

Topographic Map Acquisition in U.S. Academic Libraries

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ACQUISITION OF CURRENT TOPOGRAPHIC mapping of adequate detail is essential in order to retain the viability of any map collection. The purpose of this paper is to evaluate the efforts of U.S. academic libraries to acquire information in the form of topographic maps. Both published and unpublished data, as well as the results of a questionnaire, will be used to show that the scope of topographic mapping being collected by academic libraries has decreased due to a number of factors. This decrease is seriously affecting the widespread availability of valuable information. Some of the problems which exist can be solved by the library community. Methods can also be employed to bring about better utilization of available funding and resources.

For decades, topographic maps have been recognized by their users as a fundamental research tool; however, this tool often has not been given the same consideration or status in libraries as other basic reference works.¹ It may be that topographic mapping is not appreciated by library administrators because its usefulness is spread among many disciplines. As collection officers know, it is difficult to justify an item if the specific user cannot be identified. Another reason may be a lack of educational emphasis in this country, as opposed to many foreign countries, on the use of mapping as a basic research tool and as a method

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of information display. Since World War II, the United States has supported the production and acquisition of topographic maps for military purposes, but our current emphasis on energy, environmental and sociological issues has given the public a greater awareness of the usefulness of topographic maps. Now in the United States, as in many foreign countries, topographic maps are considered an important research tool in evaluating and solving national problems. This is evidenced by increased allocations to U.S. governmental mapping agencies to hasten completion of the initial topographic mapping of this country and to develop a new national map series.² International agencies have also recommended that worldwide production of topographic maps be doubled, which will necessitate expenditures of over \$7 billion a year.³

Topographic mapping is a primary general reference tool used in conducting geographic investigations. It is also a fundamental support base for the study and evaluation of thematic and remotely sensed data. It can be used as the general framework for the portrayal of geographic information, whether it be abstract, intuitive or spatial. These geodetic materials are the encyclopedias of the mapping world and are among the most fundamental research tools for academic libraries.

Mapping has always been important to certain governmental agencies and private industries, but the academic community has not always recognized this medium as a creditable research tool. Traditionally, topographic maps were used by geographers, geologists, historians, political scientists, engineers, and others interested in area and location studies. However, the geographer, who was once considered to be the primary user, is today only one among many. New emphasis on interdisciplinary research, such as environmental studies, ecology, renewable/nonrenewable resource management, and urban planning, has contributed to the rise in map usage in academic libraries.⁴ These disciplines and others use topographic mapping as a basic tool for measuring and monitoring how man is using and interacting with his most valuable asset—the land. The topographic map is now utilized for research in many fields, including agricultural economics, archaeology, botany, and transportation studies, to name but a few.

Topographic mapping is “reality transformed.”⁵ It offers perhaps our best insight into how an area has and will be transformed by nature and man’s propensity for change. Researchers are increasingly treating this medium as a source of information for the formulation and depiction of abstract ideas, as well as for the location of places. The global problems which face us require thoughtful action based on new ideas

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and research which must be carried out with the most accurate information available. Topographic mapping is a valuable tool facilitating understanding of these issues. It is important that academic libraries recognize the value of this resource and that they actively support the acquisition of mapping which meets the research needs of their institutions.

Status of and Trends in Collecting

The precise status of topographic map acquisition programs in academic libraries is difficult to determine. There is a lack of hard data concerning this subject both in the literature and in map libraries. A search of the recent literature of map librarianship revealed little analysis of this subject. For this reason, we used a questionnaire to collect current data. The questionnaire was designed to gather three types of information: general facts describing the collection; data concerning collection development methods, priorities and funding; and data relating to the problems of acquiring topographic maps.

The questionnaire was sent to academic map libraries known to have medium-sized or large research collections. The third edition of *Map Collections in the United States and Canada* was used to identify libraries for inclusion in the survey.⁶ Questionnaires were sent to the seventy-one academic map libraries reporting holdings of 80,000 sheets or more. Additional questionnaires were sent to the fourteen libraries reporting holdings of 50,000 to 80,000 sheets and annual accession rates of 4000 sheets or more. This second group was included in order to gain additional information concerning the purchase of materials. A total of forty-nine responses were received from the eighty-five libraries queried, a rate of 58 percent. Based on the collection size criteria of the survey, data were received from 71 percent of the 50,000-80,000 sheet group, 57 percent of those with 80,000-150,000 sheets, and 52 percent of those with 150,000 or more sheets. The sample therefore represents a good cross section of collections in each category.

