, Calif.)

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- JOSHUA STERN

National Bureau of Standards, Washington, D.C.