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ABSTRACT

This study considers Rudolf Modley's efforts to achieve the standardization of international graphic symbols from 1940 to 1976. Modley was one of the major activists in the movement to standardize graphic symbols and his interest in standardization continued throughout his life. During the 1930s and 1940s, Modley, who had the experience of working under Otto Neurath in Vienna, worked in the making of charts in the U.S. After WWII, he continued to undertake various projects and institutional works devoted to developing international graphic symbols until 1976, the year of his death.

Although in some instances he is regarded as a 'designer', in reality, he was a consultant and coordinator in his field. By focusing on these more appropriate roles, this study examines his activities with the project of compiling a symbol dictionary and his work at Glyphs, Inc. Finally, some characteristics of Modley's principles related to the standardization of graphic symbols are discussed and evaluated.

Keywords: Rudolf Modley, Graphic symbols, Design history

INTRODUCTION

In the history of modern graphic design, the ideal aim of 'unity' can be found in the arguments for the standardization of graphic symbols, particularly between the 1960s and early 1970s. In those days, with an increasing number of developments regarding graphic symbols for use in transportation-related facilities, machine tools and international events such as the Olympic games, many people, including Peter Kneebone, Rudolf Modley, Masaru Katzumie, Henry Dreyfuss and others, began advocating the need for an international standardization of graphic symbols.

From a historical viewpoint, one of the most important among them was Rudolf Modley, since his interest in standardization continued throughout his life. Early on, Modley had the experience of working under Otto Neurath in Vienna, who is usually regarded as the pioneer advocate for internationally standardized graphic symbols in the last century. In 1930 Modley left for the U.S. Four years later, Modley established Pictorial Statistics, Inc. whose aim was creating graphic works based on this experience with Neurath, and he worked there during the 1930s and 1940s. Although he abandoned this work after WWII along with few exceptions,[1] he maintained his interest in the standardization of graphic symbols. Between 1958 and 1959, he undertook the project of compiling a dictionary of graphic symbols. Finally in 1966, he established Glyphs, Inc., whose purpose was developing international graphic symbols, and worked there till the last.

Despite this long history, Modley's work has hitherto been ignored with few exceptions (Crawley, 1994; Bolton, 1998), particularly when compared with that of Neurath. Therefore, I examined his work during the 1930s, focusing on the relationship between his method and that of Neurath (Ihara, 2009). This study examines Modley's activities thereafter, as he attempted to achieve the standardization of international graphic symbols .

One reason that Modley is so neglected in the history of modern graphic design is, perhaps, the fact that initially he was not a designer; thus, only a few of his visual works remain except his work in the 1930s. Nevertheless, those who have an interest in him tend to view him as a 'designer' in their discussions. For instance, in his study, Crawley (1994) examines Modley's work by focusing on his design of graphic symbols mainly during the 1930s and 1940s, and

attempts to assess his contribution to current visual communication.

In contrast to Crawley's perspective, this study emphasizes the importance of his role in the history of the standardization of graphic symbols. There, he generally worked as a consultant and coordinator between various fields related to graphic symbols, including not only design but also science and administration. Modley's efforts to standardize international symbols are examined from 1940 to 1976 using archival materials, including Margaret Mead's Papers, the Henry Dreyfuss Collection and the Otto and Marie Neurath Isotype Collection. Hence, I hope to contribute to the theme of this conference: 'diversity and unity'.

FORMATION OF THE PROBLEM OF STANDARDIZATION OF GRAPHIC SYMBOLS

Modley's interest in the problem of standardizing graphic symbols can be traced back to his criticism of Neurath in the 1930s. When Modley began his own work with the purpose of making charts in the U.S., he had to design the charts and symbols by himself in his own way (figure 1). But at that time, a large number of imitations of ISOTYPE began to appear in addition to Modley's attempts. Modley sought to effectively cope with this challenge by attempting to 'establish cooperation between all the groups which produced pictorial statistics in this country and abroad, so that they can make use of the best methods and symbols' (Modley, 1937). He most likely offered this idea to Neurath, who responded negatively as mentioned in Modley's book *How to Use Pictorial Statistics*:

