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Cover: The Na-khi script (see the inside back cover for details). This is the first of a series of covers showing scripts from the Far East, contributed by André Gürtler of Basle from his extensive collection of scripts of the world.

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The Scientific Study of Subject Literatures

Conrad H. Rawski

The paper addresses fundamental questions concerning the nature, genesis, and function of a subject literature—all knowledge records pertaining to a subject. A generalizable notion of a subject literature is developed and discussed in the terms of object, content, and use, and their interrelationships. The main areas of a scientific study of subject literatures are indicated. Structural interpretation is shown to be a promising strategic assumption for basic theoretical efforts and analytic research. The results of such studies aimed at explanation are examined as to their practical significance.

"When a man desires ardently to know the truth, his first effort will be to imagine what that truth can be."—*Charles Sanders Peirce*

In order to judge a proposition, we seek answers to questions of what, how, and why. This paper attempts to address some of these questions as they concern the proposition to study scientifically subject literatures.

THE SUBJECT AND ITS LITERATURE

Notion of a Subject Literature

With a licit degree of circularity we may identify as a subject literature all knowledge records pertaining to a subject. Not everything physicians read classifies as medical literature, even though it may help make them better physicians. But the subject literature of medicine does comprise all known knowledge records considered at one time or another as dealing with, or related to matters medical. The concern with achieving, maintaining, and restoring physical and mental health *generates* this literature, which records, stores, displays, and transmits pertinent states of knowledge attained at a given point in time.[1] For instance, the statement of Hippocrates that "the art consists of these three: the disease, the

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patient, and the physician"[2] suggests a model in terms of which we today may approach the literature of medicine; isolate basic concerns, assumptions, and activities; note specific areas and relationships; survey characteristics of change, innovation, and re-interpretation; make quantitative observations, comparisons, external and internal descriptions and inventories; and so on. We are doing this with regard to a literature, i.e., knowledge records viewed as some sort of entity, which in our example is predicated on the subject of medicine as mapped by Hippocrates (Figure 1).

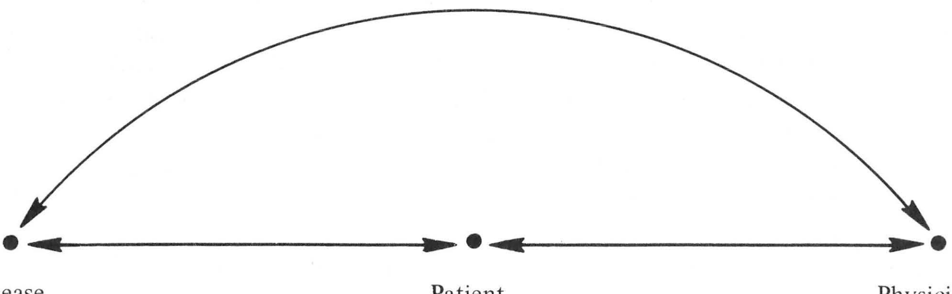
If we attempt to clarify this notion of a subject literature we have to ascertain the way things are. (The Bridgmanian phrase is intended.)

S, L, *and* SL: *The State of Affairs*

Inquiry is purposive action. If it is conducted rationally[3] (and broadened by formal study and research), it produces a body of knowledge based on concepts and conceptual patterns which "determine the questions one asks and the answers one can get."[4]

S. In our case this involves a body of knowledge organized as a subject field. Here, the overall purpose of inquiry concerns a department of knowledge which "objectively, is an intrinsically determined unit,"[5] characterized by certain goals and concerns, methods, techniques, etc., related to the situations and requirements of the subject matter.

Figure 1. Hippocrates: the disease, the patient, and the physician.



In any such subject field *S* these situations and requirements can be examined in terms of basic subject matter and materials: objects, events and processes, activities, and the like; conceptual structure; the ways in which the subject knowledge is produced; a comparison of these ways with those obtaining in other areas of knowledge (levels *A, B, C, D* in Figure 2); as well as the dominant epistemic modes which follow from these analytic considerations.[6]

These levels hold for all possible goals and concerns of reflective inquiry which, in turn, order themselves essentially in four related strata:

1. assertions concerning reality: subject queries aimed at *truth* in the sense of shared reality, public facts, knowledge which can be intersubjectively confirmed;
2. *res facta:* creative efforts aimed at *substantiation*[7] of a virtual reality expressing private facts, imagination, and fiction;
3. performance: the manual and intellectual actions needed to do 1 or 2;
4. criticism: *evaluation* of 1, 2, 3.[8]

The organized body of knowledge of subject field *S* permits a further distinction. It comprises knowledge of *S* as knowledge with a direct bearing *on S* (i.e., the requisite knowledge in order to know and do *S*), and knowledge *about* knowing and doing *S* or aspects of knowing and doing *S*. Knowledge on and knowledge about *S* are not orthogonal, but they represent different perspectives allowing shifts in interpretation which find important counterparts in the literature of *S*. It is one thing to consider the antibiotic properties of streptomycin, and another to study the methods that led to S. A. Waksman's discovery in 1943. "Any scientist who talks about electrons or genes or stars may also want to say things about his statements *about* the electrons or genes or stars."[9] In fact, knowledge about *S* could originate in areas wholly extraneous to *S*. Thurber's daydreaming Walter Mitty displays astounding knowledge about surgery when he imagines being a surgeon who fixes the faltering machine in the operating room with a fountain pen.[10] The distinction of knowledge on and knowledge about a subject may suggest more sophisticated considerations.[11] Right now, it is sufficient to make this rough distinction and to stress its heuristic usefulness.

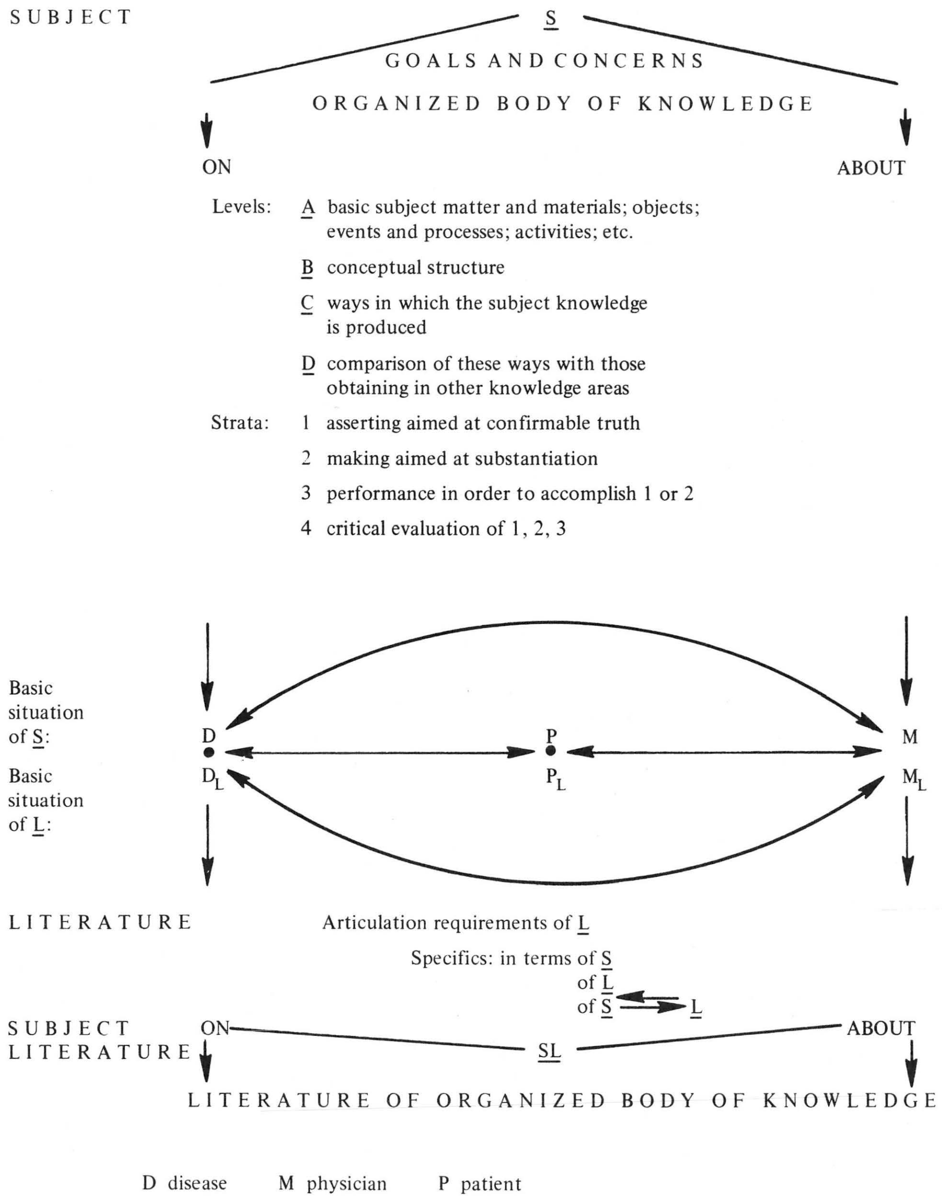


Figure 2. The subject and its literature.

$S \supset L$.[12] The production of knowledge involves communication in the sense of "all procedures by which one mind can affect another"[13] and, within this dominant context of message making, the articulation of knowledge on and about *S* in form of a literature *L* as a requirement—if we are to "have" and to share *S* as an organized body of knowledge. Daniel Bell acknowledges this state of affairs when he speaks of knowledge as "a set of organized statements of facts or ideas, presenting a reasoned judgment or an experimental result, which is transmitted to others through some communication medium in some systematic form."[14]

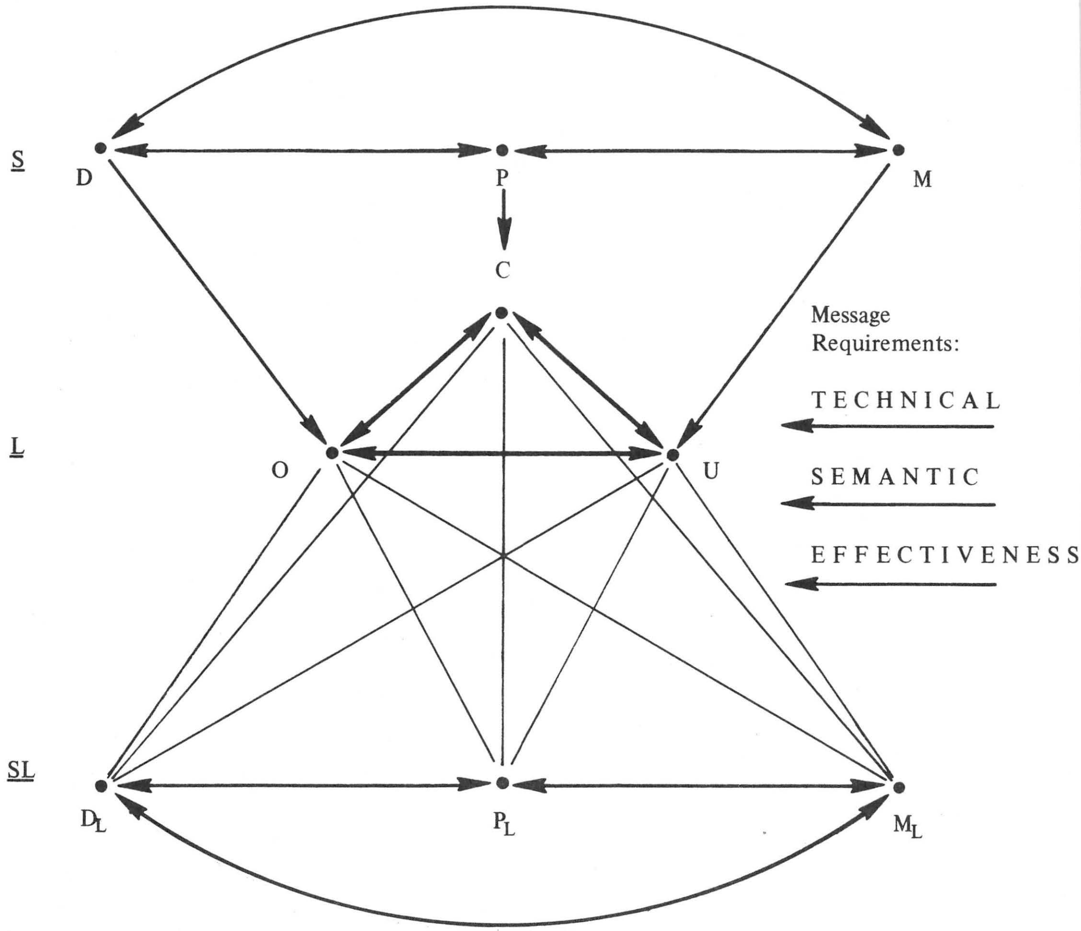
Little need be said about the fact that students of a subject think and work with reference to available knowledge in all its forms. Yet it is important to note that discovering is not identical with stating the discovery by talking and writing on and about it, for certain purposes, and *qua* certain conventions and devices.[15] Here the immediate effort—the *in order to* operator as it were—applies to articulation as literature and not to knowing and doing *S*, which remains the superordinate purpose and, as such, motivates the efforts concerning articulation as literature.[16]

What then is involved in the articulation as literature required for the existence and function of *S* as an organized body of knowledge?

Reflective inquiry is essentially a private activity.[17] The result is upon the actor's mind, so to speak. Reporting this reflexive activity and its outcomes to others necessitates expression.[18] This expression must be appropriate to the goals and concerns, the levels, epistemic modes, and strata of *S* (above and Figure 2). It must also be appropriate as an expression (e.g., in English) and as an expression of *S* in terms of the purpose it is intended to serve. Articulation as literature involves this characteristic purposive expression of *S*. It involves furthermore the devices used to record, store, display, and transmit *S*. The properties of these devices act as a constraint. It is upon the condition of these properties that the process of articulation has to operate if it is to accomplish its goal: the expression of *S* in literary form. To articulate knowledge as literature we must negotiate the requirements of communication and of those specific instruments of communication peculiar to literatures and/or a given literature. "The new design, the new utterance, are tested with and against the exemplary legacy."[19] An author is not only a producer of knowledge, but also a producer of a literature unit. He succeeds or fails as an author by his ability or inability to be both. Similarly, use of a literature requires dealing with literature units and their characteristic properties. Figures 2 and 3 attempt to sketch these circumstances for our Hippocratic map.

Figure 2 shows the organized body of knowledge on and about subject field S generated by goals and concerns (in regard to alleviating, curing, and preventing disease), ordered in Hippocrates' terms of *disease* (D), *patient* (P), and *physician* (M), and their interrelationships. This knowledge situation is established as a *literature on and about disease* (D_L), *patient* (P_L), and *physician* (M_L), and their interrelationships, which involves (1) the requirements for articulation as literature we have mentioned; and (2) the specifics resulting from the interaction of these articulation requirements and S (i.e., knowledge on and about D, P, M, and their interrelationships).

