



Political Science

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“REVOLUTION” PROBABLY IS THE most overused and abused word in the English language. It is made to do service in describing everything from the violent overthrow of legal governments, its primal social meaning, to the action of a Paris fashion salon in raising hemlines three inches above the knee.

Webster, however, decrees two other and more general meanings for the word: “going round in an orbit” and “a total or radical change.” If we use the term in these senses, political science is undergoing a revolution. Since about 1950 the ancient discipline once known as the “queen of the sciences” has been shifting and turning and churning in a manner which Aristotle no doubt would find unseemly.

The characteristics, results and desirability of this revolution are matters of considerable controversy within the discipline. There is not even agreement on what label to attach to the upheaval, though most political scientists—whether or not they liked what it designated—probably would settle for the label “behavioral revolution.”¹

The behavioral movement was² largely a protest against the traditional concerns and preoccupations of political scientists, both in terms of substance and procedure. Behavioralists felt that the traditional focus on legal governments, the “institutionalist” approach, was substantively misdirected and procedurally restrictive. Put superficially, their contention was that “institutions do not act, only men act,” and their injunction was to study the political activity of men, not just that small segment of it which took place in large concrete buildings in Washington, London, Moscow, Sacramento, or in the local city hall. While some see the behavioral movement primarily as an effort to instill a more explicit and rigorous concern for scientific method into political science, others contend that it is more than just a synonym for what is virtuous in research and that there are important sub-

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stantive implications.³ Exactly what segment of man's total activity is "political" has never been unambiguously delineated, even to the satisfaction of the behavioralists themselves.

The effect of the behavioral revolution upon political science as a whole is not relevant here. It has had, however, one major implication for bibliographical and informational needs within the discipline which must be discussed briefly.

The discussion perhaps can best be set within the framework of the 1950 "Chicago study" on bibliographical services in the social sciences. This study distinguished two categories of social science literature: "The first is what is generally understood by social science literature: publications reporting studies of ideas about human behavior, i.e., the great bulk of social science writing. The second is the source data for social science: statistical reports, legal documents, voting records, mass-communication materials, etc."⁴

The authors concluded that bibliographical control of the first category of social science literature was in a bad way, and particularly so in political science, but that it was at least susceptible to control, and they recommended a series of immediate, intermediate, and long-range efforts to bring some order into the chaos. The second category, however, was "extremely diversified and voluminous," there was no "limiting definition on what might serve someone, sometime, as data for social science," thus it was not considered feasible to invest time and resources in this area. This was a "bibliographic 'future'" which must await the development of new electronic devices.⁵

In their largely successful efforts to reorient the discipline of political science, the behavioralists also vastly enlarged and intensified the demand for the second category of material described in the Chicago study. The change in emphasis is partially symbolized by the phrases used to describe the preliminary stages of research work. Thirty years ago the political scientist embarking upon a piece of research probably would have spoken of "searching the literature." Today he is likely to talk of "data gathering," and the data he gathers—or attempts to gather—range far beyond "literature." He has broken the bounds of the second category definition in the Chicago study; the "etc." tacked onto that definition has been stretched in several directions, most spectacularly to include the card decks and tapes containing the results of survey research.

The political scientist of the previous generation, studying the politics of the Gold Coast, might have been content with the London

Times and a few publications of the British Colonial Office. Today his successor wants to know the world market price of cocoa, the amount and content of U.S. economic assistance to Ghana, and the tribal distribution of population, and he wants access to any relevant survey research done in Ghana in order to exploit it for his own purposes through secondary analysis.

The vagueness of the boundaries of political activity or behavior, referred to earlier, does preclude any precise "limiting definition" on the range of data encompassed by present-day political science. The behavioralists have made their point that political science should be empirical; in the process they have made political science "imperialistic" in its need for and consumption of the raw material known as "data."