The returned questionnaires contain a large quantity of information concerning the current status of topographic map acquisition programs. However, it is apparent that most map libraries have little hard data concerning their collections. Part of the information sought was understandably unknown for most collections, and therefore rough estimates were supplied. In other cases, few statistics were available, some of which had originally been based on educated guesses and conjecture. Though these data do not lend themselves to many hard

statistical comparisons, they are useful in supporting a number of generalizations concerning the status, trends and difficulties of collecting topographic maps.

The average map collection in the sample has 158,000 sheets. Approximately 65 percent of the collection consists of topographic maps. The average accession rate is 5700 sheets per year, of which 75 percent are topographic maps. Most libraries report that selection is accomplished through use of a current written collection development policy, with consideration also given to specific academic programs and personal requests. Nearly all written policies contain specific references to topographic sets by country and scale. All reporting libraries rely heavily on participation in depository programs for receipt of topographic sets. Occasionally other programs are used. The remaining sets are obtained by purchase, with most libraries utilizing the services of a map dealer, usually the GeoCenter Internationales Landkartenhaus (GeoCenter), located in Stuttgart, West Germany. Most map collections are assigned a specific budget for the purchase of materials. The budget allocations vary tremendously, but the average was about \$3200 for the 1979/80 fiscal year.

Comparisons with previously reported data can be made in the areas of size, accession rate and depository membership (see tables 1 and 2). Information published in the second and third editions of *Map Collections in the United States and Canada* was used to make the comparisons. Data for these editions were collected in 1968 and 1975. During these years, participation in the three major depository programs increased slightly. The steady growth rate and the increased accession rate suggest that map libraries have been able to maintain viable collection development programs. However, there is much evidence to show that this is not the case.

TABLE 1
COMPARISON OF SAMPLE WITH PREVIOUSLY REPORTED DATA, 1968-80

	1968	1975	Percentage Change	1980	Percentage Change
Average size of collections	83,650	113,816	+36.0	157,696	+38.6
Average annual accession rate	4,654	5,565	+19.6	5,734	+ 3.0

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TABLE 2
PERCENTAGE OF LIBRARIES REPORTING DEPOSITORY MEMBERSHIP

<i>Program</i>	<i>1968</i>	<i>1975</i>	<i>1980</i>
United States Geological Survey	77	94	96
Defense Mapping Agency	84	86	88
National Ocean Survey	13	27	49

Information obtained from respondents supports a comment often made by map librarians, namely, that they are increasingly unable to collect important materials needed to satisfy the research needs of their clientele. Map librarians point to the acquisition of current detailed foreign topographic sets as a particularly critical problem. All libraries report that they are relying on some material that is twenty to thirty years old and/or are using mapping which is too general for their needs. This problem is a complex one. The major contributing factors are undesirable policy changes in depository programs, inadequate administrative support, inflation in map pricing, increased map production, and restrictions on the sale of material. The problem has been compounded by the inability of the library community to take action to improve the situation.

For purposes of analysis it is useful to divide topographic sets into two categories: those covering the United States and its possessions and those covering foreign countries. Mapping of the United States is easily obtainable by purchase, though academic institutions have traditionally relied on receipts from the U.S. Geological Survey depository program. Most map collections, and all of those in this study, receive U.S. topographic maps by this means. "Full" depositories annually receive approximately 4000 sheets within the topographic series; this number should rise as a result of increased funding for map production.⁷ The depository program has always been an extremely valuable source of materials. However, in recent years new products such as orthophotoquads, microcopy and metric series were not reviewed for inclusion in the program, necessitating purchase of these materials. (As this issue goes to press, however, some depository libraries report receipt of some of these materials.) This problem and others are currently under discussion by the Geological Survey.⁸ A status report presented by the Cartographic Users Advisory Committee at the Special Libraries Asso-

ciation annual meeting in June 1979 indicated that a complete review of the depository program would follow reorganization of the Geological Survey.⁹