> It is regrettable that Dr. Neurath has not found it possible to cooperate with any group which does not agree with the rigid standardization of symbols he demands (Modley, 1937).
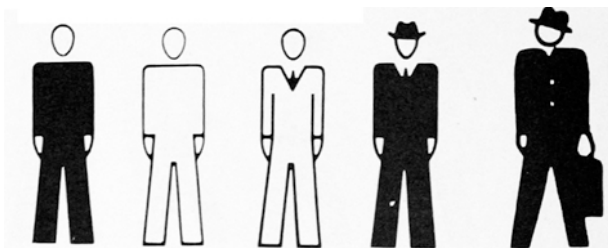

Figure 1. Symbols designed under the direction of Modley. (From: '1000 Pictorial Symbols', Pictograph Corporation, 1942.)

Neurath certainly advocated the ideal of graphic symbols, typically by expressing his famous slogan 'Words Divide; Pictures Unite', and by showing some examples of graphic symbols applied to traffic signs (figure 2) or instruction labels as in his book *International Picture Language* (Neurath, 1936). However, his primary aim of ISOTYPE was not to widely disseminate the graphic symbols to the public, but to establish visual education based on his social philosophy. Moreover, he had no intention of standardizing them for public use. Neurath wrote:

> [F]or our picture language, one general list of a limited number of signs is needed for international use, and this has to be worked out by or under the control of one chief organization. (This organization is now the ISOTYPE work-room at the Hague.) (Neurath, 1936)

Modley criticized this tendency as 'monopolistic', and argued for alternative methods to achieve the standardization and diffusion of graphic symbols. Thus, keeping Neurath's ideals in mind, Modley sought a different method to achieve standardization. His first plan was to compile a comprehensive dictionary of graphic symbols.
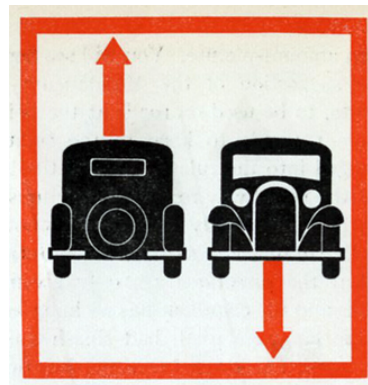
Figure 2. Traffic signs proposed by using symbols of ISOTYPE. (From: 'International Picture Language', 1936.)

PLANNING FOR A DICTIONARY OF GRAPHIC SYMBOLS

Up to the early 1960s, Modley was involved in three projects with the aim of compiling a symbol dictionary. We examine each project in turn.

PROJECT WITH HAROLD LASSWELL
The first project was a 1940 reference project called the 'Dictionary of the Graphic Symbol in Current Use in America' planned with Harold Lasswell, a well-known social scientist. The aim of this project,

Modley said 'would provide an authority for reference, promote standardization and the wider use of symbols, and afford an opportunity for the study of [the] change in symbols and their significance'. A proposal for this was submitted to the Carnegie Corporation in May.[2]

Although this plan was never realized, it provided a starting point for his subsequent attempts to compile the dictionary of standardized graphic symbols. After WWII, Modley was working mainly as an independent consultant unrelated to visual design. In 1956, however, he was again offered an opportunity to undertake the project of compiling a dictionary of graphic symbols.

SYMBOL PROJECT WITH HENRY DREYFUSS AND MARIE NEURATH

The 'Symbol Project' was initially proposed by Henry Dreyfuss, an industrial designer who held a professional interest in graphic symbols, particularly those related to safety. Dreyfuss asked Modley to undertake the project to obtain financial support from the Fund for the Advancement of Education, an organization affiliated with the Ford Foundation. In the spring of 1956, Modley began planning the project aimed at studying 'the use of signs and symbols in modern communication', and submitted the proposal to the Fund. To prove the need for this study and to estimate the budget for the operation, a one-year preparatory survey entitled the 'Study on Communications through Graphic Symbols' (referred to as the 'Symbol Project') was conducted between June 1958 and May 1959.

