

Rochester Institute of Technology

A Thesis Submitted to the Faculty
of The College of Fine and Applied Arts
in Candidacy for the Degree of
MASTER OF FINE ARTS

The Bausch & Lomb Industrial Design Department
Identity Program

by Lorrie Frear

May 19, 1981

Approvals

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Thesis Committee

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List of Appendices

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Introduction

The Industrial Design Department plays an important role in the development of Bausch & Lomb products. However, many employees are unaware of the resources and capabilities of the department. The growth of the company in recent years and the self-sufficiency of operating divisions have contributed to this lack of awareness. This compounds the problem faced by new personnel such as engineers, marketing experts and product managers whose projects could benefit from the expertise of the industrial designers but who do not realize that such assistance is readily available within the corporation.

A related problem is one of misinformation and misconceptions among employees regarding the responsibilities and duties of the industrial designers. As is often the case in art-related fields, the work methodology which the designers follow to solve problems is overlooked, and only the results of this methodology are noticed. For example, some employees believe that industrial designers are primarily interested in selecting colors and improving cosmetic appearances of products. While it is true that the industrial designers do accomplish these tasks, they do so within the framework of the total design requirements of the project, and as such they are not arbitrary, "Arty" decisions. Also, these tasks represent only two of the many design considerations involved in the development of products.

In an effort to increase awareness and clarify misconceptions, an identity program for the Industrial Design Department was developed. This program is composed of three components. To increase awareness of the existence and capabilities of the Industrial Design Department, a visual image was created which accompanies all circulating drawings and materials. This constitutes Component One of the identity program. A questionnaire distributed to product managers constitutes Component Two of the identity program. Following the compilation of the responses

to the questionnaire, I began Component Three of the identity program. This component consists of a capabilities book which is intended to increase awareness of the resources and capabilities of the department, clarify misconceptions and highlight the work methodology which the designers follow in the solution of problems.

Background

In October of 1978 my career in graphic design began in a somewhat unusual manner. I was hired to produce mechanical art and graphic design for the Industrial Design Department of Bausch & Lomb. Surrounded by such technically-oriented people as engineers, product managers and industrial designers, I quickly gained respect for these disciplines.

This experience contributed greatly to my interest in industrial design and to my development as a designer in general. It was during this time that I discovered the close inter-relationship which exists between graphic and industrial design and the value of acquiring skills in both disciplines in order to become a well-rounded designer.

Bausch & Lomb was also my first exposure to a corporation and to the communication network necessary for a large corporation to function. It appeared that weak spots in this network caused in-house resources such as the Industrial Design Department to be overlooked in favor of outside consulting firms.

As a result of my experience at Bausch & Lomb, I developed two objectives to accomplish during my graduate study: To broaden my skill range to include industrial design skills, and to explore means by which intra-corporate communications could be improved. In order to accomplish the first objective I selected Environmental Design as my minor course of study. The thesis project provided the opportunity to achieve the second objective.

Thus, my thesis project evolved from a desire to solve an existing intra-corporate communication problem while incorporating my interests in graphic and industrial design.

It seemed most appropriate to accomplish such a task within the confines of the Industrial Design Department, since I was already familiar with the communication system of Bausch & Lomb, the industrial designers and some of the products of the company.

With this in mind, I approached Mr. Paul Hoogesteger of the Industrial Design Department in the spring of 1980 to discuss possibilities of creating an identity program for the department.

This identity program would be designed to increase the visibility of the Industrial Design Department within the corporation and clarify existing misconceptions. He readily agreed, and we began to develop a three part identity program, the first component of which would be a distinctive visual image to identify all drawings and models which originated in the department.

Following the development and implementation of the visual image, I conducted informal interviews in the autumn of 1980 with several product managers in order to identify existing opinions related to the duties of the industrial designers. This became Component Two of the identity program.

Based upon this research, I analyzed the options which would be most appropriate and effective in achieving stated objectives, and in December 1980 I initiated Component Three of the identity program, the design and production of the Industrial Design Book.

Component One of the Identity Program
The Development of a Visual Image

In the spring of 1980 I met bi-weekly with the industrial designers to discuss the development of an identity program for the department which would increase its visibility within the corporate structure. It was determined that Component One should satisfy three objectives:

1. Component One of the identity program should increase awareness among Bausch & Lomb employees of the existence and capabilities of the Industrial Design Department.
2. Component One of the identity program should identify the Industrial Design Department as the source of all documents and models which originate in the department.
3. Component One of the identity program should introduce a visual image which reflects the objectives, personality and needs of the Industrial Design Department in an appropriate and effective manner.

It was concluded that the creation of a visual image for the department would satisfy the stated objectives in the most efficient manner.

This visual image would accompany each drawing, rendering or other communication tool throughout the product development process en route to product managers, engineers and marketing personnel.

To this end I considered numerous types of visual imagery, including logotype formats, abstract symbols and marks created by the initials of the title of the department.

Logotypes were eliminated because I felt that a logotype as the primary visual element would compete with the Bausch & Lomb logotype.

An abstract symbol was eliminated as the primary visual element because I felt that the target audience would not readily appreciate or remember the significance of such a symbol.

A mark composed of the letters I and D in a direct, graphic

configuration appeared to satisfy the stated objectives in the most efficient manner, so I channeled my design efforts in that direction.

Following this decision, I found that the design process proceeded smoothly. In preparation for the first presentation of image studies to the industrial designers, I sketched many ID combinations and developed approximately 60 variations. (See Appendix 1) This presentation resulted in the selection of four images for further development. At a later meeting I presented the four images in a more refined stage of development. (See Appendix 2) One of these was selected to serve as the identity mark for the department. (See Appendix 3) This mark was prepared for mechanical reproduction and implementation on adhesive-backed labels. (See Appendix 4) The information provided on these labels includes the identity mark, accompanying typography and the signature of the designer. These labels are placed on each drawing or model as it is completed.

For use on these labels, a typographic unit was developed to relate visually with the identity mark and create a total visual image. This typographic unit includes the following information:

Bausch & Lomb

Industrial Design

In order to avoid competition with the Bausch & Lomb logotype, I selected a clean, sans serif typeface, Helvetica, to serve as the designated type style. The words Bausch & Lomb are set in Helvetica Light, since these are of secondary importance in the message. The words Industrial Design are set in Helvetica Medium to provide primary visual emphasis. The two phrases are placed directly upon each other and are sized so that they are equal in length. This creates the typographic unit, which is then placed to the right of the identity mark at a distance equal to one half the width of the mark. The type is aligned in the following manner:

The tops of the ascending letters align with the top edge of the identity mark. The lower ends of the letters of the words Industrial Design align with the lower end of the broken section of the D of the identity mark. (See Appendix 4)

I feel that this visual image has been effective for numerous reasons. First, the visual image incorporates the name of the department with a distinctive mark in a coherent configuration. This increases recall potential. The identity mark when used alone combines the initials of the department within a distinctive mark, which also enhances the potential for recall. Second, the simplicity and graphic strength of the identity mark relates to industrial design objectives such as clarity through simplicity of form. It also possesses a quality of timelessness, which is essential for long-term use.

Implementation of the visual image was completed in May 1980.

Component Two of the Identity Program
The Documentation of Thoughts and Ideas

In the autumn of 1980 I met bi-weekly with the industrial designers to establish the strategy for the identity program. It was determined that Component Two should satisfy three objectives:

1. Component Two of the identity program should identify opinions held by Bausch & Lomb employees regarding the responsibilities and capabilities of the Industrial Design Department.
2. Component Two of the identity program should enable one to analyze and evaluate these opinions in order to plan an identity program which will be appropriate and effective.
3. The results of Component Two of the identity program should become the foundation and determine the direction of Component Three of the identity program.

It was concluded that a questionnaire regarding the Industrial Design Department would satisfy the stated objectives in the most efficient manner.

I developed this questionnaire, to which the industrial designers and three product managers responded. The designers responded verbally and in written form, whereas I conducted informal interviews with the product managers in order to insure results. Selected by Mr. Hoogesteger, the product managers represented three different product areas with varying degrees of contact with the Industrial Design Department.

By comparing the responses of the designers with those of the product managers it was relatively simple to identify misconceptions as well as to find areas of agreement. For example, I found that the product managers were misguided in regard to the responsibilities of the designers, their relationship within the corporate structure and proper billing procedure. However, the designers and product managers responded very closely to questions related to the products they felt were the most successful, criticisms of the department

and the personality of the department. (See Appendix 5)

Upon evaluation of the responses to the questionnaire, I found that it satisfied the stated objectives required of this component of the identity program. Although in many cases the responses were predictable, the data provided the documentation necessary to proceed to Component Three of the identity program.

The evaluation of the questionnaire responses was completed in November 1980.

Component Three of the Identity Program
Development of the Industrial Design Book

In the winter of 1980-1981 I met with the industrial designers on a weekly basis to plan, design and produce Component Three of the identity program. It was determined that this component should satisfy six objectives:

1. Component Three of the identity program should highlight the resources and capabilities of the Industrial Design Department.
2. Component Three of the identity program should familiarize new employees with the procedures and achievements of the Industrial Design Department.
3. Component Three of the identity program should serve to reinforce the presence of the Industrial Design Department identity mark.
4. Component Three of the identity program should use the documentation of Component Two as a basis to determine copy writing needs.
5. Component Three of the identity program should be produced within a budget of \$1,000.00, utilizing existing photography where possible and Bausch & Lomb typesetting and printing resources.
6. Component Three of the identity program should reflect the informality and warmth of the designers in the most appropriate and effective manner.

With consideration for the documentation from Component Two of the identity program, budgetary limitations and personal judgement, the decision was made in early December 1980 to proceed to Component Three of the identity program. It was concluded that a capabilities brochure or book would satisfy the stated objectives in the most efficient manner.

Phase OneOrganizational Considerations

Based upon the requirements of the stated objectives and the documentation of Component Two, I began to develop an organizational structure for the book. It seemed logical to organize the book contents as follows:

1. An introductory section to explain the purpose, resources and capabilities of the Industrial Design Department and its relationship within the corporate structure.
2. A section in written and photographic form dedicated to communication skills such as renderings and models to clarify work methodology.
3. A section dedicated in written and photographic form to the importance of human factors considerations in the product development process.
4. Sections in which the product photographs would be categorized in a logical sequence.

In this manner the book was designed to introduce the reader to the department, its work methodology and finally to its products in an orderly fashion.

I then considered the types of copy which would accompany each of these sections. There appeared to be a need for two types of copy, explanatory copy and caption copy. Explanatory copy would be used to inform the reader about the department, whereas caption copy would provide details about specific products. These two copy requirements did not differ in style, only in their placement in the book. The introduction, communication skills and human factors sections contain explanatory copy. The individual category sections contain caption copy.

The process of writing these two types of copy was the same, although they were written at different stages of the design process.

Explanatory copy was written early in the design process and later refined. Caption copy was not written until final decisions were made regarding the products which would be highlighted in the book. In each case, Mr. Hoogesteger wrote the first draft of the copy, which I edited. I then specified the proper type sizes and submitted the copy to the Bausch & Lomb typesetting department. (See Appendix 6)

My next task was to develop a system of classification for existing photographs which would provide a logical order within the organizational structure I had developed. The industrial designers and I had decided the existing photography would be utilized wherever possible in the book for several reasons. First, the limited budget prohibited the possibility of re-photographing any sizable quantity of products. Second, some of the products were too large to be transported to the Bausch & Lomb studio. Third, the budget prohibited the transportation of a photographer and equipment to sites outside the Rochester area. Finally, on certain items such as models and prototypes, we had no alternative since many of these items no longer exist.

With these considerations in mind, I sorted through approximately 50 photographs to select the products which I felt were aesthetically interesting. Value judgements regarding the purpose or importance of the products were not made at this time. I narrowed this group to approximately 25 photographs which I felt would be effective.

I then met with the industrial designers to seek their alterations and approval. During this time some products were exchanged for others of more importance, some were added and arrangements were made for five products to be re-photographed.

After close evaluation of the types of photographs which had been selected, I suggested three different systems of classification:

1. Categories which relate to the general names of the types of products included in the book.
For example: Instruments, Eye Care Products,
Microscopes, Magnifiers.
2. Categories which relate to the "Client", the department or division for which the product was designed.
For example: Analytical Products Division, Ophthalmic Products Division, Scientific Instruments Division,
Consumer Products Division.
3. Categories which relate to those used in the Bausch & Lomb Annual Report and other corporate literature.
For example: Analytical Instruments, Vision Care Products,
Scientific Instruments, Consumer Products.

The first system was eliminated because the categories would be too inflexible to include a variety of products within each category.

The second system was eliminated because the categories represented only four of seven Bausch & Lomb Units, and would therefore be misleading to the reader in regard to the contributions made by the Industrial Design Department to the entire corporation.

The third system appeared to be the most logical because it was consistent in its terminology and direct yet flexible enough to include a variety of products within each category. It also reinforced established corporate jargon, providing desirable continuity.

Following the selection of this system of classification, the industrial designers and I discussed the order in which the categories should appear in the book. The Analytical Instrument and Scientific Instrument categories contained complex technical machines, whereas the Vision Care Product and Consumer Product categories contained some of the more visually interesting products. In order to create maximum

visual interest, it was decided to balance these contrasting characteristics in this manner:

Analytical Instruments, Vision Care Products,
Scientific Instruments, Consumer Products.

Thus, the category headings were named and the order of the categories was established. The next step was to continue the use of general headings to describe the individual products. It was decided to use general, descriptive headings for the products for two reasons: First, Mr. Hoogesteger felt that since the products selected for use in the book were chosen to show certain capabilities of the department, the headings should be descriptive of the capability being highlighted, not a specific product name. Second, the general headings were consistent with the general character of the category section headings.

The organizational phase was completed in late December 1980.

Phase TwoDesign Considerations

In January 1981 the design phase of the book began, using the stated objectives and the organizational structure I developed as foundations. From January to March I made decisions regarding the size, format and grid structure of the book, page spread design, typeface selection and specification and paper selection. During this time I produced six prototype or "Dummy" books which I evaluated and refined with the assistance of the industrial designers and the thesis committee.

