Sociologists acquire data through the direct or indirect questioning of individual respondents more than from any other single source. So long as their Soviet colleagues obtain information in the context implied by this passage, one is bound to suspect that the responses are not likely to be reliable—and that may well be the fundamental obstacle to the development of sociology under Soviet conditions.

ROBERT A. FELDMESSER
Dartmouth College,
Hanover, New Hampshire

Processes of Analysis

Introduction to Real Analysis. CASPAR GOFFMAN. Harper and Row, New York, 1966. 174 pp., illus. $7.50.

A first course in the calculus develops intuitions about differential phenomena in mechanics and geometry. These intuitions are useful if two conditions are satisfied: (i) some reality is associated with the concepts of instantaneous rates of change, of the content of figures with irregular boundaries, of extreme values, and of approximation; and (ii) simple cases of the phenomena can be computed. It is too much to expect that the subtleties of careful mathematical exposition of these ideas will be mastered. Since the presence of singularities in physical situations is still beyond the student's experience, there is little motivation for a precise study of limiting processes.

The situation changes with the second course. Whether the student now has primarily mathematical interests or anticipates the use of mathematics in others fields, the methods of analysis must be more clearly understood. Physically significant singularities do exist; the computing machine has made the nature of a convergence process a very practical matter; the spread of statistical models in all fields makes analytical probability a basic tool. Goffman's text provides a judicious choice of topics and an agreeable style of exposition with which to make the shift toward sophistication. Before uniform convergence is introduced the functions $nx/(1 + n^2x^2)$ are shown to converge nonuniformly to 0, and the principle of condensation of singularities is exhibited. The theorem on uniform approximation of continuous functions by polynomials is reached via the famous Bernstein polynomials, and a page is devoted to describing their probability properties. The last chapter gives an account of Fourier series for Riemann integrable functions in the perspective of orthonormal series. It concludes with Fejer's theorem on the uniform convergence of the means of the Fourier partial sums for a continuous function.

Along the way the author develops the standard special functions and their functional equations, functions of bounded variation and the Stieltjes integral, power series, including Abel's theorem and one of its converses, and the fundamental results of the differential and integral calculus. The real number system and its topology are disposed of in 26 pages. The exhibition of analytical pathology for its own sake is avoided. There are a large number of exercises, some of which extend the main line of the text.

There is solid fare for a semester course here, and a nonmathematician who is curious about how the calculus lives at home might find some pleasure in the book.

LEON W. COHEN
Department of Mathematics,
University of Maryland, College Park

Young Emissaries

Volunteers for Peace. The First Group of Peace Corps Volunteers in a Rural Community Development Program in Colombia, South America. MORRIS I. STEIN. Wiley, New York, 1966. 272 pp., illus. $7.95.

Four months after President Kennedy established the Peace Corps on 1 March 1961, the first contingent arrived at Rutgers University to be trained by CARE to work with Colombian villagers in a program of community development. Morris I. Stein tells the story of these 62 young men—why they volunteered, how they were screened and trained, what they accomplished on their missions, and how they were affected by their experience—and discusses the usefulness of psychological measures in predicting their performance.

The book pioneers in several ways. U.S. commitments to developing nations have made the "overseas American" a subject of increasing concern. Anthropologists have documented attempts to introduce "western" innovations into traditional societies. But aside from a dozen interview surveys of returned Americans, little quantitative research on such agents of change has been published. Stein took measurements of the Peace Corps group six times: at the beginning of training, after six months in the field, after one year in the field, on completion of service, six months later, and one year later. Around these statistics, enriched with quotations and case histories, he builds an account that is coherent and scientifically sound.

Especially intriguing is the promise of a personality typology for improving the selection process and predicting effectiveness. The personality types were derived from self-descriptive rankings of 20 paragraphs based on "needs" in Murray's system of personality—achievement, affiliation, dominance, order, and so on. By a "*Q*-factor analysis," nine-tenths of the trainees could be categorized in five main types. At the end of two years, three supervisors who had close contact with the volunteers and their communities rated the volunteers' effectiveness. The "action-oriented" type, surprisingly, scored the lowest—significantly lower than the "intellectually oriented" or the "socially oriented." Five of the seven action-oriented volunteers had frequently had problems that needed administrative intervention; not more than one-fourth of the other types presented such difficulties. Yet at the outset, the Final Selection Board had accepted all trainees of the action-oriented type and had rejected one-fifth to one-third of the other groups. Why the discrepancy? The Selection Board, Stein suggests, may have been impressed with the achievement orientation and self-confidence of this type. In the field, however, the essential task was to help *others* organize so as to achieve their own goals, and the action-oriented person might lack the patience to share control with others.

The data also suggest the typology as a "moderator" variable (D. R. Saunders) to improve selection. For the total group, only the letters of reference and the Final Selection Board's overall rating correlated significantly with effectiveness in the field. But within certain types, ratings by instructors and psychiatrists as well as test scores correlated significantly with performance. Knowledge of Spanish (instructors' rating) showed no correlation with effectiveness. More important, Stein suggests, was a sincere desire to communicate.

Another pioneering aspect of the study is the plotting of changes over time. The author sees the volunteers

as experiencing a "growing freedom from submissiveness to others and a consequent involvement in the fulfillment of [their] own capabilities." They became more democratic in social attitudes and more concerned with national and international matters. Stein speculates on the Peace Corps experience as a "psychological moratorium" (a concept from E. H. Erikson) in which the volunteers could explore a variety of new roles before settling into adult commitments.