Figure 3 focuses on the implicit terms of translation. Within the dominant context of message making and its requisites (indicted here by Weaver's well known three aspects[20]) knowledge on and about the Hippocratic subjects is articulated in form of messages of a particular kind, namely, literature units. This entails the device (object O); the subject knowledge expressed to be recorded, stored, displayed, and transmitted as content (C); and the use potential (U). O, C, and U are correlative terms which hold true for any human literature, at any given point in time. In order to make a literature unit we have to express knowledge as its content, and state this content not only in a fashion suited to the subject and our specific objectives, but also in a fashion suited to the device we have chosen to serve as its vehicle. If, for instance, we adopt a "paper and pencil" operation, then articulation involves (a) what in terms of S should be written down in order to attain certain general and specific goals believed to be relevant, and the language, form, manner, etc., in which it is to be written down to attain a text, satisfactory as a meaningful text, but satisfactory also in terms of the goals believed to be relevant; and (b) all that which paper and pencil do or do not allow us to do. If photo-



C content   O object   U use potential

Figure 3. The subject and its literature: invariant properties.

micrographs are required, the technology of paper and pencil will be a poor substitute; if the subject is timbre of the singing voice, meaningful description of vocal qualities will be sharply curtailed by the limitations of pencil on paper notation; if color is a significant factor, full color illustrations may be more effective than pencil sketches.

Both the expression of knowledge and its physical modulation as a literature unit are purposive; they are intended for a certain use. Once made, the literature unit may be used consciously or intuitively as its maker(s) intended, or in some other way—but always as determined by given properties which derive from the object (O) designed for C and U; the content (C) designed for O and U; and the use potential (U) of this O and C.[21] In order to write a paper (D_L) on a certain disease (D) a researcher expresses his findings (using language, special terminology, cognitive style, idiom, personal style, etc.) in keeping with his specific objective (e.g., to address fellow researchers, clinical personnel, etc.). But as he does this he negotiates continuously the $O-C-U$ syndrome that obtains for (D_L). He notates expressions in accordance with both the requirements of his subject and the graphic standards of the publishing journal; chooses forms of presentation with certain readers, professional customs (the "rules of the game"), and various other requirements in mind; negotiates problems of format, sequence, and reprographic technology; cites or does not cite; etc. Conversely, the literature unit (D_L) thus produced will be understood or not understood, found practical, impractical, useful or not useful along similar lines. Also implied now, of course, is not intended use "elsewhere," i.e., outside the purposive field which produced (D_L)—even employment of the soft-cover journal containing (D_L) as a flyswatter.[22]

All this is belaboring the fact that the $O-C-U$ syndrome is the *conditio sine qua non* of all literature units. A literature *is* in terms of object, content, and use potential, and their functional interplay. It is not uninteresting to note that while the logic of everyday use operates in terms of these properties and relationships, reconstructions of any kind have been slow to recognize their significance as points of description and analysis, let alone their promise as "speculative instruments."[23]

SL. The subject literature *SL* comprises all made literature units concerning *S*. This means all that has been recorded (and is or was available) on and about knowing and doing *S*. As such, the *SL* exhibits knowledge records, i.e., literature units and their characteristics as to object, content, and use potential; certain modes of bibliographic organization and control ranging from desultory text references ("as pointed out by George Sarton"), indexes, analytical and systematic bibliographies, abstract journals, reviews, handbooks, media guides, etc., to complex information systems, with their knowledge-, storage/recall-, and data processing subsystems; and, indeed, the referential relationships that motivate this aggregate.

Included in this *SL* are the substantive core-achievements of the past: law, theory, application, and instrumentation as related to the goals and concerns, the levels, epistemic modes, and strata of *S*. Normal science, representing the currently accepted research tradition,[24] specific "states of the art," and the subject knowledge considered at one time or another as "most worth having" function within the chronological sequence of this *SL*, which by definition is totally retrospective. The latest book is a finished book.

As the record of the past the *SL* holds the record of change: literature units produced by the interaction of knowledge and technical possibilities within ideational and social contexts and the motives and opportunities for action afforded by these contexts.[25] Over time, the *SL* "displays the varieties of scientific method and intellectual manoeuvre on which any properly inductive analysis of scientific thinking must be based, it exposes us to the surprise that effective scientific thinking could be based on assumptions and have objectives so various and often so different from our own, and it enables us to distinguish the historically accidental from the logically essential elements in the succession of scientific systems."[26] The *SL* documents the growth of knowledge in a subject field, hence functions as a data matrix for all efforts to study this growth. The *SL* functions also as a matrix of discovery in the sense that it furnishes known knowledge and information, inferential or otherwise, pertaining to *knowledge to be known* (although this knowledge to be known may not necessarily be desired for *S* or, once it is known, judged to be on and about *S*). Conversely, the organized body of knowledge available through the *SL* may function as a constraint, foster paradigms, scientific logics-in-use, styles of inquiry, fashions, disciplinary ethnocentrism (explicated by Campbell as "the symptoms of tribalism or nationalism or ingroup partnership . . . in academic disciplines"[27]), etc., and, under given circumstances, inhibit discovery.[28]

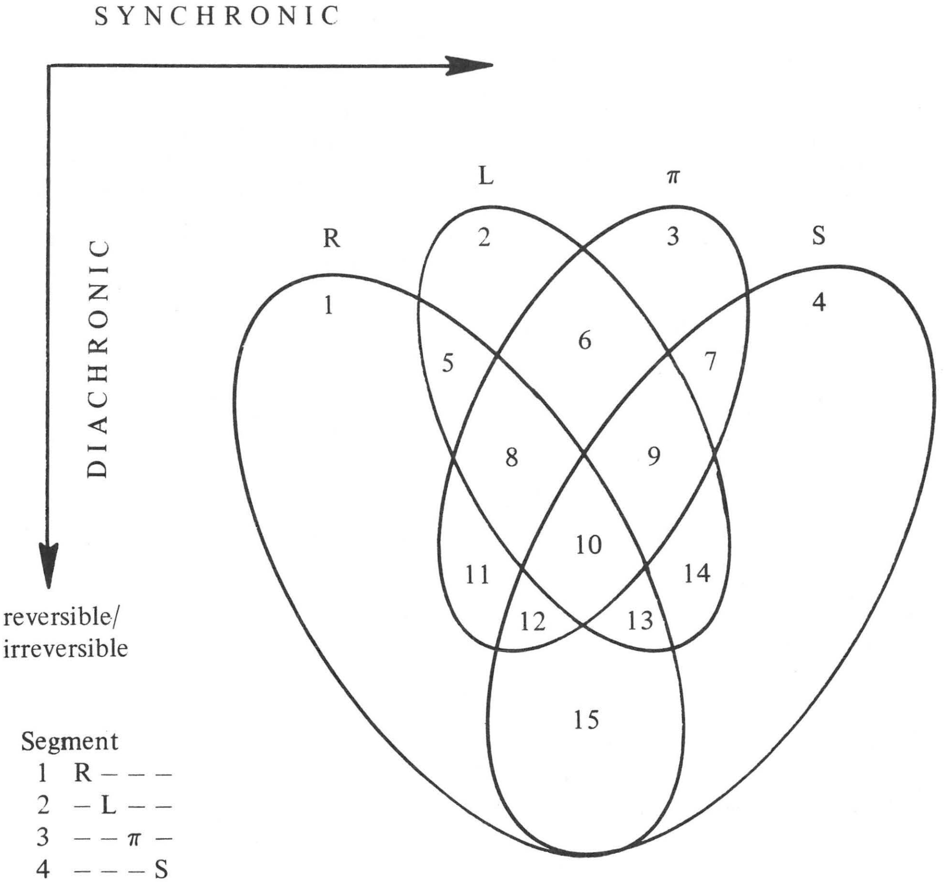
THE SCIENTIFIC TASK

The SL *as a Problem of Inquiry*

When we inquire scientifically we engage in observation, speculative thinking, deductive reasoning, and experimentation because, for some reason, we really want to know.[29] Seeking to know for sure implies seeking to gain a certain kind of subject knowledge made up of grounded and testable statements which allow us to answer reason-seeking questions of credibility (of the type: "Why should it be believed that x?") and explanation-seeking questions of intelligibility (of the type: "Why is it the case that x?"). Based on analytic efforts to grasp the subject we strive to understand (1) *that* something is the case; and (2) *why* this is so—to *become familiar* with the facts and to *explain* them.[30]

As a problem of inquiry the *SL* becomes the object of these efforts to grasp and to understand. Thus the student of the subject literature of medicine is not concerned with medicine, but with literature units designed to record, store, display, and transmit the organized body of knowledge "medicine." A topic on the Hippocratic map becomes now a literature *of* this topic, exhibiting certain properties and relationships, characteristic situations and contexts as a literature of a subfield connected in some form with the medical literature to which it belongs. The locus of inquiry is the *SL*. The large and small why-questions we seek to answer pertain to this *SL*. It is in terms of the *SL* that we seek Aristotle's intellectual achievement, i.e., knowledge of fundamental concepts and of the elements necessary for explanation.[31]

The main areas of concern for inquiries of this kind are indicated in Figure 4,[32] which shows the possible relationships of the *subject* (*S*) in the sense of all knowable knowledge (i.e., both, the known knowledge and the knowledge to be known on and about *S*);



Segment	
1	R – – –
2	– L – –
3	– – π –
4	– – – S
5	R L – –
6	– L π –
7	– – π S
8	R L π –
9	– L π S
10	R L π S
11	R – π –
12	R – π S
13	R L – S
14	– L – S
15	R – – S

R research: objectives, purposes, motivations, methods
L articulation as literature: conditions and requirements
π public knowledge on and about S
S subject: knowable and known knowledge on and about S

Figure 4. The study of a subject literature: main areas of inquiry.

research (R) as knowledge and literature unit producing efforts; the requirements and specifics of *articulation as literature* (L); and the prevailing state of *public knowledge* (π), the "rational consensus of ideas and information on the subject,"[33] affecting the extant *SL*. As the eye moves out from core-segment 10 (which suggests the essentials of *any* literature unit), it encounters the various implicit relationships, and finally arrives at the outlying meta-segments 1, 2, 3, 4 (which suggest basic studies of R, L, π, and S as such). Actively considered, the diagram provides a map for plotting specifics. Our inquiry may proceed along *synchronic* lines, single out aspects of a given *SL*, establish certain attributes of quality and quantity, distinguish wholes and parts, study the relationship functions and processes that obtain, attempt to assess the relative importance, at a point in time, of the traits under consideration, and so on; or, it may concentrate on *diachronic* phenomena, the behavior of the *SL* or some of its constituents over time, factors such as invention and variation, entrance and position in temporal sequence, continuity, stability and change, "life" span;[34] and on comparative analyses of chronologically distant states, the irreversible aspects, which occur only in one direction over the course of time, and reversible ones, "which seem to shift from one pole to another and back again."[35]

Studies such as these furnish the groundwork for comparison, abstraction, and systemization. Yet they do not necessarily "add up." They remain discrete thrusts of inquiry until ordered in terms of the dominant problem and its requirement for principles: that "minimal apparatus of underived terms and statements"[36] applicable to all subject literatures and valid for all possible approaches, within clearly statable limits and/or under clearly statable conditions. This, of course, poses the paradox of having to anticipate that which we want to find. The only way to negotiate this existential dilemma is by trial and error—conjectures and refutations in search of notions suggesting a framework and connective links for specific studies which otherwise might remain conceptually isolated and independent of each other.[37]

In Search of Structure

In our case, as pointed out heretofore, the most promising operational notion is that of *structure*.[38] "Structure" is an abstract notion, which we assign at will and which allows us to map familiar pieces and relations into a broader context and to search for other pieces and relations this context implies. This is R. Buckminster Fuller's strategy of the posited whole in order to ferret out and map its dimensions which as such may not be readily observable[39]—to gain an "'awareness of structure' absent from the original confrontation with a complex of phenomena."[40] Such a *structural model* is itself a notion in terms of which we raise questions of scope and validity, analogy, and form. It serves as a prototype for the particular models necessary for the treatment of particular questions, supplies the conceptual framework for the creation of "small-scale working mechanisms designed to tell us which gear meshes with which," and suggests the theorems that can be derived.

Widely discussed in the recent past, the structural model entails key aspects of wholeness, transformation, and self-regulation. None of its elements undergoes change without effecting changes in all other elements; its order relationships allow transformational derivation of related models without need to introduce new components, and anticipation of its behavior if one or more of its constituent elements are modified. Yet the logical truth of a model does not guarantee its empirical truth as representing relevant properties of reality, i.e., the *SL*. The model raises rather than answers the question whether or not the system is systemic and suggests the importance of corroboration, i.e., testing and evaluating in terms of critically observed facts. It also raises questions in regard to a *language* permitting statements of sufficient precision concerning the warp and woof and the overall behavior of subject literatures to be represented by the structural model.[41]

The scientific study of subject literatures thus involves reflective inquiry aimed at (1) the development of a structural model; (2) the statement of systemic properties; and (3) suitable connective terms of interpretation (operational definitions, etc.) under which the stated model can be expected to *inforce* subject matters by making observed facts intelligible. These tasks are interdependent and are essential for all further efforts in search of a simple unified account of *SL* phenomena which rests on a solid scientific foundation and permits explanation and prediction.[42]

I first raised the issue of a structural interpretation in 1968, aware of the work done by Lotka, Bradford, Zipf, Mandelbrot, Simon, Kendall, and Booth; Price; and Goffman; and Piaget's synoptic *Logique et connaissance scientifique* (1967).[43] Since then, a considerable number of studies conducted in various subject fields seems to justify the assumption of structure and to supply important information on relevant aspects of a structural model. Here may be noted the basic theoretical efforts and analytic research concerning the structure of subject literatures and the dynamics of knowledge communication under way at Case Western Reserve University;[44] and the growing interest in bibliometrics—the "quantitative treatment of the properties of recorded discourse and behaviour appertaining to it,"[45] the relationships between the subject and its literature, and the growth of subject knowledge and subject literatures,[46] as well as in the social and organismic structures which may have a bearing on these topics.[47]

REMARKS ON FRUITFULNESS

Undertaking "an exploration of discovery, the results of which may not be anticipated," has been defended by P. W. Bridgman. "We cannot tell until we go whether the results the expedition brings back will prove to be important. But even if the results are disappointing, there is still a certain intrinsic interest in finding out something about the nature of the unknown territory."[48] There can be little doubt as to the intrinsic interest of the scores of topics that beckon on every step of our inquiry. In many respects we have as yet to identify and gather the empirical "natural history" data which are embedded in conventions of practice and use. Even if our results provide only an epistemic mapping of sorts, hence better terms and concepts, we have not returned empty-handed. For those who work with the literature units of the *SL* this means a new awareness and an improved basis for making decisions; for those who study the *SL*, another step toward a systematic interpretation from which follows that the data should be what they are.

However, it can be argued that certain results of our "exploration of discovery" may in fact be anticipated.