While the impact of behavioralism upon political science has been extensive, the traditional concerns of the discipline have not disappeared. As Heinz Eulau notes, "Political science carries the burden of both past and future. It is, of necessity, a historical discipline, and, of equal necessity, a predictive science."⁶ The historical analogy for the behavioral revolution might be the American or Turkish revolutions, not the Russian or Chinese. It has not changed everything, and some things it has changed very little. The need for bibliographic control of "literature" remains and has been intensified, both as a result of continuing traditional demands and as a result of demands stemming from the behavioral movement itself.

The transition from "Gold Coast" to "Ghana" in the example used above illustrates another vast expansion in the informational demands of political scientists. Twenty years ago the sub-field of political science known as "comparative government" was not truly comparative, nor did its geographical range extend much beyond Europe and North America.⁷ The academic study of non-Western areas was largely the preserve of anthropologists, linguists, and a small band of orientalists. The spectacular postwar growth of "area studies" programs in American universities, stimulated by the foreign policy concerns of the U.S. government, is well-known to librarians. Partly as a result of participation in these programs, political science broke out of its culture-bound focus. At first the resulting informational-bibliographic demands were more or less traditional, though no less difficult to meet for that reason. Beginning in the late 1950's however, this segment of political science also was "behavioralized" to some extent, a development symbolized by the change in terminology from "comparative government" to "comparative politics" or "comparative cross-national research."

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These two revolutions in political science—which might be somewhat tortuously labelled the “behavioral-vertical” and “geographical-horizontal” revolutions—in combination with continuing traditional concerns, have intensified the demands upon bibliographic services and have created innovative demands for newer and radically different data services.

This article will attempt to survey recent developments in both the “literature” and “data” sectors. The line between the two is by no means self-evident. Generally, however, the literature sector will relate to what librarians have understood as “bibliography”; the data sector will relate primarily to quite recent and in many cases only projected developments in the gathering, storage, and retrieval of “data” as opposed to “literature.” No pretense is made at exhaustiveness; rather, the effort will be to analyze broad types of bibliographic and data services and needs.

Literature Sector

With minor exceptions, the discussion here will follow the categories outlined in the “Chicago study” and will cover only the period from 1950 to date.

Guides to the Literature. Until quite recently, there was nothing approaching a general guide to the literature of political science since Burchfield’s manual, done in 1935 under the auspices of the American Political Science Association.⁸ Burchfield attempted to cover both the “substantive” and “reference” literatures; efforts since then usually have divided along these lines and have been much more selective.

The expansion of the literature of political science and the increasing specialization—some would say fragmentation—within the discipline, have made efforts at general coverage increasingly difficult. Heinz Eulau’s excellent analytical essay is the most recent attempt to cover the substantive literature of political science as a whole but is necessarily and deliberately highly selective, limited to a review of major American works in book form.⁹ Most substantive guides focus on some very narrow segment of the literature and take the form of very occasional bibliographical essays in periodicals. A number of “area studies” guides have appeared which incorporate political science literature in part, one example being Horecky’s guide to Western-language publications on the Soviet Union.¹⁰

Selective guides to the reference literature of political science have appeared as sections of larger works on the social sciences as a whole,¹¹ or have been based upon particular library collections.¹²

Within the last year two volumes have appeared which provide up-to-date and reasonably adequate coverage of both segments of the literature: Wynar's *Guide to Reference Materials in Political Science*¹³ and Harmon's *Political Science; a Bibliographical Guide to the Literature*.¹⁴ Though neither pretends to comprehensiveness, both are valuable additions in a field which has lacked any general guide for thirty years.

Books. The Chicago study concluded that social science literature in book form was "relatively accessible" through catalogs, bibliographies, indexes, book reviews, and book listings in journals. Though no definition of "accessibility" was offered, presumably it referred chiefly to author-subject listing of books in the various sources mentioned.

There is practically no empirical evidence as to the accessibility, in these terms, of political science literature in book form today. One analysis in one sub-field of political science, international relations, concluded that the best bibliography of books in the field, the *Foreign Affairs Bibliography*, (published in New York for the Council on Foreign Relations), listed fewer than twenty percent of the books on international relations cataloged each year by the Library of Congress.¹⁵ The degree of coverage of other "discipline-oriented" sources, such as the professional journals, is unknown but obviously highly selective in the case of any single source. "Comprehensive" access, to the extent that it is available at all, must be through general sources such as national bibliographies and printed library catalogs. There is no American counterpart to the *Literatur-Verzeichnis der politischen Wissenschaften* (Munich, 1952-), an annual annotated list of German works on political science.

