

The Shakespearean Ciphers Examined.

An analysis of cryptographic systems used as evidence that some author other than William Shakespeare wrote the plays commonly attributed to him. William F. Friedman and Elizabeth S. Friedman. Cambridge University Press, New York, 1957. xvii + 303 pp. Illus. \$5.

The Friedmans have attempted a scientific examination of an irrational cult. That is at once the strength and the weakness of their book.

An astonishing number of people, most of them educated and many of them distinguished scholars, have denied that Shakespeare wrote the plays attributed to him by his fellow actors Heminge and Condell and by many others of his contemporaries. Yet a few of the witnesses, like the first important one, Robert Greene, were so hostile that they would have missed no opportunity to reveal a hoax had they suspected its existence. Why has their testimony been disputed? The idolatry of Shakespeare's extreme admirers during the 19th century inevitably produced sceptics who pointed out that the idol was only a simple country boy from Stratford who could not possibly have possessed the supernatural wisdom claimed for the author of the plays. But the sceptics themselves needed a faith. Looking for a more suitable candidate for apotheosis, they lighted upon Francis Bacon, whom they supposed the founder of modern science and the wisest man of his age. The Baconian hypothesis is, in its way, a minor heresy thrown off by the modern worship of science. But other claimants have also been advanced—the Earl of Oxford, Queen Elizabeth, and most recently, Christopher Marlowe.

This denial of Shakespeare's authorship is fundamentally a faith held in defiance of evidence that scholars trained in historical research find thoroughly convincing. But the Baconians, too, sought for evidence to support their faith; and, since Bacon had himself described an extraordinarily good cipher based upon the use of two fonts of type in the same text, they have looked for ciphers, as well as acrostics and anagrams, in the works of Shakespeare and Bacon. Different type faces undoubtedly appear there, as they do in almost all Elizabethan books. Proponents of the ciphers have claimed to find not only revelations that Bacon (or others) wrote the plays but also various historical revelations, often scandalous, and even other plays concealed as cryptograms in the folio text of Shakespeare. These claims the Friedmans study in the light of their expert knowledge and experience (they are among the most distinguished living cryptologists), and they easily demonstrate that the so-called ciphers meet

none of the tests imposed by a good cryptologist and are so loosely conceived that they could produce any result subconsciously desired by their proponents. As a scientific examination of evidence, this book is devastating, and it would settle the controversy forever if a faith could be destroyed by rational arguments.

But the faith itself is, to the student of human behavior, more interesting than the spurious ciphers developed to buttress it. The Friedmans furnish only glimpses into the minds of the decoders. All of them invite curiosity as to their mental processes; one, at least, betrays, in the revelations that she detected, symptoms of sexual pathology. A fuller discussion of the human phenomena behind the alleged cryptograms would have made the book, for one reader at least, more interesting and more significant as a contribution to learning.

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The World Beneath the Waves. Gilbert Doukan. Translated by A. and R. M. Case. De Graff, New York, 1957. 356 pp. Illus. \$6.

This volume is a comprehensive compendium in which are described the efforts of man to penetrate beneath the waters, both of the shore and of the open ocean, and there to carry on various activities. The major emphasis is on skin diving and hunting, and the locale is chiefly Italy and France. The translation has been done well, and the coverage is thorough. Among the subjects is the history of diving, without and with apparatus, from the first man who ducked his head beneath the surface to Cousteau and Gagnan, with their modern, self-contained diving gear. Special submarine pursuits such as archeology and photography are also considered.

Throughout the book there is evident an attempt to keep the actual hunting and killing of fish in reasonable perspective and to stress the acquisition of scientific facts of behavior and life histories. This is so obviously desirable an approach that the author's emphasis is hardly needed. The matter is well summed up in a brief quotation from J. M. Peres: "Yes, it is interesting to dive deeply, of course, but we are still so ignorant of what happens between zero and thirty feet! We should begin by making a meticulous study of this superficial coastal zone; there alone there is plenty of work ahead of us for a long time to come."

