often more convincing than a mere carbon-hydrogen determination. There are several hundred references to original literature, but a preponderance of the papers cited seem to be at least 20 to 30 years old.

It seems incomprehensible that in this book no use is made of ultraviolet and infrared spectra, nuclear magnetic resonance, or gas chromatography. Most chemists consider these indispensable aids. Fifteen or 20 years ago this book might have been preeminent in its field. Although it still has some excellent features, the book is seriously deficient because it ignores most of the newer tools that are so useful in the analysis of organic compounds.

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Mathematics: Problems for Fun

Challenging Mathematical Problems with Elementary Solutions. vol. 1, *Combinatorial Analysis and Probability Theory*. A. M. Yaglom and I. M. Yaglom. Translated from the Russian edition (1954) by James McCawley, Jr. Revised and edited by Basil Gordon. Holden-Day, San Francisco, 1964. viii + 231 pp. Illus. $5.95.

The Survey of Recent East European Mathematical Literature, financed by the National Science Foundation, is adding to the growing interest in new approaches to mathematical learning. *Challenging Mathematical Problems with Elementary Solutions*, an open door to Russian pedagogy, was compiled and published in Russia by twin brothers A. M. and I. M. Yaglom. It contains some problems originally discussed in the School Mathematics Circle, designed for secondary school students, and others used in the Moscow Mathematical Olympiads. The latter is a mass problem-solving contest given annually in an effort to find young persons who are mathematically gifted.

Combinatorial analysis and probability theory are combined to produce problems that require answers to the following questions: How many? In how many ways? How often? Many of the problems in this book represent questions in higher mathematics, although no knowledge beyond that presented in a good high school is necessary for their solution. The following statement is made in the preface to the American edition: "This adaptation is designed for mathematics enthusiasts in the upper grades of high school and the early years of college, for mathematics instructors or teachers and for students in teachers' colleges, and for all lovers of the discipline."

Brief explanatory material and statements of problems greet the reader first. Answers and hints are given at the back of the book. Between the two are the "solutions" (diagrams, discussions, and complete calculations for each problem), thus enabling the self-disciplined student to teach himself. The various sections include problems related to the chessboard, the binomial coefficients, representation of integers as sums and products, combinatorial analysis, computing, probabilities, and experiments with infinitely many possible outcomes. Sets, random choice, convexity, and other notions used in the new mathematics for high schools are introduced and used. A system of asterisks is used to "grade" the problems with respect to their difficulty.

Classical examples are given: Fermat's Theorem: If p is a prime number, then $n^p - n$ is divisible by p for any n; and Cayley's problem: How many convex k-gons can be drawn, all of whose vertices are vertices of a given convex n-gon and all of whose sides are diagonals of the n-gon? Then there are modern versions of old favorites like the problem of the four liars: It is known that each of four people (A, B, C, and D) tells the truth in only one case out of three. Suppose that A makes a statement, and then D says that C says that B says that A is telling the truth. What is the probability that A was actually telling the truth? Among those attributed to 20th-century mathematicians is Banach's match box problem: A man buys two boxes of matches and puts them in his pocket. Every time he has to light a match, he selects at random one box or the other. After some time the man takes one of the boxes from his pocket, opens it, and finds that it is empty. What is the probability that there are k ($0 \leq k \leq n$) matches left in the other box, if each box originally contained n matches?

East Europeans, particularly the Poles, have found that students who are good at, and interested in, extracurricular activities of this caliber may very well develop into first-rate research mathematicians. The kernel of the process is the presentation of a problem with a limited amount of information so that an elementary solution is possible but not immediately apparent. Its solution affords the thrill of discovery and the glow of self confidence.

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Legislative Components

The Lawmakers: Recruitment and Adaptation to Legislative Life. James David Barber. Yale University Press, New Haven, Conn., 1965. xiv + 314 pp. $7.50.

The literature of political science in the United States abounds in finely honed analytical exercises. *The Lawmakers* is one of these.

The author, James David Barber, assistant professor of political science at Yale University, establishes a typology of legislators. It is based primarily, he tells us in his preface, on "twenty-seven long private interviews, tape-recorded with the subjects' consent, with legislators serving their first session in the Connecticut House of Representatives." From the 27 interviews, the author culled 12. These, in turn, furnished three examples of each of four legislative types—"spectators, advertisers, [and] reluctants and lawmakers."

The Spectator-type, according to Barber, is a small-town, middle-aged individual, often a woman, with limited skills, restricted ambitions, and modest achievements, whose easy good-nature serves to dampen tensions. Often he (or she) belongs to the minority party in localities where political survival is sought by simply filling the ballot. The legislature is "an awfully good diversion," one Spectator-type is quoted as saying.

The Advertiser qua legislator, on the other hand, is portrayed as a young person of some social and economic substance, who by much hurrying seeks to attain power and security. This self-salesman's chief stock in trade is "personality politics."

The Reluctant is akin to Winnie-the-