Access to book reviews in political science remains highly problematical. The H. W. Wilson Company's *Book Review Digest* and the Gale Research Company's new *Book Review Index* provide largely duplicative coverage of a few "peak" scholarly journals. The great majority of professional journals in this field remain outside the scope of any centralized book review indexing service.

Periodical Indexes and Abstracts. The Chicago study of 1950 concluded that one of the major bibliographical needs in political science was for improved indexing and abstracting services. The newly-formed International Committee for Social Science Documentation was reaching the same conclusion at about the same time.¹⁶ Since the early 1950's the ICSSD, in conjunction with UNESCO and the International

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Political Science Association, has sponsored two publications designed to meet these needs.

The quarterly *International Political Science Abstracts*, started in 1951, each year carries about 1,500 abstracts, providing complete coverage of the articles in some fifteen leading political science journals and selective coverage of approximately ninety-five others. The annual *International Bibliography of Political Science* (1952-), both a periodical index and a book list, provides selective indexing of several hundred periodicals.

A few new index and abstract services oriented toward specific subfields of political science have appeared since 1950. *Public Administration Abstracts and Index of Articles*, issued monthly by the Indian Institute of Public Administration in New Delhi, indexes thirty to forty English-language journals in each issue—though the coverage of specific journals is erratic—with ten to fifteen article abstracts.

The *Air University Library Index to Military Periodicals*, initiated in 1949 at Maxwell Air Force Base, Alabama, has expanded to cover approximately seventy English-language military and aeronautical journals not indexed in commercial indexes.

Peace Research Abstracts Journal, initiated in 1964 by the Canadian Peace Research Institute and now published with the assistance of UNESCO, abstracts articles and papers “on every aspect of peace, war, and world affairs.” The ultimate aim of the *Journal* is to cover all relevant literature published anywhere in the world since 1945. *Current Thought on Peace and War* (1960-), published in New York by the Institute for International Order covers similar ground, while the *International Information Service* (1963-), published in Chicago by the Library of International Relations, focuses somewhat more on factual “current affairs” sources than upon scholarly writings.

Though these and other specialized indexing services have developed over the last fifteen years, none has been sufficiently comprehensive in scope or detailed in coverage to allow political scientists to dispense with older and more general “social science” tools, such as *Public Affairs Information Service, Bulletin* (New York, 1915-), the *Bibliographie der Sozialwissenschaften* (Göttingen, 1905-), *Bulletin Analytique de Documentation Politique, Économique, et Sociale Contemporaine* (Paris, 1946-), or the *International Index*, now re-titled *Social Sciences and Humanities Index* (New York, 1907-15-).

Bibliographical Reviews. The Chicago study concluded that “the single most desirable addition to the present bibliographical system in

the social sciences would be a series of bibliographical review articles" in each discipline.¹⁷ Such a service has been developed for sociology in *Current Sociology*, which evolved out of the UNESCO-sponsored *International Bibliography of Sociology*. In political science the situation is no better, and perhaps worse, than it was fifteen years ago. The *American Political Science Review* and other scholarly journals occasionally publish bibliographical reviews on specific topics, but the rate of publication appears to have declined somewhat in recent years. This may be one reflection of the trend away from "library-oriented research" and toward field or survey research which several observers have noted as one of the consequences of the behavioral movement.¹⁸

Government Reports and Documents. There probably have been greater changes since 1950 in this category of "literature" than in any other surveyed in the Chicago study. Detailed discussion lies beyond the scope of this paper, but one or two developments require mention.

Though government publications always have been major source materials for political scientists, prior to World War II they were relevant largely within the then "institutionalist" framework of the discipline. Political scientists mined the *Congressional Record* and other legislative publications, court reports, and such Presidential documents as were available; their need for and use of publications of the various federal departments and agencies carrying statistical and other data were relatively minimal.