The first task was to determine the size of the book. I selected the 11" x 8 $\frac{1}{2}$ " size primarily because it is a standard book size which is easily stored and for which paper is readily available.

After I had made this decision, I reviewed the photographs which had been selected to determine the format of the book. I found that a horizontal format enhanced the proportions and horizontality of the products much more effectively than a vertical format. The horizontal axis also possessed a more restful and informal quality and was more distinctive than a vertical orientation.

With these two factors determined, I proceeded to develop a grid structure which would be flexible enough to satisfy the following objectives:

1. The grid should satisfy the expressed preference of the industrial designers for the preservation of white space.
2. The grid should satisfy the expressed preference of the industrial designers for the use of large photographs and minimal copy.
3. The grid should reflect the informality of the designers in its adaptability and flexibility.
4. The grid should satisfy my objective to be constructed using the proportions of the Industrial Design Department identity mark as the module.

5. The grid should satisfy my objective to repeat the theme of the four category sections by containing four columns.
(See Appendix 7)

In addition to these requirements, I developed some visual priorities to which the grid would be a contributing factor.

The first priority was to create visual interest throughout the book. Since the photography was straightforward and static, I tried to create visual interest by the placement, size relationships and proportions of the photographs in relation to each other and to the copy. To accomplish this I used bleeds, silhouettes, the Industrial Design Department identity mark and the small detail photographs to mark the beginning of category sections. I also designed the right pages for maximum visual interest. (See Appendix 8)

The second priority I had defined was to establish continuity throughout the book. This was accomplished by placing headings in the same location throughout the book, alternating the bleeds between the second and third columns of the grid, consistent placement of copy, the consistent use of the Industrial Design Department identity mark and by the placement of the small detail photographs at the beginning of each category section. Also, the photographs on the left pages are all the same size for this reason. (See Appendix 8)

Following the development of the grid and its related concerns, I concentrated on the important issue of page spread design. My objectives were to design spreads which possessed horizontal flow, continuity and a logical placement of elements.

In order to increase horizontal flow I aligned the photographs along a grid line $2\frac{1}{4}$ " from the top of the page. I also used the small detail photographs for this purpose.

The consistent sizes of the photographs on the left pages provide continuity throughout the book. Photographs which mark the beginning

of category sections were also the same size, on the right side of the spread.

The logical placement of elements was complicated by the difficulty in arranging all of the photographs in the proper orientation. By this I refer to the fact that the products should face into the center of the book and not off the page. Although I tried many different layout designs to alleviate this problem, it was virtually impossible to give all of the products the correct orientation. Thus, I selected the most successful layouts and placed the explanatory and caption copy in the most logical and consistent manner possible.

Related to the problem of consistent placement of copy was the procedure of selecting and specifying typefaces for the book. Early in the design process I had determined that a serif face would most effectively serve the objectives of the book. I felt that a serif face would provide a softer, less "Industrial", friendlier quality than a sans serif typeface. This would reflect the personalities of the designers. Serif type also has better legibility properties than sans serif faces when used for text purposes. This relates to the industrial design concern for human factors. Also, the Bausch & Lomb Annual Report contained serif type, and I felt that this was a desirable point of continuity.

In addition to my personal requirements for the typeface, I had the external restriction of a limited selection of discs used by the Bausch & Lomb typesetting department. With this in mind, I selected a classic serif face which has been updated by the International Typeface Corporation, ITC Garamond. For text copy I specified 10/10 point ITC Garamond Light. Caption headings were set in 10/12 point ITC Garamond Book and category section headings were set in 16 point ITC Garamond Book. (See Appendix 9)

During the process of designing the book I began to consider requirements for paper selection. Some of these requirements were expressed by the industrial designers and some were based on my preferences. First, since the printing run of the book was to consist of only 150 copies, it was desirable to select a paper which was in floor stock in a Rochester paper company and which could preferably be sold in split cartons. Second, it was desirable that the paper be an off-white, cream or beige color in order to give the book a warm, informal quality. Third, it was desirable that the paper be either uncoated or dull coated to avoid a slick, glossy appearance.

In response to these requirements I suggested that a dull coated paper in a natural color and of superior quality would satisfy all of these needs. To this end I selected 80 pound Karma Natural Cover for the cover stock and 100 pound Karma Natural Text for the inside pages. Produced by the Potlatch Corporation, this paper has excellent coverage capability, minimal show-through problems, a premium quality rating and a dull coated surface. It is also kept in floor stock at Seneca Paper Company.

I then asked the sample department at Seneca Paper Company to prepare a dummy book from this paper and also a dummy from another type of paper. I took the dummies and some printed samples using these two papers to Bausch & Lomb to show the industrial designers the appearance and weight the book would have when finished. The Karma sample was then selected for use in the book. (See Appendix 10)

Related to paper color selection was the consideration of the second color for the book. It had been decided early in the design process that the budget was sufficient to allow for a second color to be used in the book. Also early in the design process, the industrial designers expressed a preference for brown ink as the primary color to be used in all copy and halftones. They felt that this would contribute

to the warmth and informality of the book. Although I considered this to be incongruous with the objectives of the book, I did remember their preference in selecting the second color. This color appears on the front and back covers and wherever the Industrial Design Department identity mark is located. After presenting the designers with ten Pantone Matching System (PMS) ink choices ranging from warm reds and oranges to warm browns, PMS Number 160 Brown was selected. This color complemented the cream color of the paper and greatly increased the warmth of the book. (See Appendix 11)

The design phase was completed in April 1981.

Phase ThreeProduction Considerations

The production phase progressed rapidly and according to schedule: On April 3-5 I produced the mechanical art for the book. This process, though tedious, progressed well. There were, however, some typesetting problems which were corrected on Monday and Tuesday April 6 and 7. This phase was completed on Wednesday April 8 and the mechanicals were given to the printer on Thursday April 9. The industrial designers and I checked a proof of the book on Tuesday April 14 and the book was printed on the evening of April 16 on a 20 x 26 American Type Founders Press. (ATF) The book then went to the bindery for saddle stitching, and was returned to Bausch & Lomb on Tuesday April 21. From this point I prepared the book for exhibit in the thesis show which opened on Friday May 1. (See Appendix 12)

Evaluation

In order to effectively evaluate this project, it should be stressed that the identity program represents an attempt to solve an existing intra-corporate communication problem within realistic photographic, budgetary, printing and scheduling limitations. As such, I expected and accepted the possibility of problems and compromises as part of the challenge of completing the project. In fact, I felt that if I could create a visually interesting solution to this problem, I could apply the same organizational and design processes to any type of project with success.

Overall, there were far fewer problems than I anticipated. The industrial designers were the most cooperative clients I have worked with to date, and we had an outstanding working relationship. Each of the designers devoted a great deal of time during the past year to the development of the project and they are largely responsible for its successful implementation.

The first two components of the identity program proceeded smoothly and without complication.

Since the book component represented the major thrust of the identity program, I anticipated many problems and differences of opinion during the course of design, development and production. Fortunately, most problems were minor and did not significantly alter the course of the project.

However, there were several problems which did involve compromise, influence design decisions and affect the final appearance of the book. These include the use and treatment of existing photography, type specification and the printing process.

The use of existing photography presented several diverse but related problems:

1. Spreads were designed to accommodate the left or right orientation of the products in the photographs. This was done so that whenever possible, products faced into the center of the book. Although I designed several layout variations, none completely resolved this problem.
2. Since the photography was originally meant for record purposes only, most of the photographs were composed in an uninteresting manner which did not enhance the features of the products. In response to this I tried to reduce in size the less effective photographs when designating product placement in the book.
3. The manner in which the photographs were composed on the 8" x 10" paper limited my ability to create effective croppings. Some products extended directly to the edge of the image area. I tried whenever possible to crop in an interesting manner, but in such cases it was very difficult to do so.

Type specification presented a problem which was relatively easy to solve. My original intention in specifying the copy was to avoid awkward breaks in lineation by eliminating hyphenation and small words such as For, And, The, etc., from hanging from the ends of lines. However, when the type was set in this manner, an unsightly ragged edge was created. To correct this problem I rearranged the offensive lines, retyped the copy line for line and resubmitted it to the Bausch & Lomb typesetting department. Approximately 60% of the copy had to be reset in this manner. As a result, there is hyphenation in the text, but only when necessary to improve the appearance of the ragged edge.

The manner in which the printing of the book was completed is to me the most frustrating problem of this project. Due to unfortunate circumstances, the book was printed without adequate quality control. This resulted in printing errors such as hickies and press marks and a loss of density in the halftones.

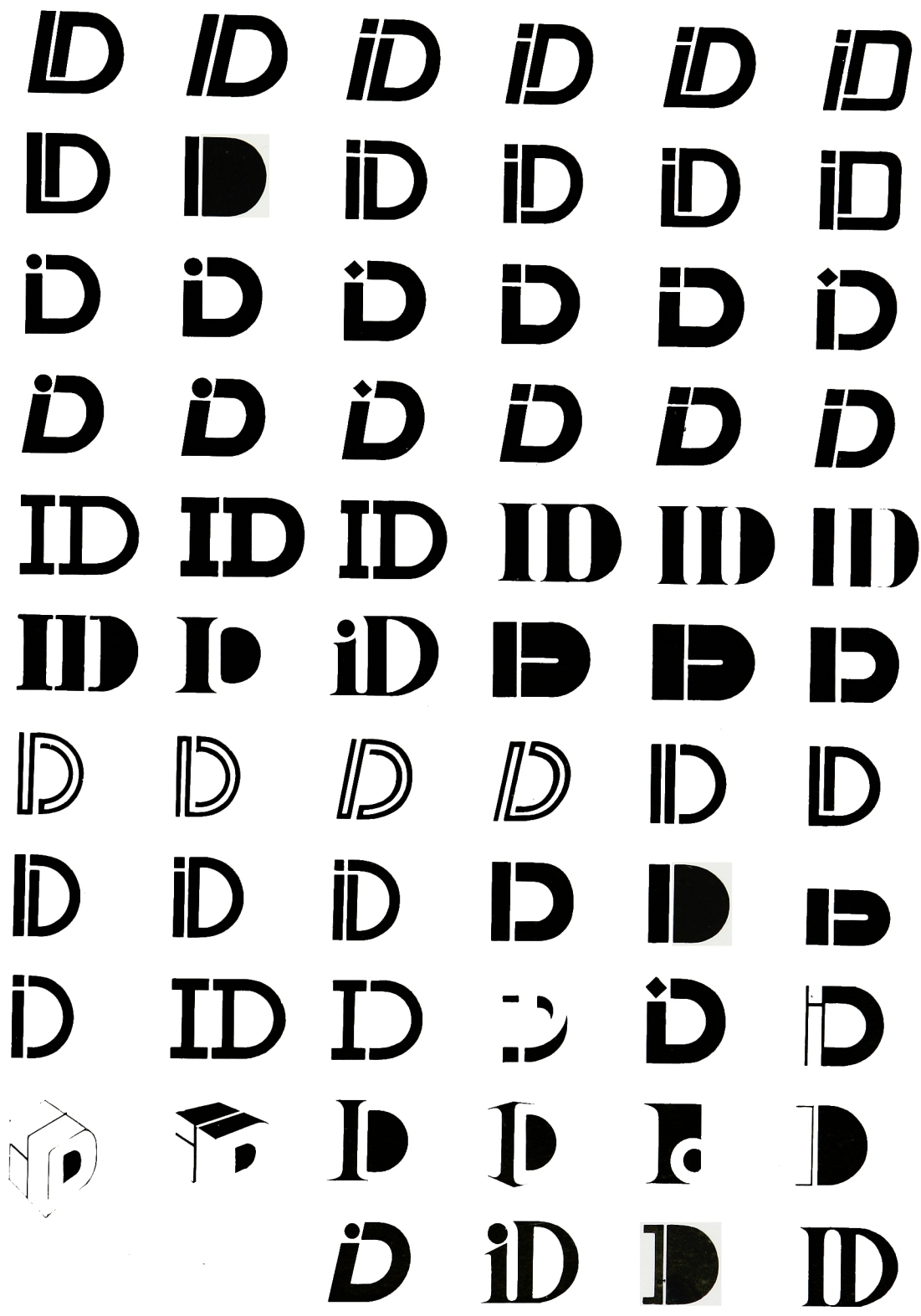
In retrospect, I have learned a great deal about my responsibilities as a designer in the course of this project. In the past, I have had limited input and responsibility in the design process, especially in terms of conceptual development. There has always been a chief designer whose function was to make the major decisions. In this case there was no chief designer upon whom I could rely. I was ultimately responsible for the design and quality of the final product. At times I found this difficult and frustrating, at other times I thoroughly enjoyed the challenge. In any case, I found that by being the primary designer, the project became more important to me, and that I learned far more than if someone had been coaching me.