As an example of the thoroughness of treatment we may take the section on venomous organisms. This is divided into

coelenterates (with the accent on medusae), echinoderms, and fishes. The creatures themselves, their method of inflicting injury, the symptoms, relative danger, and subsequent treatment are discussed in detail.

After an account of the habits of sharks and the relative danger of their attack, the author ends with a quotation from Cousteau: "It is impossible to guess how a shark will react; the more one sees of them, the less one knows them, and one mistrusts them more and more. By constantly worrying them in their own world, divers are asking for trouble. I am expecting to hear of an accident any day now, and it certainly won't be long before one happens."

In the course of hundreds of dives I have never been attacked and only rarely threatened, but I heartily concur in the final words of the author—"Beware of the sharks!"

On the whole, the volume is a welcome improvement over the majority of the numerous books on skin diving. It is well balanced, clearly written, and worth being read by those who are desirous of descending beneath the waters and those who are curious to learn of the apparatus by which man has made this possible.

The reader is grateful for an abundance of line cuts and for adequate indices, one of scientific names.

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The Space Child's Mother Goose. Verses by Frederick Winsor. Illustrations by Marian Parry. Simon and Schuster, New York, 1958. 45 verses and a glossary of terms. \$3.50.

A little knowledge of the vocabulary of science and technology plus an unatrophied delight in *Mother Goose* are positive indicators of a pleasant encounter with the space child's version of a number of old favorites.

The first verse gives the flavor of the volume.

Probable-Possible, my black hen,
She lays eggs in the Relative When.
She doesn't lay eggs in the Positive
Now
Because she's unable to Postulate
How.

Or perhaps you will like better

Möglich-Warscheinlich, mein'
Schwartzhenn',
Legt ihr Ei in das Relativwenn.

More examples: the mouse on the Möbius strip opens up possibilities unknown to the mouse on the clock; anyone who has ever bounced a youngster on his knee to "This is the way the

farmer rides" will know exactly how to show a child that "This is the way the Rocketman rides: JATO! JATO! JATO!!!" one can puzzle over the affairs of the three jolly sailors who "went to sea in a bottle by Klein"; and one can continue for quite a while after learning that "This is the Flaw that lay in the Theory Jack built."

I could go on and on, but

Russell and Whitehead and Hegel
and Kant!

Maybe I shall and maybe I shan't.

DAEL WOLFE

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The Liberal Arts College. A chapter in American cultural history. George P. Schmidt. Rutgers University Press, New Brunswick, N.J., 1957. ix + 310 pp. \$6.

George P. Schmidt of Douglass College, Rutgers University, has accomplished a feat as unusual as it is useful. In 264 pages of text he has compressed a thoroughly readable and remarkably well-balanced account of the history and present situation of the liberal arts college in this country. The 31 pages of notes, together with the brief bibliographical note, provide a well-selected list of authorities and statistics on all manner of colleges and situations. Here, for example, we can find that in 1830 the essential expenses of attending college varied from a minimum of \$72 a year (at Hamilton) to an estimated maximum of \$190 at Yale. Or that in 1860 Yale had the largest student body (502) but a smaller faculty and smaller library than Harvard, the latter having a faculty of 24 and a library of 123,400 volumes for 409 students against Yale's 21 and 67,000. But the citation of such statistics may give the impression that this is a compendium of facts and figures. It is not that. Schmidt has written a short account of the rise of liberal arts colleges which makes skillful use of figures, frequently in notes, only to round out and support his story.

The book opens with a chapter on the "first fruits," a chapter on "Colleges in the wilderness." From the founding of Harvard in 1636 through the establishment of the other pre-Revolutionary colleges, he goes, by easy transition, to the establishment of numerous colleges, many short-lived, in the newer areas. Chapters dealing with the influence of the churches on the establishment and support of colleges, and on the classical tradition, carry the story well into the 19th century. There is a delightful chapter on the "Old-time college president," one which can be criticized only for the restraint exercised by the author—an au-

thority on this subject—in not making it longer. The rise of the women's colleges to an academic equality with those for men, and the emergence of the modern, complex university, in which the liberal arts college is often a minor part, are informative but never heavy.