Although Dreyfuss wanted to include in this study worldwide materials from the Far East and Africa, Modley decided to limit the scope to graphic symbols in 'Western civilizations'. To complete the survey in Europe, he asked Marie Neurath who was then working in visual education as the representative of the ISOTYPE Institute of London to participate in this project as the European Representative. After her consent, she began to vigorously approach various institutions in European countries to collect their graphic symbols.

Dreyfuss and Modley agreed that their eventual goal should be a 'Dictionary of Symbols'. Moreover, Modley thought that such a dictionary, if it succeeded, would be the 'climax' of his former project planned with Lasswell.[3]

At the end of 1959, a proposal for a five-year study project was submitted, along with the report of the preparatory survey. However, the Fund rejected the proposal, perhaps because of their judgment of its highly theoretical tendency.

PROJECT WITH HERMAN WEISMAN

Modley's last project in 1962 was a 'Feasibility Study for the Creation of a Dictionary of Symbols and the Development of a Universal Symbolic Language', which was planned by Herman Weisman, Executive Director of Colorado State University's Center for Research in Communication. As previously, this project primarily aimed to collect and classify graphic symbols, but the scope of the research was more expansive than that of the previous project. In a draft describing this project, the authors wrote that, 'Symbols in use in the U.S. will be compared with similar "symbology" in use in Latin America, Europe, Asia, and the African countries'.[4] Moreover, eight academic researchers, including psycholinguists and psychologists, were enlisted as members of the staff in order to emphasize the increasingly scientific nature of this project. In the following year, a proposal for this project was submitted to the National Science Foundation, but it ended in failure.

Since none of these projects were realized, they may seem to be unworthy of evaluation. However, it should be noted that for 20 years, Modley continued to play a role in these projects as a coordinator, keeping in mind the emphasis on the scientific objective for standardizing graphic symbols. In a conference devoted to the theme of 'Symbology', he reported the following on his role in the Symbol Projects: 'My assignment is not to "produce" anything. It is merely to look and learn and to recommend' (Modley, 1959).

Modley believed, 'If we want to deal with symbols scientifically, we have to classify them'. Thus, he regarded the establishment of rational and useful classification systems for graphic symbols as the most important scientific aim of these projects. In fact, he offered two proposals developed by two experts to the Ford Foundation: Marie Neurath's classification system based on four major classes

including 'geometric symbols, pictorial symbols, conventional symbols, and weight and colour meanings for these classes' and Martin Krampen's system which developed 'seven classes of symbols– geometrical, human, animal, vegetal, elemental, object, and letter–like'. ((Modley), 1972)

By undertaking these projects, he envisaged that the making of a dictionary 'will prove to be a valuable step in the development of a universal symbology',[5] and wanted 'ultimately, to set up a workshop, on an international basis, to which people who need new symbols, have problems with symbols, etc. can attend'.[6]

As we will see in the following, these goals of Modley's became the basis for his activities in Glyphs, Inc.

GLYPHS, INC.

In the 1960s, with a growing general interest in graphic symbols, an increasing number of proposed graphic symbols were developed by different international bodies for highways, airports, machine tools, hospitals and many other services and products. In this context, Glyphs, Inc., a non-profit organization with the purpose of the scientific development of simple graphic symbols, was established (figure 3).

Figure 3. Logo of the Glyphs, Inc. designed by Michael Lax, c.1966.

FORMATION

The immediate factor that prompted its formation was the 'International Cooperation Year (I.C.Y.)' planned for the 20th anniversary celebration of the founding of the United Nations. The concept of universally recognized graphic symbols, which had been suggested by Margaret Mead to the Committee for the I.C.Y., was considered in harmony with their aim. As a result, in 1965, the 'North American Interim Committee for Glyphs' was formed and in the summer of the next year, the Glyphs, Inc. organization was finally incorporated by Mead, Modley, Lawrence Frank (psychologist), Lasswell and Curtis Roosevelt (an executive of the United Nations).

Although both Mead and Modley became the co-chairs, in reality, Modley performed almost all of the work. Financially, it was sponsored by the Institute of Intercultural Studies, which had been established by Mead.