In the postwar years this situation has changed drastically, as a result both of changes within the discipline and within the government. On one hand, the new demands originating in the behavioral movement have led political scientists to attempt to exploit the vast mass of statistical data generated by governments at all levels and by international agencies. On the other hand, the federal government in particular, because of its increased domestic and especially international responsibilities, is issuing many more publications—and sponsoring research—of interest to political scientists.

As a result of these developments, both on the "demand" and "supply" ends, the relatively positive conclusion of the Chicago study with respect to bibliographical control of federal government publications no longer holds. The 1950 report noted that "for United States documents, a complete and well-indexed service is provided currently in the *United States Government Publications: Monthly Catalog.*"¹⁹ Today, largely because of decentralized government publishing and lack of administrative control over publications output, the *Monthly*

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Catalog is far from a complete listing of government reports and documents.²⁰

On all levels of government over the last fifteen years, it appears that publication output has far outstripped the minor and uncoordinated improvements which have been made in bibliographic control. The contrast between production and control of translations of foreign-language materials provides one illustration of this development. In 1957 the federal government established an interdepartmental agency, the Joint Publications Research Service, to produce translations of foreign sources, primarily those emanating from what then was known as the "Sino-Soviet Bloc." By 1963 JPRS had produced some 27,000 translations running to more than a million pages. By 1964 it was issuing almost 500 translations per month, and the listing and indexing of these were taking up approximately twenty-five percent of the space in the *Monthly Catalog*. Beginning with 1965 the Documents Office ceased its previous practice of listing and indexing JPRS translations separately and collapsed about seventy percent of them into general series entries, in effect largely eliminating bibliographical control over this output. In a new twist, the Joint Publications Research Service has been seeking private foundation grants—so far without success—to finance efforts at bibliographic control of its own output.

While the overall picture certainly is less positive than in 1950, certain segments of political science have felt some bibliographical "spillover" from the new postwar interests and activities of the federal government. Various agencies, particularly the Defense and State Departments, have issued bibliographies of value to specialists in international relations, defense policy, and non-Western areas. One example is the quarterly abstracting service, *Arms Control and Disarmament*, published since 1963 by the Library of Congress through support from the U.S. Arms Control and Disarmament Agency.

On the state government level, the primary bibliographical tool remains the *Monthly Checklist of State Government Publications*, issued by the Library of Congress. Though the *Checklist* has more than doubled in size since 1950, in 1960 it was estimated that it covered fewer than sixty percent of all state publications issued.²¹ The *Legislative Research Checklist*, issued quarterly by the Council of State Governments, provides a subject listing of current "research assignments" and completed "research reports" on studies conducted by state legislative service agencies and study commissions. For several

years primarily an internal organ of the various state legislative reference bureaus, in 1959 the *Checklist* was expanded and made available to a wider audience.

Research in Progress. In this area political science exhibits an anomaly common to most social science disciplines. The *American Political Science Review* (Baltimore, 1907-) carries an annual listing of research in progress in connection with doctoral dissertations, but there is no register of research being undertaken by faculty members and other established scholars in the discipline. Since October, 1964, the periodical *American Behavioral Scientist* (Princeton, N.J., 1957-) has published a monthly index of research grants and contracts awarded by public and private agencies in various social science fields. Though a welcome innovation, the listing covers only a fraction of current research in political science.

Again, the needs of the federal government have functioned to fill part of this gap. Since the early 1950's the Office of External Research in the State Department has maintained a register of current research being done by non-governmental specialists. At present the register is published annually in seven sections, six dealing with various geographical regions of the world plus a seventh general section on "international affairs." This effort is confined to research relevant to the State Department mission, however, and does not encompass many of the sub-fields of political science. The External Research Office also maintains a similar register of current "in-house" research by various government agencies or officials, but this is not published and apparently is available only to scholars with security clearance.