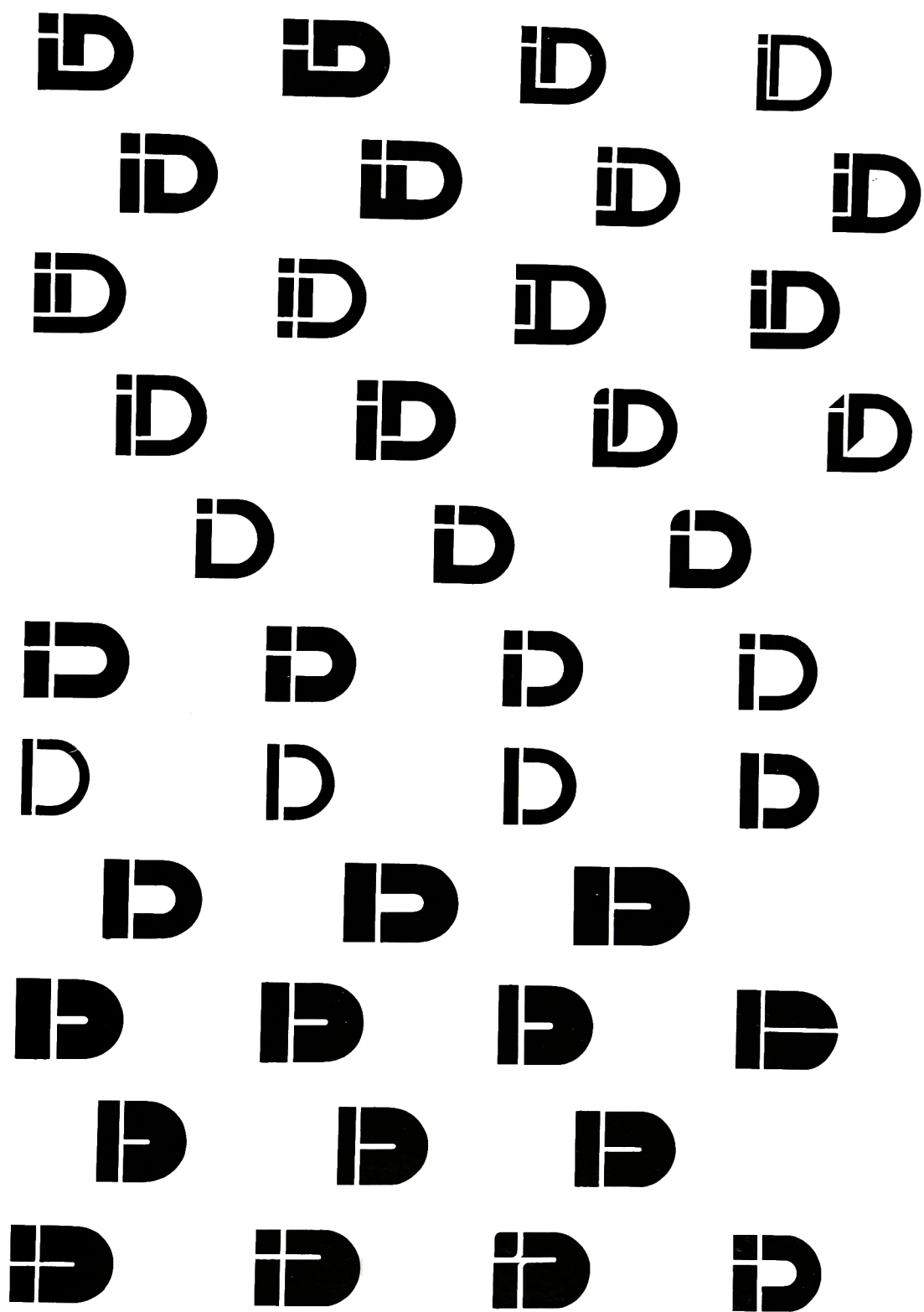
From this process I also learned more about my own capabilities, tolerances, strengths and weaknesses. I feel that my strengths at this point are primarily organizationally oriented, and that I must become more assertive and secure in my own judgements in order to become an effective designer.

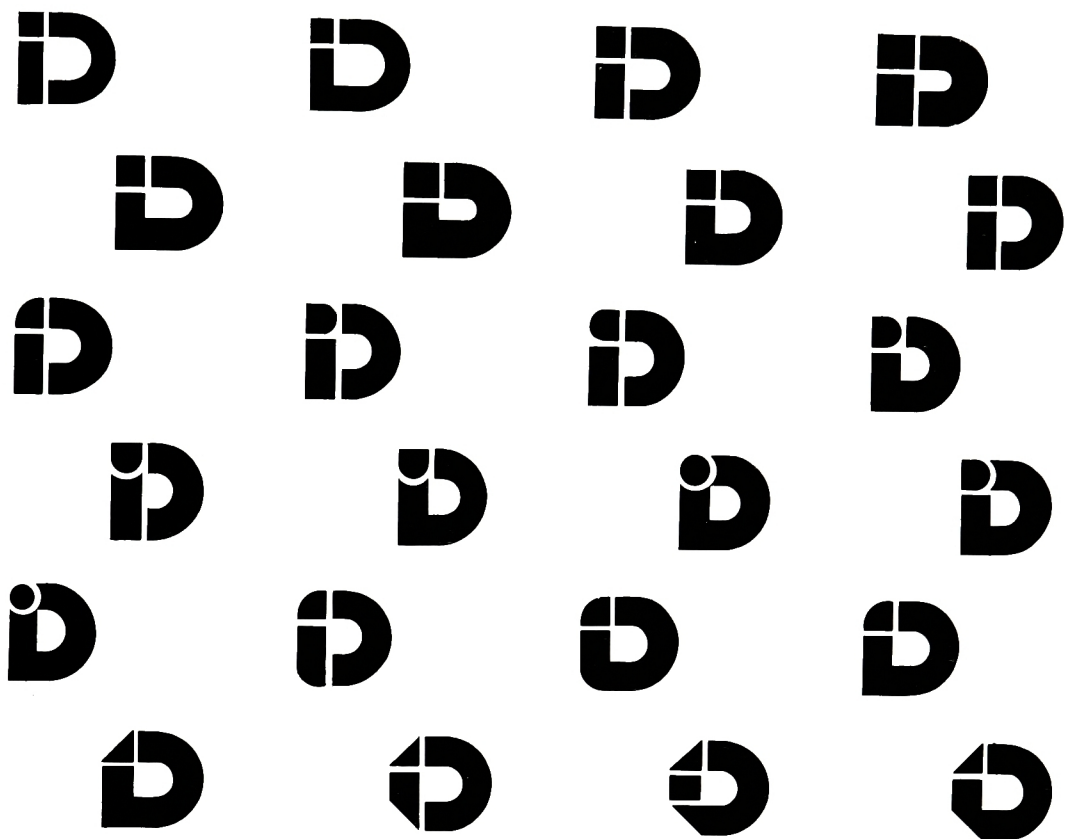
Appendices

Appendix 1

Identity Mark Developmental Sketches







Bausch & Lomb
Industrial Design

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Industrial Design

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Appendix 2
Identity Mark Proposals

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Appendix 3

Identity Mark

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Appendix 4

Identity Mark with Typographic Unit

Sample Labels



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Bausch & Lomb
Industrial Design



Bausch & Lomb
Industrial Design



Bausch & Lomb
Industrial Design

Appendix 5
Questionnaire

Questionnaire

<u>Questions</u>	<u>Designer Responses</u>	<u>Product Manager Responses</u>
What are the responsibilities of the Industrial Design Dept. in the creation of new products?	Consider human factors Aid in product development Generate new ideas, approaches Work for and with people and their needs Produce drawings and models Consider form and function Consider appearance of products Consider costs and production methods Consider safety of products Get involved early in design process Consider value for customer Instill pride in using/owning product	Give industrial products human form Improve cosmetic appearance Human factors They do packaging They do not do packaging They choose strange colors They decide on manufacturing methods They do logos They work on microscopes They help Houston Instruments They work exclusively for SOPD They are critical to the success of products and should be involved early in the design process
Who is the Industrial Design Dept. responsible to?	Harold Rosenberg of SOPD	Bob Schon of SOPD Jim Milton Gene Scalera
How are the Industrial Design Dept.'s jobs billed?	SOPD	SOPD Engineering

Questions	Designer Responses	Product Manager Responses
Which products do you feel should be emphasized to promote the Industrial Design Dept.?	Soflens dispenser Aseptron unit Around the Neck Magnifier Spectronic 2000 Microscopes All products	Spectronic 2000 Aseptron Lensgard Carrying Case New disinfecting unit
What means of visual communication would you use to promote the Industrial Design Dept?	Book with deletion/updating possibilities Photographic exhibit Newsletter Slide/tape used with other methods	Audio/visual presentation Printed piece Verbally Visit by designer with portfolio
Do you have any suggestions for or criticisms of the Industrial Design Dept?	ID should be more accessible to outside design/designers ID is too closely tied to engineering, needs closer relationship with marketing Need better facilities	ID should develop a stronger relationship with marketing dept. ID is too closely tied to SOPD to be perceived as being accessible to all corporation ID is too closely tied to engineering department There should be more designers on the staff ID should be moved to corporate headquarters in Lincoln Tower to enhance accessibility to all corporation

Questions

Designer Responses

Product Manager Responses

What is the "Personality" of the Industrial Design Dept?

Low key
Friendly
Dependable/responsible
Knowledgeable
Innovative

Laid back
Friendly
Responsive to criticism
Receptive
Stubborn
Dependable
Professional

What differentiates the Industrial Design Dept. from other design groups?

Genuine contribution from inception to production
Design based on cost, value for the customer and long-term use
Shirtsleeves outfit; do all dirty work
More variety of products than in a typical design firm
Center point for engineering, production and marketing people
In-house resource, closer to products and people than an outside firm could be
Structure and solving problems are primary considerations
Designs are rarely changed for appearances alone, classic designs are appropriate for long-term use

Appendix 6

Sample Text Copy

Sample Text Copy

Explanatory Copy

The development of new products is crucial to the future of Bausch & Lomb. The purpose of this book is to familiarize those involved in the concepts, development and marketing of our products with the design resources of the Industrial Design Department.

.....

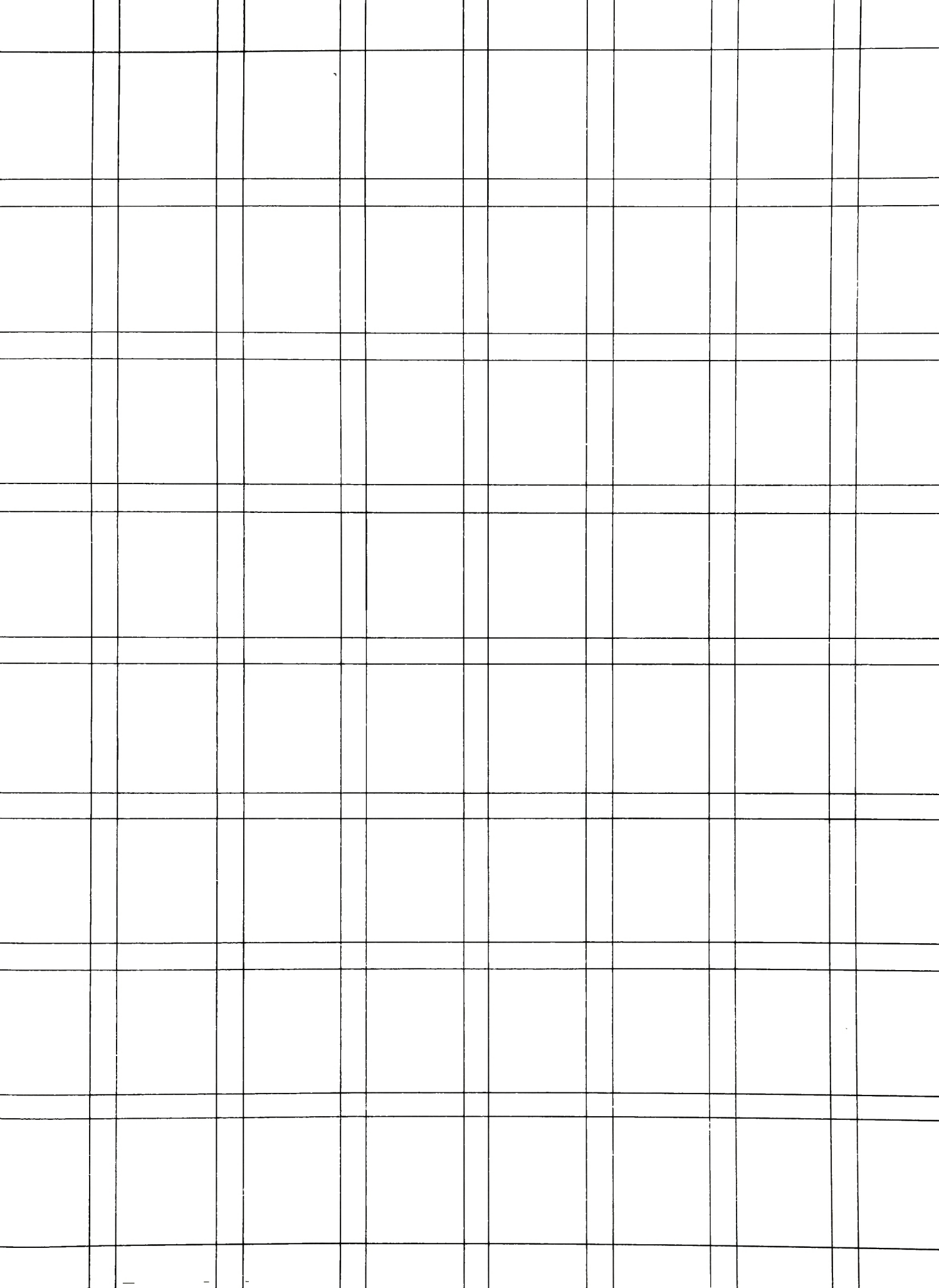
Sample Text Copy

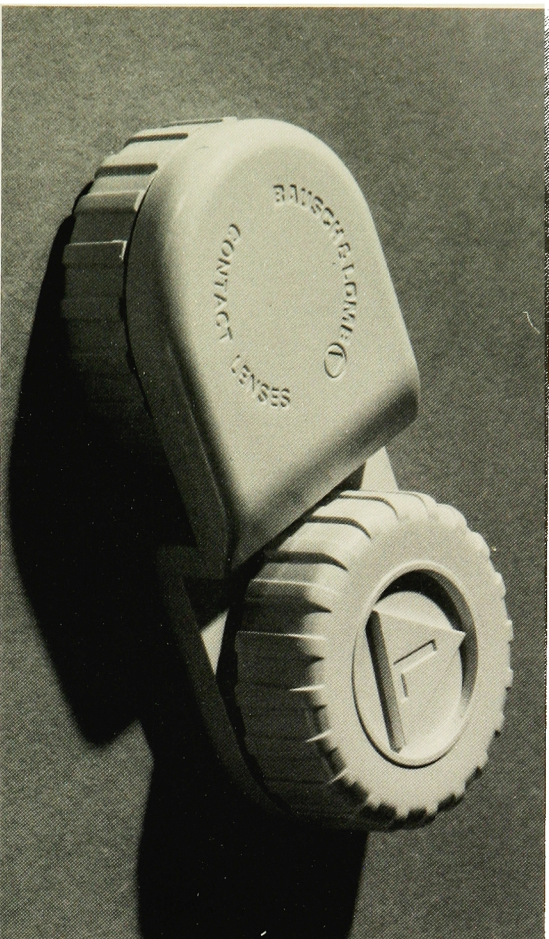
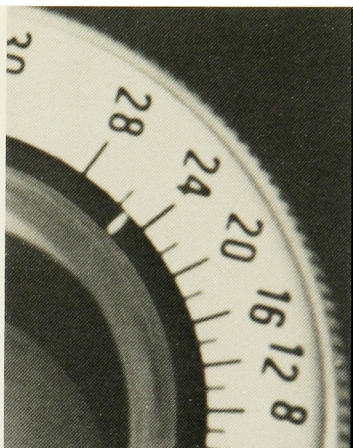
Caption Copy

Determination of Visual Fields

Fields of view are plotted by projecting a moving spot of light on a screen and recording when the spot disappears. The instrument requires an unusual practitioner/patient relationship which was established after experimenting with several human factors models. Since the instrument is used in low ambient light, the chart is back-lighted with an electro-luminescent panel.