The status of foreign topographic map acquisition is a far more serious problem. Undesirable policy changes in the Defense Mapping Agency (DMA) depository program have had a negative effect on the availability of foreign mapping in this country. The DMA depository and its predecessors once supplied selected academic institutions with large- and medium-scale materials of many foreign countries. These U.S.-produced maps were particularly valuable because they were unavailable by other means, and foreign-produced materials were often subject to restriction. Many libraries relied on the 26,000 sheets distributed between 1950 and 1970 to provide their primary coverage of foreign areas.¹⁰ A policy change in the late 1960s restricted shipments to about 200 maps per year, all of which were small-scale and readily available on the open market. The loss was both monetary and intellectual. Purchase of alternative maps is expensive and often impossible. To replace an annual shipment of 1000 sheets with foreign-produced materials would cost about \$5000 at today's prices. However, alternative mapping of restricted areas is not available from any source at any price. Due to inadequate funding and restrictions on sale, academic libraries cannot make up for the loss of this information.¹¹

Some foreign topographic data are also acquired through other government programs. Of these, the annual Map Processing Project sponsored by the Library of Congress Geography and Map Division provides the most significant amount of large- and medium-scale material. Each year, 30,000-60,000 maps are made available for selection by representatives of ten to fifteen libraries.¹² Libraries that have participated in this program rate it as an important source of mapping which they cannot afford to purchase. However, they criticize the fact that topographic sets often become split between selectors.¹³ The foreign field offices maintained by the Library of Congress also occasionally supply maps; generally, these are small-scale. No libraries in the survey reported receipts from this source, though it is known that some do, in fact, receive materials. The lack of reporting is testimony to the ineffectiveness of the program. Aeronautical charts supplied through the National Ocean Survey depository program are an additional source of small-scale maps for one-half of the reporting libraries. The charts are useful in providing current small-scale topography to supplement that received from the DMA. Some foreign map-producing agencies also maintain depository or exchange programs which include topographic

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maps. This practice is limited to five or six countries, and the number of libraries allowed to participate is quite small. In general, these other programs do not supply significant quantities of material.

The map library is left with one alternative: purchase. Until recently, purchase was not the primary method of acquiring maps. This was especially true in earlier years, when depository programs supplied the core needs of most collections. Now, we find that the ability to purchase materials is the most critical factor in meeting collection development goals for foreign mapping. Most of the collections queried cannot purchase many of the materials they need. They cite two reasons for this failure: lack of adequate support, and increased restrictions on the sale of some map sets.

Map libraries in general have never enjoyed generous support. There are no published figures regarding yearly funding for collection development, but numerous references in the literature and complaints made by most map librarians point to a chronic lack of sufficient acquisitions money. Data collected from the respondents support this claim.

Funds assigned for collection development vary radically (see table 3). Several libraries report that they receive no money, while others spend in excess of \$50,000 a year. We found that the average budget of the respondents for fiscal 1979/80 was \$3200. However, the average was closer to \$6000 among large collections. The average allocation has increased by only \$500 in the last three years. These averages were so much lower than expected that the validity of the sample was questioned. However, data collected by Stevens show a similar distribution of funding by size of collection.¹⁴ Not all of this money is spent on maps. Most collections report that these funds are assigned for the purchase of atlases, reference works and aerial photography, in addition to maps. It is obvious that the amount of money available for the acquisition of topographic mapping is quite limited.

TABLE 3
COLLECTION DEVELOPMENT FUNDING FOR MAP LIBRARIES, 1978-80
(BUDGET RANGE: \$0—\$45,000)

<i>Year</i>	<i>Average Budget of Respondents</i>	<i>Percentage Reporting Budgets under \$3000</i>
1978	\$2730	74
1979	2783	77
1980	3153	66

Inflation of map prices over the past ten years has greatly diminished the buying power of all collections. Higher prices result from the devaluation of the dollar against some foreign currencies, the rise in map production costs, and the desire of some countries to obtain more hard currency.