Machine Applications to Bibliographic Control of Literature. Compared with natural and physical scientists, and even with some of their colleagues in other social sciences, political scientists have been relatively slow in envisioning the application of computer technology to their bibliographic problems. In the last few years, however, political scientists increasingly have begun to decry the inadequacies of traditional methods of bibliographic control and to call for help from the computer. Their discussion and writing have followed a pattern set in other disciplines: complaints about traditional methods, initial visions of immediate utopia flowing from the machine, then hard grappling with the intellectual as well as technical problems of machine application.

Apparently the first instance of machine application to the literature

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of political science was the KWIC index to articles in the *American Political Science Review*, published in 1964.²²

The leading exponent—and practitioner—in this area, however, has been Alfred de Grazia, professor of government at New York University and founder-editor of the *American Behavioral Scientist*, originally entitled *PROD; Political Research: Organization and Design*. The first issues of *PROD* in the late 1950's contained very brief bibliographies of current political science literature, and this effort gradually evolved into a special section of the *American Behavioral Scientist* entitled "New Studies: a guide to recent publications in the social and behavioral sciences." This work alerted de Grazia to the "increasing bibliographic frustration" among social scientists,²³ to the problems of manual control, and to the potentialities of machine applications. In 1960 he wrote: "The gentle lady who gives you your library book may soon be as rare as 'pop and mom's' corner grocery store. The reason is the same; just as the chain stores and supermarket have taken over food supply and distribution functions, new forms of organization may soon supplant the traditional library system and the library research techniques used by present-day scholars and librarians."²⁴

Through the early 1960's de Grazia made the *American Behavioral Scientist* a forum for writings on bibliographic and data problems in the social sciences.²⁵ By 1963 he had developed a "Topical and Methodological Index," a special social science classification system consisting of some 250 terms emphasizing methodological and theoretical approaches and adaptable to computerization.²⁶ This classification system was further refined and in 1965 was applied to the first of a projected ten-volume series of bibliographies in "Political Science, Government, and Public Policy."

Volume 1 of this Universal Reference System series, on *International Affairs* (New York, 1965), was produced on IBM 1401/1410 computers and contains citations, annotations, and indexed descriptors of over 3,000 books and articles. The bibliography itself is unexceptional, being limited largely to standard English-language publications of recent vintage. The major innovation, aside from the classification system, is the intensive indexing, ranging from ten to twenty entries for each document in the bibliography. The result is a volume in which the annotated bibliography consumes only 212 pages, while the index runs to 995 pages.

The Universal Reference System program is in a very early stage;

there has been little opportunity for "feedback" from users, and evaluation is probably premature. Judging from the first volume, however, it would appear that its utility will depend heavily upon how well the descriptors of de Grazia's "Topical and Methodological Index" fit the needs of researchers and upon the value of "intensive" access to a relatively small body of standard literature.

Some question about the latter point can be superficially illustrated by the entries under "Vietnam" in the index to the *International Affairs* volume. Three entries appear, one referring back to Bernard Fall's widely-known book, *The Two Vietnams*, the other two to articles in *Current History*. It might be assumed that a researcher or librarian would have retrieved these sources plus many others through library catalogs and standard periodical indexes. The value of the more than twenty truncated descriptors applied to Fall's book, indicating among other things that it deals with the "economic system in underdeveloped countries" and that "security, order, restraint" are advocated by the subjects of the book or discussed by the author, may seem problematical. As de Grazia notes, "Under other systems, unlike the URS CODEX, a topic is understated in the index."²⁷ The relative utility of an "adequate" statement—or perhaps "overstatement"—of a restricted body of literature versus "understatement" of a larger range of literature, assuming that available resources or the state of technology force a choice between the two, must be determined ultimately by the needs of users.

The version of de Grazia's classification system adapted for use in the *International Affairs* volume contains many descriptors, e.g., countries and regions, standard in library subject cataloging and traditional bibliographies. Others, such as the six descriptors of the "Manipulative Tactics Index" reflecting the influencing tactics of the actors under consideration in a document, or the thirteen descriptors reflecting the "Ethical Base" of the authors of documents, represent distinctly new approaches.