Appendix 7
Grid Structure



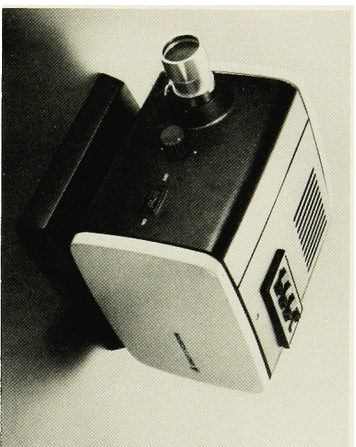


Contact Lens Case

The storage case for a pair of contact lenses includes tactile as well as visual means for identifying left and right lenses. Chances of interchanging the lenses are further reduced by opposed chambers.

Determination of Visual Fields

Fields of view are plotted by projecting a moving spot of light on a screen and recording when the spot disappears. The instrument requires an unusual practitioner/patient relationship which was established after experimenting with several human factors models. Since the instrument is used in low ambient light, the chart is back-lighted with an electro-luminescent panel.



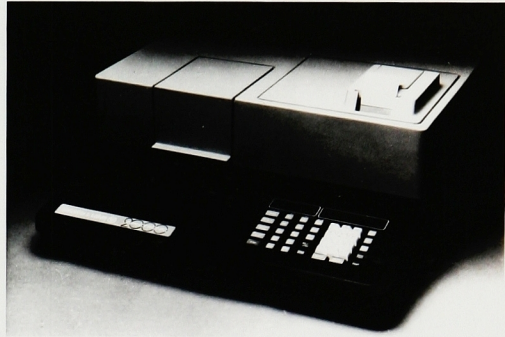
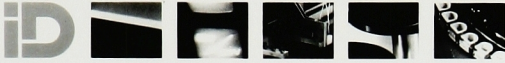
Ophthalmic Target Projector

Visual acuity tests are made by projecting various targets and asking for the patient's response. A detailed model was constructed and used as the basis for a contract with an outside manufacturer.



Appendix 8
Sample Page Spreads

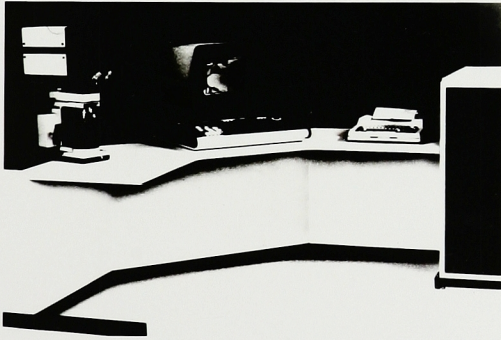
Analytical Instruments



Dual-Beam Spectrophotometer
 As members of the product development team, our input included recommendations regarding spatial arrangements for the major sub-systems, materials and processes for the enclosure, and the introduction of new colors for the line. During the development of this complex instrument, we went through stages from rough to finished sketches, cardboard to wood models, and finally to wood masters for mold construction.

Image Analysis System

This sophisticated system consists of CRT's, printers, electronic racks, microscopes, keyboards and cameras in unique combinations for each situation. Housing were created for the CRT and keyboard, and these as well as the standard parts are custom finished. A specially developed workstation completes the product.

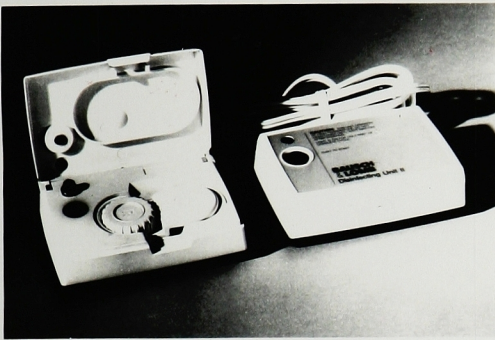


Laboratory Spectrophotometer
 An inexpensive unit, the spectrophotometer is available with either digital display or a panel meter.

Keyboard and Monitor

These are the focal points of the image analysis system and the principal input/output stations for the operator. The keyboard layout is based on user procedures and clearly defines each function.

Contact Lens Aspirator
 A compact, safe and easily cleaned unit, the aspirator is used for daily care of soft contact lenses. The method of operation, materials and labeling are designed to conform to FDA requirements.



Contact Lens Case
 The storage case for a pair of contact lenses includes tactile as well as visual means for identifying left and right lenses. Chances of interchanging the lenses are further reduced by opposed chambers.

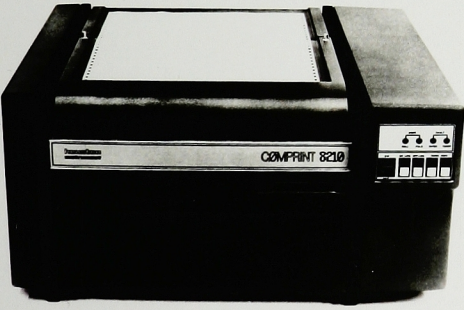
Determination of Visual Fields
 Fields of view are plotted by projecting a moving spot of light on a screen and recording when the spot disappears. The instrument requires an unusual practitioner/patient relationship which was established after experimenting with several human factors models. Since the instrument is used in low ambient light, the chart is back lighted with an electro-luminescent panel.



Ophthalmic Target Projector
 Visual acuity tests are made by projecting various targets and asking for the patient's response. A detailed model was constructed and used as the basis for a contract with an outside manufacturer.



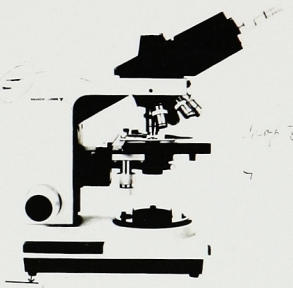
High Speed Printer
 A project for Huson Instrument Co., the high speed printer involved refinement of forms, development of the graphics, and models for marketing and supplier use.



Industrial Microscope
 This microscope is specifically designed for the microelectronics industry. Because of the modular design approach, numerous components are interchangeable by the user. The external light source is easily serviced and the mounting fixtures are available behind the nameplate.



Automatic Exposure Controller
 Used in conjunction with RFL microscopes, the controller automatically regulates exposure time. The lighted push buttons, digital switch and custom meter face all assist in trouble free photographic documentation.

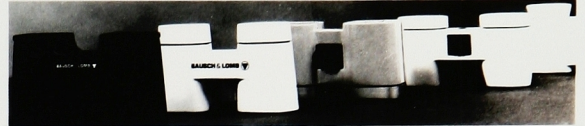


Laboratory Microscope
 Copied around the world since its introduction, this was the first laboratory microscope to integrate modular components into a unified appearance.

Student Stereo Microscope
 Designed to provide value in meeting certain needs, the microscope is "Student proof", requiring rugged parts, protected controls and a durable finish.

Magnifier Packaging

Prior to this package redesign program, magnifiers were sold in many different containers. The products were not visible to consumers. The new packages are color-coded by market and feature consistent bold graphics on a transparent sleeve.



Round-the-Neck Magnifier

The large lens provides distortion-free magnification as a viewing aid for the elderly, vision-impaired or handicapped. The magnifier is supported by an easily adjusted cord around the neck and two soft non-slip feet which rest against the user's chest.

Binoculars

A series of form studies using the same optical system were made for marketing evaluation.

Lens Cleaner Dispenser

The color and graphics of the dispenser were redesigned for a bolder, brighter appearance on retail counters. Two color screen printing coordinates the display.

Lens Cleaner Display

Holding 24 individual dispensers, this counter-top point-of-purchase display is also the shipping container. Two color printing on paperboard.

Appendix 9
Typography Samples

To Our Colleagues

The development of new products is crucial to the future of Bausch & Lomb. The purpose of this book is to familiarize those involved in the concepts, development and marketing of our products with the design resources of the Industrial Design Department.

Bausch & Lomb has experienced considerable growth in recent years. Operating divisions have become increasingly self-sufficient and many employees are unaware of special skills available to them. We are a small group of skilled and experienced designers who specialize in developing contemporary forms. Innovation, human factors considerations, selection of materials and processes, and ways in which to add value are integral components of our design process. Numerous patents have been granted to members of the department, and our efforts have resulted in awards and recognition from design groups, art galleries and technical publications.

Our primary considerations are two fold: the development of product and package appearances which are appropriate to their particular market, and the application of human factors principles which range from simple manipulative tasks to complex man-machine relationships. Our contribution to the development of a product is enhanced when we are involved early in the design process.

Ophthalmic Target Projector

Visual acuity tests are made by projecting various targets and asking for the patient's response. A detailed model was constructed and used as the basis for a contract with an outside manufacturer.

Determination of Visual Fields

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Appendix 10

Paper Samples

Cover Stock

Text Stock

Appendix 11

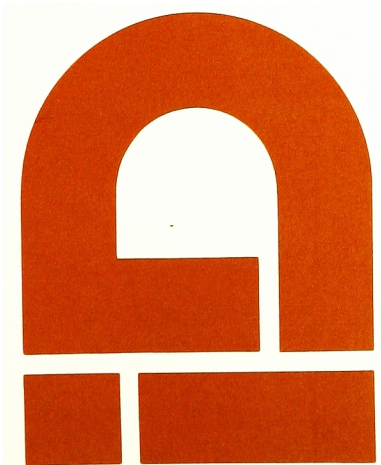
Ink Color Sample

10

Appendix 12

Complete Industrial Design Book





To Our Colleagues

The development of new products is crucial to the future of Bausch & Lomb. The purpose of this book is to familiarize those involved in the concepts, development and marketing of our products with the design resources of the Industrial Design Department.

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This ensures that our recommendations regarding form, color, arrangement of controls, and materials and processes can be incorporated during the normal development process. We communicate through the use of pictorial and technical drawings, and wood, plastic, clay and cardboard models.

In contrast to some consulting agencies, we stress a cooperative interdisciplinary approach. Our work must be integrated with the efforts of marketing, engineering, and manufacturing personnel in order to be successful. It is also a matter of pride that our recommendations meet the established goals for development expense, end-item cost and schedule.

Within the organizational structure of Bausch & Lomb, we are attached to S.O.P.D. for budgetary, administrative and technical support. We have our own small shop and utilize model and machine shops throughout Bausch & Lomb and the Rochester area. Services such as typesetting, photography and formal specifications are contracted by us as required.

Our corporate-wide design group has completed projects for almost every unit of the company, including those which have their own designers or use outside consulting offices.

We hope, through the use of illustrations and brief copy about our past accomplishments, to interest you in discussing ways

in which we might contribute to the success of your next project. If you have a product, package or an idea which you would like to develop, stop by for an informal discussion and see what we are doing for others.



