11-1-1945

The Educational Leader, Vol. 9, No. 1: Mathematics, Health and Physical Education and Industrial Education Number

Kansas State Teachers College

THE EDUCATIONAL LEADER

MATHEMATICS, HEALTH AND PHYSICAL EDUCATION, AND INDUSTRIAL EDUCATION NUMBER

Published by the Faculty of the
KANSAS STATE TEACHERS COLLEGE
PITTSBURG, KANSAS

Vol. 9 NOVEMBER, 1945 No. 1

Broadway entrance to the campus, with RUSS HALL, Administration Building, in the background

THE
EDUCATIONAL LEADER

MATHEMATICS, HEALTH AND PHYSICAL EDUCATION, AND INDUSTRIAL EDUCATION NUMBER

Published by the Faculty of the
KANSAS STATE TEACHERS COLLEGE
PITTSBURG, KANSAS

Vol. 9 NOVEMBER, 1945 No. 1

The Educational Leader

WILLIAM T. BAWDEN, *Editor*

VOL. 9 NOVEMBER, 1945 NO. 1

CONTENTS

Published twice a year, in November and March, by the Kansas State Teachers College of Pittsburg, Kansas.

The EDUCATIONAL LEADER

Vol. 9 NOVEMBER, 1945 No.1

Social Values of the History of Mathematics

J. A. G. SHIRK

A study of the origin and development of the ideas and concepts of any field of human thinking will broaden the view-point and enhance an appreciation of the contributions required to bring such thinking to its present status. This is particularly true of a study of the History of Mathematics, because of the ancient origin of mathematics and its continual advancement during the centuries that have elapsed. Social attitudes will be affected in the realization of the part taken by peoples of other races and nations in discovering, clarifying, and transmitting the processes of symbolic thinking which have made the advancement of science possible.

RATE OF PROGRESS

The first social value is a better conception of the very slow rate of progress made by man. At least 4,000 years have elapsed since the early Egyptians and Babylonians laid the foundations of mathematics, and it was almost 3,000 years from that time before much was discovered that is not now considered as belonging to high-school courses. When this slow unfolding of a subject not affected by prejudices and animosities is revealed, how much more slowly should we expect a corresponding development in the social attitudes and understandings that are vital to the happiness of mankind. Possibly humanity resembles granite in being difficult to transform, but when modifications are made, these new characteristics are retained against forces that tend to destroy them.

INTERNATIONAL RELATIONS

Another social value is the establishing of more cordial relations with peoples of other races and nations. The great contributions to mathematics made by Egyptians, Hindus, Arabs, Moors, Italians, Russians, Germans, French, and many other groups, reveal the universality of human accomplishments both as to race and nationality. Each one made such valuable discoveries that we often wonder how the whole fabric would have been constructed if even one of these groups had failed to function. It is generally recognized that, on the average, certain races probably do not measure up in mental acumen to the average of other races, but even in these so-called inferior races there

have been men of genius who have made outstanding contributions to human progress. The unknown Hindu mathematicians who gave us the Hindu number system, with the concept and symbol for zero, were followed by others of that land who carried forward certain aspects of mathematics in a most creditable manner. In spite of the struggle for physical existence in that country where most of the people never know what it is to have enough to eat, there still arise men of the most brilliant type who astonish the world with the keeness of their minds. The present century produced that Hindu genius, Ramanajan, who, had he lived beyond young manhood, would likely have been recognized as one of India's greatest scholars of all time. While Europe was passing through that period of mental and spiritual stagnation known as the Dark Ages, the Hindus, Arabs, and Moors were preserving the learning of the ancient Greeks and enlarging it by their own valuable contributions, making it readily accessible when the Revival of Learning came. These considerations help us to recognize the kindred fellowship of all men working together for a better knowledge of the universe in which we live and of the destiny of man himself.

DEPENDENCE ON OTHERS

Another social value is a better appreciation of how great discoveries are made. Very seldom does a worker in a new field carry his research far enough to gain a clear insight into his problem. Generally he is like Columbus landing on some islands at a considerable distance from the main continent and not pushing on to the great undiscovered land beyond. Newton recognized his dependence on the labors of his immediate predecessors in his discovery of the mathematical procedures now known as calculus. In speaking of the work of Barrow, Wallis, and others who had come so close to the discovery of calculus, he said, "The reason I have seen so far is because I stood on the shoulders of giants." The recognition of this dependence of the final enunciator of some great advance in human thought upon those who have worked so diligently in preparing the approaches to the problem, gives the clue to the almost universal humility of those men whose names are recorded as the intellectual giants of the past. This recognition also stimulates all workers to greater activity in the full knowledge of the value of their work as a prelude to the final raising of the curtain by the great mind which is able to see the whole pattern out of the individual pieces woven here and there by devoted followers of eternal truth.

VITAL CONTACTS

Another social value is the recognition of the great stimulus to progress derived from frequent contact with other workers in the same field. Wherever a nation is shut off from other countries either by natural geographic barriers or by the enmities and prejudices incident

to national strife, progress in intellectual achievements is much slower. A good example of the effects of the lack of communicaton with other nations is that of Russia during the 19th century. Occasional brilliant contributions to mathematical research were made by Russian mathematicians, but the aggregate was much less than would be expected from them. Language differences also added to the geographic and political barriers isolating Russia from the balance of Europe. On the other hand, the very rapid development of Greek mathematics was largely due to the extensive contacts of merchants and scholars with all nations bordering the Mediterranean Sea, including that of the widely scattered Greek cities throughout that region. This made it possible for Euclid to assemble and organize the extensive contributions made to mathematics by men of widely scattered areas. Commerical transactions for the exchange of commodities produced in different regions generally lead to the exchange of ideas. In this manner the mathematics developed by one group becomes the heritage of all.

The national and international mathematical and scientific societies developed extensively during the 19th century provide that interchange of thought which has made the discovery and dissemination of knowledge so much more rapid than in former periods. If a universal and lasting peace can be secured, the acceleration of scientific advancement will be much greater as these societies resume their regular meetings and the publications of the researches of their members becomes generally available.

INCENTIVES

A study of the historical development of mathematics increases our appreciation of the zeal and devotion of those individuals who have made significant contributions to man's progress. In some realms the hope of financial reward has been one of the impelling motives of research, such as the alchemists of Medieval Times who laid the foundations of chemistry while seeking to change base metals into gold. However, the most of the great discoveries of chemistry were made by men who sought truth for the joy of expanding our knowledge of the physical universe in which we live. The great voyagers and explorers who have braved the dangers of unknown seas and lands were quite frequently actuated by mercenary motives, such as finding a shorter trade route to India, or the seizure of the gold of cities whose inhabitants knew nothing of firearms. In the development of mathematics there is almost no evidence of motives other than that of the joy of discovery and the contribution to the storehouse of knowledge. Only in the moral and spiritual realm do we find greater zeal in altruistic service. The possibility of the application of the results of scientific research to industrial operations has stimulated many of the advances of science, although the basic ideas have generally been developed so long before any applications have

been found, that those great explorers of scientific reasearch are properly regarded as serving others for the joy of service. The pattern has been set by men of science, especially by those who have developed that phase of science known as mathematics, for that motivation of leaders in government, industry, and business that would lessen strife between individuals, classes, and nations to the end that man would derive peace, prosperity, and happiness from his utilization of his knowledge of the processes of nature.

COOPERATION

The last social value to be considered here is that derived from a better appreciation of the team work necessary before isolated individual discoveries can be so organized and related to previously acquired knowledge that they become useful in the largest degree. Some men have that type of bold, original, and forceful thinking that enables them to leave the trodden paths of their predecessors and to strike out into the seemingly impassable jungles or the vast rolling prairies that border the areas of already acquired knowledge. These are the true explorers of the vast unknown that always stretches beyond our present vision. Such minds are not content to dwell long near the peaks they have ascended. The urge to push forward is too great to permit them to examine the terrain nearby, so to others belongs the development and the utilization of the areas of knowledge around and between these outstanding discoveries. The first explorers are followed by the sturdy pioneers who also brave unknown dangers and encounter hardships in the final steps of conquering the wilderness. Like the thousands of pioneers who moved westward to develop this great land of ours, there are likewise pioneers in the forward areas of man's search for knowledge, only a few of whom will have their names recorded on the monuments erected to commemorate the acquisition and development of these areas. We who profit by their labors should find in that enjoyment a challenge to make our contributions whether large or small to the generations yet to come.

Modern Tools for Modern Learning

OTTO ALFRED HANKAMMER

Scientific research as applied to war-time requirements has culminated in the atomic bomb—easily a destroyer of civilization. Research also brought forth life-saving applications. Medicine, surgery, applied chemistry, electronics are among the more spectacular. Aeronautics has put us into an air age. With it we will be compelled to change our concepts of geography. Oceans, jungles, and polar regions are no longer formidable barriers, and no populated place will be more than 60 flying hours from any other point. Maps will emphasize space points rather than border barriers. The electronic devices, so secret in war, will be adapted to making transportation safe; will provide our homes with television and static-free radio, and industry with innumerable instruments which will improve the quality of products as well as speed their production.

EDUCATIONAL LAG

In contrast with these technical developments, we find a cultural lag in education. This, if we hope to avert future world conflicts, must be overcome by an exchange of ideas between the peoples of the world. The media and methods are at hand. The Army and Navy have shown conclusively that *audio-visual materials* speed up the communication of ideas. Many progressive educators have long supported the eye-and-ear approach to learning. The program has been stymied not so much by lack of funds, though that is potent, as by suspicion of a new technique, academic resistance, and general indifference.

ACCELERATED LEARNING

The experiences of our military branches have confirmed the researches of educators working in audio-visual fields. One study released by the Navy reveals that trainees learn up to 35 per cent more in a given period of time, and remember what they learn up to 55 per cent longer when audio-visual materials are used as against other teaching techniques commonly employed. Industry tells a similar story. Convinced of the correctness and effectiveness of this new method of training, some 20 millions of dollars were appropriated for audio-visual aids for the Army, Navy, Air Force, and war industry. This sum is not excessive when we note that "briefing" a soldier for battle was more effective visually than by lecture and thus contributed to the saving of life. These lessons should not be lost on those responsible for the educational program in America.