Extraordinary "overnight" price increases of 400 to 500 percent have been seen in the catalogs of some Third World agencies. As the only sources of detailed mapping for their countries, they evidently see outsiders as a captive audience. However, few map library budgets can accommodate these prices.

The devaluation of the dollar has had an adverse impact on the purchase of foreign topographic maps. The upward revaluation of European currencies has been especially important. Most map libraries report acquisition of detailed mapping of Europe and Latin America as their highest foreign priority. European nations map their territories at comparably large scales and at frequent intervals, which necessitates large purchases to provide good coverage. Devaluation of the dollar over the past ten years has caused many of these European maps to double or triple in price.

The location of the world's major map dealer adds to the problem. The GeoCenter, in West Germany, is considered to be the most comprehensive source of topographic maps. Ninety percent of the map libraries reported using the GeoCenter for the purchase of some of their foreign acquisitions. Regardless of the initial source of the maps, payment must be made in German currency. Since 1970 the value of the Deutsche mark has increased 115 percent relative to the dollar. The few topographic map dealers which compete with the GeoCenter have been unable to provide the quality of service and range of materials. The only other alternative is direct purchase. Though this is cheaper on a per-sheet basis, it is discouraged by many libraries due to the increased time spent ordering and the difficulties encountered in billing and receipt of materials.

The overall worldwide inflation rate in map pricing is unknown. The rates presented in table 4 are for detailed topography of Europe and Latin America purchased through the GeoCenter. The figures were calculated using prices published in the two volumes of the *Geo-Katalog*.¹⁵ Currency conversion rates were taken from the *World Tables 1976* and information used by the University of California—Santa Barbara Library.¹⁶ It was found that the price of both Latin American and European topography has tripled in the last ten years. The average price per sheet today is \$5.59, as compared to \$1.56 in 1970. The GeoCen-

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ter averages may seem too high to use in general. However, analysis of the 1979/80 expenditures of the University of California—Santa Barbara Map and Imagery Library shows that the library paid an average price of \$4.91 per sheet for foreign topographic maps purchased from a variety of sources.

A worldwide increase in topographic map production has also contributed to the need for augmented collection development funds. Between 1970 and 1974, an additional 14 percent of the world's land area was mapped at large scales. This increase is due to government support for completion of mapping underway and initiation of mapping at larger scales. Sheet production also rose, because rapid cultural change has necessitated more frequent revision, and technological advances have allowed the generation of new products.¹⁷ Much of this mapping falls within the stated needs of academic libraries.

The problems surrounding the acquisition of foreign topography are not limited to lack of money. Restrictions placed on the sale of maps adversely affect the availability of important research materials. Obtaining maps of "sensitive" areas has always been difficult, but the magnitude of the problem seems to be increasing. In the past decade more governments have come to fear both internal and external conflict and are refusing to release detailed mapping. It is difficult to determine how many series are actually unavailable, because agencies often list them in catalogs but then refuse to supply. There are several reports stating that some established series are no longer available. Libraries which do not have funds to purchase materials before they are restricted find these resources permanently removed from their reach.

As we have shown, map libraries face a number of problems in acquiring topographic mapping. Depository losses, inflated prices, increased production, and restrictions have all affected their ability to obtain materials. Given the situation, it would seem simple to provide ample justification for large increases in collection development funds. We question why this has not occurred in most map libraries. A large number of collections report that they are denied funds specifically because they lack adequate space and equipment to store the materials. They are unable to persuade administrators to allocate increased support in any of these areas. Space and equipment are important, but these factors should not be regarded as appropriate criteria for assigning collection money. Ideally, the research requirements of the institution are analyzed and money apportioned to satisfy these needs. The fact that map collections are denied funding leads us to agree with many of the questionnaire respondents when they say that library decision-makers