Paul Hoogesteger



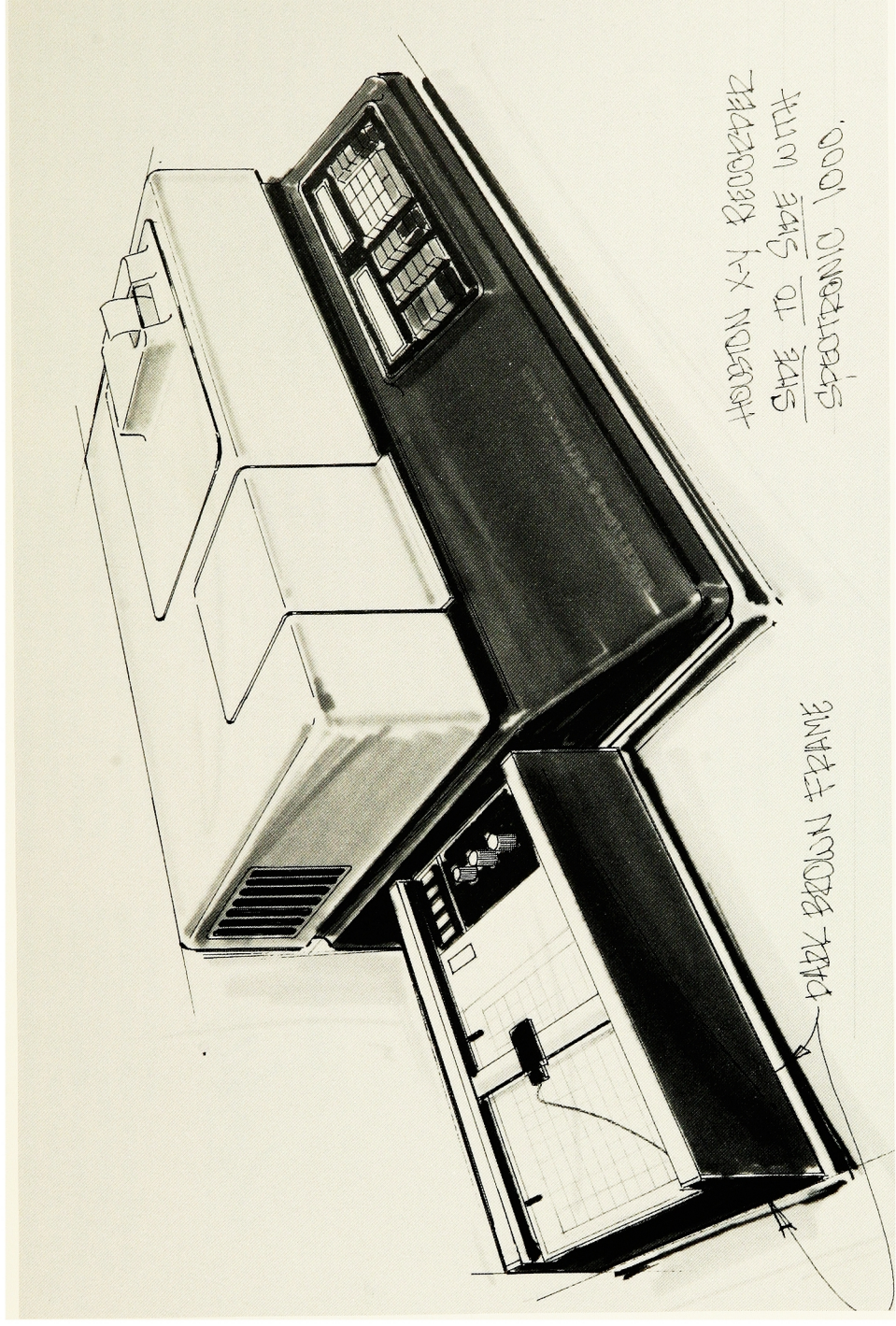
Communication Skills

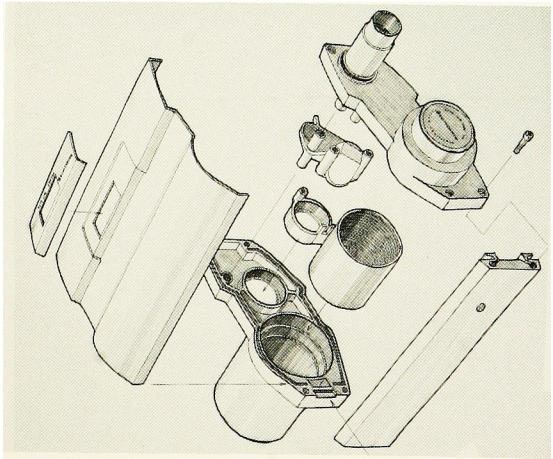
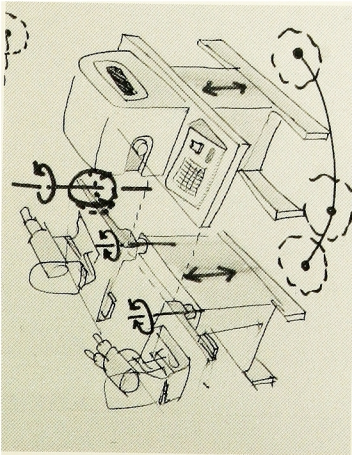
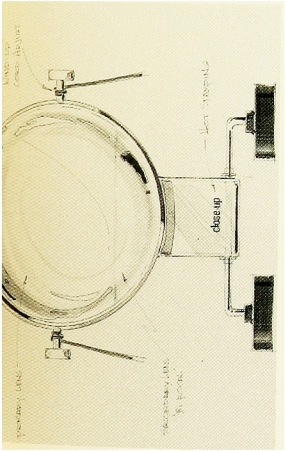
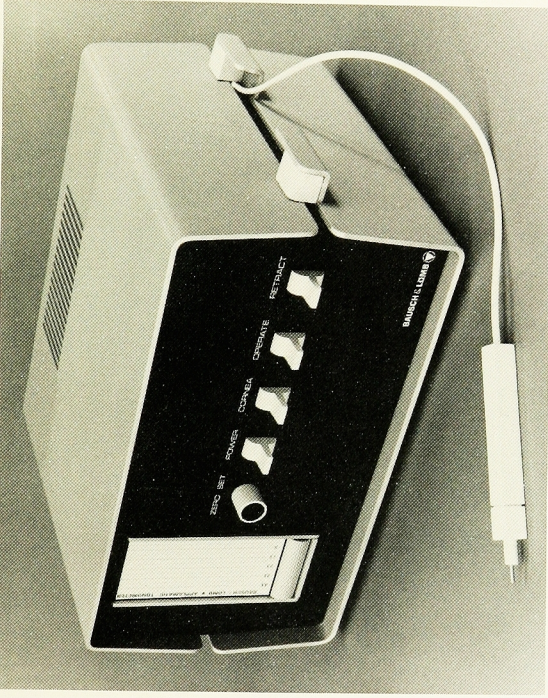
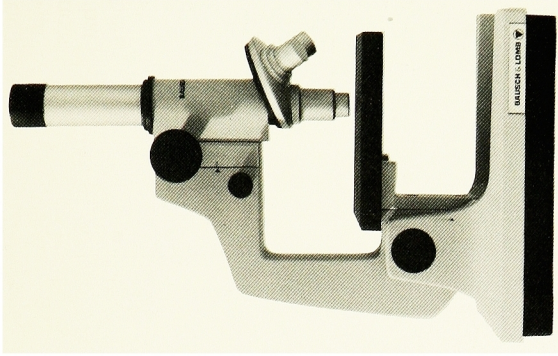
Drawing is a fundamental element in the process of design, and it is an essential tool for industrial designers. It is through the use of sketches that we communicate our ideas to others: recommendations regarding form, color and graphics.

Sketches are also our way of working through preliminary ideas and as such are generally reworked many times. Sketches of special interest are often followed by constructing full-size models. The introduction of the third dimension adds a reality not possible in sketches. Models are an effective means by which human factors and marketing goals, possible manufacturing methods, and color and form can be evaluated.

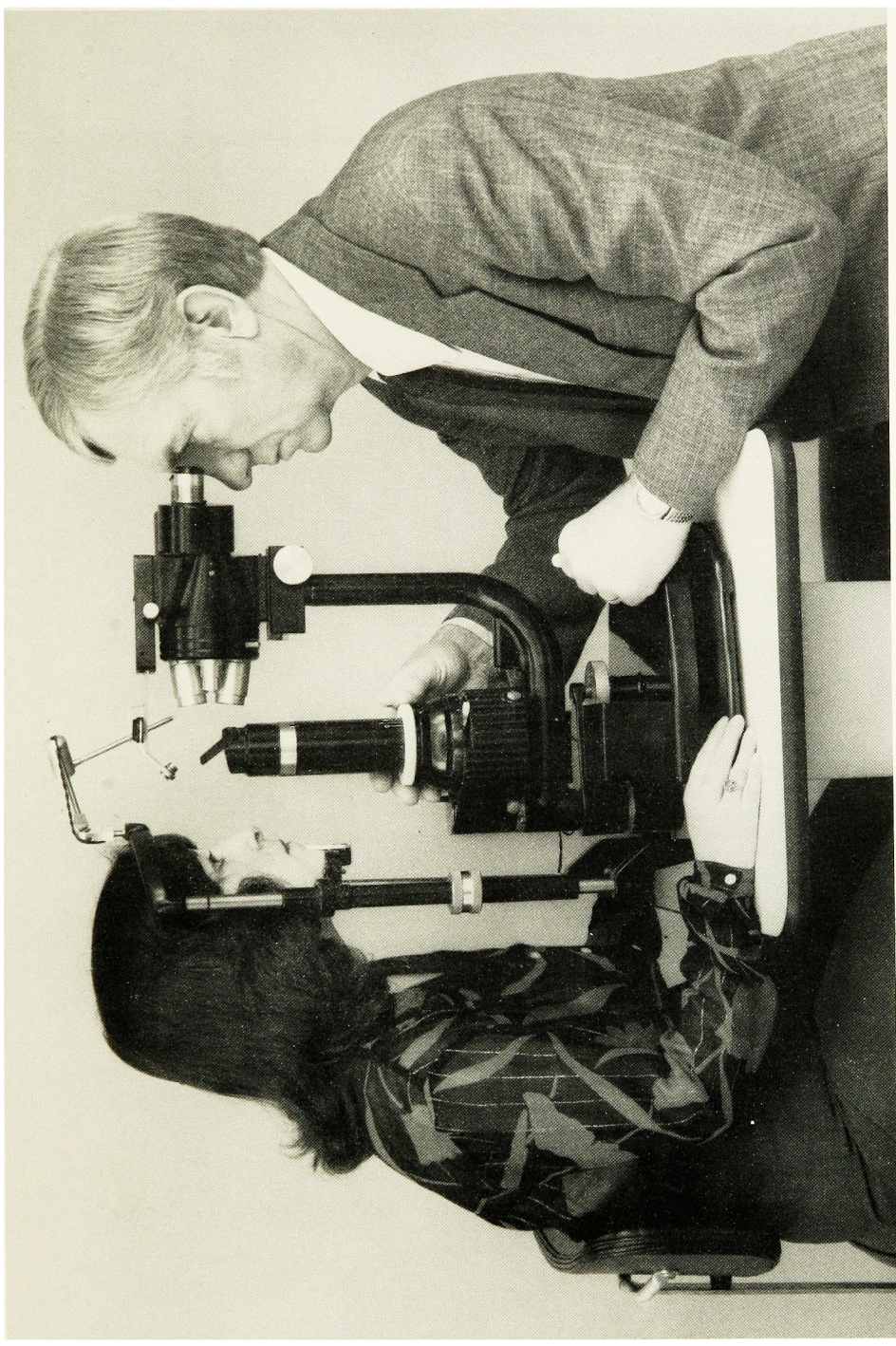
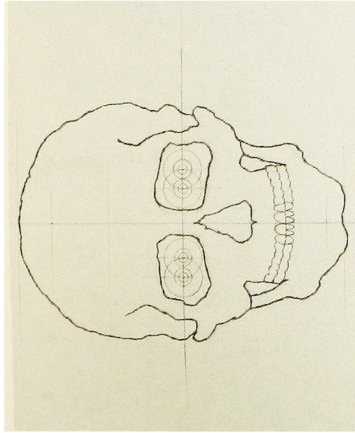
Our models are made in the material most appropriate for the immediate need. Like sketches, early models are often reworked. We commonly use paper, clay and cardboard in our own shop. Some wood, plastic and metal parts are made for us by B&L model shops and tool rooms, or by outside suppliers.

The sketches and models illustrated are typical of the department's work. Their purposes are many and varied: marketing approval, graphic analysis of a problem, transfer of information to a tool maker and explanation of construction details.





Human Factors



Human factors involves the concept that an integral part of the design process is consideration for the people who will be using the product. The goals of user comfort, minimum operational errors and overall efficiency must be carefully analyzed. To meet these goals, individuals in the various disciplines involved must keep in mind relative strengths and sizes of prospective users, as well as an understanding of how they see, feel, hear and react to stimuli.

Appearance is our primary concern, and this is always developed in conjunction with human engineering principles.

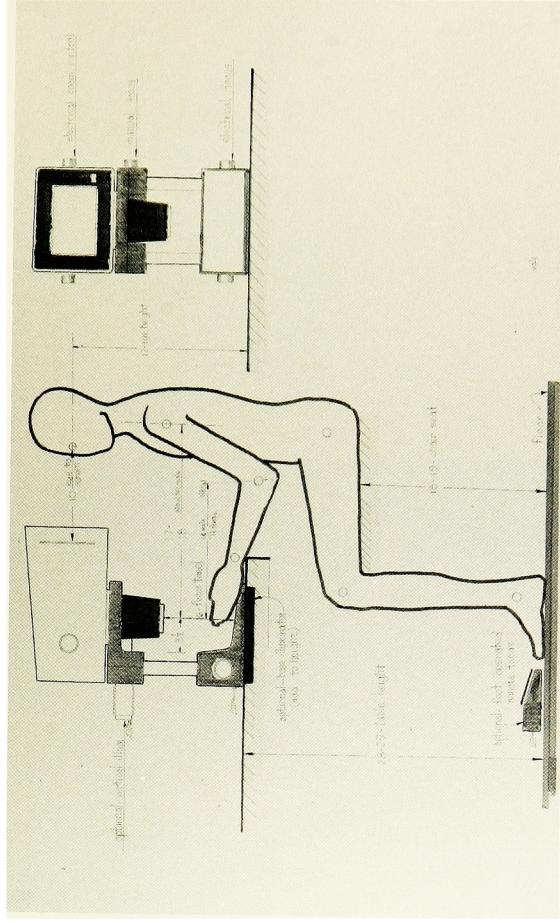
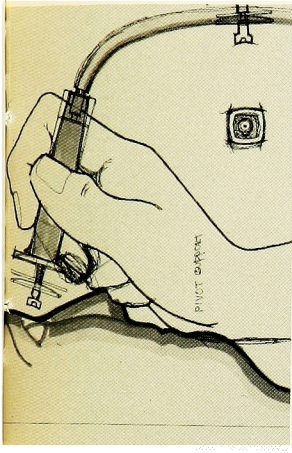
Almost every product designed by Bausch & Lomb requires the application of some human factors principles. The problem may be as simple

as typeface selection for maximum legibility, or as complex as the development of a slit lamp. As illustrated in use on the opposite page, the slit lamp is a complex optical/mechanical device used by eye care practitioners. For this instrument, many of the human factors considerations are anthropometric measurements of the entire figure, as well as detailed dimensions of the head. The need for such information becomes apparent when one considers that the practitioner and the patient may differ considerably in size.

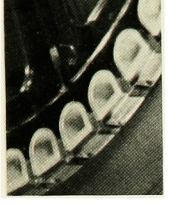
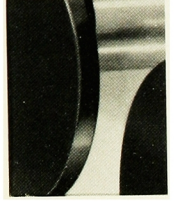
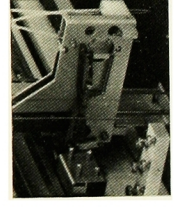
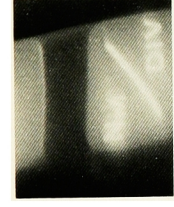
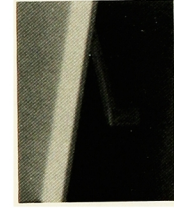
Certain questions must be asked:
 What is a comfortable distance from the chair seat to the eyes of a ten year

old child? Can a 6' 4" operator be comfortable at the same time? How much knee clearance should be provided? What are the vertical and horizontal distances between the eye and the tip of the nose? From the eye to the chin? From the eye to the brow? Some other recommendations unrelated to physical sizes include maximum acceptable lamp house temperatures, comfortable control-stick design and acceptable forces for control movement.