For the purposes of general education much of the audio-visual material produced for the Army, Navy, and Air Force will have but

limited application. The principles of instruction and the know how remain for the educator's use. The number of films now available for educational purposes runs into the thousands. They should be used to clarify and enrich virtually every subject taught. The film can truly create. It can show even that which never existed. By means of photography and drawing the film can animate the inanimate. The film can re-create. It can bring to life, on the screen, the pages of history which, to most individuals, remain buried in dusty tomes. To see and hear history thus portrayed is to provide a common denominator of understanding.

TEACHING SKILLS

In the areas where skills are to be taught, the motion picture has no peer. Movements, techniques, methods can be shown again and again. Each time they give the same accurate demonstration, so lacking in many classroom demonstrations. They show the learner the key ideas and the mistakes to be avoided. They can show skills in all stages of development. Guidance for the learner lies in looking. In the doing he gains skill. With the assistance of visual units high degrees of skill are developed more quickly. This has both economic and social significance. Shifts in occupations are facilitated. To what extent skill films will have international significance in the industrialization of such countries as China and India remains to be seen. The skill film, like the health film, teaches on sight.

The modern industrial worker, like every college student, needs more than skill. He needs an appreciation and an understanding of what is taking place in the world. Films such as those distributed by the Office of War Information bear on this point as well as do many issued by such agencies as the Coordinator of Inter-American Affairs and the departments of Agriculture, Health, Interior, and Mines. The British Ministry of Information has produced remarkable documentary films. Some of them deal with the armed forces, the home front, civilian defense, the farm front, the industrial front, transportation and communication, women and the young people, their fighting allies, and naturally the efforts of members of the British Commonwealth of Nations. To see these films is to give understanding, and with understanding should come greater sympathy and a growing liking. By the same token, our films should carry healthier impressions of these United States to the far corners of the earth. It is a certainty that by the use of the film we can reduce the time in technical training, speed up production, change public opinion, indoctrinate, and propagandize.

A TEACHING AID

Obviously, the teaching film will not do the job alone. It is but one of many teaching materials. It is a teaching aid. To use it effectively the instructor should preview the film and familiarize himself with it. Usually, the class is prepared for the showing by telling the students

what the film will show, why it is being shown, and what they are expected to get out of it. Having shown the film, it is common practice to invite the class to ask questions and enter into discussions. Points that are not clear are brought out and, if it appears desirable, the film is re-run. Actual practice, as executed by the trainee, is the test of whether the film has taught the lesson.

In certain quarters, the impression exists that the terms "audio-visual aids" and "motion pictures" are synonymous. In many cases motion pictures may be the audio-visual aid *par excellence,* but they are far from being all the aids rightfully classed as audio-visual. Several categories of aids can be mentioned such as pictorial aids, graphic aids, activity aids, and audio aids. Under the heading of pictorial aids, there are such visual devices as the stereoscope with its stereographic pictures, silent motion pictures, stereopticons with standard and miniature slides, slidefilms in both silent and sound types, transparencies, and microfilms. To this group may be added photographs, prints, and posters. In the graphic aids, the list would include sketches, illustrations, cartoons, paintings, etchings, woodcuts, graphs, diagrams, charts, plans, maps, and globes. Some of the items appearing under the heading of activity aids would include objects, models, exhibits, specimens, dioramas, mock-ups, sections, dramatizations, and school journeys. The audio aids commonly are listed as records, recordings, transcriptions, sound motion pictures, radio, and television. No doubt, new and valuable aids will appear as peace-time applications are made of war-developed devices.

With the wealth of material now available and still much more to come, those responsible for audio-visual programs must establish means of locating and evaluating prospective teaching materials. A quick and easy way, and one involving integrity and confidence, is to rely upon the distributor who supplies the materials to the educational institution. The distributor may have a voluminous catalogue of visual aids, but it is scarcely his task to evaluate films. This job should be done by the instructor using the films, or better yet, by a properly trained committee which would check the material in the light of selected criteria. These standards, on occasion, have been highly arbitrary and lengthy. A recent and most excellent set of fundamental questions for the evaluation of classroom motion pictures was given in *The Elementary School Journal* by Dr. Stephen M. Corey. They are as follows: (1) Is the content of the picture related obviously and definitely to what is to be taught? (2) Is the picture authentic? Is it true to the facts? (3) Are the level of difficulty and the pedagogy of the picture appropriate for the maturity level of the pupils with whom it will be used? (4) Is the picture technically and esthetically satisfactory? (5) Does the picture represent adequate exploitation of the medium? Could equally good les-

sons be taught with less expensive instructional materials?

In a similar manner, the other categories of audio-visual materials can be evaluated. Human judgment may not be as objective as some measures but it is the best method at present.

There are problems of administration, distribution, and maintenance. These can and should be solved in the light of the local situation. The most important problem is that of intelligent preparation on the part of those using teaching aids. Without proper preparation the most valuable method fails. In the hands of the skilled teacher, audio-visual aids literally have unlimited possibilities teaching the fundamentals of the great fields of knowledge.

To present graphic, pictorial, and audio materials, projectors or mechanical equipment must be available. H. H. Seaton writing in "A Measure for Audio-Visual Programs in Schools," for The American Council on Education Studies, has recommended the following as a minimum goal in supplying equipment:

a. One 16-mm sound projector for every 200 students*

b. One slidefilm projector for every 200 students*

c. One 2x2 projector for every 400 students*

d. One 3¼x4 projector for every 400 students*

e. One set of 35 stereoscopes for every 400 students. (Elementary schools only)*

f. One opaque projector for each school

g. One table-type radio for each classroom

h. One two-speed, portable 16" transcription player (complete with speaker) for each 200 students*

i. One microphone for use with playback projector for each school

j. Wall-type screens or suitable projection surface for each classroom

*Or one per building where enrollment is less than the number specified.

With the slidefilm projectors now available, it is a simple matter to convert certain models into a 2x2 slide projector. This combination projector has such educational possibilities that it would seem desirable to have one for every classroom. A little consideration of the ease with which one may secure excellent teaching pictures would also indicate a greater use of the opaque projector.

The professional worker contemplating the use of an audio-visual program may find the following references helpful:

Dent, E. C. *The Audio-Visual Handbook.* Chicago: Society for Visual Education

Educational Film Catalog, 1945. New York: H. W. Wilson Co.

Educational Screen. Chicago: 64 East Lake Street

Hoban, C. F., Hoban, C. F., Jr., and Zisman, S. *Visualizing the Curriculum.* New York: Cordon Company

McKown, H. C. and Roberts, A. B. *Audio-Visual Aids to Instruction.* New York: McGraw-Hill Book Company

Radio Transcriptions for Victory. Washington, D. C.: U. S. Office of Education

See and Hear. Eau Claire, Wisconsin: E. M. Hale & Company

Sources of Visual Aids for Instructional Use in Schools. Pamphlet No. 80. Washington, D. C.: U. S. Office of Education

Townes, M. E. *Teaching with Motion Pictures.* New York: Bureau of Publications, Teachers College, Columbia University.

Stories About Seeing and Believing and . . . . .

S. Lucille Hatlestad

Seeing: perceiving with the eye, observing, looking at, perceiving with the mind, understanding, comprehending, finding out, experiencing, making inquiry, considering.

Believing: accepting as true on testimony or authority, being convinced of as a result of study or reasoning, to credit with veracity, to be sure of the existence or truth of anything, to have confidence in the truth or integrity of a person or the strength of a thing, thinking, supposing.

HEALTH-EDUCATION DAY

On one of those incomparable, beautiful Kansas mornings last spring, two automobiles carrying the staff and women students majoring in the Department of Health and Physical Education (Yes, women of freshman to senior classification), with equipment for a day of demonstration - participation programs in physical education, arrived at a school in a nearby rural community. The occasion had been planned by both the school and the College personnel between November, when the request came following the annual State Teachers' Meeting, and this day in April. This day had been set up for junior-senior high-school boys and girls, but nothing else would do; the younger children insisted, and they saw and believed too. How do we know? Children are never slow in letting you know, don't forget! But what of the older group? Here is that story.

The assembled group was told about plans for the day. Then the morning began with 16-mm film series, "Fit to Live and Fit to Fight."[1] These films were made in high schools in Iowa. Our audience saw people of their own ages and appearance. Some of the activities were familiar; some were new. The films, being silent, permitted the narrator to diverge from the prepared script and talk in the language of her audience which she soon learned from their informal reactions to the film and their comments. Using a daylight screen, the room was kept light enough for the audience and the narrator to maintain good contact. Between films the questions and comments of the pupils and narrator gave every evidence of animated interest, comprehension, appreciation, and almost immediate acquaintance with new activities.

PARTICIPATION

Following the films, only those girls who wshed to participate in typical activities which had been shown were invited to conclude the morning program. It should be inserted that this school population was typical, too, in that a large

[1]Secured from the Visual Aids Department, Extension Division, State University of Iowa.

number of girls had secured the proverbial doctor's excuse from physical education.

What effect would the doctor's permission to *participate* in physical education have on the boy and girl, and his parents? Much more importance was attached to getting such permission to be "in" rather than "out of" the recent military activity. Would it pay to popularize the medical and dental examinations, vaccinations, and the like, with films from your State Board of Health, before scheduling physicians' services? Mindful, too, are we of the professional men and women who are called upon to give these "permissions." The Labette County (Kansas) Medical Society prepared and uses an agreed-upon standard form for school examinations, thus standing behind the family physician who makes the examination and relieving him of being personally "on the spot" with his clientele.

THE RESPONSE

But, let us get back to the girls. You can guess what happened! Before our college women majors in physical education had presented very many demonstrations, followed by the eager participation of the high-school and college girls working together, the *excused* girls begin to take part too. When the fourth and last section of activities began there was not one girl still sitting by, watching. The gymnasium floor was crowded; every one was country dancing! Did they care to stop at noon? definitely, "No!" In the dressing-room afterward every girl was well acquainted with the college group; all were excited, happy, and delighted. What of the teachers in that school? Every one had caught the spirit; all eyes were shining; conversation flowed fluently; all formality had disappeared; we were at home with each other. "It is better than we dreamed, isn't it, Mrs. Blank?," from a passing girl to the girls' physical education teacher in that school.

INTEREST IS CONTAGIOUS

This and similar satisfied remarks from the girls as they hurried to belated lunches proved to that teacher that her idea had worked. She had believed that her pupils would show intereest and be willing to learn skills if they had but a way of understanding and knowing of what a modern program of physical education consists; how it works; how the results should look.