Given the recent emphasis upon methodology in political science, sparked in large part by the behavioral movement, de Grazia's focus upon the methodologies employed by authors may prove his most useful innovation. Eighty-two of the 183 standard descriptors in his classification system deal with "Methodology" and permit approaches to the literature almost entirely absent from traditional bibliographic tools. The value of this innovation may have been somewhat obscured in a volume on international relations, one of the segments of political

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science which has been slowest to adopt new methodological departures. In a field in which research still is based heavily upon conventional analysis of documentary records, for example, the utility of coding for "conventional content analysis: records, research, documentary analysis"—leading to 782 index entries under the truncated descriptor "DOC/ANAL"—might be questioned.

Nine other volumes of the Universal Reference System series, covering various sub-fields of political science plus some relevant literature from related disciplines, apparently will be published over the next three to four years. They should constitute a substantial new contribution to literature control in political science.

Data Sector

One of the major emphases of the behavioral movement, particularly in its early years, was upon "quantification." Generally, behavioralists argued that if political science was ever to be in a position to explain and predict political behavior, it was necessary to locate and work with units of action or behavior which were sufficiently numerous to allow for quantitative analysis. Frequently the explicit or implicit model to be emulated was the discipline of economics, which employed money as its basic unit of analysis and exhibited a heavy quantitative emphasis.

Though the behavioralists have reached no agreement on the specific unit or units of analysis which political science should employ, their emphasis on quantification spurred far greater demands for statistical data than were present within the discipline twenty or thirty years ago. These demands were arising at a time when the computer technology requisite to large-scale quantitative analysis was becoming available, and the availability of continually improving computer hardware in turn stimulated greater data demands.²⁸

Stein Rokkan, a Norwegian political scientist who has written extensively about data sources and services, offers a classification of data which—though cast originally in terms of comparative cross-national research—serves well as a focus for discussion of political science data generally.²⁹

Rokkan's first category, that of "process-produced data," consists of artifacts and documents and is roughly equivalent to the literature sector discussed above. Rokkan notes that it was this type of data, exploited in an unsystematic manner, which furnished the data-base for most earlier work in political science. In recent years the avail-

ability of computer hardware has greatly facilitated the more systematic application of content analysis techniques to documentary materials. The most extensive political science work in this area has been done by Robert North and associates at Stanford,³⁰ applying the General Inquirer approach developed by Stone and Bales³¹ to documents relevant to international crisis situations, such as the outbreak of World War I, Sino-Soviet relations in the early 1960's, and the Cuban missile crisis.³²

These applications are primarily "project oriented." Though of considerable interest to political scientists working in the same subject areas, they do not result in an end product of wide public interest or susceptible to secondary analysis by other scholars for purposes different from those which concerned the original researchers. Thus the problem of data control, in the sense of making the end product known and available to other users, is minimal.

"*Micro-political Data.*" The situation is far different with respect to Rokkan's second category, that of "micro-political data," which refers to the end product resulting from sample surveys carried out by commercial and academic survey research agencies.

The "polls" have been an increasingly familiar American phenomenon since the Gallup Poll began in the 1930's. Since then hundreds of other commercial polling organizations, plus survey research centers based in universities, have developed both in the United States and Europe and to a lesser extent in other regions. Information on the number and kinds of sample surveys done is skimpy. In 1963 alone, however, it was estimated that forty-seven American survey research organizations completed 3,319 surveys, seventy-eight organizations in continental Europe conducted 2,772 surveys, and 120 groups in Britain carried out 2,086 surveys.³³ Not all of these surveys are of political interest, of course, many being market research studies for business.

While the Gallup, Roper, and other polls have appeared in newspapers and other media for years, the only significant compilation of survey research data is the volume on *Public Opinion, 1935-1946*, edited by Hadley Cantril and published in 1951.³⁴ This contained data from over 12,000 surveys of twenty-three organizations, primarily in the United States, for the 1935-1946 period. Cantril's compilation preceded the explosive growth of survey research which came in the 1950's, and since then no other general compilation has been attempted. From 1940 to 1951 the journal *Public Opinion Quarterly* carried a section entitled "The Quarter's Polls" which reported all avail-

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able results from major U.S. polling organizations plus occasional polls from other countries. This feature was reinstated in the Spring, 1961, issue of *Public Opinion Quarterly*, but necessarily on a highly selective basis.