It is essential to establish goals regarding the user-instrument relationship before hardware design begins if the product is to be successful in the marketplace.



Analytical Instruments



Dual-Beam Spectrophotometer

As members of the product development team, our input included recommendations regarding spatial arrangements for the major sub-systems, materials and processes for the enclosure, and the introduction of new colors for the line. During the development of this complex instrument we went through stages from rough to finished sketches, cardboard to wood models, and finally to wood masters for mold construction.

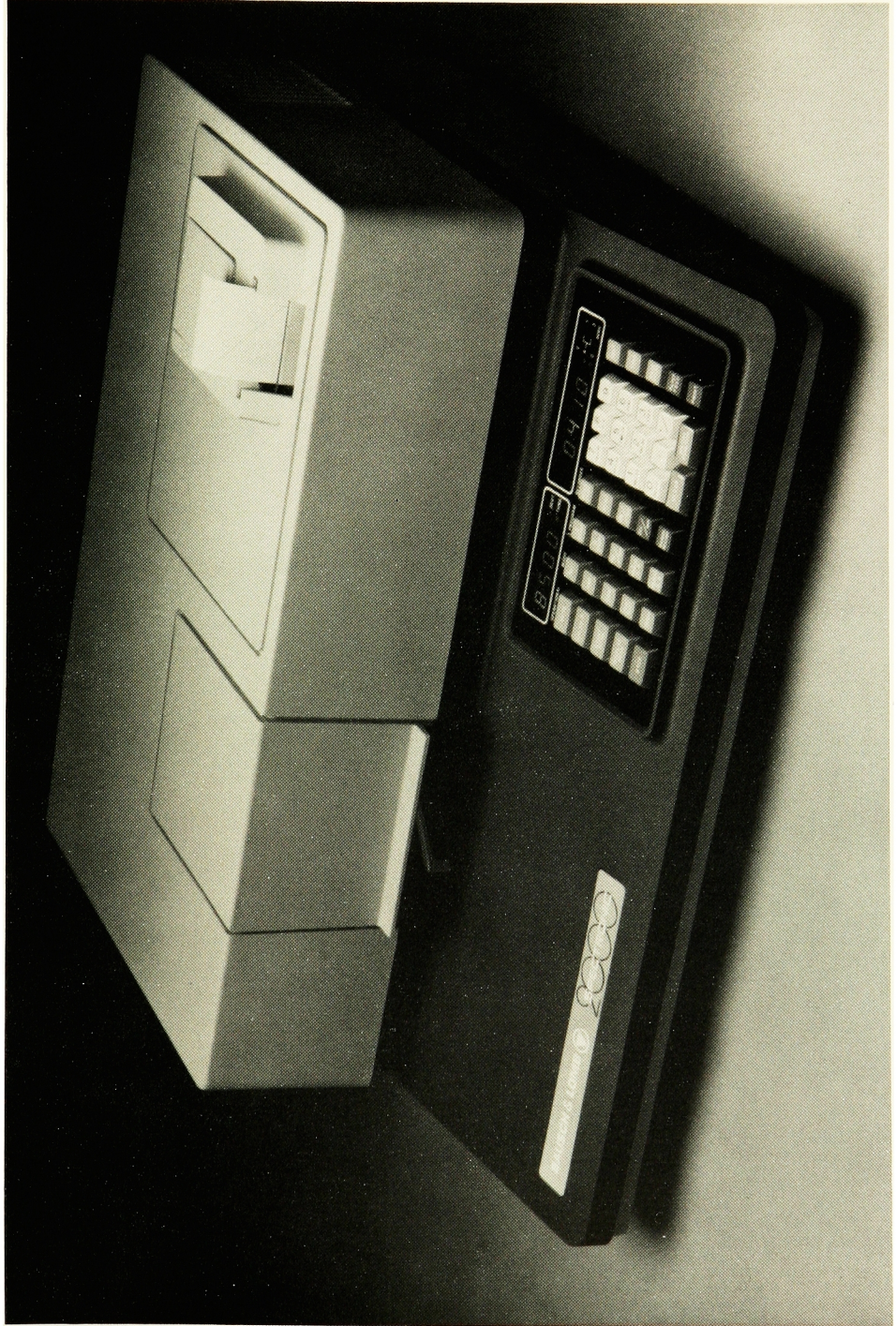
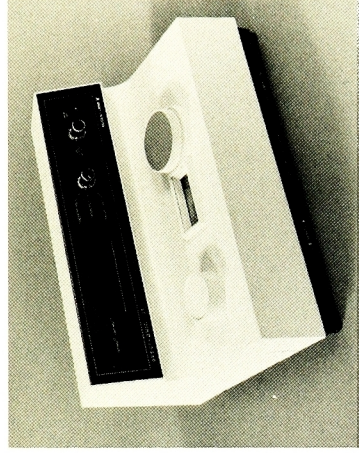


Image Analysis System

This sophisticated system consists of CRT's, printers, electronic racks, microscopes, keyboards and cameras in unique combinations for each situation. Housings were created for the CRT and keyboard, and these as well as the standard parts are custom finished. A specially developed workstation completes the product.





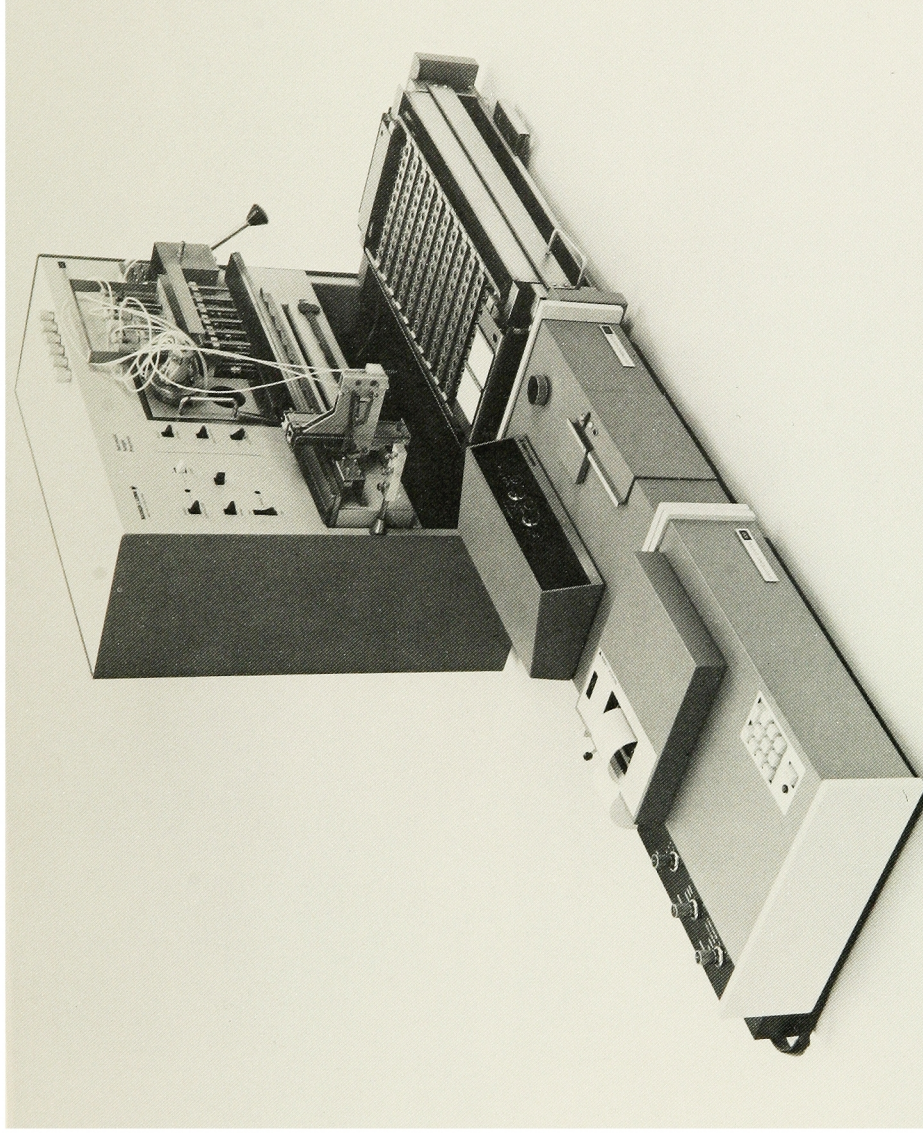
Laboratory Spectrophotometer
An inexpensive unit, the spectrophotometer is available with either digital display or a panel meter.

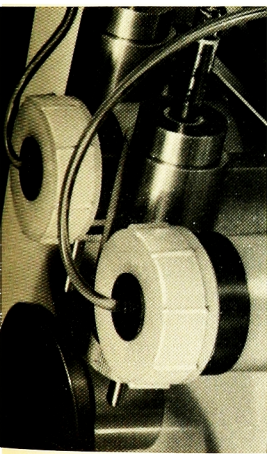
Keyboard and Monitor

These are the focal points of the image analysis system and the principal input-output stations for the operator. The keyboard layout is based on user procedures and clearly defines each function.



Automated Chemical Analysis
This is a complex system for chemical determination which combines several B&L instruments with another manufacturer's control device.





Digital Measuring System

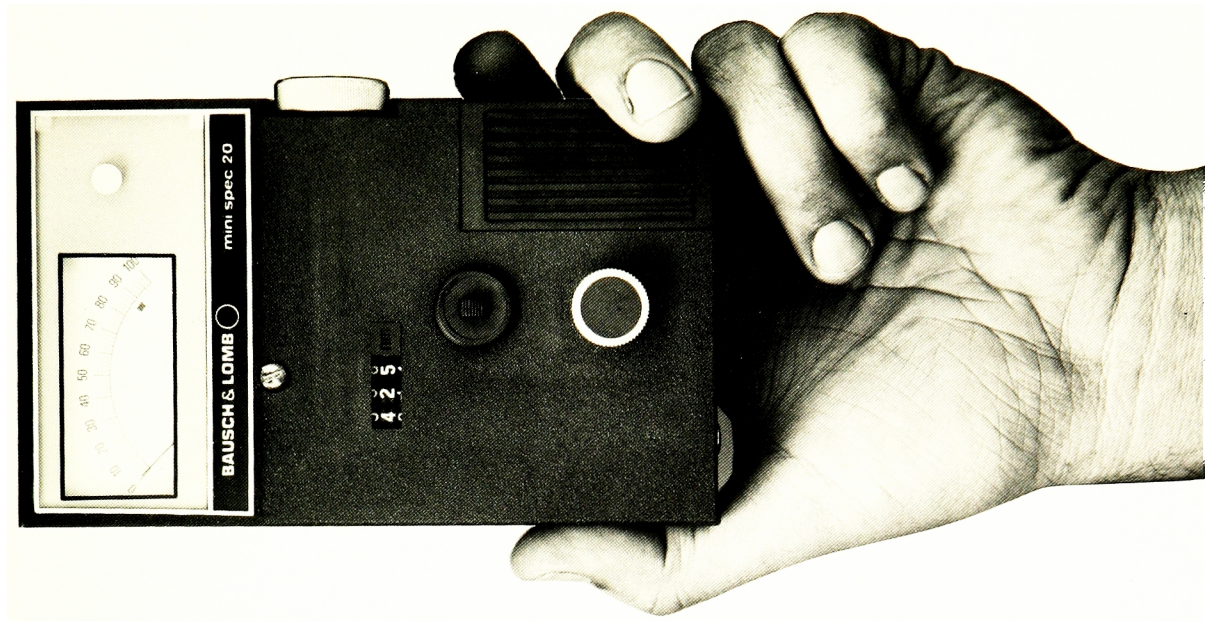
A rugged and reliable instrument, the digital measuring system is used for measurement and display of machine-tool table position and travel in any axis. Clear displays and logical keyboard arrangement increase operator efficiency.

Enzyme Analyzer

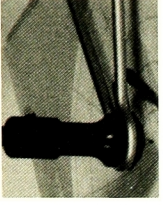
Interchangeable pump assemblies are snapped in and out of position as different chemical determinations are made. The exposed and moving mechanisms add greatly to visual interest.

Stream-side Spectrophotometer

This portable instrument is used to monitor pollution levels in streams and lakes. In conjunction with a kit of attachments and chemicals, the user has a complete on-site laboratory.