The author is hopeful for the Peace Corps and convinced of its value, yet he disciplines his optimism within the context of objective data. The presentation carries the reader's interest forward. The style is straightforward and free of jargon. The statistical tables are unobtrusive (although the material on time trends might better have been plotted as graphs). Stein shows how the tools of psychological assessment can clarify the task of people-to-people assistance, and at the same time he advances the development of the assessment process itself.

DONALD C. PELZ
Survey Research Center,
University of Michigan, Ann Arbor

Aeronautical Breakthroughs

Aviation: The Creative Ideas. OLIVER STEWART. Praeger, New York, 1966. 244 pp., illus. $7.50.

Oliver Stewart argues that of the small creative band who have provided the basic aeronautical ideas, a large percentage have been British. Long the editor of *Aeronautics* (London) and a perennial commentator at the annual Society of British Aircraft (now Aerospace) Constructors show at Farnborough, he writes with familiarity of Sir Alliott Verdon Roe (A. V. Roe), the Short brothers, the Hill brothers, Cierva, Handley Page and Lachmann, A. A. Griffith, and Barnes Wallis. In general the approach is topical, with the development of each aeronautical breakthrough associated with one or more men who worked in Britain. The major exception is the long first chapter on Clement Ader, for whom Stewart claims the laurels for the first powered flight. A very loose chronology is employed which can lead many readers astray and give the impression that events which were a decade apart followed each other in short succession. But the major problem with this useful and provocative work is that it is inaccurate. Its faults stem from journalistic familiarity. There is too great a reliance on memory and upon conversations many years after the vital event. My own acquaintance with the work of Barnes Wallis makes me have considerable doubts about the accuracy of much of the book. Stewart is apparently unaware of Wallis' background. The airship *R 100* was not the first but the last of these machines which Wallis designed and built. He joined Vickers in 1913 and was trained by H. B. Pratt. By 1916 Wallis had become the chief airship designer and had produced the plans for *R 80*, a fully streamlined ship equal to the Zeppelins in conception. When airship work was stopped at the end of the war, he took a doctorate. Sir Dennistoun Burney coöpted him to design *R 100*, on which Nevil Shute (N. S. Norway) also worked. This fully streamlined ship was the forebear of the geodetic system and a major contribution to the whole field of structural engineering. Wallis then carried this work on through the Wellington-Warwick series of twin-engined bombers to the four-engined Windsor, which Stewart does not even mention, though it had several interesting features, including remote-controlled 20-millimeter cannon mounted in the rear of the engine nacelles. Moreover, except for the dam-busting bombs, Wallis' superbombs were developed from the streamlined *R 100*, as comparative photographs of the bombs and the airship clearly show. Whereas in the airship the fins were designed to maintain stability in level flight, in the bombs they were offset in order to provide stability through spinning. In the case of Oswald Short the interest in all-metal stressed-skin construction was a natural development from Short Bros.' work with seaplanes and flying-boats. The Shrimp seaplane of November 1919 was built with steel wing spars and the all-metal Silver Streak followed in July 1920. In an album of photographs which Oswald Short gave me several years ago he made no such claims as Stewart does for him in chapter 3 that the machine was a breakthrough in streamlining. Regretfully it must be concluded that this would have been a much better book if the author had checked his memory against the facts.

ROBIN HIGHAM
Department of History,
Kansas State University, Manhattan

Nitrogen Compounds

Developments in Inorganic Nitrogen Chemistry. Vol. 1. CHARLES B. COBURN, Ed. Elsevier, New York, 1966. 591 pp., illus. $32.50.

"Much of the interest in the resurgence of inorganic chemistry during the past twenty-five years has been directed towards the novel and unusual. . . . However, during this same period the chemistry of even the best known of the elements has undergone tremendous development and change even though it was scarcely noted," Charles B. Colburn writes in his preface to this projected two-volume work, which is intended to "review in considerable detail the chemical status of one of those relatively neglected elements—nitrogen" and "to bring the inorganic chemistry of nitrogen up to date to the mid 60's."

The present volume attains this objective very well. It is not a book to be read to gain a general impression of the field as a whole. Rather, it is a book to be consulted to learn the state of development of particular aspects. The chapters are written by acknowledged authorities on their subjects: "Bonding in nitrogen compounds," by M. Green [these include diatomic species (NH, NH^+, N_2^+, CN, NO, and NO^-), polyatomic species (triatomic molecules, radicals, and ions; HNCO; CH_3N_2; and so on) the N-Si bond; oxides; and cyclic compounds]; "The inorganic azides," by A. D. Yoffe; "Compounds containing the sulfur-nitrogen bond," by M. Becke-Goehring and E. Fluck; "Nitrogen ligands," by W. P. Griffith; "Phosphorus-nitrogen compounds," by M. L. Nielsen; "Nitrogen compounds of boron, aluminum, gallium, indium, and thallium," by J. K. Ruff; and "Inorganic reactions in liquid ammonia," by G. W. A. Froles.

The professional associations of the authors reflect the international character of modern chemical investigation. Each of the chapters represents a major effort at compilation and is sufficiently complete to have justified a small book in itself. The authors are to be congratulated on the thoroughness with which they have accomplished their assigned tasks. The book will prove very useful to those working on inorganic nitrogen compounds and to others who require ready access to information about them. Full use is made of figures and tables in presenting the abundance of data.

Any book compiled in sections by