Given at the outset are (1) the product—literature units and their properties; (2) the situations which relate to the making of these literature units; (3) the subject *S* the *SL* is on and about. *S* constitutes the dominant knowledge goal. It is the constraint which bounds the *SL*, and this includes its use as *SL*. As public knowledge *S* is available only through its *SL*. There is no alternative: If we desire to obtain knowledge on and about *S*, then we must use its *SL*, and come to terms with the object, content, and use requirements implicit in its literature units and the relationships obtaining between them. It is up to us to read Goethe's *Farbenlehre* (1810) as a contribution to science, a text by the great German writer or an example of early nineteenth-century German prose, etc. But as soon as we read Goethe's work as what he intended it to be, a theory of color, we have no rational choice but to do so *in terms of* the problem, i.e., the subject. It "is" this *subject* which plots and weighs, allows or disallows Goethe's direct, qualitative, phenomenological approach, as compared to Newton's analytical, experimental, and quantitative one, etc.[49] Goethe's book takes its place *within the fabric* of the *SL*, in proximity to or distant from other literature units dealing with its topics. Thus, it is probable that based on better descriptions propositions designating generic as well as specific properties of a given *SL* and, eventually, true lawlike statements based on these propositions can be formulated which tell us how given subjects and their literatures behave and can be expected to behave.

It is here that the promise of fruitfulness transcends the sheer sport of the search. Since the *SL* clearly bears on user behavior and that subset of "making available" which comprises the librarian's activities in anticipation of user behavior, all that pertains to its nature is of potential importance. The *SL* is in fact one of the foremost problem areas of librarianship. Knowledge on and about subject literatures ranging from simple insights concerning prevailing object characteristics in a specific *SL* (e.g., "the literature of geography includes atlases and large maps requiring stack-facilities capable of housing outsize materials"), to sophisticated statements of the structure and growth of knowledge, and the supporting formal techniques, relates directly to the fundamental purposes, functions, and operations which constitute the native grounds of librarianship.[50] In this sense, all basic findings concerning the nature of subject literatures are also basic to the professional knowledge in terms of which the librarian acts.

Common sense is "a particular kind and degree of untutored judiciousness in coping with slightly out of the way, practical contingencies"[51] and closely tied to *ad hoc* perception and decision. It offers only a minimal set of directives regulating practice and every day activity. Professional experience, no matter how extensive and carefully reconstructed, is after-the-fact knowledge predicated upon a multitude of largely unidentified factors, hence, *unreliable* knowledge when it comes to forecast and responding to change. Rules based on common sense and experience can and may have to be broken as the circumstances change. On the other hand, true lawlike statements based upon deductively formulated and confirmed findings "may neither be 'broken' nor 'obeyed.' They simply are the way things behave."[52] Where available, these explanatory results of reflective inquiry permit the librarian to dispense with hopeful guesswork and act with certainty when anticipating, planning, and instituting techniques and routine procedures as he strives to deal with the increasing complexity of our semantic environment.[53] This is the librarian's stake in the scientific study of subject literatures.

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20. Shannon and Weaver, 4-6; 24-28.
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22. Cf. Meredith, P. *Instruments of Communication* (Oxford, 1966); Polanyi, M. *Personal Knowledge* (Chicago, 1958), especially chap. 5, "Articulation."
23. Note, for example, the lack of discussion in professional publications devoted to information storage and retrieval of significant contributions toward a systematic approach to the object properties of literatures, such as Frankl, P. *Das System der Kunstwissenschaft* (Bruenn, 1938); Gerstner, K.: *Compendium for Literates; A System of Writing* (1970), English transl. (Cambridge, Mass., 1973); and Dondis, D. A. *A Primer of Visual Literacy* (Cambridge, Mass., 1973). Cf. also Kochen, M. *Integrative Mechanisms in Literature Growth* (Westport, Conn., 1974), 14, 27, 183 f.
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Stereogrammic Relations

At the conclusion of his article, "Linguistics: Science or Pseudo-Science?" in the Welsh periodical *Trivium* (volume 9, pages 1-18), Ronald Englefield commented on the fact that linguistics "can be made to look like science if the facts collected, however insignificant, are expressed in forbidding terminology." He contributed the following "in a style which will be familiar to the connoisseurs of modern linguistic jargon."

Stereogrammic relations. These affect what is commonly and somewhat inaccurately known as "writing." The more important relations which we have to discuss are metastrephosis and anokatosis, with or without metagnome. We will take a simple example first to illustrate. The letters of the word *pip* may be inverted without change of form or meaning; thus, if we number the letters of this word 1, 2, 3 and then re-write the word in the order 3, 2, 1, we obtain the same word unchanged. This is metastrephosis without metagnome. On the other hand if we apply the same treatment to *god* we obtain *dog*, and this is metastrephosis *with* metagnome. Metastrephosis also applies to letters. The grammic elements (x) and (o), (A), (M), (V), and others are amenable to metastrephosis without metagnome. Metastrephosis with metagnome is rare in grammic elements, though under certain typographical conventions (p) and (q), (d) and (b) come near to illustrating the phenomenon.

Anokatosis is similar to metastrephosis but occurs in a different dimension. The graphic element Z is an example of anokatosis without metagnome. You may, to express it approximately, turn it upside-down without any stereomorphic alteration, and consequently with no metagnome. And here we may state a general principle of considerable interest: in the absence of stereomorphic alteration there can, in grammic elements, be no metagnome. Examples of anokatosis with metagnome are (b) and (q) and (d) and (p). It will be noticed that the four graphic elements (b), (d), (p) and (q) are related to one another both metastrephosically and anokatosically, but not in the same pairs. This is known as an epallactic relation.

Cyrillic Gothic: Formal Modifications in the Design of a Russian Sans-serif Typeface

André Gürtler and Christian Mengelt

Four series for text and display composition were designed for a new Cyrillic sans-serif typeface. Historic and existing Cyrillic typefaces are assessed. Illustrations show the modification of individual characters toward an over-all consistent design of the entire alphabet.

We were commissioned three years ago by Compugraphic Corporation, USA, to design a Russian sans-serif typeface. The assignment involved four series for text and display composition. The typeface was presented in Moscow as a part of Compugraphic's participation at a graphics industry trade fair.

In addition to fixed technical limitations, the request of our client was to propose a typeface whose appearance conformed with conventional Russian typefaces. We initially assessed the existant Russian faces of European type manufacturers. As a point of departure for the design, we were also interested in the development of the Cyrillic alphabet, as well as the abundance of letterforms and their applications prevelant in Russia. The result of this investigation was formal changes of the traditional form of several Russian letterforms. But since we neither read nor write Russian nor are confident in the area of Slavic languages (which proved a handicap during the project), we discussed formal changes with specialists in this area at the Slavic Institute of the University of Basle, as well as with representatives at the Russian Embassy in Switzerland. Our final proposals were approved by both references, and were also fully accepted in professional circles during the exhibit in Moscow.

Through this work and experience, we are of the opinion that further design projects in this area of modern Russian typefaces should be undertaken, especially today when these typefaces are

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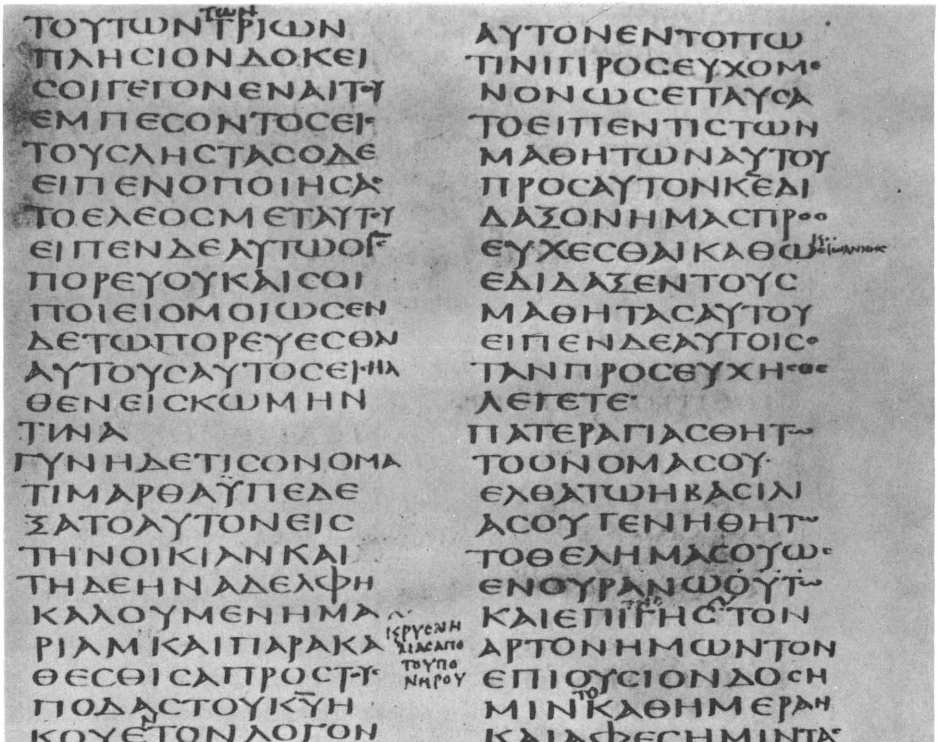


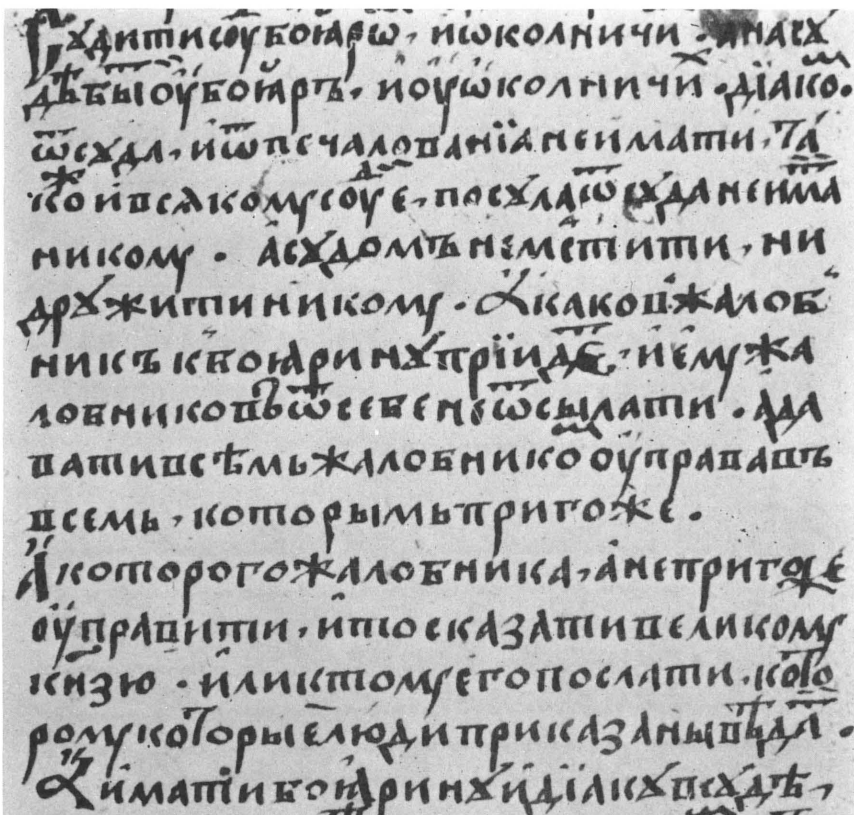
Figure 1. Greek uncial, *Codex Sinaiticus*.

being used by more and more people of different language groups.

The early Cyrillic alphabet (Fig. 2) stems principally from the nineteenth-century Greek Uncial (Fig. 1). Of the 43 characters of the Cyrillic alphabet, 24 are exact replicas of Greek forms. To these 24, new characters were then added to represent those sounds belonging specifically to the Slavic languages. These new characters were either combinations or variations of Greek signs, or were borrowed from other alphabets.

During the process of development, the forms of the Cyrillic alphabet acquired different textures as a result of the nature of the pen; some developed rounder and others more angular qualities

Figure 2. Cyrillic bookscript.



(Fig. 3). As a variation to the early book-script, a cursive handwriting appeared in the fifteenth century (Fig. 4). The forms of this variation were connected, and in parts lavishly adorned with snail-like swirls and flourishes. This contemporary hand later influenced certain formal aspects of Russian italic typefaces.

Modern Russian printing type—based on Czar Peter the Great's reformation of early type design at the end of the seventeenth

Figure 3. Cyrillic bookscript, *Code Tschernorizec* of Antioch.

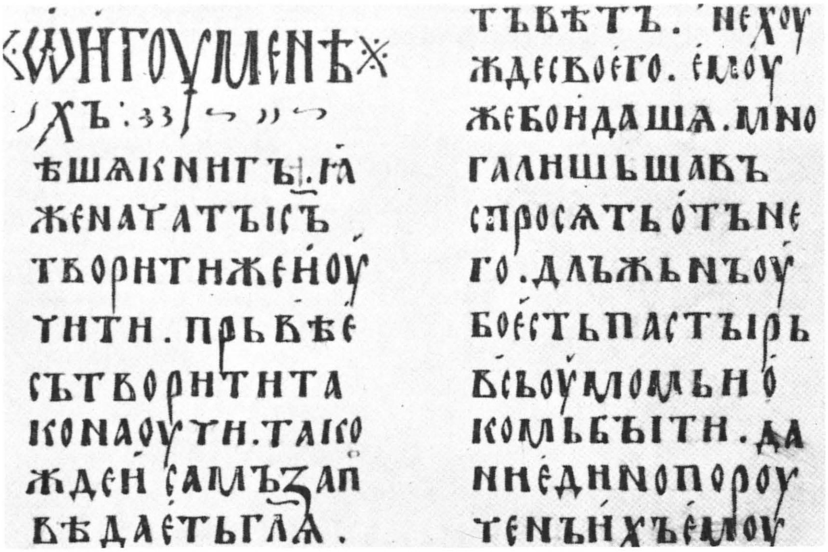
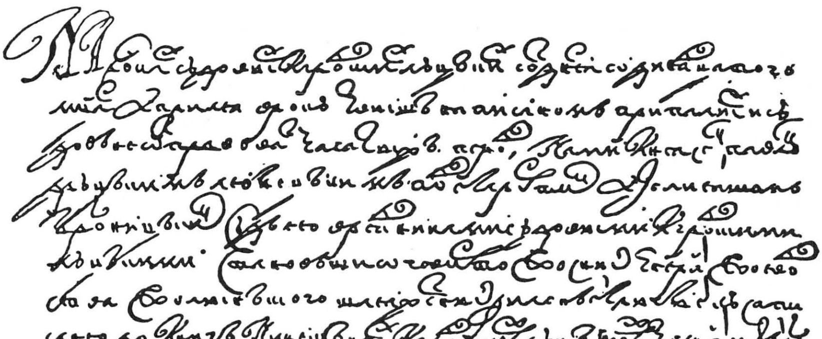


Figure 4. Early Cyrillic contemporary hand.



century (Fig. 5)—is, comparatively speaking, a slight adaption and simplification of the Cyrillic alphabet. Czarist Russia was very much devoted to all aspects of west European culture, and influences of western Europe can be seen in Russia's own cultural expression. Thus, in the year 1708, Czar Peter the Great had his so-called "Civil Type" cast in Amsterdam; at that time Amsterdam was considered the center of type manufacturing and printing. With this began the influence of the Latin characters on the texture of the Russian alphabet. (See also Ivan L. Kaldor's two-part article, "The Genesis of Russian *Grazhdanskii Shrift* or

Figure 5. Peter the Great's Civil Type.