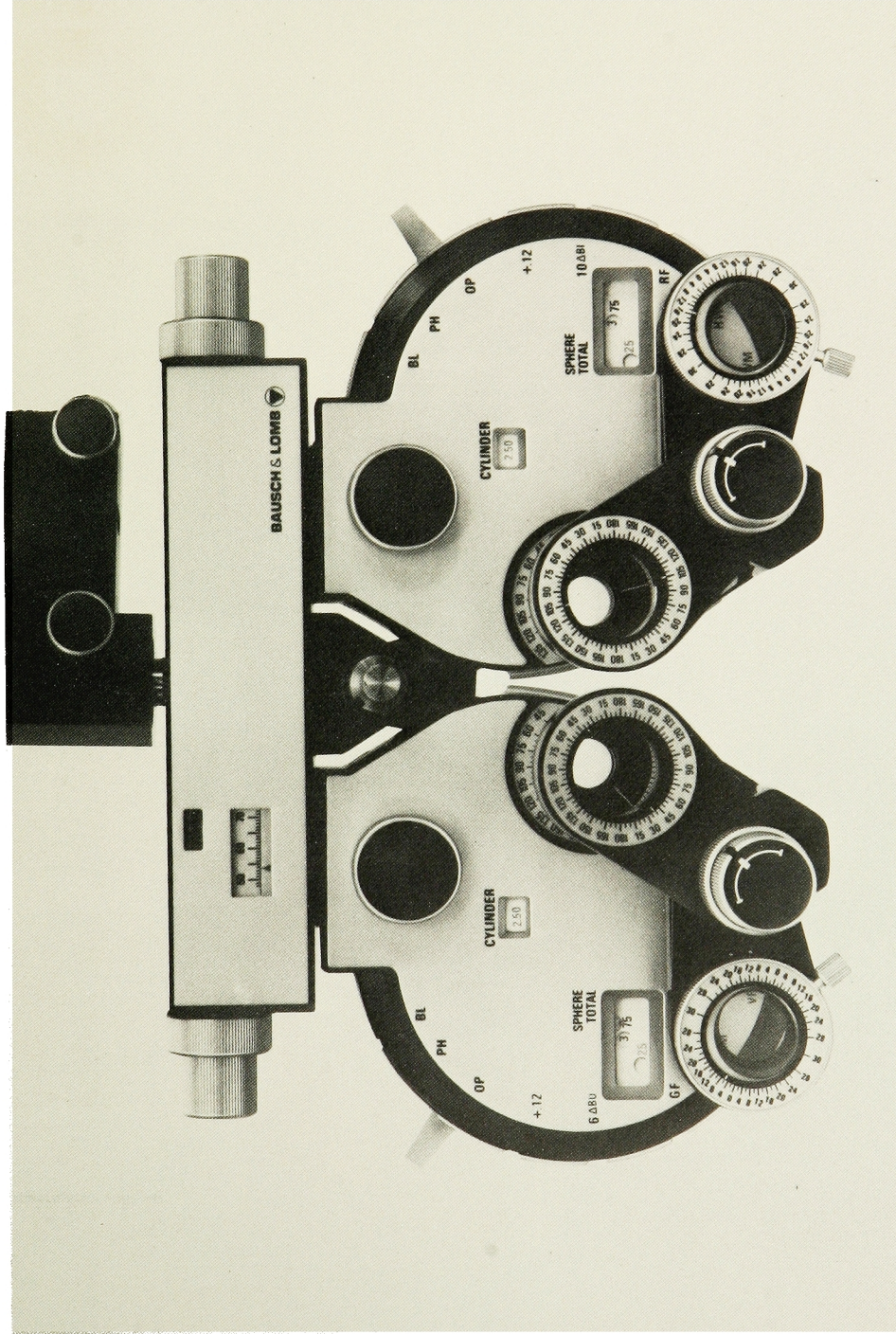


Vision Care Products



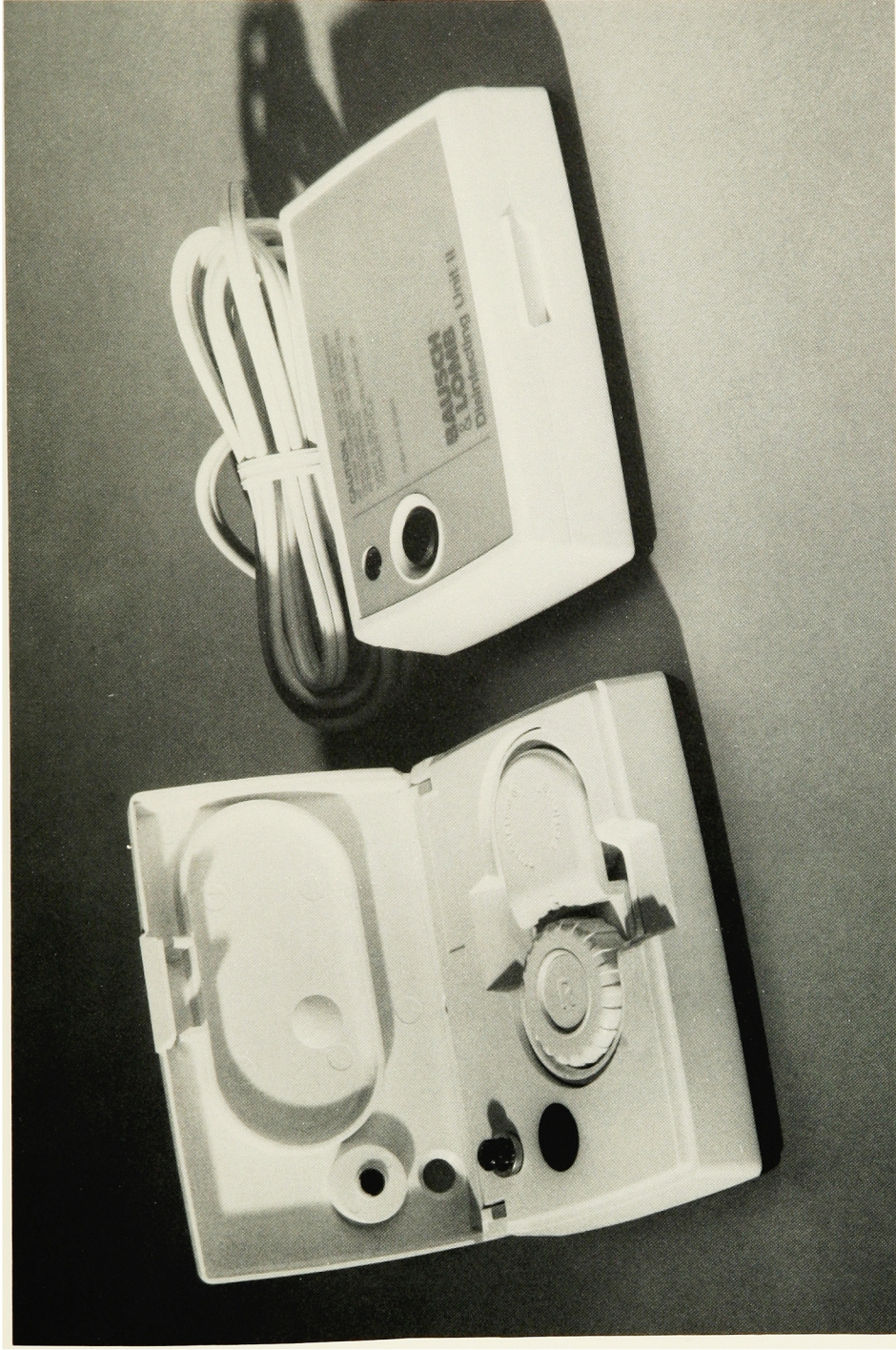
Refractor

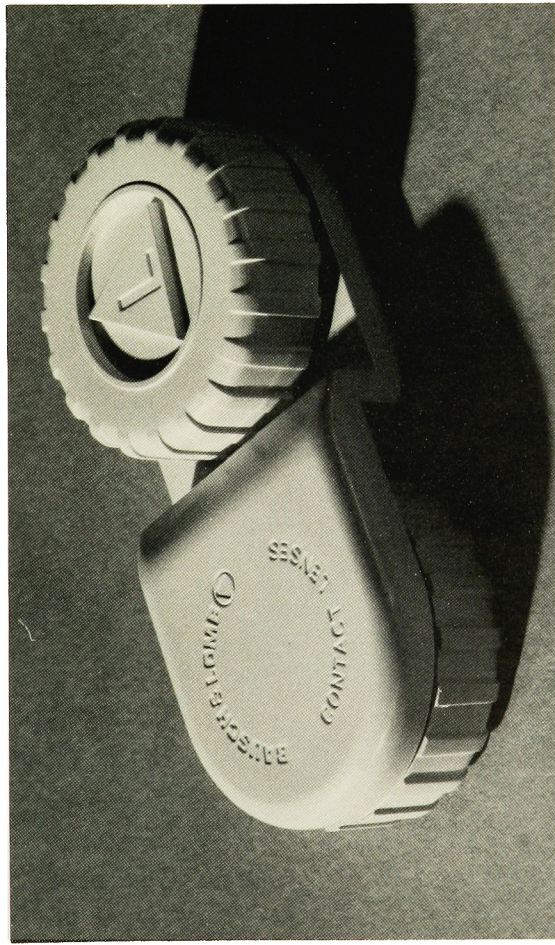
The refractor is a design problem which requires the organization of many forms, controls and lettering, with little freedom to shift interior mechanisms. Thin-wall die castings are used for the covers and finished in several colors. Dials and lettering plates are common to all models.



Contact Lens Aseptor

A compact, safe and easily cleaned unit, the aseptic is used for daily care of soft contact lenses. The method of operation, materials and labeling are designed to conform to F.D.A. requirements.



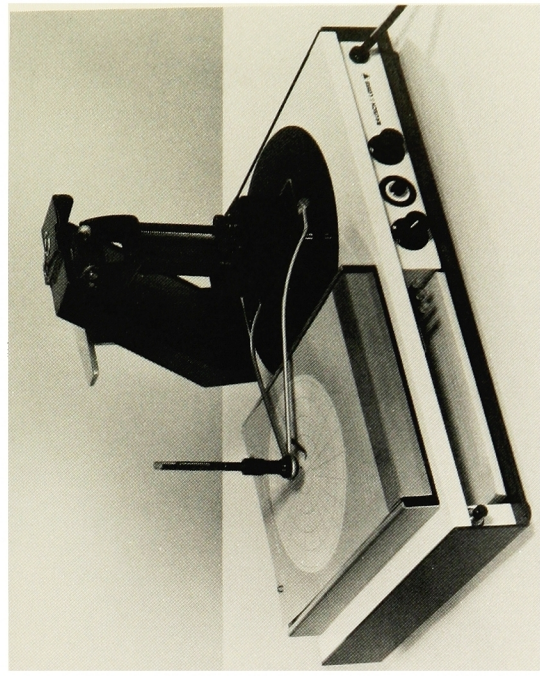
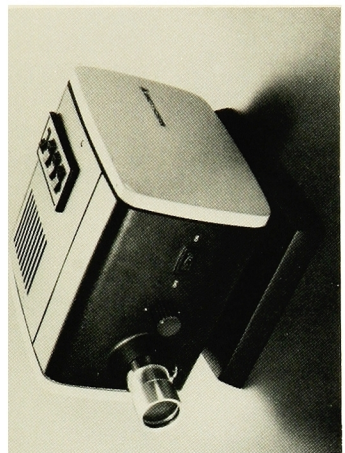


Contact Lens Case

The storage case for a pair of contact lenses includes tactile as well as visual means for identifying left and right lenses. Chances of interchanging the lenses are further reduced by opposed chambers.

Ophthalmic Target Projector

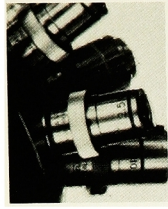
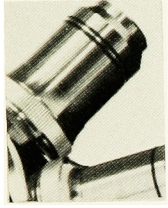
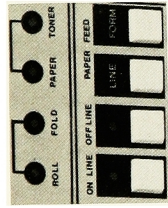
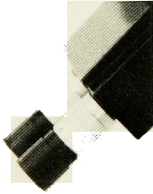
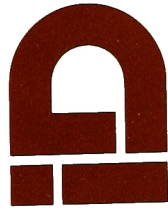
Visual acuity tests are made by projecting various targets and asking for the patient's response. A detailed model was constructed and used as the basis for a contract with an outside manufacturer.



Determination of Visual Fields

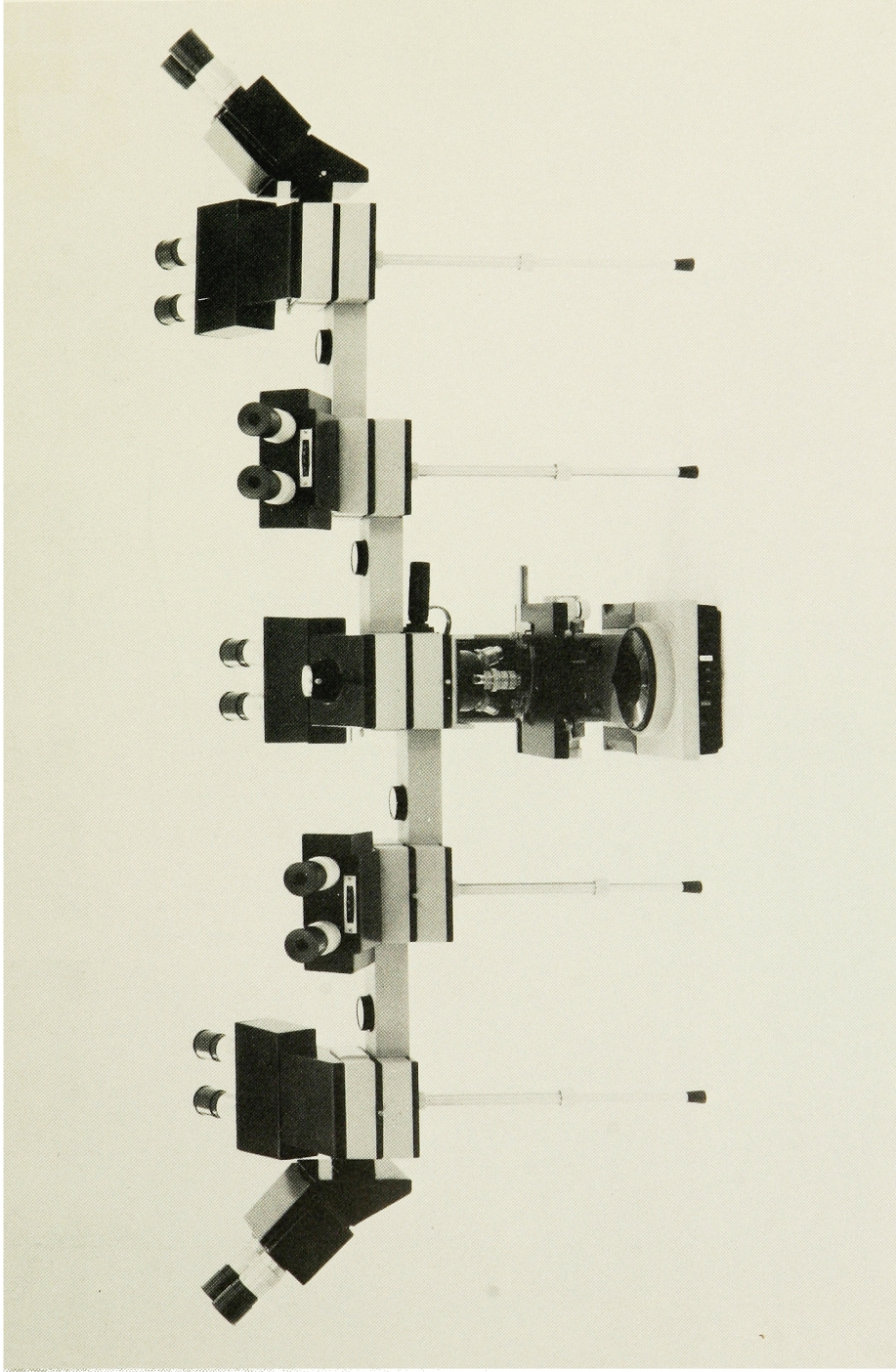
Fields of view are plotted by projecting a moving spot of light on a screen and recording when the spot disappears. The instrument requires an unusual practitioner/patient relationship which was established after experimenting with several human factors models. Since the instrument is used in low ambient light, the chart is back-lighted with an electro-luminescent panel.