In 1965 the World Association for Public Opinion Research initiated a new periodical, entitled *Polls*, the first issue containing data from seventeen organizations in ten countries. Sixty-two survey organizations in twenty countries have promised to cooperate by providing data. Also in 1965, the Gallup organization began publication of the monthly *Gallup Political Index*, which carries selected data from current polls and lists all Gallup Poll releases for the year.

From the early 1950's on, however, the growth of survey research far outstripped efforts to control and make available its results through publication and compilation. As the number of surveys mounted, and as research expanded from gross polling of national populations on "current affairs" questions to highly diverse research of empirical and theoretical interest, social scientists became concerned about what happened to the card decks, tapes, questionnaires and code books which resulted from surveys. Their concern was less about the specific findings of particular surveys, which usually were analyzed for publication by the original researcher, than about the availability of the survey records for secondary analysis by other social scientists. As one of them noted, "The bulk of the data from commercial polls and surveys has never been subjected to anything beyond the most elementary analysis. For reasons of economy and time, the polling agencies and the survey organizations have in the vast majority of cases limited their press releases and their reports to the presentation of the overall response distributions and the more obvious breakdowns by single background characteristics. Great quantities of data, some of them freely available, others confidential or classified, have never been analyzed as thoroughly as their methodological quality and theoretical relevance would seem to justify."⁸⁵

These concerns led gradually to discussion of the need for "data archives" to acquire, store, process and make available the records resulting from survey research, and to the establishment of a few such archives in the United States and Europe. Considerable development in this direction has occurred within the last three to four years and cannot be covered in any detail here. The most extensive recent discussion of these developments appears in the September, 1965, issue of *Social Sciences Information* (Paris, 1962-), which con-

tains several articles on "The Development and Operation of Data Archives" and "The Technology of Data Archiving and Retrieval."

Two aspects of data archives—their pattern of organization and their problems of acquiring and publicizing materials—are of some relevance here, since they exhibit certain parallels to problems in the library field.

Social science data archives originated in conjunction with particular survey research organizations, primarily in universities, and at first were simply "passive" repositories for the data generated by the parent organization. Some of the major American archives, such as those of the Survey Research Center at the University of Michigan, the Yale Political Science Research Library,³⁶ and the Survey Research Center of the University of California at Berkeley³⁷ started in this manner, and serving as organization repository remains one of their primary functions. A somewhat different organizational pattern, more in the direction of a centralized archive, appeared in 1957 with the establishment of the Roper Public Opinion Research Center at Williams College. Beginning with data from the Roper polling firm, which were deposited at Williams in 1947, the Roper Center attempted to acquire other survey materials, and by 1964 held over 2,800 studies done by various commercial and academic groups.³⁸

As survey research accelerated in the late 1950's and 1960's, however, and as it became clear that a vast amount of data was not being collected in any of the existing archives, demands arose for a comprehensive national social science data archive supported by foundation or government financing.^{39, 40} Nothing has come of these proposals to date, primarily because of the lack of financial support but in part because of the conviction of many social scientists that decentralized archives operated by survey organizations will better serve their research and teaching purposes.

The Inter-University Consortium for Political Research, established in 1962, attempts to combine the resources of twenty-four academic survey research organizations in a cooperative venture. Organized around the Survey Research Center at Michigan, the Consortium provides for the duplication and exchange of data among its members and has as one of its objectives the establishment of archives which will acquire data records from other sources.⁴¹

A second element in the control of micro-political data, that of recording, describing and publicizing the holdings of the developing archives, is in a very preliminary stage. The Michigan Survey Research

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Center recently issued a record of its holdings,⁴² and the Roper Center is now publishing a semi-annual newsletter listing its acquisitions. The National Council on Social Science Data Archives, organized in 1965 as a loose confederation of existing archives, plans to issue a newsletter which will contain some information on archival holdings. To a considerable extent, however, the present archives are the data equivalents of uncataloged libraries. As they develop active programs going beyond the repository stage, and as their individual holdings are organized and described, something along the lines of a "union catalog" of archival data may be expected.