петровскии
шрифт
санкт
петербург

великии
петр

Civil Type," in earlier volumes of this journal: Part I, III [October 1969], 315-344; Part II, IV [Spring 1970], 111-138.)

The Russian typefaces were predominantly produced by west European type foundries (e.g., Figs. 6 and 7). By the formation of these Cyrillic versions of Latin types, those Cyrillic characters that were similar to Latin characters were quite simply replaced by Latin ones, and the remaining characters were more or less adapted to the style of the corresponding Latin type.

Figure 6. Neo-Didot (Russian), Monotype.

шенствованной машин
бретателя Тольбертаж
перфорированной бум
очки шрифта из поло
инженер Джон Селлес

Figure 7. Standard Series Cyrillic, Berthold.

Как рады мы теперь, что ве
на дворе тепло мороз и мет
был известным американск
между прочим изобрёл кали
фон. Что ты это приобрёлэто
приобретение. Германскиеп

The Latin lower-case letterforms especially were mixed together with reduced Cyrillic forms—that is, with original Greek capitals—to form a Russian lower-case alphabet. The result was a mixture of various forms that outwardly exhibited a definite unity of style, but the optical-rhythmic quality of the typeface was usually negelected. This arbitrary adaptation of forms, together with the mass of vertical strokes and the angular forms in the Russian alphabet (especially in the lower-case composition of a sans-serif typeface) produced a hard and uneven rhythm. As a result, legibility was impaired.

Figure 8. Section of a page, *Iswestija* newspaper.

ИОННОЕ СООБЩ

БОЧОИДЗЕ О. С. (Кутаисский избирательный округ, Грузинская ССР), КОЖЕВНИКОВ Е. Ф. (Советский избирательный округ, Бурятская АССР).

★

9 декабря в Москве продолжала работу вторая сессия Верховного Совета СССР восьмого созыва.

На раздельных заседаниях палат шло обсуждение докладов о Государственном плане развития народного хозяйства СССР на 1971 год, о Государственном бюджете СССР на 1971 год и об исполнении Государственного бюджета СССР за 1969 год.

В 10 часов утра в Кремле в зале заседаний палат Верхбвного Совета СССР под председательством председателя Совета Союза ШИТИКОВА А. П. состоялось второе заседание СОВЕТА СОЮЗА.

Ввиду избрания депутата Матчанова Н. М. заместителем Председателя Президиума Верховного Совета СССР от Узбекской ССР Совет Союза освободил его от обязанностей заместителя председателя Комиссии по сельскому хозяйству.

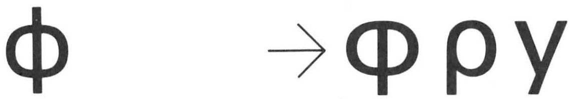
С содокладом Планово-бюджетной и отраслевых комиссий Совета Союза о Государственном плане

In the design of our Cyrillic-Gothic (Fig. 9) we were limited by the client to a conventional version of a Russian sans-serif type, one of the main objectives being to meet the needs of today. We tried, however, to counteract the previously mentioned negative aspects of existing Russian sans-serif faces by making subtle changes in individual forms and by maintaining a consequential consistency in the overall design. On the opposite page are shown different examples of individual form changes.

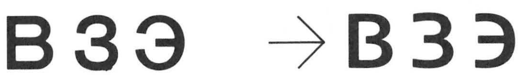
АБВГДЕЖЗИКЛ
МНОПРСТУФХЦ
ЧШЩЪЬЭЮЯ
абвгдежзиклмн
опрстуфхцчшщ
ъьэюя

Figure 9. Cyrillic Gothic, roman.

The Russian lower-case a and r are usually replaced by the Latin forms a and p. We designed them more like their original Greek forms alpha and rho.

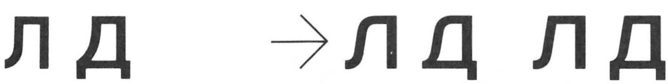


The Russian f, the only lower-case letter with an ascender and descender, appeared too static. Without ascender, the form still remains legible, and becomes more characteristic of lower-case.

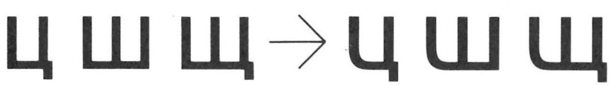


The Russian lower-case v is a reduction of the Latin upper-case B. The form appears too compact because of the small counters. By opening the middle horizontal we achieved a lighter form which has a better formal relationship with other signs.

The formulation of the Russian upper- and lower-case B fit together better in our proposal.



Our first attempts to change the Russian lower-case l and d were not accepted.



By rounding the left verticals of these forms we achieved a more dynamic rhythm of the composition.

In general, the italic versions of present Russian typefaces were influenced by Russian handwriting and, as a result, certain of these italic forms are completely different from their corresponding upright form. The illustration below shows from left to right:

Original Cyrillic form
Russian handwritten variation
Lower-case of a present printing type
Italic variation

From the beginning we based our italic variation of Cyrillic-Gothic on the forms of the upright alphabet (Fig. 10). In other words, our italic is simply a slanted version of the upright Cyrillic-Gothic with no relationship to Russian calligraphic forms. In this manner we attained a formal unity between the two version. This seemed to us to be especially appropriate to a sans-serif type with its many variations from light to bold, and from expanded to condensed.

Figure 10. Cyrillic Gothic, roman and italic.

АБВГДЕЖЗИКЛ
МНОПРСТУФХЦ
ЧШЩЪЬЭЮЯ
абвгдежзиклмн
опрстуфхцчшщ
ъьэюя

АБВГДЕЖЗИКЛ
МНОПРСТУФХЦ
ЧШЩЪЬЭЮЯ
абвгдежзиклмн
опрстуфхцчшщ
ъьэюя

Как бы то ни было, но свадьба заняла весь город. И жених и невеста были предметом общей зависти. Всем была известна их жаркая, постоянная любовь, долгие томленья, претерпенные с обеих сторон, высокие достоинства обоих. Пламенные женщины начертывали заранее то райское блаженство, которым будут наслаждаться молодые супруги.

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Our Cyrillic-Gothic design can hardly be considered a real innovation and not at all a reform, since it had to be directly concerned with current application. We do feel, however, that we have improved some details of contemporary sans-serif versions of the Russian alphabet, and hope that we have given incentive to type designers of the Slavic languages for further design innovation.

Comprehension of Writing and Spontaneous Speech

Laurence Walker

The purpose of this study was to explore a difference between reading comprehension and the comprehension of spontaneous speech which an earlier investigation by the present author had suggested. It was hypothesized that, because of channel differences and because of differences in the linguistic structure of formal writing and extemporaneous speech, reading comprehension was a more precise form of language processing than listening to this type of material. Data to test this hypothesis were obtained by administering a test of precision in literal comprehension to a sample of undergraduate students who had been exposed either to passages of spontaneous speech or equivalent written passages. Statistical analysis of the data revealed a significant difference between the mean scores of the listening group and the mean score of both an untimed reading group and a reading group whose reading time had been matched to the time available to the listeners. It was concluded that normal reading comprehension, at least at the literal level in mature readers, was shown to be a more precise form of language processing than listening to spontaneous speech.

The issue of concern in this study is the status of reading comprehension as a unique process, separable from other forms of verbal understanding such as listening comprehension. Moffett (1968) asserted that there is no such thing as reading comprehension, that the understanding of written material is a function of a larger process, comprehension in general. More recently a developmental model of auding (listening) and reading (Sticht, Beck, Hauke, Kleiman, & James, 1974) has emphasized the similarity between reading and listening as receptive communication processes based upon common language and conceptualizing functions.

While most reading specialists would find Moffet's implied restriction of their expertise hard to accept, there is really little empirical evidence to support any logical or conventional belief in the uniqueness of the processes of comprehending written language. One might say that the question itself merely invites an academic

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exercise to find the answer to an educationally irrelevant issue since reading comprehension must be unique in view of the fact that reading as an activity is different from any other form of language processing. However, it would seem to be of some theoretical and practical significance to determine whether the processes by which the reader comprehends written material, having successfully decoded it, are the same processes as those used in the comprehension of spoken discourse or whether a different set of comprehension processes is called into play during the act of reading. The ultimate resolution of this issue would help clarify the target of research into reading comprehension and would motivate educational decisions about the place of instruction in reading comprehension skills as part of language arts and reading programs.

Background to the Study and Theoretical Perspective

One research strategy by which answers to the question of reading comprehension's unique status might be sought is through the contrastive study of reading and listening comprehension. As the main channels for the processing of linguistic messages, reading and listening constitute the major members of the larger class: language processing. If it could be shown that differences exist between the two processes—over and above the obvious, overt differences in the physical activities involved—such differences might contribute to a more precise definition of reading comprehension.

A theoretical perspective from which such a comparison could be made is provided by principles from the field of human information processing. Implicit or explicit in models of human information processing (Sperling, 1970; Norman and Rumelhart, 1970; Biggs, 1969) is the principle that the organism does not receive and process all the sensory information that assails it. Even within a single set of sensory input being attended to the total information it contains is not utilized in its processing. This principle can be called "cue sampling." Closely associated with cue sampling is the second principle that information processing is constructive or reconstructive, a matter of recreating, from the partial information received and processed, the whole event concerned (Neisser, 1967). Processing is the result of an interaction between the received cues and existing cognitive structure (Ausubel, 1963; 1968).

These principles are congruent with theories of speech perception and speech processing (Hallé & Stevens, 1959; Hochberg, 1970; Neisser, 1967; Chomsky & Hallé, 1968) and with conceptual and empirical studies of the reading process (Goodman, 1970; Smith, 1971; Wanat, 1971; Kolers, 1970; J. Mackworth, 1971). While this body of work can be quoted as an indication that the principles of cue sampling and meaning reconstruction apply to both listening and reading, the question can be raised as to whether there is any difference in the way they apply to the two activities.

One source of difference in the operation of the two principles might lie in the channel characteristics of reading and listening. Reading involves a spatial dimension using a static array of visual cues while listening utilizes transient, acoustic cues in a temporal dimension. Whereas the reader is in control of his rate of processing, being able to slow down, stop to reflect or retrace his steps to clear up ambiguities in his cue sampling and meaning reconstructions, the listener's rate of processing, usually at least, is controlled by the speaker since the linguistic units of the spoken message follow one another embedded in the acoustic stream of speech, available only as long as the memory can retain them. As a result of these channel differences, cue sampling and meaning reconstruction in reading might be processes that are more closely constrained by the actual content of the message than are the equivalent processes in listening. In other words, since cues in writing are spatially available for resampling if necessary, whereas cues in speech are temporal and therefore unavailable for resampling, processing ambiguities, inconsistencies and incompatibilities may be more apparent to readers than to listeners. In a listening situation one may be more likely to hear what one wants to hear or expects to hear than in a reading situtation. If this hypothesis is true, one might predict that cue sampling and meaning reconstruction in reading are more precise processes than in listening, bearing greater fidelity to the message than is the case in the latter.

This hypothesized difference may be augmented when one kind of listening out of the many alternatives is considered, that which involves the reception of spontaneous, or extemporaneous speech. Most comparative studies of reading and listening have employed listening material that is written prose to be read aloud, a preoccupation which has been criticized by Wilkinson (1970a, 1970b). Spontaneous speech, which forms a significant proportion of one's language environment, refers to spoken language which is not oral reading or memorized text, but which is produced extemporaneously in monologue or dialogue situations. Such speech is often marked by mazes, fragments, and abandoned constructions (Loban, 1967). As a result, sentences are not always grammatical and ideas may not be presented in an orderly, cohesive manner. That is not to imply that spontaneous speech is an inferior form of language; its grammatical and rhetorical deficiencies tend to become apparent only when it is recorded and transcribed and then studied disembodied from its original situational context (Abercrombie, 1965). However, as a result, its system of cues is different from that of formal, edited, written language. The meaning cues may be less consistent and more obscured and, if so, this in turn may contribute to a looser set of constraints upon the listener in the meaning reconstructions he achieves than those imposed upon the reader.

The hypothesis that cue sampling and meaning reconstruction are more precise processes in reading than in listening to spontaneous speech was investigated in an exploratory manner by Walker (1973; 1976). The two types of comprehension were compared in a sample of high school subjects by means of a written recall task following exposure to discourse in either written form or videotape-recorded spontaneous speech. The written recalls were analyzed using post hoc categories related to precision of recall and significant differences favouring the reading groups were tentatively interpreted as indirect evidence of relatively greater precision in the readers' processing, or comprehending, of the original text as compared to that of the listeners.

The present study was intended as a follow-up attempt to confirm or disconfirm the earlier tentative findings through a somewhat more rigorous design. The question addressed was whether reading comprehension involves greater precision of cue sampling and meaning reconstruction than does listening to spontaneous speech.

Design of the Study

The strategy used was to compare the structured responses of adult subjects to material in written form and material in the form of spontaneous speech. Following exposure to equivalent written or spoken passages, subjects were required to complete multiple-choice tests designed as measures of precision of comprehension.

Preparation of the Stimulus Passages. Twelve graduate students in education were asked to give short, extemporaneous talks on a topic about which they had strong feelings as though they wished to persuade an audience to adopt their view. These were recorded on Sony half-inch videotape equipment without more than a few minutes for preparation and without the use of notes. Two stationary cameras were used with a throat microphone and the speaker stood behind a lectern. A random selection of four of these twelve talks was then made so that the passages used could be said to be representative of such talks given under such circumstances by graduate students in education. Three topics in the sample selected dealt with an aspect of education while the fourth dealt with equality of the sexes. The first talk ran for 6 minutes and 42 seconds, the second for 6 minutes and 22 seconds, the third for 5 minutes and 17 seconds, and the fourth for 3 minutes and 23 seconds.

Verbatim typescripts of these four talks were prepared and these were used as the basis for the production of written versions, attempting to preserve the original meaning but editing the sentences to eliminate any verbal tangles, incomplete constructions, or infelicitous phrasing in order to produce a style that was compatible with conventional written discourse. The material was rewritten sentence by sentence and no attempt was made to reorganize the passages by units larger than sentences—except for the use of paragraph indentations—in order to avoid as much as possible changes of meaning. As a result of this rewriting procedure whereby the ideas of one person were transposed by another, the finished written versions may have suffered from a certain artificiality which may in turn have affected their credentials as representatives of a particular type of written discourse. This would have to be acknowledged as one limitation of the study. These four written versions were then printed by an offset process as separate booklets. Each written version used considerably fewer words than its oral equivalent: *Passage A,* written version 773 words, oral version 981 words; *Passage B,* written version 721 words, oral version 884 words; *Passage C,* written version 695 words, oral version 829 words; *Passage D,* written version 401 words, oral version 475 words. This difference is compatible with word-count studies of the differences between speaking and writing (Driemann, 1962; Horowitz & Newman, 1964).

Preparation of the Multiple-Choice Tests. For each passage a set of multiple-choice comprehension questions was prepared. Five alternative responses were written for each question, based on categories derived from the earlier study by Walker (1973; 1976). It had been found that ideational units in recall material written immediately following exposure to a spoken or written message could be classified according to five categories: precise recall of an explicitly-stated idea in the original; imprecise recall of such an idea; logical inference based on information in the original; novel ideas that were nevertheless compatible with the content of the original; and novel ideas that were incompatible with the original content. Each of these five categories was represented in the responses for every question on the test.