TABLE 4
INFLATION FACTORS FOR SELECTED FOREIGN TOPOGRAPHIC SERIES
FOR SALE BY GEOCENTER, 1970-80

Area Surveyed and Year	Average Price Per Sheet (in U.S. \$)			Price Increases		
	Large-scale ¹	Medium-scale ²	Average of Both Series	Period	Percentage Increase	Avg. Percentage Increase Per Year
Latin America ³						
1970	1.73	2.02	1.88	—	—	—
1975	3.45	3.85	3.65	1970-75	94.5	18.9
1980	5.87	7.13	6.50	1975-80	78.1	15.6
				1970-80	245.7	24.6
Europe ⁴						
1970	1.22	1.26	1.24	—	—	—
1975	2.40	2.47	2.44	1970-75	96.8	19.4
1980	4.59	4.76	4.68	1975-80	91.8	18.4
				1970-80	277.4	27.8

¹1:50,000 only

²1:100,000—1:250,000

³Survey includes 21 countries

⁴Survey includes 25 countries

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do not recognize the research value of maps.

We believe there are methods available to solve some of the problems that have been identified. Through creative management, the allocations and resources available to libraries can be better utilized.

Solutions for the 1980s

He who only jumps up and down and screams will accomplish nothing but acquiring sore feet and a hoarse voice. From the research associated with this paper, it is evident that many of the difficulties relating to the maintenance and growth of map libraries are the result of the librarian not having the attention of the administrators in a way that solves more problems than it creates. Lack of money and space are the most common complaints received from map librarians. Administrators are up to their bookmarks in what they cannot provide because of money and space constraints; however, not one time in a hundred will you hear the excuse that a book cannot be bought because there is not quite enough space or money for that particular purchase. Why, then, is the mapping world, for the most part, suffering from money and space malnutrition, even though library budgets continue to grow at a rate that almost equals the book inflation rate? The answer often is that library decision-makers do not listen to map librarians. Perhaps a new approach is needed. Some people will say they have exercised all of their options to no avail. At this point it is worthwhile to examine the critical planning components used to develop a viable map library.

Politics play a major role in any research library. The way in which politics can be used is determined by the administrative environment and usually must be assessed from within. Political influence is often directly proportional to the planner's ability and marketing techniques. Political judgment is one of the most perplexing issues facing the map librarian. Whether it is an innate talent or something one learns through experience is difficult to assess. Librarians who are apolitical or nonpolitical, for whatever reason, will lose what measurable amount of influence they may have. They will hand, gift-wrapped, those elements of power they could exercise to the library decision-makers.¹⁸ Political influence is often dependent on how well the librarian has planned his campaign and sold his product.

How do you go about doing this within a library environment? Identify present and potential clientele, even those on the fringes. Address a wide variety of constituents, not just the geography department. Determine what will sell each type of user on the materials collected. Find things that will grab their imagination and inform them

how to obtain better research results by using your products. Demonstrate what can be gained by utilizing mapping information, and show what will be lacking in their study if these materials are not used as one of their research tools. Once the client has been identified, it becomes necessary to develop a plan.

Most administrators do not have a feeling for the magnitude of map library resource needs. They will respond best to a well-defined, articulate, limited-growth plan, a plan that is actively supported by users and thoroughly documented. In the plan, it is important not to limit your vision or imagination. Be creative; however, try not to overjustify the relevance of your product. A well-publicized, useful product will justify itself.

Documented justification must be reinforced by hard statistical data. Our research has shown that there is a serious lack of this type of information in map libraries. The importance of maintaining and collecting topographic mapping is self-evident in some large research institutions; however, most administrators and those persons who have historically used only traditional book materials must be educated in the applicability of this research medium. In part, this responsibility rests with the map librarian. Keep in mind that those who have not been trained in map use might be embarrassed to admit their lack of knowledge.

Of course, the map librarian might accomplish this goal by default, that is, by waiting for the user to confront the administration over the lack of materials. The librarian can then say, "I told you so." However, by that time most of the materials the map collection and its patrons need will be out of reach due either to an inordinate financial investment or to governmental restrictions. The final result will be the same: administrative officers may hold the map librarian responsible for not having planned ahead and anticipated the "newly identified" needs. It also follows that an administrator might find that the same argument applies to him. Decision by default is not a responsible approach at any level.