As the college girls left the building during the noon hour, elementary-school youngsters ran up to them and asked, "Play with us, too." For many years the Department of Health and Physical Education at the College has in the major curriculum provided for two semesters of observation and practice in physical education, one each in the lower and upper elementary grades; this is in addition to one semester of practice in physical education for junior-senior high-school girls. Needless to say, with their broad elementary-school background, these college women readily entered into noon-time activities with the youngsters, although it had

been neither anticipated nor planned. Yes, these youngsters had watched the demonstration-participation program, too, at their request; and their confidence was now expressed.

SPORTS FILMS

In the afternoon we shared together several 8-mm kodachromes and black and white films[2] of high-school and college girls in individual and team sports; and of these girls in camping and outing activities. These films, silent again, afforded the narrator the opportunity of keeping the group compact and personalized, just as it had been consolidated during the morning. Pictured were several of the college girls who had figured so prominently in the morning activities. As in home movies, we always look for those we know. Here was an opportunity to keep rigid attention; to get keen observation of sport skills new to the group because the skill was associated with the real person then in their presence.

If one chooses to use this tool in his school, he will be emphatically impressed with the response from his students. We have used the films[2] mentioned many times, and for several purposes, on reediting, in College High School as well as with our college women majors in physcal education, always with a keen and sharpened observation because the subjects were themselves. Also, particularly potent was the anticipation and later the response of college freshman and sophomore women to movies[3] which we made of their walking postures. These were taken after each girl had made a study of her silhouette.

Concluding the afternoon, we presented by sound slide films[4] subjects pertaining to health and safety education. Previous to this I had used sound slidefilms in several hundred showings but never with the following experience. There is a click or muffled bell-sound after each narration related to the projected strip. We had shown only a few strips when we sensed a slight uneasiness in the group that shortly broke into giggles each time the signal sounded for the operator to change the film. Immediately upon learning the cause of this behavior the film and record were shown to the group with explanation and a demonstration of how each was opperated, calling attention to the sound signal and its relation to the film change. The group was asked to listen for the signal and to expect a change of film. Thereafter, the sound signal ceased to attract attention.

APPRECIATION

In our anxiety to tell another story about stripfilm experience, the reader could be left stranded in the school assembly, listening for that sound signal. However, in coming to your rescue permit me to state that the student and faculty appreciation at that school was so

[2]Films made by the author, of College Women Physical Education Majors and College High School activities. Personal equipment.

[3]Black and white, 8-mm, photographed by the author, 1945, College equipment.

[4]See Jam Handy Organization catalogue of Slidefilms and Motion Pictures.

vividly expressed to us that we departed virtually on air! Later, a letter from the school superintendent substantiated the success of our day with them. Then, in July, a faculty member from that school came to the campus for a day, and described so genuinely the results of our day at that school that I do not hesitate to repeat that even yet they are *seeing and believing and* . . .

FIRST-AID FILM

So, to the next story about the sound slidefilm. At the end of the past summer session we had used for one year the set of First Aid Train-in slidefilms[4] in our classes with over 100 people. But this is not to be a report of an objective experiment in learning, with statistical treatment of numbers, averages, and the like, and analyses in terms of group performance. Instead, this is just a very short story about four individual women students of the past summer. Two of the women had completed the Standard Course in First Aid, one about two years before, and the other about three weeks before the summer term began. These two were enrolled for the Advanced Course in First Aid, the 10-hour minimum instruction-review and examination course. The other two women were enrolled for the beginning or Standard Course in First Aid (20-hour minimum instruction and examination course). Here was an opportunity to use the slidefilms as a complete overview with the beginners, while at the same time from them would stem the discussion and practice with the advanced students. At the end of ten class hours all four women took a standardized information test.[5] To the amazement of all, one beginner made the same grade as the advanced student who made the highest mark, while the two beginners, after only ten hours of subject material absolutely new to both, made the highest and the next to the higheest grades of the four. These women were thoroughly convinced of *seeing and believing and* . . .

ENDLESS POSSIBILITIES

Perhaps every department in every college tries to develop and maintain its own characteristic esprit de corps among its majoring students and alumni. Here tradition plays its part, but the character of the product establishes the reputation upon which the laurels rest. Isn't it singularly fortunate to be in one of those fields where performances can be recorded graphically? Physical education activities photograph so well! But more than that, they are moving; there is action; there is identification of individuals; after that, acquaintance with those who have been members of the group. Who is that? What is she doing? Where does she teach? What is she doing now? Documentation of your daily and extracurricular activities with frequent projections of them does have a part in holding high that esprit de corps! Depend

[4]See Jam Handy Organization catalogue of Slidefilms and Motion Picture.

[5]Test in First Aid prepared and distributed by the National Center for Safety, New York University.

on it; those clippings in the scrapbook and the accounts of what we did when . . . as they are passed from student to student come to life on the screen! *Seeing and believing and* esprit de corps; these have been ours for nearly 15 years.

Ever since when the audiovisual method has been the basic instructional technique in physical education. Let some of the types of devices now in common use run through your minds: diagrams, posters, sketches, cartoons, silhouettes, photographs, bulletins, records, scores, graphs, courts, tournaments, mirrors, cadence, rythm emphasis, recordings, explanations, demonstrations, imitiations, equipment, field trips, playdays, competition, slides, stripfilms, sound slidefilms, radio, walkie - talkies, public-address systems, books, magazines, newspapers, movies, television.

Are we constantly *Seeing and Believing and* . . . Visualizing[6] our programs in tune with the times? It is with us as it is with our military organizations, "Training never ends. There is always somethng new to learn and still more of the old."[7] To *see* and to *know* are the same word in Greek.

[6]Bernhard, Frederica. "Visualize Your Program." *Journal of Health and Physical Education*, Vol. 15, No. 8, p. 432 ff., October, 1944.

[7]Bell, Capt. Walter S., Training Aids in the Marine Corps." *Visual Review*, 1944. 25th Anniversary S. V. E. publication.

Postwar Re-examination of Teaching Related Subjects in Printing

LEROY BREWINGTON

In every well-balanced program pertaining to a curriculum in industrial arts or vocational education, related subjects or related information is a most necessary and stimulating part. The war has emphasized the value of this subject in the respect that a greater spread of information has been expedient. The continued demand for discussion of this topic indicates either that it is an unsolved problem to which continued new contributions are desired, or that it has some virtue that makes it worth repeating.

THE FOUNDATION

In both industrial arts and vocational training the foundation of instruction is the manipulative activity of students. With industrial arts, the manual activity furnishes worthwhile experiences which stimulate, vitalize, and integrate the academic studies. In vocational training the skill of the worker is enhanced by his understanding of certain facts and principles inherent in his work . In either case, related to the manipulative activities there is a large content of informational topics which must be learned by the student if the manual skills are to function properly.

Since the foundation of instruction is the manipulative activities of students, it follows that the related subjects must be derived from the manual operations or trade skills. A list of these operations or activities is developed by analysis of the craft. From this list may then be determined the allied informational topics.

ANALYSIS

This fact is of profound significance for the printing teacher. From him must come the analysis giving the list of trade operations and the items of related knowledge. He is usually the only person in the school qualified to do this. It is, therefore, his duty and his privilege to prescribe what shall be taught to his students as accessory to the skill which they learn under his instruction.

The procedure in making the analysis of the trade is relatively simple, though requiring much thoughtful effort. The foundation of the analysis is the list of the specific activities which the worker is called upon to perform, the things which he is paid to do. The development of this list is facilitated by first breaking up the trade or craft into its natural divisions or blocks. Then for each block is written all the distinct items of activity, either manual performances, duties, or problem solutions, which are required of the worker.

Having thus secured a complete list of the activities or operations, the next step is to list the tools and equipment required for their performance. Then may be written the list of materials used in connection with each operation or block of operations. From these lists of operations, equipment, and materials, constituting the objectives phase of the trade, can be derived the content of informational and other items comprising the so-called related work.

WHAT THE LEARNER MUST KNOW

Let us now try to determine specifically what the printer must know in order to perform efficiently the particular operations required of him, using the tools and equipment and the various materials that are disclosed by the analysis of his work.

The usual procedure in constructing an analysis of the printing trade follows the natural sequence in the production of a job of printing, beginning with the layout of the job and following through the stages of composition, make-up, proving, lockup, stock cutting, presswork, and finishing.

Beginning with the layout of the job, we see involved at once several aspects or fields of knowledge. First, the copy must be interpreted. This requires judgment relative to the format of the printed job, the size of paper page and type page, number of plates, kind of stock for body and for cover, faces and sizes of type. Designing the page requires knowledge of principles of art relative to proportion, balance, tone harmony, and contrast, with special application to type mass, ornament, borders, margins, background, and other features of typographic expression.

The phase of planning the printed job has now developed into the distinct occupation of the layout man, who is to the printing industry what the mechanical draftsman is to the machine industry or the architectural draftsman is to the building industry. Whether the layout be done by a special worker—call him typotect or any other highbrow designation—or by the foreman or compositor, its primary purpose is to secure good appearance, that is, the quality of beauty in the printed job. Every printed page has the quality of beauty—positive, neutral, or negative—and every person who sees the page, whether he can read or not, responds to the degree of beauty which he beholds.

PRINCIPLES OF DESIGN

Since in making or interpreting a layout it is essential that both the layout man and the compositor undertsand the principles of beauty in graphic representation, I would place this first in importance as a related subject for the student of printing. This involves a content of instruction which the art teacher should organize and teach in cooperation with the printing teacher.

Planning the size of page and the number of pages requires calculation, involving the printer's scale of measurement with points, picas, and ems, also both linear and square

measure with common rule. Estimating for the entire job requires computation of stock and production schedules involving quantities of output, hour rates, spoilage, quantities of paper, ink and other materials, overhead, selling costs, and profits. When the computative content is extended to constitute special occupations for front-office workers, it becomes estimating, cost finding, or cost accounting. These calculations and computations requiring particular application of arithmetical processes, constitute for the student of printing a distinct and indispensable content of instruction—call it printer's arithmetic or what you will.