The term 'glyphs' broadly denotes graphic symbols in general, including letters, numerals and other symbols. But, Mead and Mary Catherin Bateson, an anthropological linguist, introduced its theoretical notion by focusing on the ideal nature of 'pure glyph' whose visual form itself should be international, because of the lack of any single associated vocal form.(Mead, 1969)

Modley should agree to Mead's concept of glyphs, as expressed in her following statement:

> Hundreds of glyphs are used in different parts of the world—as road signs, for example—but too often with ambiguous or contradictory meanings as one moves from one region to another. What is needed, internationally, is a set of glyphs which does not refer to any single phonological system or to any specific cultural system of images but will, instead, form a system of visual signs with universally recognized referents. (Mead, 1966)

COOPERATION WITH THE ICOGRADA

International cooperation with other organizations was also established. In 1965, on the initiative of Peter Kneebone, a graphic designer in London, the International Council of Graphic Design Association (ICOGRADA) had created the Commission on International Signs + Symbols, whose immediate purpose was to 'act as a professional, advisory international body for the coordination and solution of the vital and complex problem of establishing international unified sign systems in all the fields where this is needed and so help to overcome the existing language barrier'.[7] Modley recognized his lifelong goal in their mission. Thus, while Glyphs, Inc. became a supporting member of the ICOGRADA, Modley took up a position as the Senior Representative of the Commission in the U.S. They successfully shared their international work, mainly for regional reasons, as the minutes of a Glyphs meeting reported: 'There is great importance in preserving for Glyphs, Inc. the maximum international flavour, while at the same time

remaining regionally North-American based, since ICOGRADA is international and European based'.[8]

PLANNING EXHIBITION

In the beginning, Glyphs, Inc. planned an exhibition entitled 'Glyphs for World Communications' as well as 'a long-term research program for the development of glyphs'.[9]

Modley outlined the exhibit as follows:

The exhibition will show visual symbols in prehistory, the history of alphabets and numerals, the experiments of children with glyphs, visual symbols in sciences and professions, and a 'chamber of horrors'–symbols abused. The main attraction will be entries by leading designers for glyph designs'.[10]

While the scope of the exhibit was extremely wide, the main focus was the last section in which design proposals for graphic symbols from all over the world were to be exhibited. In truth, Modley planned the competition for new proposals of graphic symbols submitted from 'leading designers' in cooperation with ICOGRADA. He asked Paul Rand (USA), Masaru Katzumie (Japan), William de Majo (England), Selby Mousi (Kenya) and others to become the Members of the Selection Committee Jury.

This exhibition, however, was postponed in 1967, and finally cancelled at the end of 1968 due to failure of secure sufficient financial support.

COOPERATIVE WORK WITH DREYFUSS'S PROJECT

Modley's major activity after withdrawing from the exhibition was cooperative work with Dreyfuss. As previously described, Dreyfuss had expressed a strong interest in graphic symbols by proposing the Symbol Project. In 1967, he began planning a similar project for his private work during his retirement. Dreyfuss wrote a draft entitled 'The design of a research project to determine the nature and feasibility of an international dictionary of symbols',[11] and asked Glyphs, Inc. to provide suggestions for relevant persons to be members of the International Advisory Board for the dictionary. As a result, along with the list of suggested advisors, Glyphs, Inc. made a more active proposal to him. The proposal included consulting with Dreyfuss on the problems of classification, making available the private collections of symbols which had been

collected by Glyphs, helping to establish contact with symbol-oriented people, and providing individual consultations for a limited number of days. In particular, Modley emphasized the importance of the problem of classification. He stated the following in the proposal to Dreyfuss:

A major problem in the preparation of such a Dictionary is the development of a valid system of classification. [...] The arrangement of symbols according to graphic characteristics will make it possible to bring together all identical, similar, or graphically related symbols with all their intended meanings and area of usage. This, in turn, is essential for the ultimate development of a universally acceptable symbol system.[12]

Dreyfuss expressed much interest in the proposal and appreciated the offer of cooperation. However, due to insufficient funds for the Dictionary Project, in 1970, Dreyfuss confessed that he was considering 'the possibility of having this collection published, not with the idea of setting up an international standard or 'Symbol Dictionary' but rather with the idea of making available the research that we have done, which hopefully would be a first step towards our long term goal'.[13] Modley appreciated his judgment regarding the publication of 'collections' instead of a 'dictionary', since he felt that 'the Dictionary Project should not be undertaken unless a meaningful classification system can be worked out under which symbols can be sorted according to their graphic characteristics'.[14] Such cooperative work between them resulted in Dreyfuss' famous book *Symbol Sourcebook* (1972), which included a trial classification of graphic symbols by 'graphic form'(figure 4).