The purpose of this test was to measure precision of meaning reconstruction in readers and listeners. A precise meaning reconstruction in the course of reading or listening as a product of the processes of cue selection and meaning reconstruction, would, it was assumed, be reflected in the choice of the response from the precise category. A meaning reconstruction that was less congruent with the original content, on the other hand, would be reflected in the choice of a response from one of the other four categories representing imprecision, inference or one of the two types of importation. The following is an illustration of these categories and responses employing a question based on Passage A. The author's main argument was that the education of children whose families frequently moved from one location to another was not adversely affected by this mobility.

In the course of her talk she made the statement: "I think that Canadians are becoming more mobile all the time. . . ." In the written version this appeared as: "I think that Canadians are becoming increasingly mobile." One multiple-choice question was generated from this statement:

"One belief expressed by the author was that today:

(a) North Americans more frequently move from place to place.

(b) Canadians are moving more and more.

(c) Fewer Canadians are living out their lives in the places where they are born.

(d) Increased mobility in Newfoundland causes instability for families, especially the children.

(e) It is becoming easier for people to move around."

Alternative (b) is a close paraphrase of the original statement and is therefore the precise category response. Alternative (a) is less precise in that it applies to a wider class, North Americans, than the original which refers only to Canadians, a subset of North Americans. Alternative (c) is logically true given the original statement and is therefore the response that fits the inference category. Alternative (e), referring to ease of relocation, a point which was not made in the original, is a case of a response which is probably true given the original passage but which is not necessarily true in a strictly logical sense. This alternative therefore falls into the category of congruent importations. Finally alternative (d), which was not stated or implied in the original passage, and which, moreover, contradicts the main point made, is an example of an incongruent importation.

The test was piloted with a group of 28 undergraduate subjects divided into readers and listeners. An item-analysis using their responses was carried out and a number of non-discriminatory test items was eliminated. In its final form the test consisted of 46 items unequally divided among the four stimulus passages.

As a check on the construct validity of the test categories, an independent judge classified all test item responses using written definitions which had guided the original test construction. The percentages of agreement between the judge's allocations and the original classification were: *Passage A*, 92 percent; *Passage B*, 95 percent; *Passage C*, 88 percent; *Passage D*, 87 percent. It was felt that this relatively high level of agreement was an indication of the objectivity of the categories and the accuracy with which the response alternatives reflected them.

Adoption of this test format restricted the measurement to literal comprehension of explicitly-stated information. The questions tended to focus upon the details in the original passages so that a further limitation upon the study was that the comparison involved only a rather superficial level of language comprehension.

A subject's score on the test was derived from a weighting system applied to the five alternative response categories. "Precise" responses were weighted 5, "imprecise" 4; "logical inferences" 3; "congruent importations" 2; and "incongruent importations" 1. Each subject's score was therefore the sum of these weighted responses. The assumption on which this system was based was that the five categories of responses could be ranked in this order for precision of comprehension. This assumption seems to be defensible with the possible exception of the placing of imprecise responses ahead of logical inferences which may have been somewhat arbitrary.

The Sample. The sample consisted of 77 students enrolled in an introductory psychology course in a small, predominantly women's university in Atlantic Canada. The course was open to psychology majors, minors or to students who wanted to take it as a B.A. elective. The enrollment in the two sections of the course was 139 students. Participation in the study was optional, although encouraged by the instructor. Perhaps because of imminent end-of-term examinations, many of the students were absent on the day of data collection, and no attempt was made to follow up absentees. Using the class lists, the students were randomly divided into three treatment groups.

Data Collection. The data were collected in one 50-minute lecture period. One group, the Listening Group, watched the videotape recordings of the original talks. A second group, the Untimed Reading Group, read the written versions through once at their normal reading rates. The third group, the Timed Reading

Group, also read the written versions, but they had exactly the same time for reading as the Listening Group had for watching the videotapes. This was to control for the time variable, reading rate normally being faster than the rate of speaking. This third group, therefore, had the opportunity to read over the material more than once. Following exposure to the first of the four passages, the multiple-choice questions on that passage were attempted. Then the second passage was presented and so on. Neither of the two reading groups was permitted to refer back to the passages when answering the questions. All groups answered the same questions under exactly the same conditions except for the medium of passage presentation and the reading time allowed for the Untimed Reading Group.

Hypothesis and Statistical Analyses. The null hypothesis tested was that there would be no significant differences among the mean weighted "precision" scores of the three treatment groups. To evaluate this hypothesis a one-way analysis of variance test was carried out followed by Scheffé tests to locate significant differences.

Findings

A one-way analysis of variance test on the means shown in Table I revealed a significant difference amongst them ($F=9.00$; $df.=2,74$; $p<.01$). The two contrasts of interest in the study were Listening x Untimed Reading and Listening x Timed Reading. A Scheffé test for the first of these produced an F ratio of 5.57 ($df.=2,74$) which was significant at the .10 level. Ferguson (1966) stated that Scheffé himself had recommended that this level be accepted as indicating a significant difference in view of the rigour of the test (p. 297). The second Scheffé test for the Listening x

TABLE I. Weighted "precision of comprehension" scores for the three treatment groups.

Group	*N*	*Mean*	*Standard Deviation*
Listening	27	194.45	11.83
Untimed Reading	28	201.04	8.16
Timed Reading	22	207.05	8.16

Timed Reading contrast revealed an F ratio of 17.86 (df. = 2,74; $p < .01$). Consequently the hypothesis was rejected and it was accepted that both the Untimed Reading Group and the Timed Reading Group scored significantly better on the test of comprehension precision than the Listening Group.

To evaluate the reliability of the comprehension precision test a split half procedure was used and a resulting Spearman-Brown coefficient calculated. The coefficient was .64, indicating that the criterion test instrument had only moderate internal consistency.

Discussion

The results of this study showed that mature readers tended to score higher than listeners on a measure of precision of comprehension. This was true both when readers were allowed to read the material once through at their normal silent reading rate and when the time available for reading was controlled to match the time taken for listening. Insofar as the data on which these findings are based were derived from a valid and reliable measure of comprehension precision, the results uphold the tentative conclusions of the previous study from which this present one arose (Walker, 1973; 1976). That conclusion, which can now be stated more confidently in view of the methodological differences in the present study—subjects, oral and written materials, and measuring instrument—is that the process of reading comprehension in mature subjects is characterized by a greater precision of reconstructed meaning than that manifest in listening to spontaneous speech.

The issue addressed by this study was the uniqueness or otherwise of the processes of reading comprehension. Although the results indicate a difference between reading comprehension and the comprehension involved in processing spontaneous speech, they do not permit the conclusion that precision of meaning reconstruction, or comprehension, is uniquely a feature of the processing of written language. Precision of comprehension, as measured in this study, is a relative variable; the conclusion is, therefore, that reading comprehension is characterized by greater precision of meaning reconstruction than is comprehension in listening to spontaneous speech. The conclusion is not that reading comprehension is a precise process while this form of listening comprehension is an imprecise one. The confirmation provided is that reading comprehension is different in degree of precision from comprehension in listening to spontaneous spoken language.

There would seem to be a discrepancy between this research conclusion and that of Sticht, et al. (1974). Their model of auding and reading saw the two receptive forms of "languaging" ("understanding the conceptualizations underlying the sequences of signs produced by others [p. 11]") as sharing essentially similar processes. The differences lie in the display characteristics of each medium: transience versus permanence, intonation versus punctuation, and presence of peripheral field information in reading versus its absence in auding. However, in the presentation of the model and in the discussion of its validation by research reviews, the authors seem to refer only to listening that involves spoken prose; or written material that is read aloud. The findings of the present study do not deny the Sticht model; they merely suggest one way in which the processes underlying language comprehension may function differently with respect to reading when the comparison is made with listening to spontaneous speech. It remains to be seen as the result of further research whether this relative precision variable is attributable to channel differences or to linguistic structure differences or to both. If channel differences are critical then the prediction would be that listening in general will be distinguishable from reading with respect to relative precision of comprehension. If, on the other hand, it is the looser linguistic structure of spontaneous speech that leads principally to the loss of precision, then reading and listening to spoken prose would be expected to share a similar level of precision.

Another way of looking at the results of this study would be from the point of view of efficiency of communication. The four speakers whose talks were used in this study delivered their material at an overall average rate of 147.8 words per minute which is a rate considerably slower than normal adult reading rates for non-technical material. Young (1973) reported that 250 words per minute corresponds to the 50th percentile for reading rate for college freshmen on the norms for the *Nelson-Denny Reading Test* (p. 328). Over and above this, the written versions were all appreciably shorter than their corresponding oral versions. Thus the readers in the Untimed Reading Group spent much less time than the listeners in processing the stimulus passages, in many cases less than half the listening time. Yet, these readers scored significantly better than the listeners on the measure of precision of comprehension, indicating that, for mature readers and listeners, material in written form is a more efficient means of communication than spontaneous speech. This relative efficiency may be supportive of the value of written language as a precise form of communication. It may also point to one value of literacy, namely that it permits one access to this more efficient form of language communication. However, it should be borne in mind that this study presented no evidence that the same advantages do not reside in listening to material that is read aloud.

In a sense this conclusion regarding the relative efficiency of reading is in accordance with the conventional view that after the grade seven or eight level a person's reading comprehension tends to be greater than his listening comprehension. This conventional view was challenged by Sticht, et al. (1974) whose exhaustive review of research into comparative studies of reading and listening comprehension showed that of the studies reviewed beyond the grade eight level less than 50 per cent showed an advantage to reading comprehension. However, both the conventional view and the Sticht, et al., review refer to the quantitative aspects of comprehension as measured by standardized tests of comprehension. In terms of the present study, the comparison involved a qualitative aspect of comprehension, namely precision of meaning reconstruction. Thus the greater efficiency revealed for reading comprehension over comprehension of spontaneous speech in this study refers to exactness of comprehension rather than amount of comprehension.

The findings of this study were not congruent with those of a recent study by Young (1973). He found, in comparing listening and reading comprehension, that, when the time variable was controlled by presenting the written material on film at the same rate as the presentation of the oral versions, there was no difference between the comprehension scores of college readers and listeners. Unlike the present study, Young used short prose passages that were read aloud to the listeners and his comprehension measure was quantitative rather than qualitative. Moreover, he used a more refined method of controlling the time variable than the present study. It would be interesting to combine this control feature of Young's study with the spontaneous speech variable of the present study.

To return to the main issue, the question of whether precision of processing is a feature which distinguishes reading comprehension from other forms of verbal processing, this study has shown, at least for a narrowly selected sample of mature readers and listeners and a narrow definition of comprehension, that reading enjoys a greater degree of precision than listening to spontaneous speech. It might be worthwhile for further comparative research to broaden the definition of comprehension underlying the measuring instrument beyond the literal level used in this study. It would be interesting to see whether reading formal text and listening to spontaneous speech produce different levels of precision of meaning reconstruction when that meaning is extended beyond the recognition of explicitly-stated details. It would also be interesting to include listening to spoken prose, auding in its conventional sense, as one treatment condition in the comparison.

This study has contributed only a small tile to the mosaic that is the issue of the uniqueness of reading comprehension. Until the overall pattern of the relationship between reading and listening comprehension is more complete, one hesitates to draw out educational implications from the present findings and conclusions. It would seem though that the study has revealed one dimension of reading comprehension that could be acknowledged by reading-language curricula. If reading formal writing permits (or requires) a greater precision in language use than listening to spontaneous speech, teachers should perhaps be aware of this. Of course the exact nature of this implication is uncertain until the comprehension precision of listening to written material read aloud is clarified. However, it may be helpful for teachers to be aware that as pupils make the transition from spontaneous language use in oral situations to formal language use in written situations greater precision of comprehension is a new task variable. Commonsense would also say that the same precision characterizes the production of written language as well as the reception of written language, so that precision may well be a task variable of literacy in general—reading and writing—that oracy has not necessarily demanded. A curriculum that followed the belief that reading comprehension is not a construct that can be separated from language comprehension or "languaging" would possibly overlook this precision feature of the effective processing of written language.

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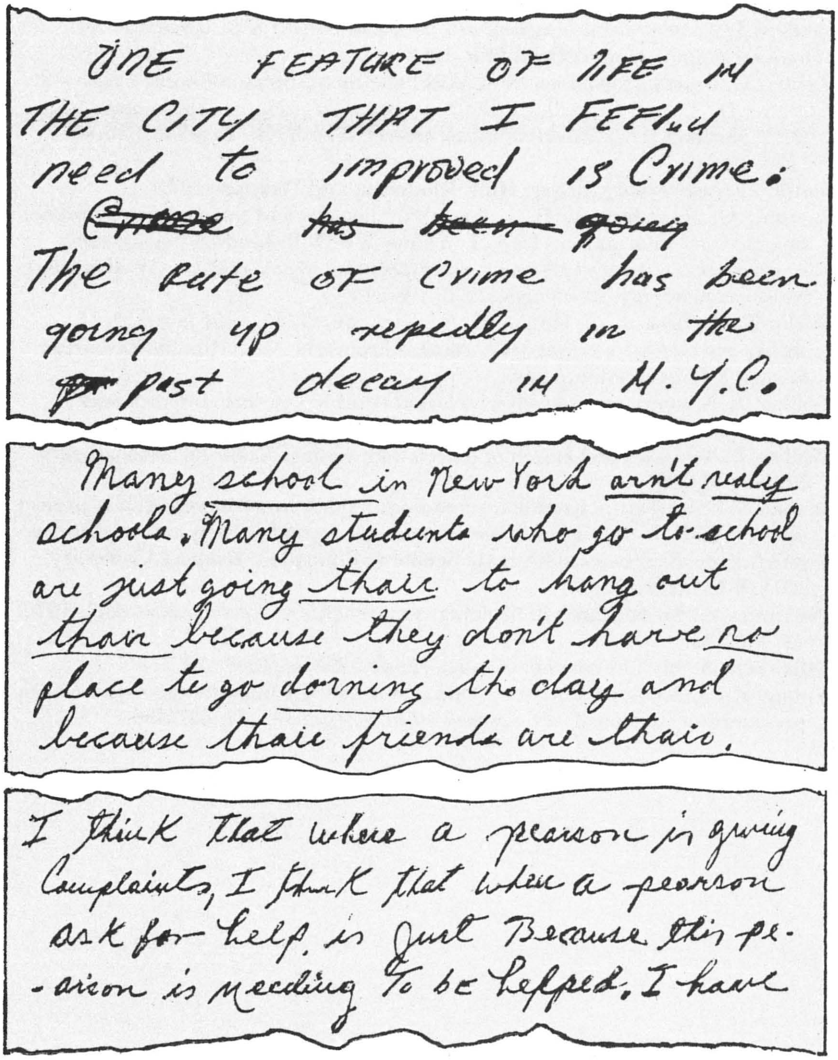
ONE FEATURE OF LIFE IN
THE CITY THAT I FEEL
need to improved is Crime.
~~Crime has been going~~
The rate OF Crime has been
going up repedly in the
~~p~~ past decay in N.Y.C.

Many school in New York arn't realy
schools. Many students who go to school
are just going thair to hang out
thair because they don't have no
place to go dorning the day and
because thair friends are thair.