In the last five chapters, which make up just over a third of the book, the author deals with recent and contemporary tendencies, controversies, and problems. It seemed to me that he exaggerated the importance—for colleges as distinguished from elementary and secondary schools—of "Dewey vs. Hutchins," but he does justice to the influence of the new courses and curriculum of Columbia College and gives some indication of the variety of discussion and of experimentation in recent years.

A book of such broad scope and of so few pages cannot possibly deal fully with any of the scores of colleges, individuals, or arguments which have marked the history and present situation of American colleges. As I read it, I noticed half a dozen or more points, where, as I knew from observation or reading, Schmidt's account was incomplete, perhaps misleading. But it is not offered as a detailed, much less as a definitive, history. Within its limits of space it is remarkably comprehensive and well documented, as well as clear, honest, and entertaining. What more could we ask for?

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The Immense Journey. Loren Eiseley. Random House, New York, 1957. 210 pp. \$3.50.

Loren Eiseley has taken an immense journey through time: backward to catch tantalizing glimpses through the fog of our ignorance at the beginnings of things; forward to wonder, a little pessimistically, about the future of man. It is an imaginative journey, reported in an imaginative and evocative prose. Eiseley is not trying to popularize science. He is writing about his own inward experiences, about his reactions to the paleontological record, about his wonderment at the world in which he finds himself. He is writing for the love of words and metaphors and ideas—I wonder whether love of words and of ideas can be separated—and he should be judged in terms of this intent.

I suppose scientists can be roughly divided into two groups: those mostly impressed by our knowledge and those mostly impressed by our ignorance. The "look-at-how-much-we-know" people will not like Eiseley's book. The others will find the reading a pleasant and rewarding experience, often provocative,

often stimulating, often esthetically satisfying because of the aptness and beauty of the phrasing.

Eiseley is professionally concerned with human evolution, and much of *The Immense Journey* turns on this problem. Some of the text, on the break between Darwin and Wallace, was published in *Harper's Magazine* a couple of years ago. At that time Eiseley was criticized by some biologists for "undermining public confidence in evolution" or something similarly absurd. Because he explained Wallace's views and doubts, it was felt that he shared Wallace's mysticism. It seems to me, on the other hand, that Eiseley is looking at man in a quite hard-headed fashion, because he is willing to sketch problems for which he has no present and sure solution. We are not going to find the answers in human evolution until we have framed the right questions, and the questions are difficult because they involve both body and mind, physique and culture—tools and symbols as well as cerebral configurations. These are now the separate problems of many different sciences, but the understanding is a single problem for all science.

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Engineering Manpower, How to Improve its Productivity. A special report for management by graduate students at the Graduate School of Business Administration, Harvard University, Boston, 1957. Engineering Managements Reports, P.O. Box 161, Cambridge, Mass., 1957. 162 pp. \$16.50.

This is a report of a comprehensive survey of management practices in companies where engineering is an important function. It is the work of nine graduate students under the direction of Georges F. Doriot. They are R. E. S. Arndt, J. L. Clark, C. W. Coker, Jr., W. B. Ellis, Jr., G. C. Hibben, C. B. Johnson, Jr., S. Keehn, R. M. Priblueau, and G. A. Peterfly, the group leader.

The report concludes that the modern management practices that have been so effective in sales, production, finance, and other departments have not been applied so thoroughly in engineering. And here is something that can improve the effectiveness of engineering departments. Part of the trouble has been due to top management's not understanding the engineer's problems. Great improvement should be made in the engineering departments. In particular, the authors point to the need for better planning and leadership. Engineering's first-line supervisory personnel should be trained