Figure 4. A page showing symbols classified by 'graphic form'. (From 'Symbols Sourcebook', 1972.)

PROJECT FOR CREATING ARCHIVES

Through consultation with Dreyfuss's project, Modley came up with the idea of establishing 'an International Symbol Archive into which the present collections of Dreyfuss, Kneebone, [Marie] Neurath material, and Modley (Fund for Advancement of Education) could be channelled'. Modley felt that the Archive should be set up in England or the U.S. He described his idea as follows: 'A fair part of the classification effort [...] could be done by the Archive. Access would, of course, be available to all serious students and organizations'.[15]

In May 1970, Modley visited the leading symbol experts, including Masaru Katzumie (Japan), Anton Stankowski (Germany) and Marie Neurath and Peter Kneebone (England), with the aim to engage their help in setting up one or more archives.

After his return, he reported the following on his trip to Mead:

> I found that practically everybody is willing to cooperate on our Archive project. As of now, I think that we could set up a system under which New York would classify and duplicate all symbols. They could then be available in 'branches' in Pasadena, Tokyo, London, and Germany–to start with. The 'branches' would help, in turn, to collect what develops in the area, send it to New York. International distribution would then come from New York. This is just a rough idea. But with the ease of duplicating, and the wide need and interest, a start on a simple but international basis seems feasible.[16]

As optimistically suggested in this report, Modley supposed that their project would make satisfactory progress. Thus, Modley and Mead made an effort to establish a Symbol Archives mainly consisting of the over 8,000 materials related to symbols collected by Dreyfuss, who called the collection a 'Data Bank'. They then began to look for the relevant universities or libraries that might be interested in their project. At the end of 1970, Modley described the set-up of the Symbol Archives along with the publication of the Dreyfuss book as 'the first step towards the development of universal graphic symbols'. He also suggested that 'the next step should be the initiation of a worldwide effort by scientists from different disciplines, educators, and representative of business, consumers, and governments to agree on a limited number of concepts and specifications for the development and testing of universal symbols'.((Modley), 1970a)

TOWARDS ORGANIZATIONAL WORK

While Glyphs, Inc. continued to undertake their own research projects, Modley had to deal with the International Standards Organization (ISO), the major international standards organization which had set up the Technical Committee on Graphic Symbols (TC145) and undertook the project for the standardization of graphic symbols. In 1973, Modley was appointed as the chairman of a subcommittee for graphic symbols by the American National Standard Institute, which developed the U.S. position on graphic symbols in general and on public symbols in particular.

Through his experience in these public forums, Modley recognized more clearly the problems faced by organizations that needed to be solved through the development of universal 'public' symbols. In his proposal, he listed five steps that were 'necessary to bring order out of the chaos of graphic symbols for "public use": (1) Organization, (2) Research, (3) Development, Testing and Evaluation, (4) Education and (5) Application.'

He seemed to emphasize the first step 'organization' more than the others. In fact, he argues that 'only a single worldwide organization can cope with the symbol problem, today we have many "insular" groups which try to solve their own problems, disregarding what others have done or are doing'. And he continues, 'What is needed is a pooling of the financial and talent resources of national and international organizations and willingness to make compromises for the sake of uniformity'. ((Modley), 1974)

Moreover, he once stated that 'the road to universal symbols seems difficult. It is so because the factors which will determine success or failure are not only questions of quality and technical competence but also questions of politics and of organization'. (Modley, 1970b)

Thus, he rightly recognized the multiple difficulties that would confront the standardization of graphic symbols.