I think that where a pearson is giving
Complaints, I think that when a pearson
ask for help is just Because this pe-
-arson is needing To be helped. I have

Visible language as speech written down (one of a series).

Examples from essays written by newly admitted students to City University of New York as part of an English placement examination. Commenting on the top example, one faculty member suggested, "He is probably spelling 'rapidly' and 'decade' the way he pronounces them."

Letters, Art, and Children

Carol Walklin

Letterforms provide a natural and useful medium for teaching visual awareness, creativity, and many basic art education ideas to young children. The work of English children is illustrated showing their experimentation with letter symbols, handwriting, word shapes, and printed textures.

To be in at the beginning of the child's education in the field of visual awareness is both a privilege and a challenge. As a graphic designer as well as a teacher I have found letterforms a most natural and useful aid in teaching many art basics, not only with the older student but also with young children. Those who are a little unsure of themselves when it comes to producing original designs, seem reassured and stimulated when using familiar letterforms as the initial impetus.

The gradual formation of our present-day Western alphabet is a fascinating subject for study by children of ten years and upwards. What if there were no universally accepted letter symbols to link as words? How have we progressed from the earliest forms of communication, and why are we back to picture symbols in some circumstances? Children can look at early communication without letter symbols—scratched messages, beads, smoke signals—comparing these with contemporary designs made for a society where technology and science have outpaced our mastery of many languages, or with explicit hobo signs. They can compare Eastern and Western alphabets, looking back also to hieroglyphs and runic symbols, following through until they reach the vital stage of the syllabic and phonetic systems and the twenty-six miraculous marks.

The children see that letterforms can identify, inform, perpetuate, decorate—and much more besides. They can also see that

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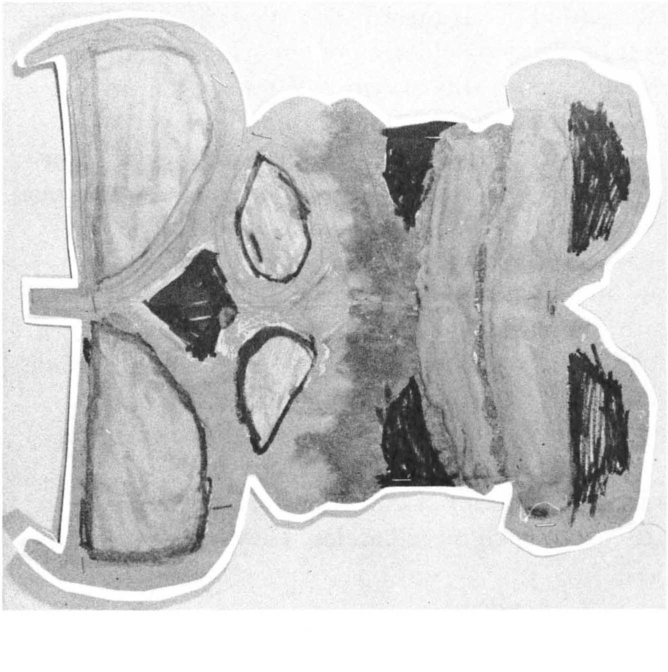
letterforms, when used well, are fine examples of functional design, often with the added bonus of beauty and elegance. Given a bare wall, many are tempted to decorate it—with slogans, names, initials, and worse!—carved initials appear on any receptive surface. "I have been here. . . ." Our names, our identity are so important to us. Belonging, too, is vital and letterforms appear frequently and effectively in heraldry, badges, banners, and monograms.

Names and initials. Above, Jane signature, 4 years. Below, David, blotted name, paint and crayon, 6 years.

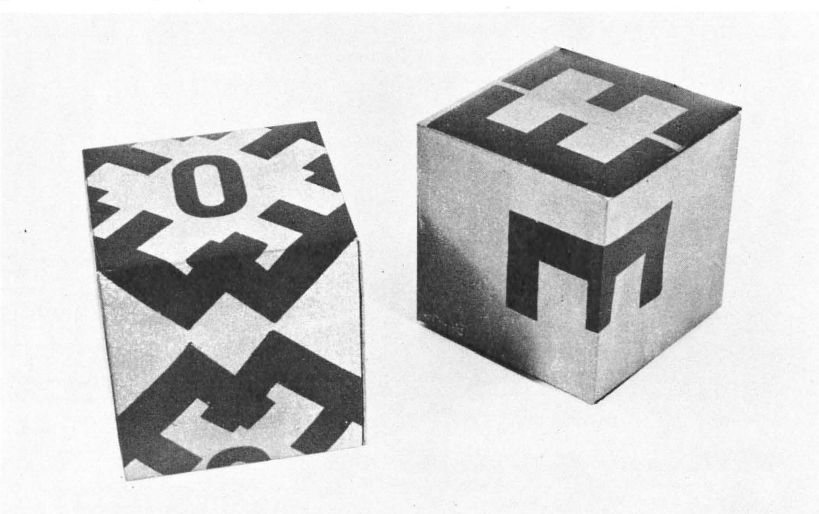


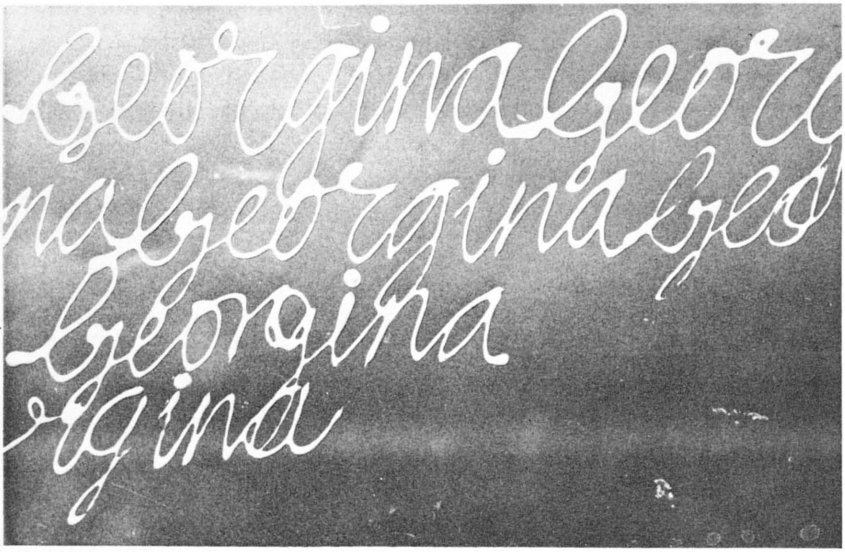
Writing and drawing employ similar physical actions, and the first attempts at controlled drawing are often the act of writing our own name. From this wobbly beginning starts a progression of activities becoming more and more sophisticated. The work shown here is by children of varied ages and abilities. There are simple "blot-names," tonal exercises, leading to activities designed to stretch the student, such as legibility problems and alphabet design.

Children must be helped towards becoming discerning adults. Helped, too, to resist the bombardment of the mass media. As Colin Blakemore said in the 1976 BBC Reith Lecture, The Mechanics of the Mind: "The stentorian voices of the mass media are more universally powerful than the indiscriminate persuasion of a mind-altering drug." Teachers of children must work towards creating a society of discriminating adults, who can not only tell the bad from the good but also the tasteful from the tasteless, and who will demand integrity as well as good presentation. The medium of the letter, when used with sensitivity and respect, is a remarkable ally.

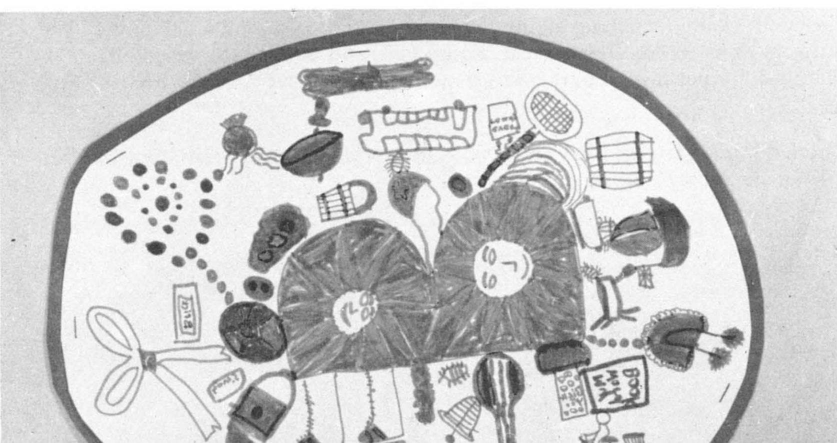
I should like to thank all the children with whom I have worked in Kent and London schools and to pupils at Forest Hill School for Boys, London; also to my husband, Colin, for taking all the photographs and supplying much of the artwork from his Art Department, Forest Hill, and to my publisher, B. T. Batsford, for permission to reproduce pictures from *Using Letters in Art and Craft*.

Printed initials are used in various ways to experiment with positioning on the planes of a box, 16 years.

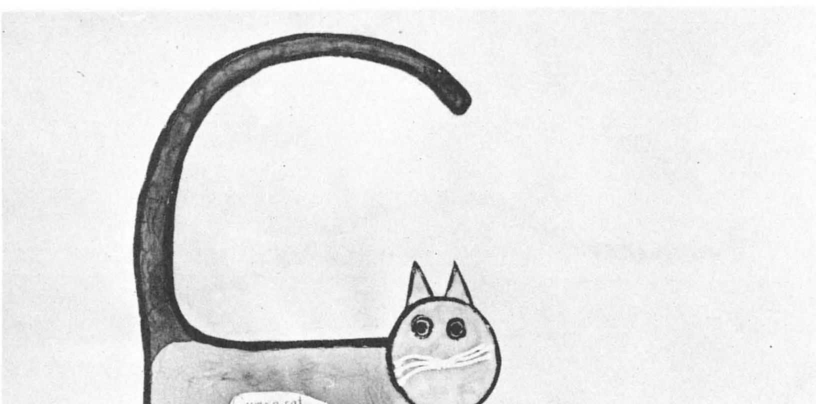




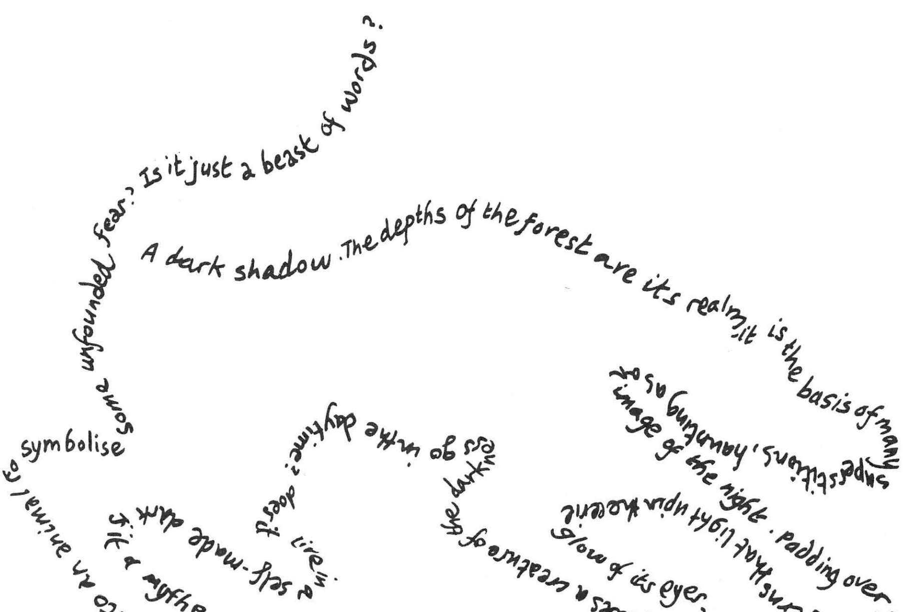
Above, trail writing on construction paper using flour and water paste, 13 years. Below, central initial B surrounded by drawings of objects that start with that letter, simultaneous work by two children in two colors, felt-tipped pens, 12 years. (This has proved to be very helpful in developing word lists for slow readers.)



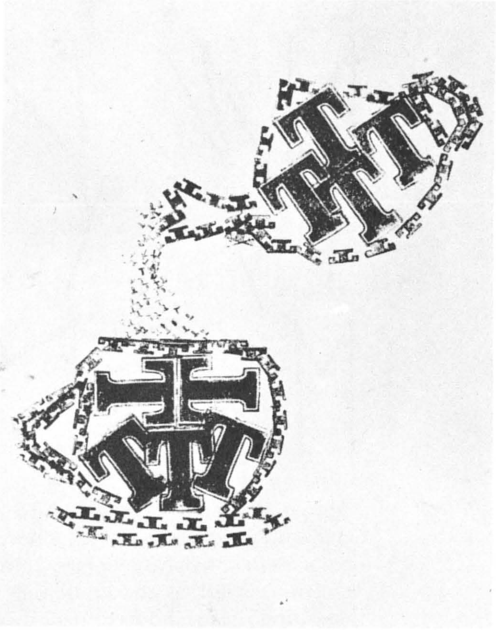
Above, the word "beckon" in cut paper performs its own action, 15 years. Below, a combination of paint and collage illustrating "C for Cat" from one of Edward Lear's Nonsense Alphabets, 11 years.

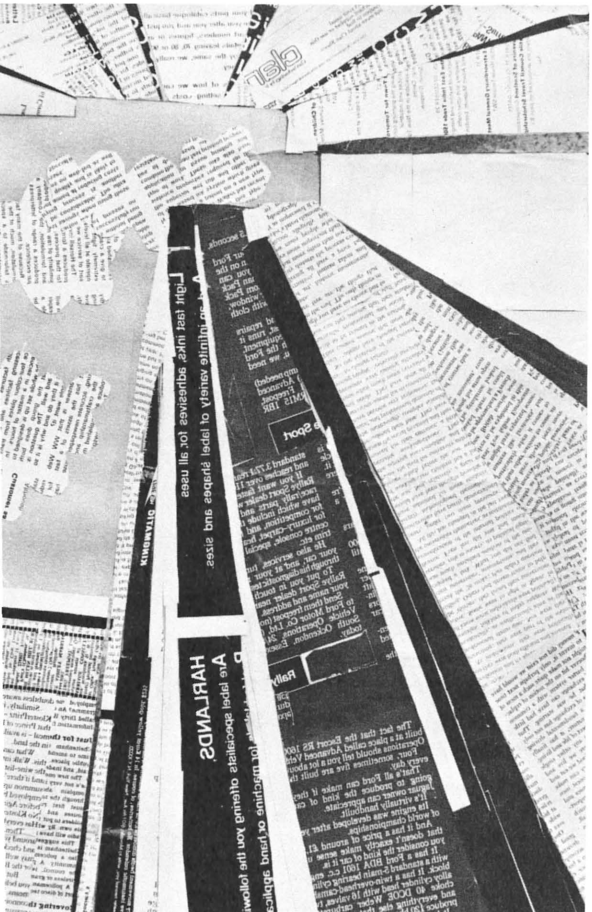


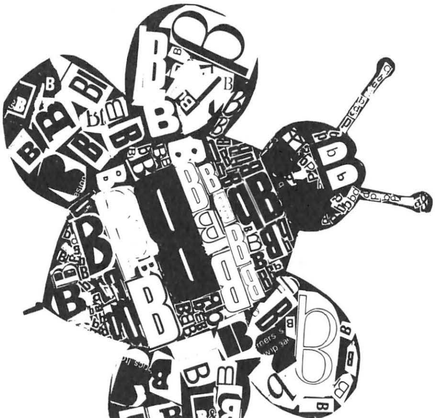
Above, hissing cat made of S's, 14 years. Below, true calligram (shaped writing) from original creative writing, 15 years.