LANGUAGE FORMS

When the planning is completed, the copy goes to the compositor to be put into type. Obesrving the compositor, we note that his work is essentially the rendition of language. He must spell words, put in punctuation points, divide words, and transmit his composition in correct grammar, whether the author's copy be so or not. In handling words so that the meaning or intent of the author is conveyed correctly and effectively, the compositor must have a special understanding of language, its functions, development, and peculiarities. Knowledge of the etymology and composition of words will enable him to recognize roots, prefixes, and suffixes and thereby give the right spelling for the meaning intended. He must understand grammatical construction and syntax so that every sentence that he sets will be complete and consistent.

This required rendition of language by the compositor represents an important content of instruction related to the work of the printer, which may be organized and taught by a special teacher, that is, one besides the shop teacher. If it is to be taught by the English teacher, said teacher must understand more than the traditional schoolroom English; he must appreciate the particular problems of the printer in rendering language and must organize his instruction to attain this objective.

TECHNICAL DETAILS

Again observing the compositor at work, we see that he is handling type and spacing materials. The stoneman handles also the lockup materials, both wood and metal. The pressman handles paper, ink, lubricants, solvent, adhesives, and so on. These workers, like all intelligent workers, should understand the properties of the basic materials which they handle. Study of the properities of materials yields a valuable and essential fund of trade knowledge. Such study of the printer's materials may be easily organized and conducted as a related subject.

The pressman is the operator of complicated machines. To be efficient in his work he should understand certain applications of mechanics, also some elemental principles of electricity by which his machines are driven. It is easily possible to construct a list of the particular topics of mechanics and elec-

tricity which the pressman encounters and should understand. This list comprises another content of related study for the printer.

Technically, such topics as mechanics, electricity, and properties of materials are classed under science. Obviously, the principles of science inherent in these topics should receive proper recognition, and true scientific methods of investigation and conclusion should be observed in the instruction. But the subject matter should be organized and conducted from the standpoint of the printer's use of such knowledge, not from the standpoint of general science.

The intelligent workman sees beyond the routine manipulations of his job. He likes to know the sources of his materials, how they were prepared for his use, and by what means of distribution they have been made available for him. Here is a stimulating phase of economic geography which may with much advantage be seized upon by academic teachers.

ATTITUDES

Modern education is emphasizing more and more the importance of developing proper attitudes in students. Printing is a school activity which contributes notably to this end. The student in the school printshop realizes that his product is consumed readily by his fellow students and by the public outside the school. He should be led to see the subtle and far-reaching influence of the printed word and to appreciate the ethical obligation of the printer in rendering language which his fellow men are to read. Some conscious and systematic attention given to the functioning of printing throughout the world constitutes a vital phase of civic study.

CONTENT VALUES

The older student becomes interested in the origin and development of the various crafts which he is permitted to explore. As the intelligent worker advances in years, he takes increasing delight in learning of the evolution of his craft. The history of the art of printing represents a cross-section of the development of human civilization. Beginning with that most primitive form of impression—the footprint in the sand—and tracing through the various devices of graphic representation practiced by different races in different ages, the story of the evolution of the art of printing integrates to a remarkable extent the study of human history. Teachers of history would do well to give much heed to the influence that printing has had in human affairs.

Summarizing this brief survey of the related subjects, we see that the topics mentioned fall into groups: first, those subjects which contribute directly to the manipulative efficiency of the printer, which we will class as *essential*; and second, those subjects touching upon printing which do not necessarily increase the productive skill of the worker but contribute to his general enlightenment, appreciation, and outlook upon life, which subjects we shall call *cultural* or *social-*

izing. The first group comprises graphic representation, rendition of language, calculations, knowledge of materials, and mechanics. In the second group we find phases of economic geography, civics, and history.

DISTINCTIONS

The chief distinction between the essential related subjects and the cultural or socializing related subjects is in their direction or application. The first group is intensive, that is, leading into the manipulative performance of the printer, to make him more proficient. The socializing or cultural subjects may be taught individually, using well organized instruction sheets, or by group or class instruction. In either case, the instruction should be tied in closely with the shopwork activities of the students. The socializing or cultural subjects are more adequately taught by class instruction and do not need to be so specifically associated with the manipulative experience of students. These subjects may be taught by academic teachers, using traditional methods. Such instruction must not become too formal.

The essential related subjects may be taught in either of two ways: by the printing teacher incidentally as the various topics arise in connection with the shop activity of the students, or by a special teacher in a classroom separated from the shop. For the shop instructor to teach the technical content incidentally in the shop has the advantage of giving vitual application of the topic in actual practice. It has the disadvantage of taking the time of the student out of his shopwork period and of letting expensive equipment stand idle during the instruction. Where these essential related subjects are taught in a classroom by a special teacher, it is desirable that this teacher himself have a thorough understanding of the trade processes in which the topics are inherent, also that the topics be taught to students as closely as possible in connection with the associated processes and operations. Some related topics may be taught in advance of the manipulative practice, as a preparation therefor. Other topics may be taught afterwards, with the manipulative practice serving as an apperceptive foundation. In either case, too long a period should not elapse between the study of any topic and the manual performance to which it is related.

To develop a technique of teaching these subjects, the first step is to identify and classify them, as we have already indicated. The next step would be to develop by analysis the list of topics comprised within each group. These topics should then be expressed in the form of instruction units or lessons. Each lesson should be taught by using instruction methods suitable to the topic, always conforming to sound principles of teaching.

As for actual teaching methods, the instructor is cautioned against excessive use of the lecture. The extensive use of films, which was the greatest contribution of World War

II to education, should be given more attention by all teachers. They supplement and often replace many of the prewar catagories of related information. Much use may profitably be made of the methods of illustration, investigation, and experimentation. The written recitation methods used in the form of notebook work is of particular value. These methods are feasible in connection with individual instruction sheets. To use the study and oral recitation methods successfully requires adequate textbooks, which have not yet been written for the related subjects in printing. There are, however, a number of reference books which should be in every school printshop and every school library. Instruction sheets should direct students to these books, giving page reference for every topic.

A major value of the instruction in related subjects for vocational pupils should be that of familiarizing them with the literature of their craft; and for industrial-arts pupils, giving acquaintance with the greatest means that human invention has devised for disseminating learning and culture.

Field Mathematics for the Mathematics Teacher

LAWRENCE EVERETT CURFMAN

Every teacher of secondary mathematics has been asked by his students, "Why am I studying this?," "Where shall I use it?," "What is it good for?" The real teacher likes to have such questions because they usually come from the best type of student, the thoughtful ones who are looking into their futures. Furthermore, such a question presents a good opportunity to answer a question which has been in the mind of many members of the class but which only a few have had the courage to voice.

APPLICATIONS

Fortunate indeed is the teacher who, from actual experience in some vocation where mathematics is frequently used, can reply to the student questioner, "I used this (on such an occasion) in doing (so and so)." If the student is persistent, as many of them are, and asks for more details as to the occasion and manner of use of some mathematical operation, it adds much to the satisfaction of both teacher and student, if the teacher can supply the details. The remarks which follow are intended to inform the teacher of high-school geometry and trigonometry where he can find the answers to some of these questions.

Probably no trade or profession makes more frequent use of geometry and trigonometry than that of surveying. The Kansas State Teachers College at Pittsburg offers a course for teachers of mathematics called "Field Work in Mathematics." It is based on surveying and the necessary computations which accompany it. Since few teachers of secondary mathematics have allotted to them funds sufficient for very much equipment, emphasis in this course is placed on the *construction* and use of inexpensive equipment. Many of the things the surveyor does *can* be done with very simple equipment constructed in the high-school shops at small cost for material.

THE SLIDE-RULE

Since a great deal of number work is involved in all computations in surveying, some time is given to instruction in short methods of calculation and in the use of the slide-rule and calculating machines. A slide-rule good enough for instruction purposes can be had for \$1.50 to \$2.50. A calculating machine such as is found in most engineering offices is likely to cost \$250 to \$300 and so may not be available to the high-school teacher. Smaller types of these machines are available for educational purposes at much less cost. These are being purchased by the larger high schols for use in mathematics, science, and commerce classes. Graphs and charts are

used in many engineering computations. They are easy to use, very inexpensive but laborious to construct.

OTHER EQUIPMENT

For the field work, the equipment which is most versatile, which can be used for the greatest number of interesting probleems, is the equipment for measuring linear distances. It consists of a 100-foot tape, chaining pins or "arrows," and range poles. The prewar price of a 100-foot tape of medium quality was $6.50 to $8.00. The chaining pins can be made of heavy wire in the high-school shop. The range poles can be made in the shop of wood with a metal shoe on the end. One tape, two range poles, and eleven chaining pins are sufficient for one group of three to five students. It is much better, as in any laboratory work, if sufficient equipment is available so that each group of five students may have its own complete set of equipment. In this way each student can participate in the solution of each problem. As in case of any laboratory equipment, students must be taught how to *care* for their equipment.

The student must first learn to measure horizontal distances on smooth level ground. Not many students have ever measured a distance as great as 100 feet. If you tell them that, if they measure the distance between two points about 300 feet part and then measure the distance between the same two points again, the second measurement is likely to differ from the first measurement by as much as ½ inch and maybe by as much as two or three inches, they will not believe it. They must try it themselves to be convinced. They must be shown that attention to a few simple and seemingly unimportant details will greatly reduce their errors.

The following problems can be done with only the equipment mentioned above:

1. To erect a perpendicular at a point in a line.
2. To drop a perpendicular from a point to a line.
3. To extend a straight line through a building and continue it beyond the building.
4. To measure the straight-line distance between two points when a building obstructs the line and the view between them.
5. To measure the distance between two points separated by a river which permits observation but not direct measurement in the usual way.

METHODS IN THE FIELD

Space does not permit the discussion of each of these problems. Numbers 3, 4, and 5 will prove very interesting to the student. In the course in Field Mathematics emphasis is given to the fact that many classroom methods will not work in the field. The course at Kansas State Teachers College is never given by anyone who has not had several years of practical experience in surveying.

If the student is studying trigonometry, he can measure angles

with only the equipment mentioned above and a table of trigonometric functions.

Another instrument very useful to the teacher of high-school mathematics is the hypsometer. This consists essentially of a small board similar to a drawing-board, about 16 inches square, without cleats, to which is attached a large square of cross-section paper. The drawing-board is attached in a vertical plane to a vertical supporting stake or small post. It is attached by means of a horizontal bolt about which it may rotate. It can be clamped in any position by means of a thumb-nut. A small plumb-bob is also necessary. Materials for this entire instrument should not cost more than $1.00. The plum-bob can be purchased. The remainder of the instrument can be made in a few minutes.