MODLEY'S CONTRIBUTION TO THE STANDARDIZATION OF GRAPHIC SYMBOLS

In 1976, the year of his death, Modley published a compilation of 3,250 symbols called *Handbook of Pictorial Symbols,* which was completed with the assistance of William R. Mayers of the U.S. Department of Transportation, who worked with Modley as a U.S. delegate to the TC145. Although the book was planned with the intention of having the symbols serve the public interest, Modley considered that it might become a 'convincing demonstration of how drastically many of the intended "public" symbols fail to conform to the objectives we have established'. He explained, 'We may pick almost any of the "public" symbols in the book. […] We'll find that it is not "unique", that it is not "independent of language and culture", and that it does not "convey its message directly by its visual form"' (Modley, 1976a).

On the other hand, this book also contained a large number of 'pictorial' symbols produced by him during the 1930s and 1940s along with the symbols designed by Gerd Arntz, who was the chief designer of ISOTYPE (figure 5). Thus, the book could be 'read' as a historical document which describes 'the road to universal symbols'. Nevertheless, he treated their 'pictorial symbols' (or 'pictographs') as different from 'public symbols', and offered advice to 'would-be pictographers' through some passages from his book, *Pictorial Symbols,* published in 1942 (Modley, 1976b). To be sure, his instructive suggestion itself

might be valuable; however, this treatment might also weaken Modley's previously serious criticism against the state of 'public symbols'. Moreover, it is likely that the arrangement of the book encouraged unnecessary associations between him and his early work on 'pictorial symbols' and the misunderstanding that Modley was a mere 'designer' or producer of pictorial symbols.

As we have seen, Modley had rarely developed symbols as a designer or producer after WWII. Instead, his real contribution to the standardization of graphic symbols is found in his long, but mainly *invisible*, activities toward his coherent principles. The major characteristics of Modley's principles can be summarized in the following three points.

SHARING RELEVANT INFORMATION REGARDING GRAPHIC SYMBOLS

Modley consistently held the firm belief that collecting and classifying graphic symbols through both a dictionary and an archive could encourage the development of universal graphic symbols. Moreover, he envisioned the establishment of multiple institutions through which anyone could access and share relevant information.

EMPHASIS ON A SCIENTIFIC APPROACH IN THE STANDARDIZATION OF GRAPHIC SYMBOLS

Modley clearly argued that a rigid scientific approach was inevitable to standardize graphic symbols into internationally acceptable forms. For that purpose, he attempted to examine the scientific classification

Figure 5. Two pages from 'Handbook of Pictorial Symbols' (1976). 'Pictorial Symbols' (left), and 'Public Symbols' (right).

systems for graphic symbols and the methods for evaluating them. In addition, he advocated that importance, particularly to design communities.

EMPASHIS ON POLITICAL AND ORGANIZATIONAL MATTER IN THE PROJECTS
To realize the standardization of graphic symbols, Modley acted as a coordinator among various fields related to graphic symbols, including not only design but also science and administration. He well understood that organizational and political matters were important factors in such world-wide projects.

CONCLUSION

To sum up, Modley's contribution to the standardization of graphic symbols was not responsible for their concrete development, but instead included various institutional efforts to lay scientific, organizational and political foundations by developing a dictionary and/or archives, coordinating relationships among various organizations and promoting the ideals of universal graphic symbols.

From a historical viewpoint, it is noteworthy that some of his principles (in particular, the first and the third) can be found in his early criticism of Neurath. Although he criticized Neurath's monopolistic attitude as the obstacle to disseminating the picture language to the world at that time, he never denied Neurath's ideal itself. Instead, he continued to seek concrete methods for realizing it while maintaining the ideal throughout his life.

In the 1960s' movement toward the standardization of graphic symbols, various leading figures also agreed with Neurath. Thus, Modley's contribution to this movement might be regarded as only one of many. However, when we look at Neurath's influence on this movement, we should also consider Modley as a person who attempted to realize Neurath's ideal, but in a different way. Thus, both played complementary roles in this historical movement.

ACKNOWLEDGEMENTS

REFERENCES

Bolton, C. (1998) ISOTYPE and the project of universal graphic language, in Sollors, W. (ed.) *Multilingual America*, New York: New York University Press, 380-388.

Crawley, R.C.(1994) From Charts to Glyphs: Rudolf Modley's Contribution to Visual Communication, *Technical Communication*, First Quarter, 20-25.