How does one market a product? How does user demand affect the generating of credibility with those who control library resources? To market a library product, the librarian must show the potential users that if they do not have access to this resource, they will not be recognized as having exhausted the research materials available for their field. It is important that a false situation not be presented to the user. The product must be kept in its proper perspective in relation to the many other research tools available to the user. Mapping, regardless of how it

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is supported, is no more and no less useful than the patron's needs dictate. It is important to show how mapping can add depth and understanding to research endeavors. Administrators and patrons must be made to realize that these materials, while not a panacea, are as valuable as any other research source and worthy of priority consideration. The librarian must know the problems and anxieties of both patron and library official and have a well-considered sales plan. Otherwise, only a minimal amount of success will be evident in the map collection and patrons of the library are thereby denied one of its most valuable assets—topographic mapping. Demand for the materials will come only from actively selling the information potential of your product judiciously and with tact; “don't wait to be discovered.”¹⁹ Go to your constituents with a plan that illustrates your concern for their needs and demonstrates the usefulness of the product. Without political credibility and demand for the products, the map librarian will always live in the shadow of discontinued administrative support.

Some of the problems identified here can be resolved through concerted group effort. Though map librarians have traditionally been active in professional organizations, their participation has been directed toward the sharing of information. They have not effectively lobbied to support the needs of map libraries or map librarianship. The desire to use professional organizations as a means of effecting change is recent, as reflected in the current focus within the profession on choosing the most appropriate organization. We are not advocating a particular organization. However, group action is needed in order to improve the collection development capability of map libraries and the variety of materials available for research. The following steps could be taken to resolve some of the problems.

An attempt should be made to regain access to the materials once freely distributed through the DMA depository program. In this age of freedom of information and critical evaluation of government agencies, it is possible that a well-documented case presented to congressional leaders by a recognized body would bring the release of some of these materials.

It is necessary to educate library administrators in order to effect change at all levels. Depending on the library, the impact of a single map librarian operating within a large bureaucracy can be quite small. The credibility of the map librarian could be enhanced among administrators if he or she were effectively supported by a recognized professional organization. Such a group must take the initiative to inform library leaders of the value of map collections and the need for increased support.

Justification for map library support can be improved with more extensive research. Given the present work loads in most map collections, the librarian cannot take the time to conduct adequate in-depth studies. Libraries need to encourage basic research by allotting time for this specific endeavor. However, library schools where this would ordinarily occur do not hire full-time faculty interested in map librarianship.²⁰ They need to recognize their responsibility to advance this aspect of librarianship.

The Library of Congress should be encouraged to make better use of its field offices. Their offices, which exist in several foreign countries, were established to procure and catalog materials of that area. They have not been responsive to the needs of map libraries. They are in a position to obtain topographic sets being published, and should be encouraged to provide maps on a standing-order basis. This would lessen the time and money that individual libraries spend on acquisitions.

A combination of microcopy, deselection and cooperation should be used to provide better utilization of the map resources and funding currently available. This could be done to maximize the variety of topographic sets in this country. Many librarians report that they are unable to increase map acquisitions due to shortages in space and equipment; yet, few of them rely on interlibrary loan as a source of materials. The responses received indicate that many libraries are collecting essentially the same sets. It would seem prudent to diversify the sets being acquired.

We suggest that libraries begin by reviewing their needs and resources and those of neighboring institutions. By establishing cooperative collecting policies and interlibrary loan arrangements, some of the duplicate mapping could be weeded or retained in the form of microcopy. Needed original copies could be spread among the participating institutions or stored in regional centers. Purchase of new materials would follow these same policies. Libraries would thus gain needed space and equipment to support their local needs while having access to a greater range of maps.

Conclusion

We have used published and unpublished data, as well as the results of a questionnaire, to study the current status and trends in the topographic map acquisition programs of academic libraries. Evidence shows that the level of acquisition of this mapping is remarkably low

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compared to the stated need for it. The situation regarding foreign materials is especially critical. The major collecting problems can be identified as loss of depository receipts, inadequate funding support, inflated map prices, increased production, and government restrictions. We suggest resolving these problems by obtaining better internal and external support through planning, organized action and cooperative efforts. We foresee that the 1980s will be a time of stringent funding as academic institutions face declining enrollments. It is imperative that library administrators recognize the resource value of topographic mapping and aggressively support acquisition of this medium.

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