This instrument is ued for measuring vertical angles and vertical heights. Elementary trigonometry, such as is usually taught in plane geometry is needed in most of the problems in which the hypsometer is used. With the hypsometer the heights of buildings or flag-poles may be determined. The latitude of a place also may be determined with surprising accuracy.

THE PLANE-TABLE

The plane-table is another instrument which should be included in the list of equipment. It is essentially a drawing-board on legs. It is supported in a horizontal position at the center and fastened by a bolt about which it may turn. The bolt should have a thumb-nut so it may be clamped in any position. The supporting legs are three in number so that it may be set up on uneven ground. Some kind of ruler and sighting device must be provided. An engineer's triangular scale may be used but a specially constructed alidade is better. The entire cost of materials for a plane-table should not exceed $5.00.

The plane-table is used principally in making maps. It makes use of the principle of similar triangles and similar figures. It will solve graphically any problem in plane trigonometry if the plane is horizontal. It will solve graphically the three-point problem, or "Problem of Snellius," which few students who have finished a course in trigonometry can solve. The plane-table is the easiest to operate and easiest to understand of the instruments herein mentioned. With it a map of the school grounds and adjoining property can be made with surprising accuracy and speed.

THE LEVEL

The level is a very simple instrument much used by farmers in drainage work. The mathematics used in connection with it is not often anything but addition or subtraction. Yet the level is used by the surveyor probably as much as any other instrument. A good surveyor's level costs about $200. One good enough for use on farm drainage can be bought for about $75. A level which is almost as good for drainage work as the $75 level above can be made in the high-school shop

for a cost of $6 to $10 for materials. With this home-made level the difference in elevation between two points can be determined and profile levels can be run.

In the course in "Field Mathematics" emphasis is placed on the use of home-made equipment, for that is the kind of equipment the teacher is likely to have. Emphasis is also placed on methods actually used by the surveyor rather than on methods he might use or methods used in the classroom on paper or on the blackboard. The members of the class are given the opportunity to examine and actually use equipment of the kind and quality used by the professional surveyor so that, as teachers, if they should be so fortunate as to have such equipment available, they will know how to handle it.

Further information about this course will be gladly given if inquiries are directed to the Department of Mathematics, Kansas State Teachers College, Pittsburg, Kansas.

Why Have a Philosophy?

HAZEL CAVE

The formulation of a philosophy to be followed in one's personal living and in one's vocation is likely to be met with procrastination by the average person. In fact he may deny having any philosophy, though this is not an inevitable indication that he does not possess one. However, it is likely to mean that his philosophy is neither consistent nor coherent, and that he does not use it as a conscious frame of reference in shaping his behavior with relation to his environment and his associates. This raises a question as to what we mean by a philosophy, and why there is value in having one.

A DEFINITION

A philosophy is the measuring stick by which we determine values; the prism which colors our particular beliefs, attitudes, and viewpoints concerning life; the frame of reference for determining thought and action. In its broadest sense it represents our effort to understand the universe and our particular role in it. Any one person's philosophy may be consistent or inconsistent; of broad or narrow scope; pessimistic or optimistic; static or dynamic. It is not identical with that of any other person, for it represents the pyramiding of his own peculiarly personal observations, thoughts, and experiences, and the relationships by which he has linked them.

Perhaps consideration of some of the steps in the formation of a philosophy will help disclose the value of having one. As children, our attitudes and beliefs are influenced by parents, teachers, persons whom we particularly admire, groups with whom we associate intimately, and less directly by expressions of society as a whole. Generally speaking, we are not too concerned about contradictions and inconsistencies, but more consumed with enthusiasm over the daily revelation of new and interesting things to see and do. In adolescence we must face more directly the inconsistences and contradictions of various attitudes and beliefs, particularly as they set up stresses due to the uncertainty and insecurity of our position between the irresponsibilities of childhood and the responsibilities of adulthood. We will necessarily have to make decisions regarding the relative values of conflicting observations, thoughts, and experiences. Internal and external conflict accompanies the making and following of such decisions, and may be most disturbing and unpleasant. Somewhere during this process of gradual development, or perhaps precipitated by some crisis in our life, comes a feeling of intense need for finding some explanation of why things are as they are, and what place we occupy in the scheme of them. It is in answer to

this need that we begin more consciously to search for some common denominator of life, some explanation which will answer a reasonable proportion of the questions that have been raised.

It is not within the scope of this presentation to make application of the philosophies of realism and pragmatism to my own field of teaching, physical education. In the original study their bearing was likewise considered and, in consequence, the idealistic philosophy was arrived at as the most nearly satisfying guidepost. However, it is fully realized that no one formally outlined system of philosophy will satisfactorily answer all questions.

IDEALISTIC PHYSICAL EDUCATION

THE PHILOSOPHY OF IDEALISM

Politically speaking, the chief plank in the platform of idealism is the priority of the mind and self. The real consists of our knowledge of it rather than existing as an independent entity. But when we say that reality is of the nature of the mind, we must think in terms of the infinite mind, not "my" mind. It is with a certain satisfying sense of logical approach that I first considered realism which would have us frankly face facts; secondly pragmatism, which would have us strive for control of the real and immediate situations facing us from day to day; and now idealism, which would fit the facts and our manner of controlling them into a pattern for ultimate good, conceived by an omniscient mind. Rather than condemning realism and pragmatism as antitheses of idealism, one should take much of value that they have to offer and which rounds out an idealistic philosophy too narrowly conceived. It is a consciousness of the intangibility which has turned many from idealism, which causes one to feel the inadequacy of the vocabulary in conveying the true spirit which pervades idealism.

A LIVING REALITY

The existence of ourselves and the world in which we live is seen, not as a chance combination of matter but as the living concept of an all-knowing mind. Inevitably then, mind, and not matter, was original and is eternal. One stands in humility before the vastness of such a concept, but with a sense of inner power arising from the realization that he is a part of that plan, and a surging desire to fulfill the part which is his. Have you ever climbed a mountain and stood at its peak to see the world drop away in ever lesser magnitude to the far horizon? It was my privilege to climb Long's Peak in Colorado. Many times during the rugged climb one questions whether it is worth the effort, but the view from the top plateau more than justifies it. Rugged peaks stretch to the far horizon at the left and right. In one direction the steep ledges drop away to lower slopes covered with dark masses of trees and valleys in which gleam deep blue bits of lakes, while in the opposite direction extend tawny plains marked by roads of incredible straightness, tiny towns,

and alternate areas of sunshine and cloud shadows. It seems to stretch one's soul and immeasurably widen life's perspective.

THE EVIDENCE

Does evolution fit in such a plan? A number of years ago the concept of evolution was considered by many practically as a child of the devil. It was the trying ground of many a college and university teacher. But if we would face geological and anthropological evidence with the realists, we must and can make a place for it in our philosophy. Sometime in ages past man started questioning the source of his being, the evidence of natural forces having already aroused within him some vague concept of a superior force or being. It was natural for him to form his concepts in terms of the tangibles with which he was familiar, namely, himself and the natural objects and forces surrounding him. Thus we have a written record in the Bible of what might be called a folktale setting forth one concept of creation. In light of evolutionary evidence, it is not impossible to go back of that concept to one in which the creation was of a single bit of living matter, from which by a boundless process of adjusting to environment, which itself was changing, developed the human animal, and plant life known to those who initiated the biblical story of creation. Who knows that future evidence will not change our present concept of the initiation of life?

Why should that creative force be conceived of as an omniscient, caring God, rather than a detached, impersonal force, which, having put us in the world and established sufficent order to keep life continuing, would leave us to develop as best we could? Perhaps no question has aroused more controversy or provoked more varied answers. As but one incomplete, and perhaps unconvincing answer is the pragmatic one that experience of many years' duration appears to show that adherence to such a concept has worked for the greatest individual and social good of man.

Man's mind is conceived of as a fragment of the absolute or infinite mind, and thus partakes of its freedom. Consequently he is a free moral agent, able to choose the way he will follow, and work toward that end. This does not deny certain hereditary and environmental limitations, but it is recognized that few persons ever reach these limitations. Man's freedom allows him not only to work toward better ends, but also to make errors and work to the detriment of himself and society. It is as man aligns his purpose with the infinite purpose that he comes into harmony of being and works effectively toward some good end. Given material and a pattern for a dress I am still free to cut the material in any fashion I please, but if I follow the pattern my chances for making a dress which satisfies me, and appears well to others, are immeasurably greater.

NO REAL CONFLICT

There has been, and in many quarters continues to be a conflict

between science and the spirit of the idealistic philosophy. When frontier thinkers in the scientific field such as Charles Steinmetz, the wizard of electricity, and Robert Millikan the eminent physicist and President of the California Institute of Technology, come to the place where they openly avow recognition of something beyond and above the determinations of science, it behooves those less informed to look critically to their own views. Millikan says,[1]

> In this sense the idea that nature is at bottom benevolent has now become well nigh universal. It is a contribution of science to religion, and a powerful extension or modification of the idea that Jesus had seen so clearly and preached so persistently. He had felt that benevolence and then preached it as a duty among men. Modern science has brought forward evidence for its belief . . . Concerning what ultimately becomes of the individual in the process, . . . that problem is entirely outside the field of science now, though it need not necessarily always remain so.

STRIVING FOR THE BEST

Because of the idea that there is an ultimate good, the idealist would strive constantly for the best, not the immediate better of the pragmatist. Thus he recognizes necessity for effort not based alone on immediate interest, which implies doing some things because we ought to do them. Failure to look beyond the immediate to the ultimate is undoubtedly the cause of many of the griefs of mankind. On the other hand, willingness to look beyond the immediate benefit toward an ultimate goal gives one a much clearer perspective on life. Five miles of bad detour can be endured with fair grace, if at the end one will see a good friend from whom one has been long separated. A concept of the infinite plan, even though vague, will expand one's horizon immeasurably.

Perhaps the attitude of the sincere idealist toward his fellowmen distinguishes him more than anything else. A concept of men as a part of the infinite plan, and participating in it along with himself, does not allow him to treat them with less respect than he has for himself. The following gives some of the implications of such a belief:[2]

> This introduces the element of equality into human dealings. But wherever equality appears, logic can be used in ethical reasoning. I may and must think of my own action as if any other person were to act on the same principle—this leads directly to the golden rule.