Dreyfuss, H. (1972) Symbol Sourcebook, New York: McGraw-hill Book Company.

Ihara, H. (2009) Rigor and Relevance in the International Picture Language: Rudolf Modley's Criticism against Otto Neurath and his Activity in the Context of the Rise of the "Americanization of Neurath method", *IASDR2009*.

Mead, M. (1965) The Future as the Basis for Establishing a Shared Culture, *Daedalus: Proceedings of the American Academy of Arts and Sciences*, Vol.94, No.1, 135-155.

Mead, M. (1969) Anthropology and Glyphs, *Print*, XIII:VI, 50-53.

Modley, R. (1937) How to Use Pictorial Statistics, New York: Harper and Brothers Publishers.

Modley, R. (1959) The Challenge of Symbology, Pamphlet prepared for The Fourth Annual Communications Conference of the Art Directors Club of New York.

(Modley, R.) (1970a) GLYPHS-newsletter 3, in *Graphic Design*, December, 79-80.

Modley, R. (1970b) Universal Symbols and Cartography, *Symposium on the Influence of the map User on Map Design,* September 8-10, Ontario, Canada.

(Modley, R.) (1972) GLYPHS-newsletter 10, in *Graphic Design*, September, 79-80.

(Modley, R.) (1974) GLYPHS-newsletter 16, in *Graphic Design*, Spring, 79-80.

Modley, R. (1976a) Speaking of sign language, *Industrial Design*, July/August, 60-63.

Modley, R. (1976b) Handbook of Pictorial Symbols: 3250 Examples from International Sources, New York: Dover Publications, Inc.

Neurath, O. (1936) International Picture Language: The First Rules of ISOTYPE, London: Kegan Paul.

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[1] After WWII, Modley published a book 'Pictographs and Graphs: How to make and use them' (New York, Harper & Brothers, 1952.), and designed four books with preparing graphic charts for Twentieth Century Fund, including: Thomas R. Carskadon's 'U.S.A. Measure of a nation' (1949), and 'USA in New Dimensions' (1957); Arnold B. Barach's 'The New Europe and its Economic Future'(1964), and 'U.S.A. and its Economic Future' (1964).

[2] Typescript 'A Proposal to Compile a Dictionary of Graphic Symbol in Current Use in America', 23 April 1940, Harold Dwight Lasswell Papers (MS 1043), Manuscripts and Archives, Yale University Library (hereafter cited as HDLP).

[3] Letter from Modley to Alvin C. Eurich, 4 August 1956, Otto & Marie Neurath Isotype Collection, Department of Typography & Graphic Communication, University of Reading (hereafter cited as IC).

[4] Typescript 'Feasibility Study for the Creation of a Dictionary of Symbols and the development of a Universal Symbolic Language', 13 November 1962, HDLP.

[5] Typescript 'Feasibility Study for the Creation of a Dictionary of Symbols and the development of a Universal Symbolic Language', 1962, HDLP.

[6] Letter from Modley to Marie Neurath, 20 June 1958, IC.

[7] Typescript 'ICOGRADA Commission on International Signs and Symbols', Appendix C/page 2, 20 April 1966, Margaret Mead Papers, The Library of Congress (hereafter cited as MMP).

[8] The Minutes of Glyphs meeting of 26 April 1966, 28 April 1966, 3, MMP.

[9] Prospectus for Glyphs, Inc., c.1967, 3-4. MMP.

[10] Glyphs bulletin, No.1, September, 1966, MMP.

[11] Typescript 'The Design of a Research Project to Determine the Nature and Feasibility of an International Dictionary of Symbols', 6 November 1968, MMP.

[12] Typescript 'Proposal to develop a CLASSIFICATION SYSTEM for graphic symbols for an International Dictionary of Symbols', March 1969, MMP.

[13] Letter from Dreyfuss to Mead, 2 April 1970, MMP.

[14] Letter from Modley to Dreyfuss, 24 March 1969, MMP.

[15] Letter from Modley to Dreyfuss, 27 May 1969, MMP.

[16] Letter from Modley to Mead, 20 June 1970, MMP.