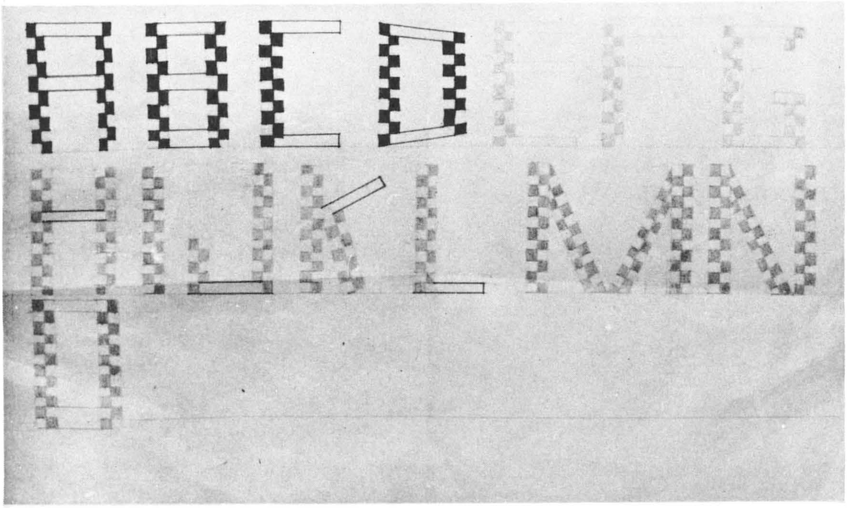
Right, "T-time" is made by printing three actual blocks of letterform T, wood and metal, 13 years. Right below, first letter of the name used to form a bee, collage, 15 years. Below, skyscrapers, view from the street in New York taken from a color transparency, collage, 14 years.

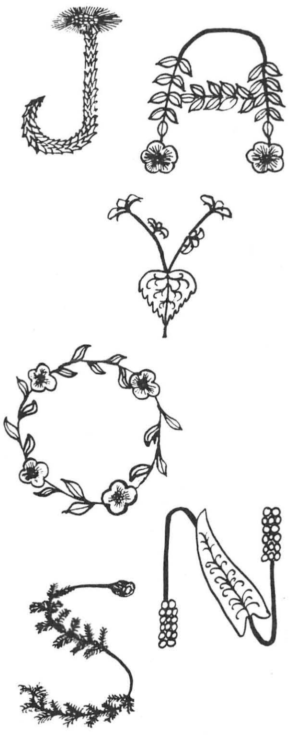




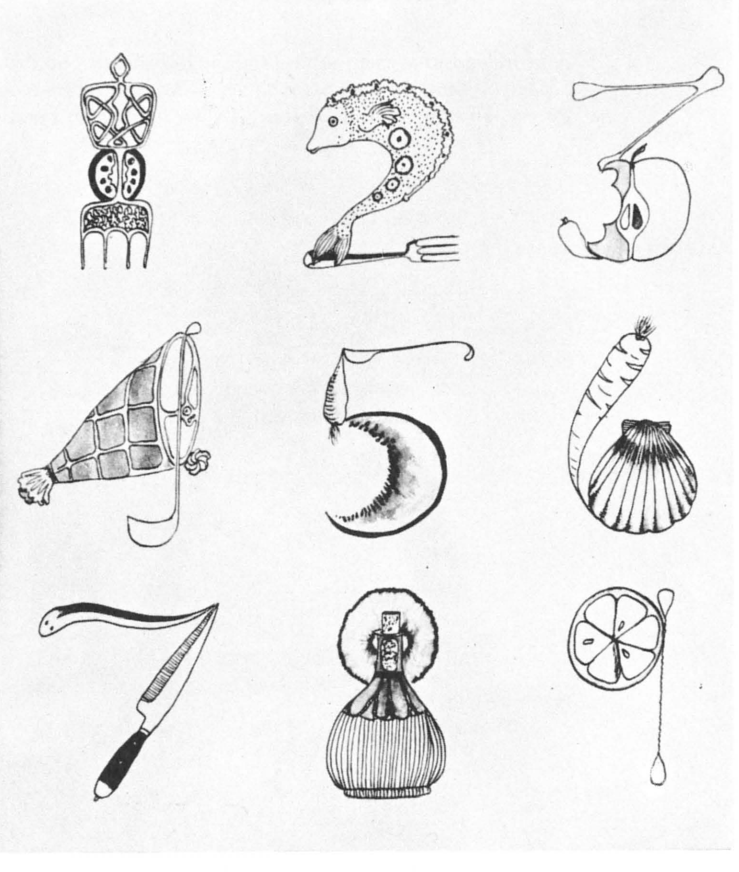


Above, after collecting and studying many letter designs and typefaces, children chose single letters and from a norm tried distorting them until they ceased to be recognisable, 14 years. Below, a progression from this was to select one of the midway variations and to try and make an entire alphabet with some degree of uniformity. The children soon discovered this to be a most sophisticated and difficult task, 15 years.





Personalised alphabet and numerals developed from a theme.
Left, wild flowers, 15 years;
below, cuisine, 15 years.



Above, legibility, cutting up familiar mastheads and logos (sometimes discarding a part) to find out which are the most important parts of the letters and essential for recognition, 14 and 15 years. Below, billposter, crayon and collage, 9 years.

Setting New Word Records

Randolph Quirk

If you are looking for comfortable reassurance in a world of headlong heedless change, there is always the English dictionary. There are few more firmly established and dependably stable institutions. Some of the reasons for this are less reassuring.

New dictionaries are extremely expensive to produce. Even starting with generations of expertise and rich collections of data, Merriam-Webster had to invest $3,500,000 in their most recent full-scale dictionary, the *Third International* of 1961. And equally unlike the magnificent government-funded *Trésor de la langue française* at Nancy, the other major dictionary enterprises in the English-speaking world (Random House and Heritage in the United States, for example; Oxford and Longman in Britain) depend on success in the market-place to recoup investment. And with so much to recoup, it is understandable if tried and trusty models are retained and the heady spirit of adventure firmly discouraged, as the industry sells hard to achieve (with considerable success) its goal of getting a dictionary into every home. Dictionary A cannot afford to omit information of the kind in Dictionary B: cannot even risk getting out on a thin commercial limb by treating it too differently.

This, of course, has the reflexive effect of establishing even more firmly in the public mind what is to be expected of and in a dictionary—even to arcane symbols indicating parts of speech and etymologies which it is hard to believe the average home attempts to decode. The time-hallowed format helps to place it mentally with the Bible (alongside which it is likely to find itself physically), and the advertiser's warning that "no home should be without it" finds a ready response in the natural awe that we rightly have for our language faculty and further contributes to the implicit belief that the dictionary is one's linguistic bible. Implicit? Explicit often enough, as in the review of *Third International* by the Right

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Reverend R. S. Emrich, who claims that Webster has forsaken "its post as the guardian of our language." This is quoted by J. H. Sledd and W. R. Ebbitt in *Dictionaries and That Dictionary* (1962), which analyses the (largely hostile) reception of the *Third International* and contributes one of the few examinations that we have in English of the dictionary as an institution and of the criteria by which dictionaries can be assessed.

Having thus, over a couple of centuries, striven to make the public dictionary-conscious, lexicographers are now in a sorcerer's apprentice situation, with a public demanding buckets to be refilled with the same sort of material in the same way.

If this is not bad enough, the third reason for the stability of the dictionary model is that, bluntly, there has been insufficient development in lexicological theory since the time of Samuel Johnson and Noah Webster (or indeed their predecessors) for radical change in lexicography to be worth contemplating.

J. R. Hulbert, Craigie's collaborator on the *Dictionary of American English,* wrote in 1955 of lexicography as being "more enjoyable" than most research because "one does not devote days, months, or even years to testing an hypothesis only to decide that it is not tenable." Does not: and, tacitly, has no need to. This has great advantages for continuity, of course: Hulbert is right that the great *Oxford English Dictionary* is "all of a piece" precisely because the technique was to apply an approach "which in all essentials was to prove quite satisfactory for the work of fifty years."

In brief, the theory is this. A language has at a given time a finite inventory of words, the meanings of which are revealed in the course of general usage. Since the lexicographer is as liable to be as deviant as the next man, he must have recourse to the usage of as many people as he can—in print. This last phrase embodies the proud ideal of descriptive objectivity; his citations (and interpretations of them) are publicly verifiable. True, in some cases it is possible to infer the meaning from the etymology (*bibliophile* for example, if you know the Greek *biblion* "book" and *philos* "loving"), and this is one of the reasons that dictionaries always supply etymologies. It also helps to account for one of the most pernicious of popular *idées fixes*: that this gives you the "real" meaning and that if it differs from modern everyday usage, it only goes to show how corrupt the language has become. But for the professional lexicographer, definitions are based not on etymology or "on an editor's idea of what words ought to mean but rather on the meanings actually given to words by [those] who use them" *(6,000 Words)*.

The constraints and limitations of this practice are no less obvious than its advantages. Print represents an infinitesimal fraction of language use: new words, new senses, special nuances usually occur first (perhaps only) in speech. But the sentence heard in a bar is not verifiable: the printed example has scholarly respectability in having a quotable accessible source. So a century after sound recordings (thirty years after cheap recording on tape and the like) became possible, the lexicographer continues to restrict his sources to the tiny printed sample. Common sense of course often ensures that a lexicographer who "knows" a word or meaning will embark on special searches of the printed record to make sure it gets in—but, needless to say, this is turning the theory on its head.

Yet this is now taken so much for granted, self-evidently the only respectable lexicographical procedure, that while proclaiming the truism that a dictionary must "keep up with the living language" *(6,000 Words)*, it seems no contradiction a page or so later to find a word's getting "into the language" equated with meeting it "in print."

A further advantage of print however is sometimes argued. While wanting to be up to date, a lexicographer is aware that many usages in ordinary conversation (a daring metaphor, a slipshod substitute for the *mot juste* that refuses to come to mind at the required moment, a slip of the tongue, a word used in a sense special to a family or other private group) never become widely established in the language. Wait for them to get into print, the argument goes, and you can tell the men from the boys. Quite apart from there being no clear idea of how *widely* established a word has to be, or of what "established" means, the argument of course is very shaky. Given the prestige conferred by originality, print is a positive and highly convenient breeding-ground for words or meanings that were never heard before they were written. Given further the tendency to take citations from the more prestigious authors, it is not difficult to see the danger of a highly skewed lexicon emerging from principles designed precisely in the interests of objective generality. Thus the *OED Supplement* (1972) has a policy of "liberally representing the vocabulary of such writers as Kipling, Yeats, James Joyce, and Dylan Thomas," even though this means entries for *hapax legomena* like Beckett's *athambia*.

But then arises a further argument in favour of print. Back to "widely established" again. Although no dictionary can afford to parade this very prominently, the aim is not really to record *all* the words and meanings current in English: no attempt is made to include local dialect, much of the slang, occupational specialities (though those of the miner and bricklayer are more likely to fall under this restriction than those of the doctor or artist), and so on. For the most part, print aims at being communicable across dialectal and professional boundaries and is thus a safer source of data. The further this line is pressed, of course, the shakier becomes the claim that modern lexicography provides unbiased description, far from the normative, subjective hand of Grundyism: it is self-confessedly selective, biased, tending to describe (and hence, for the user, prescribe) the norms not of the language at large but of writers and editors who are deliberately aiming at their *idea* of norms.

Nor can restriction to printed sources avoid the dialectal, slang, and occupational terms which it is not the purpose of the dictionary to register: every dictionary needs to have labels like "colloq.," "sl.," "legal," etc., to specify the limited currency of such items that have leaked in through print—since of course print includes novels and plays, which in the interests of realism contain their authors' filtered views of norms in these areas. The dangers of moving still further from an objective linguistic record are again obvious, and R. W. Burchfield mentions his entries of dialect words from Lawrence (e.g., *barkle*) and Joyce (e.g., *baw-ways*) in the *OED Supplement.*

Now when a novelist, trying to mime uneducated speech (not, let us hope, entirely from his imagination), writes "'I ain't got no dough to buy a ticket' said the urchin," the lexicographer who is working to rule ties up *urchin* (perhaps also *ain't*) with the double negative, and feels justified in appending some such label as "slang" to this use of *dough* (with *buy,* as distinct from *bake*). It is a poor source for contemporary slang, but let that pass. But when Dwight Macdonald, knowing (as a native speaker knows) just how slangy the word is, none the less interpolates it into an otherwise fully orthodox sentence, he intends the stylistic misfit to be noticed. The lexicographer (still working to rule) feels obliged to ignore his own private sensibility and records this as an apparent instance of *dough* "money" being no longer slang. In this (a true story: see Sledd and Ebbitt, page 261), we see how insecure are the foundations of modern lexicographical procedures.

Let me make it clear that I am not knocking dictionaries. I love them; I own dozens; I am proud of the achievement of the English-speaking countries in this great industry; I inspect with delight each major new model as it rolls off the production lines. I admire the well-organized enterprises and their intelligent dedicated staffs. I am not even particularly jealous that reviewers give so much more space to *dictionaries* than to *grammars* of English. I can truthfully say that many of my best friends are lexicographers. I am old enough to have a pathetic belief in progress and in the advancement of science (in linguistics as in the improvement of hair sprays). But looking for progress in lexicography over the past century or so does little to sustain such faith.

I still possess the first dictionary I ever saw—an Ogilvie in a prominently trumpeted "New Edition" of 1895 by Annandale (in fact basically of much older vintage) and certainly regarded as still new enough to be the domestic dictionary in a thrifty household through the 1920s. Dr. Ogilvie had in fact given British lexicography a decisive new direction about 1850 by importing features from the American tradition. I was captivated by nice grey illustrations of such mysteries as *gabions, oak galls,* and *galvanic batteries*. There were nine fascinating lines incapsulating *Darwinism*; contrast the laconic line and a half in the latest *Concise Oxford,* 500 pages longer; but of course Darwin means much less in the 1970s than it meant for Ogilvie-Annandale.

It contained *piss* ("To discharge urine") but not *shit* or any of the other ordinary names for relevant parts, functions, or operations that one was finding of increasing interest. It later transpired that *vulva* was there (and *anus*: "inferior opening of the alimentary canal"), but how was a semi-literate boy of ten to know? The defining strategy was sometimes heavy going. "*Coquettish a.* Pertaining to a coquette or coquetry" necessarily involved looking up *pertaining,* which wasn't in, and then *pertain, "vi";* after five lines of inflection and etymology (referring me to Latin *teneo* "whence also *tenant, contain*") this began the list of meanings with "to belong," which was less than helpful. There were enthralling appendixes giving such data as the currencies of every country on earth and telling me how to address "ceremonious communications" to a state governor in the United States, the Lord Lieutenant of Ireland (quite intricate), or an MP (easy, since "Not specially recognized").