I have reached the end of exposition of the philosophy of idealism with much the same conviction with which I started: idealism is something which is felt, and which loses much of the spirit that is its most essential characteristic when an effort is made to make it tangible through words.

APPLICATION TO PHYSICAL EDUCATION

Whatever be the area of education, adherence to the philosophy of idealism will cause certain guideposts to be erected, all of which will point in one general direction.

[1]Millikan, Robert Andrews, *Evolution in Science and Religion.*

[2]Hocking, William Ernest, *Types of Philosophy.*

A HIGHER PLAN

There is an infinite plan, of which every individual is a part, and to which he contributes for greater or lesser good. Insofar as he brings himself into increasingly greater harmony with that plan, he will himself have more abundant life and will enrich the society to which he belongs. Education is one of the means by which we work toward this end. What that end may be in terms of individual achievement is visioned by Horne:[3]

> With the perfecting of the spiritual sense along with the other noble physical, intellectual, emotional, moral, and social capacities of man, we may anticipate the day when the measure of a man will include the physique of the athlete, the reason of the scientist and philosopher, the feeling of the poet, the imagination of the prophet and the inventor, and the will of the reformer. Such men will be practical idealists with vision to see and with energy to execute.

What will the incoming student in physical education first experience?—externally the same series of physical, medical, and physical efficiency tests which are employed by the realistic or pragmatic department of physical education. What is the purpose of such testing?—to determine his bodily capacities and encourage him to realize those capacities and encourage him to reapacities, not only for his immediate satisfaction, but transcending that, for the freeing of his mind to render maximum benefit to a devinely conceived society. Gertrude Baker quotes Rugg as follows:[4]

> The body is not only the instrument of self-development, it is the organic basis of everyday living—it is the body in action that is to be regarded as the very matrix of the human self, the personality.

The curriculum will likewise present much the same range of possibilities to the student as that planned by the pragmatist. There will be opportunity for as much freedom of choice as possible, but with somewhat more guidance in shaping those choices toward worthwhile accomplishments. In more or less direct fashion he will be led to choice of teachers as well as subjects, for the personality of the teacher plays an important role in his own development. Science is still of great importance, not only for what it yields of factual information, but also for what it contributes to appreciation of the biological and physical order of the universe. Anatomy and physiology conceived in terms of the separate mechanical and chemical functions of our bodies, is quite different from that which stirs us to admiration and awe at the delicacy of balance in opposing chemical reactions which maintains a relatively stable internal environment, and at the complex, but effective structure which enables us to carry on the necessary activities of daily existence.

---

[3]Horne, Herman Harrell, *Idealism in Education.*

[4]Baker, Gertrude, *The Modern Teacher of Physical Education.*

FUNCTION OF THE TEACHER

How will activities be carried on and what is the function of the teacher? Much importance is attached to self-control, the ability of a person as a creature of free will to direct that will into worthwhile channels. Failure and error in any situation are not important per se, unless they are accompanied by lack of will to try again. The student who does a dance step incorrectly, or is a poor sport in basketball, is not immediately condemmed, but encouraged to improve the next time. The teacher strives to be patient with the student who insists on doing things in a certain way, or holding certain ideas because of limited experience, and attempts from her broader experience to demonstrate other ways and ideas in a fashion which will convince the student of their superiority. In the classroom the teacher is not the one whose authority permits little dissension, but the one who invites the student to everwidening vistas of enjoyable and effective action and thought. She tries to start at the student level and, by sharing with him her own attitudes and appreciations arrived at by more mature judgment, draws him to continually higher levels. Materials and procedures are examined first for proof of their validity, next for practicality of function, and throughout for what they contribute to some ultimate good: hooking an opponent's ankle with one's hockey stick might effectively prevent her from striking a scoring stroke, but would hardly be considered a contribution to an enjoyable and well-played game, or more harmonious future association.

The idealistic teacher must set her own goals far enough ahead so that she is not overwhelmed by temporary setbacks. She is proud and happy over the promising student who grows more promising, but even deeper is her pride and joy over the timid student who learns to meet life with a joyous will, or the aggressive student who develops greater tolerance of thought and more consideration of others.

EVALUATION

Are there then no obstacles or pitfalls for the idealistic physical educator? She must watch with care that within the walls of her classroom she does not set up a Utopia which will lead herself and her students to pessimistic disillusionment in dealing with the shortcomings common to themselves as well as their fellowmen, or to diverse ways of retreating from the unpleasant realities of everyday living. Tolerance and patience are not qualities which once accepted by word of mouth automatically function in meeting difficult situations. It is much easier to employ them with persons whom we like and who like us, but justice requires that they function as well for those whom we do not like. Confucius tells us that "He who requires much from himself and little from others will be secure from hatred." It is easier to point out the advantages of an idealistic philosophy to others than to adhere to it ourselves. The idealist,

with her subjective outlook which easily gets enmeshed in the emotions, does well, under many circumstances, to emulate the realist's detached consideration of persons and things.

In view of these difficulties why not be a pragmatist or a realist? In fact, the outsider simply looking on will see little, if any difference in the tangible aspects of the physical education program carried on by the idealist. But continued observation or participation in that program will cause him to feel a spirit of tolerance rather than condecension, of sympathy rather than pity, of understanding rather than critical analysis, and of eager willingness to help him conquer his faults and realize his possibilities. Destructive criticism will be more than balanced by constructive criticism, obstacles will be approached with an air of optimistic hope, not pessimistic skepticism. The contribution of each student will be valued for what it means in terms of his own efforts, as well as in terms of its relation to the contributions of others. Whatever this may mean in the way of happier and more complete lives for individual persons, and of a more harmonious society striving toward an ultimate good, will serve to justify idealism as a worthwhile philosophy for one's own living, and one's teaching.

The Art Preservative of Arts

LAURENCE GILPIN CUTLER

PRINTING

In me all human knowledge dwells;
The oracle of oracles;
Past, present, future, I reveal,
What I preserve can perish never—
What I forego is lost forever.
I speak all languages; by me
The deaf may hear, the blind may see,
The dumb converse, the dead of old
Communion with the living hold.
All lands are one beneath my rule;
All nations learners in my school.
Men of all ages, everywhere,
Become contemporaries there.
—James Montgomery

Nothing can long exist and continue to prosper for which there is not a definite need and desire. The very laws of nature reflect this truth in manifold ways and so subtle is the manifestation that the truth is oftimes lost within itself. The story of the eternal struggle for a place in the universe unfolds the history of man, and the recording of that story—whether the conscious effort to record for posterity or the spontaneous efforts of man to express his joys, his sorrows, his thoughts, or actions merely for the satisfaction of an esthetic urge—represents an art nearly as old as man himself.

A DEFINITION

Webster tells us that a graphic art is a painting, drawing, engraving, or any other art which expresses ideas by the means of lines, marks, or characters impressed on the surface. By this definition, then, printing admittedly is a graphic art, and undoubtedly the largest contributing member of the entire graphic arts family. Man's early efforts in the graphic arts were very crude, indeed, yet as civilization grew older, the desire and need to record and transmit thoughts and ideas likewise grew and prospered with civilization.

EARLY FORMS

The picture writing in the paleolithic caves is familiar to almost every school boy or girl. So is the process of the Babylonians making their tablets of clay and the Egyptians writing on the papyrus scrolls. To some the story of Johann Gutenberg experimenting with movable types is an intriguing bit of historical information. Here, too frequently, the knowledge of the graphic arts finds its terminus. Printing has become so commonplace that its very importance as a social force is lost by its own predominance. The "art preservative of arts" is relegated to a side seat and serves only as a vehicle to prosper the other arts and sciences.

That the graphic arts can be something more than a vehicle is illustrated in the story about the dictionaries. In an eastern school a visitor was going about the building visiting the various classrooms and

shops. His attention was called to the comparative condition of the dictionaries—all of them purchased at the same time. In the printing laboratory the dictionary was worn, thumb-marked, and none too clean from the many fingers that handled its pages. Those in the other rooms were scarcely touched. The students in the printshop had been *participating* in a study activity that definitely demanded the use of a dictionary in a way to insure appreciation of its true value, in a way that meant infinitely more to the students because it gave learning an objective meaning that other subject matter had failed to arouse.

APPLICATIONS

The words these students were composing into type took on new meanings—they were telling about persons, places, and things they were familiar with and worked with daily. Periods and commas became tangible marks that had very definite functions to perform. The design of the play program had to be good for "Mom and Pop" were coming to see the play. The posters had to be attractive for there must be a large crowd to attend the game. It took organization and planning to make these things so.

For what purpose? To make craftsmen of these boys and girls who were studying printing? No! No more so than to make physicists and chemists of all the boys and girls who study physics and chemistry. They were there to study printing for the purpose of making happy, useful, successful citizens.

Still there are some who refuse to admit that the manual arts or industrial arts has a rightful place in general education. Do these individuals ever look into the mirror to see what might be reflected? Can an individual, or should an individual, receive a credential from a school professing to give a general education when he has not had an opportunity to look into the laboratories, shops, and galleries? Is there any difference between the artisan who fails to enjoy the symphony and the classically educated man who fails to appreciate some of the very processes which made possible his classic education? There is no significant difference between the educational deficiency of one who says "ain't got no" and another who is chagrined to find his expensive antique walnut furniture is only a poor copy made from soft wood.

A BASIC EDUCATIONAL MEDIUM

In the field of industrial arts, the graphic arts, and particularly letterpress printing, affords one of the best media for accomplishing the cardinal principles of education. It is not the purpose of the graphic-arts subjects to replace or supplant other courses in the curriculum, but to supplement and correlate these subjects in such a manner that all the objectives of education may be better served.

It is no mere accident that the industrial-arts personnel have set up for themsleves a list of aims and objectives which are becoming standards of attainment in their field. "The industrial-arts work is justi-

fied not because the objectives of the industrial-arts teacher are essentially different from the objectives of the general-education teacher, but because the experiences provided in industrial arts offer a more effective and more economical means of developing certain desirable objectives which are given as the aims of general education than do the experiences provided in the so-called academic subjects."[1]

The graphic-arts field abounds with types of experiences which are difficult to equal or duplicate in other single fields of subject matter. For example, where in the educational system is there a set of experiences which can contribute more to "the command of the fundamental processes" than the preparation and printing of the student publications? This one project alone gives the student experiences which contribute directly to *all* of the seven cardinal principles.