Scientific Instruments



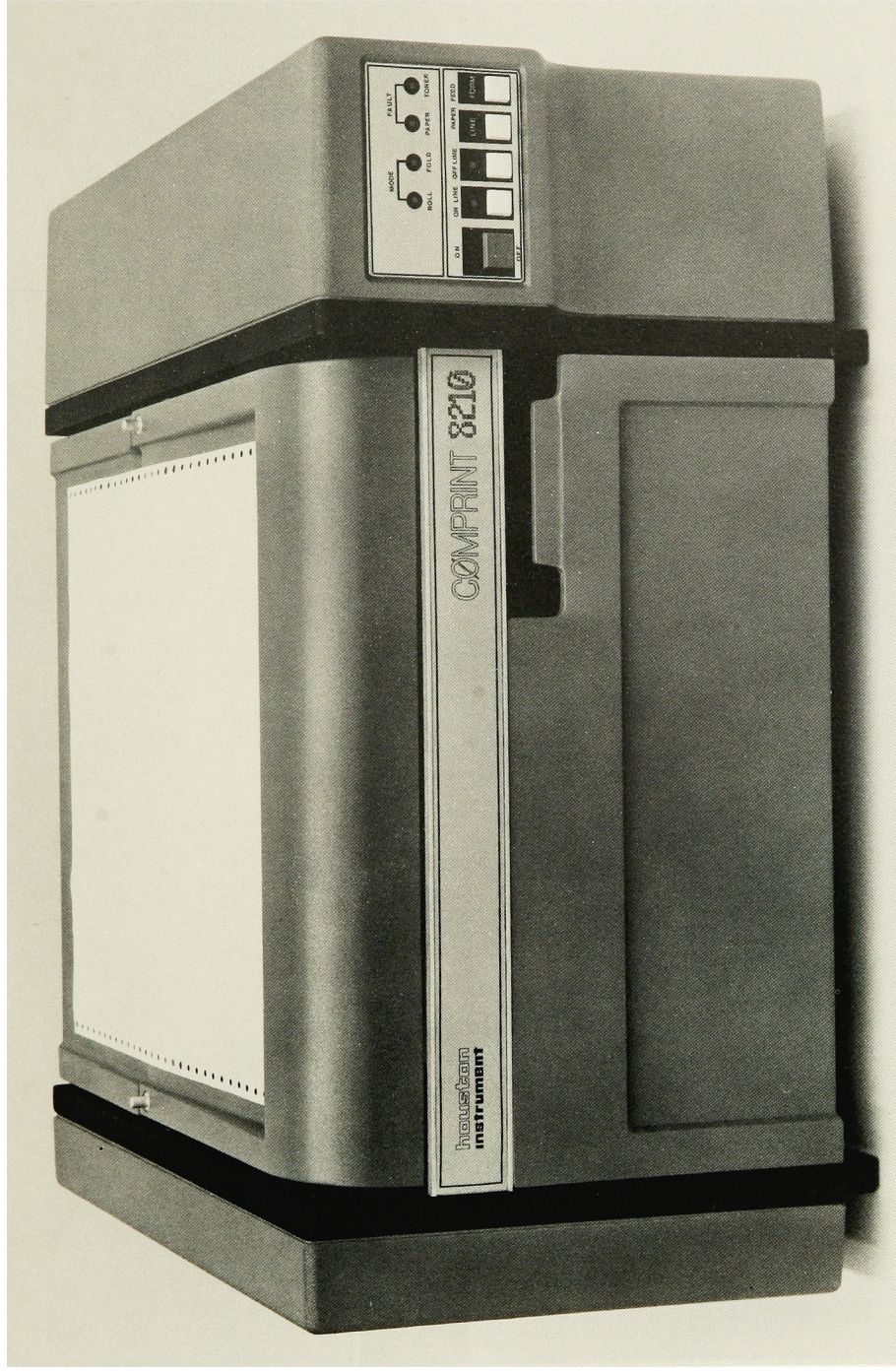
Conference Microscope

These microscope components can be assembled in many arrangements, all of which permit simultaneous viewing of the same image. Designed for group viewing of the same specimen, one microscope position can move an illuminated arrow to points of interest.



High Speed Printer

A project for Houston Instrument Co., the high speed printer involved refinement of forms, development of the graphics, and models for marketing and supplier use.



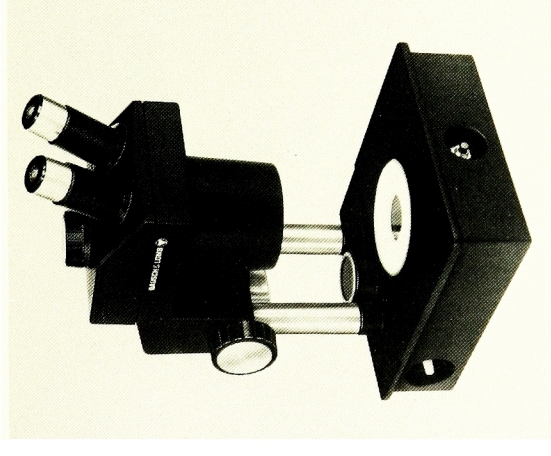


Automatic Exposure Controller

Used in conjunction with B&L microscopes, the controller automatically regulates exposure time. The lighted push-buttons, digital switch and custom meter face all assist in trouble-free photographic documentation.

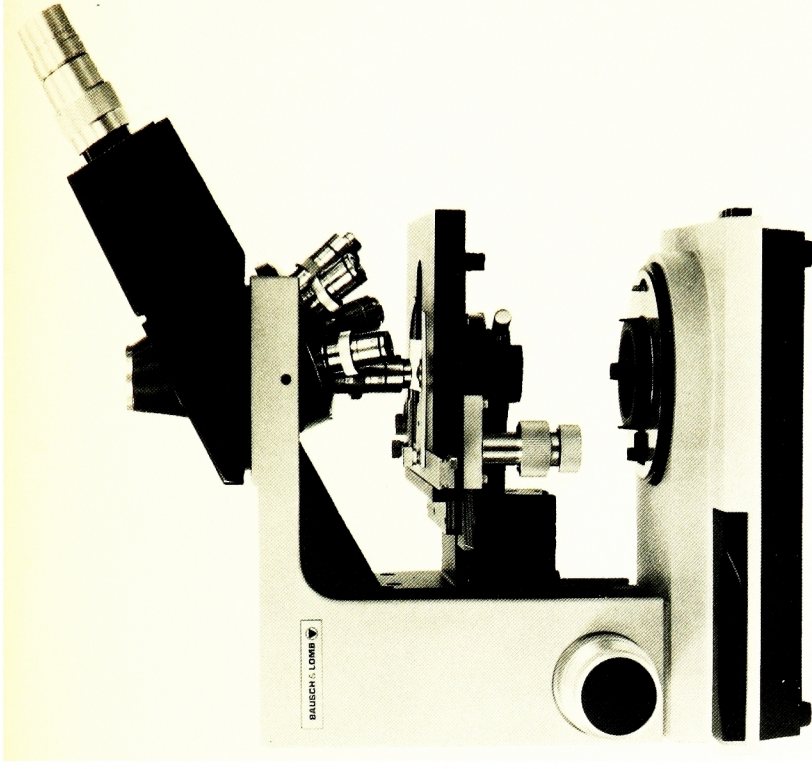
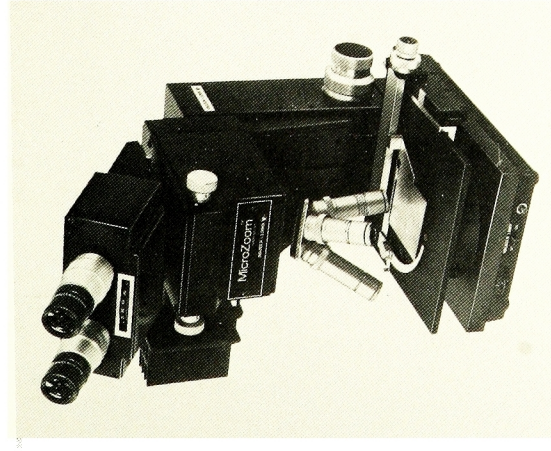
Student Stereo Microscope

Designed to provide value in meeting curriculum needs, the microscope is "Student-proof," requiring rugged parts, protected controls and a durable finish.



Industrial Microscope

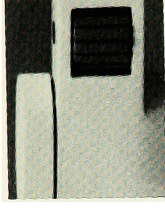
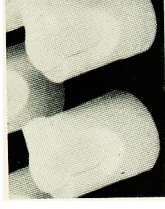
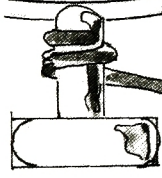
This microscope is specifically designed for the micro-electronics industry. Because of the modular design approach, numerous components are interchangeable by the user. The external light source is easily serviced and the mounting fasteners are available behind the nameplate.



Laboratory Microscope

Copied around the world since its introduction, this was the first laboratory microscope to integrate modular components into a unified appearance.

Consumer Products



Sales Case for Magnifiers

This durable, lightweight case has been developed to aid the salesperson by displaying the products to a buyer. Unique in appearance, the opened case becomes its own tipped-up support. Literature and catalogs are stored in concealed slots beneath the display deck.

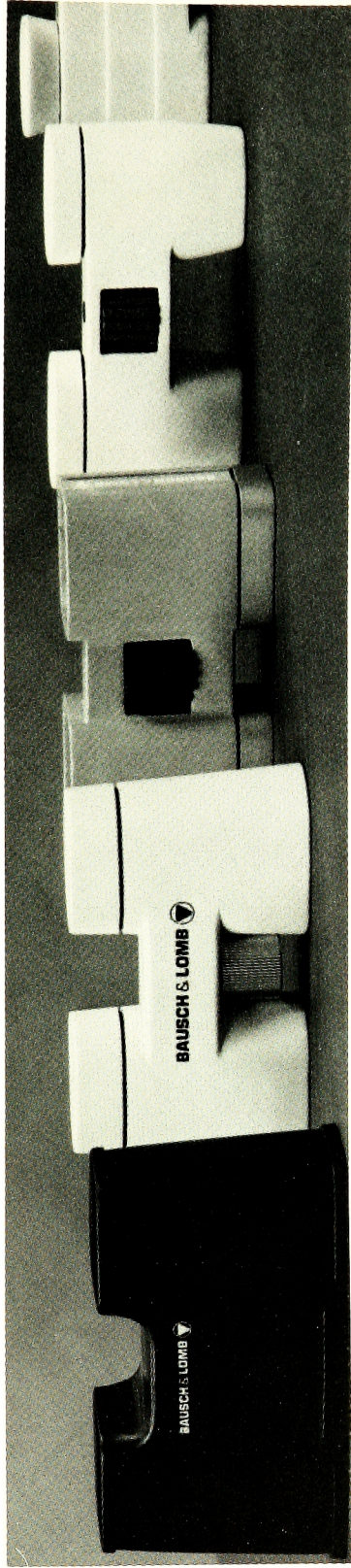
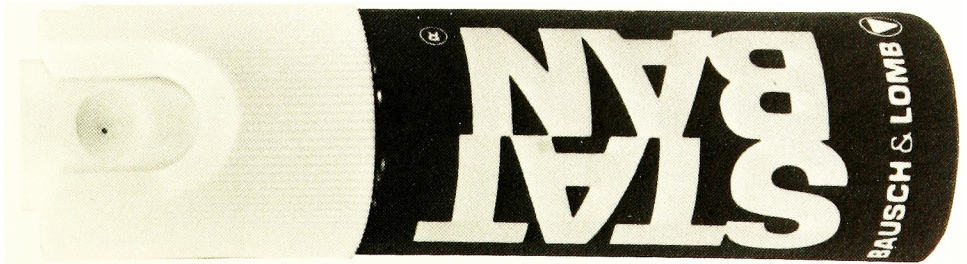
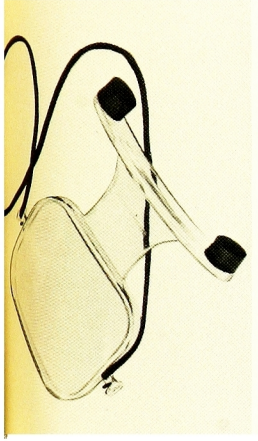


Magnifier Packaging

Prior to this package redesign program, magnifiers were sold in many different containers. The products were not visible to consumers.

The new packages are color-coded by market and feature consistent bold graphics on a transparent sleeve.





Round-the Neck Magnifier

The large lens provides distortion-free magnification as a viewing aid for the elderly, vision-impaired or hobbyist. The magnifier is supported by an easily adjusted cord around the neck and two soft non-slip feet which rest against the user's chest.

Binoculars

A series of form studies using the same optical system were made for marketing evaluation.

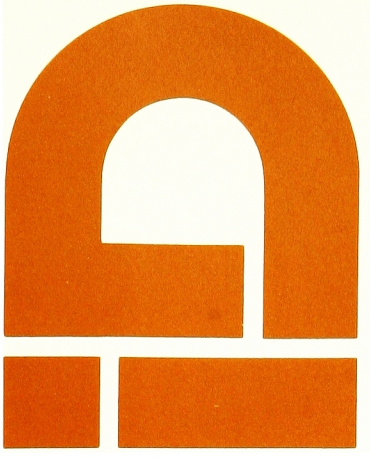


Lens Cleaner Dispenser

The color and graphics of the dispenser were redesigned for a bolder, brighter appearance on retail counters: two-color screen printing coordinates the display.

Lens Cleaner Display

Holding 24 individual dispensers, this counter top point-of-purchase display is also the shipping container; two-color printing on paperboard.



Design by Lorrie Frear
Typesetting, Photography and Printing
by Bausch & Lomb