Aggregate Statistical Data. Social science data archives have developed entirely outside the scope of library systems; apparently no data archive is operated by or in conjunction with a library. Thus problems associated with control of micro-political data have been of little concern to librarians, though they may become more relevant as the archives develop.

Libraries are concerned with aggregate statistical data, Rokkan's third category of political data, which refers primarily to the data generated as a result of the operations of governments and international organizations. Political scientists are making much greater use of this type of data today, in large part because of the "quantitative" emphasis of the behavioralists and the newer research interests of comparative government specialists.

Political scientists complain that in this area their needs have not been well-served by governments and international organizations, whose census and other data-gathering activities have stressed economic and business data almost to the exclusion of political data. As Rokkan notes, "We still lack even the most elementary compilation of evaluated political statistics for the countries of the West. Experts on comparative economic growth can base their analyses on vast efforts of data collation and compilation by the UN and its agencies. Experts on comparative political development have no such basis for their work."⁴³

Rokkan's complaint refers to the paucity of comparable data for cross-national comparisons. Similar gaps exist even in U.S. data on the most obvious political variable, that of election returns. The disparity in availability between economic and political data is illustrated by the fact that figures on the receipts of drive-in motion picture theaters in Durham, North Carolina, are easily located in the statistical output of the federal government, while the political scientist will look

in vain to the same source for the number of votes received in 1964 by Lyndon Johnson in Phoenix, Arizona.

While making increasing use of such data compilations as are available through governmental and private sources, in recent years political scientists have begun to sponsor and produce new sources geared to their particular needs.

In the area of election statistics, for example, the volumes on *America Votes* edited by Richard Scammon,⁴⁴ which emphasize national data, gradually are being supplemented by state and local compilations done by universities or research institutes in many states. On the comparative level, the International Committee for Social Sciences Documentation plans an "International Guide to Election Statistics," which—while not generating new data—should make data in scattered sources more easily retrievable. The Michigan Survey Research Center is gathering raw data on election returns by county for the offices of governor, senator, congressmen, and president from 1824 to the present. This material is being keypunched and processed for computer analysis; when completed, the project will provide an election data base of much greater range and depth than has been available.⁴⁵

The recent ferment in the study of comparative politics, with a strong emphasis on quantification, already has produced two rather novel data sources. Banks and Textor's *Cross-Polity Survey*,⁴⁶ in effect is a computer print-out of fifty-seven demographic, economic, and political variables for 115 countries. In addition to the usual "hard" variables such as population, national product, etc., an attempt is made to code countries in terms of such "soft" political variables as "interest articulation," "stability of the party system," etc. Russett's *World Handbook of Political and Social Indicators*⁴⁷ is similar in many respects but sticks more closely to "hard" variables.

Both works cited above were produced by computer "re-processing" of data from standard statistical compilations issued by the United Nations and other agencies. These and other data sources in the planning stage arise in large part from a conjunction of two factors: research demands for such sources resulting from changes within the discipline of political science, plus the availability of computer hardware requisite to the production of new data sources. Given the intellectual and research trends running within political science, the discipline probably is only at the beginning of a "data explosion"

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which will produce numerous new data sources and services in the near future.

Conclusion. The foregoing is necessarily a cursory review of recent bibliographical developments within the "literature" and "data" sectors of political science. Even such a review, however, reveals one rather striking anomaly: despite many prescriptions concerning bibliographical needs within political science, coming both from librarians and political scientists themselves, there never has been any empirical analysis of information transfer and needs among political scientists. This gap, of course, exists throughout the social sciences. The recently completed study undertaken by the American Psychological Association is the first large-scale analysis of information and communication patterns within any social science discipline.⁴⁸ It contains many findings which undercut previous assumptions about bibliographical needs and the state of bibliography in the social sciences; for example, that *Psychological Abstracts*, which librarians have held up as the model of a social science bibliographical tool, is viewed far less positively by psychologists.

A similar study within political science would appear to be prerequisite for the rational design and development of future literature and data sources.

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