EXPLOITING PUPILS

Quite frequently the charge is placed at the door of the graphic-arts field that students are exploited in order to produce printing for the school. No group in the educational field is more aware of this problem than the graphic-arts teachers, and possibly a group has never encountered a more embarassing situation. The remedy is within their control only to the extent that they can cope with the problem of convincing school administrators and school officials that it is more economical to the taxpayers to purchase printing than it is to exploit students to the point that their education is being interfered with.

Graphic arts has much more to do than produce printing which rightfully belongs in the commercial channels. The body of knowledge around which a course of printing can be built is without limit. It encompasses history, art, language, mathematics, chemistry, physics, the social sciences, geography, and many other subjects in no small degree. To study the graphic arts via the printing route can contribute as much to the renaissance of the individual as the invention of movable types contributed to the Renaissance of the Western World.

There is not a hamlet nor even a hut in the most remote region of our country that is not affected by printing. The deaf, the dumb, the blind, the educated and the uneducated, even the illiterates, come under its encompassing rays. If disregarded in all other values except the economic, printing and the graphic arts would still leave a decided mark upon our civilization for it ranks near the top in the value of the product.

EDUCATIONAL VALUES

Glen U. Cleeton of the Carnegie Institute of Technology, in discussing the relation of graphic arts to education, analyzed the term printing thus:[2]

[1] *Standards of Attainment in Industrial-Arts Teaching*, American Vocational Association, 1934.

[2] Address delivered before the Printing subsection of the American Vocational Association, Chicago, 1935.

1. Printing is used to designate a major industry producing a consumable commodity.
2. Printing encompasses a group of occupations.
3. The printed word is a social force.
4. Printing is an agency of social, artistic, educational, and economic progress.
5. Printing is a field of historical research.
6. Printing is an art related to other fields of endeavor; namely, publishing, advertising, and writing.

Each of these functions of printing is rich in educational correlations.

Printing itself has been so busy perpetuating the other arts and sciences that for many years there was a decadence in the products of the press. In more recent years there has been a marked tendency for a revival of the beauty and grace that marked the work of some of the old masters.

In discussing the relationships of art and printing, Douglas C. McMurtrie says:[3]

> The object of any work of art is to evoke an emotion. Does a poem of real significance run a better chance of gaining its object when it comes to us in the crowded columns of a newspaper or when the page is not only clear typographically, but beautiful as well? We react to art not through one sense at a time. It is on rare occasions that we can see a work of art in any medium, independent of its environment. . . . As a picture frame executed by a master of the framing art can help present a great oil painting more favorably than when the canvas is stretched bare over its frame, so can the artist in bookmaking present to the reader a literary composition in a setting favorable to its esthetic appreciation and enjoyment.

[3]*The Book*, Covici-Friede, New York, 1937.

CAMPUS ACTIVITIES

Beginning July 1, 1943, the US Navy maintained at Kansas State Teachers College a V-12 Officer Training Unit, with an initial complement of 248 trainees and staff of nine officers. With the end of the war in the Pacific, it was decided to discontinue the V-12 program, and the College was notified of the termination of the contract at the close of the seventh term, October 31, 1945. The occasion was marked by a convocation in honor of the departing trainees, held in the College auditorium on Wednesday morning, October 24th. Dr. William T. Bawden, who served as V-12 Coordinator, was the principal speaker. Addresses were also given by President Rees H. Hughes, and Lt. Phillip E. Taylor, Commanding Officer.

Kansas State Teachers College this year enters upon a widened field of service through the authorization by the Board of Regents to grant a straight Bachelor of Science degree. This degree will be sought by students who do not look forward to teaching, and who desire a liberal education with emphasis on the sciences. The curriculum leading to this degree does not include the 15 semester hours of education courses which are required of the candidate for the degree of B.S. in Education. The new Bachelor of Science degree, the Bachelor of Arts, and the special degrees in Commerce, Music, Art, and Mechanic Arts, give the student who does not wish to prepare for teaching a wide range of offerings from which to choose the one best suited to carry out his educational plan. The offering of the new degree is regarded by members of the faculty and other friends of the institution as the most significant step forward since the inauguration of the Graduate Division in 1939.

One of the most important campus events of the fall season was the piano recital given by Gui Mombaerts, of the College Faculty, in the Music Hall Auditorium to a packed house on Tuesday evening, November 6, 1945. Opening with the great "Appassionata" Sonata of Beethoven, Op. 57 in F Minor, he then played a group of numbers by later French and Spanish composers, and concluded with three works by Chopin. Competent critics are agreed that Mombaerts gave a remarkable performance, and in his interpretations of the works of composers of widely differing schools gave evidence of thorough mastery of the piano.

During the intermission, Birger Sandzen, artist and teacher at Beth-

any College, Lindsborg, gave a short, informal talk on "Art and Life." During the week beginning November 5th, a collection of Sandzen's paintings in oil and water color and etchings was displayed in the lobby of Music Hall.

The Future Homemakers of America held a district conference at Kansas State Teachers College, in October, 1945. It was conducted by Miss Marjorie Bricker, of Kincaid, Kansas, assisted by Mrs. Ruby Warren, of the KSTC faculty. The program was planned around the national theme, "Swinging Toward New Horizons With Something for Others, for Us, for Our Homes, for Fun." More than 100 persons attended the conference.

Six new members of the faculty joined the staff of Kansas State Teachers College in the fall of 1945:

Dr. Edward C. Roeber, former member of the faculty of Hamline University, St. Paul, Minnesota, came to Pittsburg as associate professor of education and director of guidance.

Dr. Cecelia Ruth Earhart, formerly of the Whitney Vocational High School for Girls, Toledo, Ohio, is the new head of the Department of Home Economics.

Gui Mombaerts, instructor of piano in the Department of Music, is a native of Belgium and a graduate of the Royal Conservatory of Music at Brussels. He was for 15 years pianist with the Beligan piano-string quartet.

Ruth Aaro, formerly instructor at the State University of Iowa, Iowa City, is instructor in the Department of Commerce and Business Administraton.

Esther J. Lee, of The Stout Institute, Menonomie, Wisconsin, was appointed a member of the staff of the Kansas State Board for Vocational Education, with headquarters at Kansas State Teachers College. She is an itinerant teacher trainer in vocational homemaking.

Mrs. Myrtle Miller, formerly health councilor for the United Automobile Workers, was appointed health councilor at Kansas State Teachers College, where she will work directly with the College Physician.

In addition to the foregoing, Dr. E. Judson Humeston, Jr., formerly a member of the faculty of Hollins College, Virginia, has been appointed librarian. At the time of appointment, he was still in military service. As soon as he was discharged he expected to enroll at Peabody College for Teachers, Nashville, Tennessee, to complete some graduate work interrupted by the war. He will probably report for duty at Kansas State Teachers College in the summer of 1946.

Dr. Verne C. Fryklund, formerly of the Department of Industrial Education, University of Minnesota, and guest professor at Kansas State Teachers College in the Summer Session of 1934, was named president of The Stout Institute, Menomonie, Wisconsin. He took office on October 1, 1945, following his discharge from the U. S.

Army, where he served for the past three years as Lieutenant Colonel in the office of the Assistant Chief of Staff, Army Air Forces.

The 15th annual Play Day was held at the College on Saturday, October 13, 1945, under the auspices of the Women's Health and Physical Education Division, with approximately 200 high-school girls in attendance. Thirteen high schools in Missouri, Oklahoma, and Kansas were represented. The program of events included: swimming, games, tour of the campus, library, music studios, art galleries museum, science laboratories, visual education and photographic laboratories, crafts shops, School of Printing, and the aviation mechanics shop. Luncheon was served in the Cafeteria. The active sponsors of the project are the Women's Health and Physical Education Majors and the Women's Recreation Association.

Miss Celeste Carlyle, well known groomist and stylist of Chicago, made her third visit to the Kansas State Teachers College campus during the week of November 12-16, 1945. Miss Carlyle emphasized good health, attractive appearance, pleasing speech, general alertness, and an unawareness of one's self as a wholesome individual, as well as sympathy, kindness, cooperation, industry, and honesty of purpose as the bases upon which successful living is built and as being essential qualities for a college student to attain. She added, "These characteristics cannot be attained overnight by a mere act of will, but they can be achieved through conscious day-by-day practice."

Miss Jennie C. Walker, Dean of Women, attended the State Dean of Women's Association which was held in Wichita October 19 and 20. She presided at the afternoon session on Friday, October 19. Dean Walker also attended a Regional USO meeting which was held in Wichita October 8th.

Dr. J. Gordon Eaker, head of the Department of Language and Literature, contributed an article, "Emergent Modernism in Late Victorian Fiction," to the *South Atlantic Quarterly* for July, 1945. Dr. Eaker is chairman of the nominating committee of the Victorian Literature section of the Modern Language Association.

Dr. Walter Pennington, associate professor of English, has an article in the October number of *College English,* entitled, "English for War Veterans."

Mrs. Edna Powell Day, associate professor of English, was elected chairman of the English Roundtable for the ensuing year at the Kansas State Teachers Association which was held at Parsons, November 2, 3, 1945.

Mrs. Virgil Gordon Smith, associate in journalism, was recently named Kansas Publicity chairman of the American Association of University Women.

Dr. Oris P. Dellinger was elected president of the Crawford County Historical Society at the annual meeting held in Pittsburg on Monday evening, October 22nd, 1945.

Mrs. Elmer W. Jones was elected regent of the Southeast Kansas Daughters of the American Revolution at the Annual Convention held in Fort Scott on Friday, October 19, 1945. Pittsburg was chosen as the place of meeting for the 1946 convention.

The annual District Vocational Homemaking Conference was held at the College on Saturday, October 13, with representatives in attendance from 19 towns in Missouri, Oklahoma, and Kansas. Prof. E. Louise Gibson, of the College Home Economics Department, was leader of the conference, and was assisted by Mrs. Ruby Warren of Frontenac. The program for the day provided discussion of four major topics of interest to homemakers: Values of Family Cooperation in the Postwar Period, Future Homemakers of America, Improvements in Housing, Planned Saving and Spending. Refreshments were served at the close of the conference.

Charles H. Morgan, football coach since 1931, was appointed acting Dean of Men at the opening of school in September, 1945, and at the same time was promoted to the rank of assistant professor of physical education. He will continue with his duties as athletic coach.

Dr. Jane M. Carroll, professor of education and principal of the Horace Mann Elementary School, served the past year as president of the Kansas State Teachers Association. In this capacity she spent considerable time visiting schools and addressing audiences of teachers and school patrons in all sections of the state. In September and October she assisted in conducting a series of "zone schools," designed to aid the officers, delegates, chairmen of committees, and other workers in the six sectional conventions of the State Teachers Association, in planning the programs for the annual meetings, in studying the larger aspects of public education, and in formulating plans for the improvement of teaching in Kansas.

Miss E. Louise Gibson, associate professor of home economics, was a member of the Home Economics Workshop conducted by Clara Brown at the University of Minnesota during the 1945 summer session.

Miss Betty Maninger, senior major in home economics and president of the KSTC Home Economics Club was elected president of the Kansas Association of College Home Economics Clubs during the second semester of 1944-45.

COMMENTS ON BOOKS

General Education in a Free Society
Harvard University Press
Cambridge, Mass., 1945

The report of the Harvard Committee on *General Education in a Free Society* is one of the most significant studies of the whole American educational system that has appeared in years. The committee of twelve professors who made the study became so much absorbed in their task that they gave many days during almost three years to discussing the problem. Furthermore, the professors of the special fields ended in substantial agreement with the professors of education.

The survey gives most attention to the secondary schools and colleges. The report opens with a statement of the great growth of the school population and the impact of industrial change in our life. Since 75 per cent of our high-school graduates do not go to college, democracy must be saved in the secondary schools. This is where the great need for unity among people in diverse occupuations is apparent. Rapid social changes, the authors believe, must not be allowed to obscure the great constants of our cultural heritage.

The committee recommends setting up in both secondary schools and colleges a core of courses in general education—in the humanities, the social studies, in science, and mathematics. The literary masterpieces should be edited for present day value, and the great authors should be allowed to speak for themselves without too much collateral comment. Teachers should merely help the authors to do their own teaching. Only the best should be taught as models of writing and thinking. And even those students who will not go on to college should be informed about the universal problems of the ages and the principal attitudes that have been taken toward them. Foreign language should be taught first to illuminate English in two respects in which English supremely needs illumination: syntax and vocabulary. Only a few students will find foreign language a humanistic study.

In the social studies, the danger of superficiality must be guarded against. The study of immediate problems alone is inadequate, since such problems are always the product of tradition. The focus of general history should be Europe. Geography should be linked with history. American history should not be taught merely for coverage, but critical periods should be selected to bring out principles and to enable students to form judgments based upon sound evidence.

Science, in its turn, demands pre-

cision, laboratory observation, and mathematics. The students should be taught where the sciences meet and wherein they differ. The history and literature of science should not be ignored through preoccupation with present-day applications. There is no single scientific method, but science tries all methods.

The thesis of the report, in general, is that a reasonable portion of every curriculumn should be general, that is, education for students who do not intend to take advanced work in those subjects. The purpose of general education is to enable all people to talk about fundamental issues in an enlightened way. Extra-curricular activities, too, should contribute to the general end in view. Nor should poetic meanings reached through the emotions and the imagination be neglected.

The report concludes with specfic recommendations for Harvard College. It appears that Harvard has developed very successfully its areas of concentration but has not safeguarded general education. The committee recommends that six out of the 16 courses in Harvard should be in general education. The great texts of literature, history, and science are recommended as a basis for reading, discussion, and lectures. Even though these great books have always been above the majority of their readers, the books are none the less educative. Too many students to-day have too little contact with thoughts beyond them, the authors state, and many are passionately if inarticulately hungry for greatness among the common cares of life.

The report should bear fruitful results in many a curriculum study throughout the country.—J. Gordon Eaker.

The Dictionary of Education
McGraw-Hill Book Company, New York, 1945

Kansas State Teachers College received recognition of its standing among colleges of the United States in the field of industrial education by the selection of two members of the faculty to serve on the editorial staff of *The Dictionary of Education*, published in August, 1945, by McGraw-Hill Book Company, New York.

The book was prepared and published under the auspices of Phi Delta Kappa, professional education fraternity. The entries in the book, more than 16,000 in number, define the technical professional terms in the entire range of educational thought and effort. It does not catalogue names of persons, institutions, school systems or organizations, places, or titles of journals. Neither does it attempt to define foreign educational words, terms, or expressions, except those most frequently used.

The editorial staff of the book consisted of more than 100 reviewers and coordinators, who were selected because of their prominence in their particular fields. Kansas State Teachers College was represented by Dr. Otto A. Hankammer, present head, and Dr. William T. Bawden, former head of the Department of Industrial Education, who served as reviewers and coordinators in defin-

ing the terms in the field of industrial education.

From the state of Kansas, five other educators were represented on the editorial staff of the *Dictionary*: Two from the University of Kansas, one from Fort Hays State College, one from Kansas Wesleyan University, and one from the Kansas State Department of Public Instruction. A copy of the new book is in the College Library.

Contributors to This Number

Leroy Brewington (M.S., Kansas State Teachers College, Pittsburg) is assistant professor of industrial and vocational education and supervisor of printing in charge of the College School of Printing. He had five years of practical journeyman experience in newspaper and job-printing plants in Independence and Herington, Kansas. For nine years he served as supervisor of printing in the Pittsburg Senior High School. He was appointed to his present position on January 1, 1935.

Hazel Cave (M.S., University of Wisconsin), after serving one year as instructor of physical educuation at Iowa State College, came to Kansas State Teachers College in the same capacity in 1925. Following a year of graduate study at the University of Wisconsin, she received the MS degree in June, 1930, and returned to the College with the rank of assistant professor. She completed one summer session of graduate study at the University of Colorado. The school year, 1939-40, was spent in graduate study at New York University. On February 1, 1943, she resigned to enter a training course with the American Red Cross in Washington, D. C., preparatory to an overseas assignment. She returned to the College in the summer of 1943.

Lawrence Everett Curfman (M. S., University of Colorado) came to Kansas State Teachers College in 1920 as assistant professor of Mathematics, was promoted to associate professor in 1923, and professor in 1926. He is a graduate of the College of Engineering, University of Illinois, with degree of B.S. in Civil Engineering. He took his graduate work at the University of Colorado, where he was awarded the degree of M.S. in Mathematics in 1931. He was engaged in civil engineering work from 1905 to 1920, a portion of this time as City Engineer. During World War I, he served with the 314th Engineers, AEF, and was promoted to Major and then to Lieutenant Colonel. He is a life member of the American Society of Civil Engineers, also member of the National Council of Teachers of Mathematics, Mathematical Association of America, of the National Education Association, and of the Kansas State Teachers Association. At the University of Illinois, he was elected to membership in Tau Beta Pi and Sigma Xi.

Laurence Gilpin Cutler (A. B., University of Kansas) came to Kansas State Teachers College in the fall of 1935, and is assistant in printing. Prior to coming to the College, he was engaged in printing and news-

paper work, having served on the Abilene, Kansas *Reflector,* the University of Kansas Journalism Press, and the Newark, Delaware, *Ledger.* He was also for a time, manager of the Messenger Printing Company, Caldwell, Kansas. He holds a life membership in Sigma Delta Chi, professional journalistic fraternity, and is a member of the International Typographpical Union. He is also a member of the Kansas State Teachers Association, American Vocational Association, Kansas Vocational Association, and the National Education Association.

Otto A. Hankammer (Ph. D., Ohio State University) is professor and Head of the Department of Industrial and Vocational Education. From 1917 to 1919 he served overseas in the U. S. Signal Corps, AEF, as instructor, and as master signal electrician. He had art training under private instructors, was a free lance artist for several years, and has had experience as an industrial draftsman and designer. He served two terms as president of the Kansas Industrial Arts Association and one term as president of the Kansas Vocational Association. He took the qualifying examinations and was approved as instructor of courses in international radio code and in identification of airplanes under the Civil Aeronautics Administration, also engineering drafting and descriptive geometry in the national defense program, and taught these courses at the College. He was a student at Wooster College, Ohio, in 1913, holds the B.S. degree, Kansas State Teachers College, 1927, and the M.A. and PhD. degrees, Ohio State University. He came to the College as instructor of drafting in 1922; in 1930 he was promoted to associate professor, in 1937 to professor, and on July 1, 1945, to head of department. In 1944-1945 he inaugurated a strong program of visual education, and the beginning of a well equipped laboratory.

S. Lucille Hatlestad (Ph.D., University of Iowa), a graduate of Iowa State College, B.S., 1924, and State University of Iowa, M.A., 1930, came to the College as Assistant Professor of Health and Physical Education in 1930, and was promoted to the rank of Associate Professor in 1939. During this period she was twice acting head of the Department of Health and Physical Education for Women, and again from 1942 to 1945. She was a graduate student at Columbia University and at Ohio State University. In addition, she has had special training in Red Cross Life Saving and First Aid, and in physiotherapy, photography, and music, and has competed with amateur status in golf and tennis. Before coming to the College, she had four years' experience in high school and junior college. Other experience included drafting and designing with the Iowa State Highway Commission; playground supervision in Columbus, Ohio; social director of women's dormitories, State University of Iowa and free-lance art work. She held a graduate fellowship in the Interior Decorating De-

partment, Division of Home Economics, Iowa State College, 1924, and served as research assistant in Child Welfare and Physical Education, State University of Iowa, 1937. She has been an active member of important Physical Education Associations, and served one term as Vice-President of the Kansas Health and Physical Education Association. She has contributed articles to the bulletins and journals of these associations, and is a member of the research council of the American Association for Health, Physical Education, and Recreation. She is also a member of the National Education Association; Kansas State Teachers Association; Business and Professional Women's Clubs of America; American Association of University Women; and American Association of University Professors.

J. A. G. Shirk (M.S., University of Kansas) is head of the department of mathematics. He taught mathematics and physical science in McPherson College, Kansas, for three years and later held a similar position in Ottawa University for six years. He is a member of Sigma Xi, a fellow of the American Association for the Advancement of Science, and a past president of the Kansas Academy of Science. His published articles appear in the *Transactions* of the Kansas Academy of Science and in the Mathematics Teacher.