It is worth noting that even the 1971 printing of the latest unabridged Webster still contains such information, including the arresting injunction which I quote in its mysterious entirety:

duke's eldest son's eldest son use grandfather's third title

And apropos of illustrations, although all but half a dozen of the full-page ones were dropped between 1961 and 1971, two of these are devoted to ships: incredibly, both to the intricacies of *sailing* ships—schooners and fully rigged three-masters.

Such deliberate (or merely unconsidered?) conservatism contrasts oddly with strident claims to "newness," as insistent with the latest models of Webster, *Chambers* (1973) and *Concise Oxford* (1976) as it was with Ogilvie-Annandale (1895). In what, when we get down to it, does the newness inhere? Well, for one important thing, there is great progress in readability: typography and layout are more attractive and more efficient. And a great deal of valuable thought has been given to refining the policy with definitions. Where Ogilvie-Annandale has *appalling* as "adapted to appal," Dr. Sykes in the new *COD* (its predecessor had no separate definition) has the limpid "shocking, unpleasant": though for *anus* he is stodgily Latinate with "terminal excretory opening of alimentary canal."

Again, new editions are quick to incorporate the latest information on etymology (especially now in the light of C. T. Onions, et al., *Oxford Dictionary of Etymology,* 1966). They are in general more careful and more sensitive with "usage labels" (Dr. Sykes calls the use of *appalling* that I have quoted "colloq."), but this is itself a sensitive issue and in recent years the Webster dictionaries have sought to play down their prescriptive role by using such labels very sparingly: the *Third International* and the derived *Eighth Collegiate* (1976 printing) leave *appalling* without any stylistic restrictions. Even *wop* "Italian," which *COD* labels "derog.," is more tentatively restricted in the Websters as only *usually* "used disparagingly."

This is part of a more general development: the striving towards objectivity and descriptive humility, weaning the public from their search for magisterial authority in a dictionary. It is doubtless most obvious in the way no lexical censorship is any longer exercised, and lexicographers point proudly to their liberal admission of all the naughty words that Dr. Johnson archly accused his lady critics of searching for. But this permissiveness is in fact little to boast of. In the first place, it results from no deepthroated roar at the barricades: lexicographers are merely following, from the secure distance of a decade (still more cautiously in the United States), the licensed admission of these words in fiction and other printed as well as oral material. In any case, no new lexicological principle is involved, indeed no "new" information is being revealed; and it could even be argued that dictionaries are now merely pandering to current waves of full-frontal fashion. Unevenly at that. A. M. Macdonald's *Chambers* (1973) and the new *COD* list the more notorious items, but not necessarily all the colloquial periphrases: no *hard-on,* for example, which is in the Webster *Collegiate.* Webster themselves, however, seem to be in considerable sexual disarray. Already in the 1961 printing of the *Third, cunt* was included; but *fuck* was not, and it did not appear in the Addenda of 1971 or in the new separately published supplement *6,000 Words* (1976). The *Seventh Collegiate,* derived from the *Third International,* had neither *cunt* nor *fuck* in 1972, but the *Eighth* had both in 1973. It appears that the *Seventh* is in fact being kept in print for supply to institutions that don't like their dictionaries to mix up bed and board. By contrast, Oxford spelled out with scholarly precision its new policy in relation to such taboos in an article by R. W. Burchfield (*TLS,* October 13, 1972).

But the chief criterion of newness is the number of new words recorded, and setting new records in this direction is rather like putting the weight, with each competitor free to decide what weight to throw. Here is where the market competition and the absence of advanced lexicological theory interact with the worst effects.

In 1973 Clarence Barnhart and his colleagues produced a *Dictionary of New English 1963-1972,* containing "words" not previsouly recorded in standard dictionaries (except those omitted for reasons of delicacy: the morality of this book—if not its catholic source materials and its projected market—is essentially transatlantic). As a dictionary, it was unkindly rated by the *TLS* (April 5, 1974) "the silliest yet," and you can see what the reviewer meant. Though providing in the introduction a valuable summary of current lexicographical method, even spelling out to some extent the criteria adopted for recognizing an entity as one of the (new) "words," it exposed through its very explicitness (and above all by necessarily excluding all the normal words of English) the shaky foundations on which it rested.

Nevertheless, Merriam-Webster have paid Barnhart the compliment of producing a strictly similar volume on a similar scale: *6,000 Words* (1976)—comprising all the "new words" admitted through their filing and screening system since the 1961 *Third.* Many of the entries seem not so much to bring readers up to date as Merriam themselves: *chutzpah* (Burchfield's *Supplement* has citations from 1892) and *buzz off* (Burchfield has citations from 1914), for example. They even include the time-honoured but not style-honoured *codswallop*—but without a slang label. Of course the 6,000 include many very welcome entries such as *hadal, nebbish, neuristor,* but an embarrassingly high proportion suggest that the numbers game has got out of hand. Totally predictable items involving regular affixation processes help to swell the statistics (*demystify, depollute, denuclearize,* and the like). One is grateful not to find a host of "new" *un*-words also, if left uneasy at the apparent absence of a principle. Again, there are derivatives like *Chomskyan* and *Kafkaesque,* where the only reason for inclusion is the suffixation, though ironically that is the only part that needs no explanation. The semantic interest of such items of course wholly resides in the work of Chomsky and Kafka: but these are people, not words, and their work is material for an encyclopedia not a dictionary.

But the entries that really seem contrived are the scarcely naturalized foreign words such as *Karatzu* (ware), *jun* (a North Korean coin), *objet trouvé,* with nary a theoretical glimpse of the alchemy by which they become part of English; and above all, perhaps, menu items such as *oysters Rockefeller* and the "compounds" like *gang bang, palazzo pants,* and *sudden infant death syndrome.* New? English? Words?

This should not be read as a criticism of the Merriam team alone but—as is my recurrent theme—of the complacent assumptions in current lexicography. Identical or comparable examples could be given from Barnhart's 1973 dictionary and equally from the first volume of Burchfield's *Supplement.* As well as in *6,000 Words, depollute* is in Barnhart but not in Burchfield, though *denuclearize* (surely a form of depollution) is in all three and in the new *COD* as well. *Watson-Crick,* though a peculiarly British-made "compound," is in both *6,000 Words* and Barnhart but not in *Chambers*; nor is it in *COD,* whose only *Watson* is Sherlock Holmes's friend, scarcely more at principled ease in being listed and glossed as a lexical item. Burchfield has no *Chomskyan,* but he has *Bloomsbury* on the strength of such citations as a D. H. Lawrence letter which speaks of Bloomsbury "enjoying itself in Paris." Surely again a linguistic generalization is missed here—not to mention its implications. Where do we stop? "Watford is peaceful" (place), "Watford is rioting" (people of Watford), "Watford is moving up the league" (football team).

Despite this open-house policy, some solemn thinking gets done—and goes wrong. One new "word" since 1961 that might occur to a reader is *streak* (*-er, -ing*), which is in the new *COD* (though not in *Chambers*). But in their prefatory matter, the Merriam editors explain that it takes more than just a year or so's currency and a well-defined meaning to get into Webster: *streak* is excluded as being among those words that "enjoy a brief vogue . . . then disappear." Within days of my reading this, the papers were full of the streaking episode at the Montreal Olympics, and even in Bloomsbury I could feel the glow of Springfield's red faces.

But this example does highlight the problem inherent in Barnhart and *6,000 Words,* and very much in the foreground for general dictionaries like *COD*: what sort of currency must a word or meaning have before speakers of the language recognize it as established? There is something gross about a lexicography which demands *n* occurrences over *t* units of time and which has no means of formally recognizing the misty penumbra that ordinary people are thoroughly conscious of ("if I may so term it," "sort of ——, as you might say"). The Larousse group (Giraud, Pamart, Riverain) had at least a better metaphor for their volume that is analogous to *6,000 Words* and Barnhart: *Les mots dans le vent* (1971).

And if we are dissatisfied with the admission of new words and meanings, we have every reason to feel likewise over the means by which obsolescence is noted. Again, little explicit theory or even detailed observation is available, but one would expect the death-rate of words and meanings to be rather similar to the birth-rate. In some areas of lexicon, this seems to be an inescapable truism (*landau, victoria, brougham*—out; *convertible, coupé, limousine, fastback*—in).

If a dictionary has as its policy the keeping of a historical record, then of course a word once admitted can never be excluded: since someone may read the (Chaucerian, Miltonian) text in which now obsolete words occur, it is necessary that a dictionary should be to hand that explains them. Thus we have the thirteen volumes of the great *Oxford Dictionary*. The policy of the unabridged Webster is equally clear in this respect. It is meanings from 1755 to the present that will be recorded, but in addition are included those "found in . . . a few major writers" such as Shakespeare: in the light of which principle, of course, the cool-run sense of *streak* should have been included in the *6,000* since its place in the printed literature at some time since 1755 overrules the (inaccurate) claim about its present obsolescence.

It is with the shortish desk dictionary of current English that the problem is acute. Should "current" refer only to the vocabulary in productive use, or should it comprise items in literature (Dickens, Pope, Shakespeare) that members of our current culture are liable to read? The latter position is the one taken up—if a little equivocally—by Dr. Sykes in *C O D*. But this carries an editorial obligation to label as obsolete any words that are retained for the purposes of reading older literature. Sure enough, *brougham* is both included in *COD* and duly labelled, though *vesta* and *lucifer* (both "match") are included with no indication that they have long since become obsolete. In some cases, discrimination seems ill-motivated: the beer-measure sense of *pin* has gone from *COD*, but *firkin, hogshead, kilderkin, tierce, puncheon* (which, I am assured by the Brewers' Society, are all rarer than *pin*) are still included. Miss Macdonald's *Chambers* (1973), despite the *Twentieth Century* in its title, provides more striking examples. The entry for the adjective *sad* begins with the meanings "sated," "steadfast," "constant," "staid," "sedate," "serious," "earnest." A poor tenth comes "sorrowful," with no indication that this meaning has a better twentieth-century track record.

But leaving aside individual editorial slips, my point is that, apart from common sense, there seems no reliable practice of lexical geriatrics, and dictionary makers remain better registrars of births than of deaths. A few hypotheses and experiments in elicitation techniques and informant reactions might well have resulted in disappointment, but (*pace* Professor Hulbert) it is certainly not the case that they have been unnecessary. Both the new *Collegiate* and the *COD* have *graffito* as head-word without mentioning that *graffiti* is usual as an invariable non-count noun.

Reviewing these handsome new volumes and comparing them with their predecessors of a century ago (and more), one is in fact struck more by the high quality of the old than by the higher quality of the new. Real improvement, real progress there has been: but it has been largely peripheral, and numerous central problems remain virtually untouched. What is a "word"—or at any rate what should constitute the lexical entry item? (Should *bat an eye-lid* be one entry or three or four? Since *Lombard Street* is in *COD*, why not *Charing Cross Road*?) What are the conditions under which definition slides between ostensive, synonymic, analytic, and implicative? What options are open in developing a special metalanguage for expressing definitions? Is Paul Imbs making better use of modern semantic theory in his *Trésor* (Volume I, 1972) than lexicographers in the English-speaking countries? Is it best to order the meanings of polysemous items historically (the Webster principle), on the basis of currency frequency (Barnhart and Sykes), or in terms of semantic explanation?

Note that the historical principle can give precedence to archaic senses (as with *sad* in *Chambers*). Webster (unabridged and *Eighth Collegiate* alike) give the noun *pipe* its musical sense first, and even the "two hogsheads" sense precedes the pipe-smoker's pipe; yet, tacitly admitting that there is something unsatisfactory about this, the unabridged opens the entry with a picture of the tobacco pipe. And though Dr. Sykes begins with the general tubular sense (which probably well accords with his frequency principle as it certainly would with a semantic principle), he actually interposes not only the musical sense but a specifically labelled archaic sense before we get to parson's pleasure. Nor, of course, if we were to take the frequency principle seriously (as apparently Dr. Sykes does not), have we any idea how best to establish frequency: there must be many types of discourse in which the commonest sense of *ticket* is "summons for a parking offence."

The foregoing by no means exhausts the basic problems which one would like to see tackled by an advanced lexicological theory. Even when the nature of lexical items is satisfactorily understood, is an alphabetic organization of them the most revealing one? Is it even the most useful for ordinary users?

The only serious breakthrough in this respect takes us back to Bloomsbury again—and is hardly recent. Peter Mark Roget was born nearly 200 years ago and his association with Jeremy Bentham dates from the early years of the nineteenth century. Yet his semantic presentation of the lexicon has remained the only serious contender with the traditional alphabetic one. Now Mairé Kay of the Merriam staff has produced a very interesting combination of the Roget insights with the convenience of the alphabetic dictionary, the *Collegiate Thesaurus* (1976). It is the kind of work whose success can be judged only after prolonged use, but first reactions are on the whole pleasing. Trying to imagine how I would arrive at *collusion* (if this was the *mot juste* at the tip of my tongue but refusing to get further), I found a number of plausible routes quite easily (via *plot,* for example). On the other hand, starting from the notions "rather off-handed," "just for form's sake," "a bit half-hearted," I found no easy way to end up with the required *perfunctory.*

Nor, imagining myself wanting to write to a doctor or government health department and needing the technical or merely "polite" words or periphrases for intimate physical matters (surely a fairly common need?), could I seem to get any help at all. In other words, there is nothing like an "inside-out" match between the two eponymous companion volumes, the *Collegiate Thesaurus* and the *Collegiate Dictionary.* Still less can we expect to solve such problems with the much shorter *Reverse Dictionary* of T. M. Bernstein, where the idea is to have meaning paraphrases arranged in alphabetical order and then be given the word that corresponds: e.g., "small sum of money: PITTANCE." Here you must start from "small"; there is no lead under "money."

Even with more serious and exhaustive attempts, such as the new Merriam *Thesaurus,* it is clear that we have a long way to go in semantic analysis before real progress can be made. At present, a thesaurus can be only as good as the conventional dictionary resource on which it is based, since its semantic diffusion can scarcely be expected to go beyond the ways by which the meanings of all the words concerned are specified in traditional dictionaries. But there is a chicken-and-egg problem here: dictionary definition itself is in need of overhauling through the very insights that the semantically organized thesaurus approach can supply.

A single example will suffice to show that neither dictionary nor thesaurus as currently devised can reflect the lexical sensibilities inherent in even the most ordinary user's awareness of his language. The participle *damaging* has acquired an abstract sense as an adjective, something like "hurtful to reputation," which is not particularly recent but which is difficult if not impossible to extract from the latest Websters or *Chambers* (though *COD* pinpoints it excellently under the verb *damage*). But in addition to this modern sense, *damaging* has a modern collocative tone, a *schadenfroh* tinge, such that I am unlikely to refer to "a damaging review" of one of my own books. Clearly, this aspect of the *mot juste* would be of great relevance to a thesaurus-user, but he will search in vain. Nor, given the constraints of present lexicographic method. can he expect confirmation of suspected tone by consulting the dictionary entry for such a word.

This in itself is a small point, but it is symptomatic of the way the lexicographer's needle seems to have got stuck. The man who "busies himself in . . . detailing the signification of words" has never of course needed to be merely a "harmless drudge" ("I give this as it stands in Johnson," says R. G. Latham—also symptomatically—in his "new" edition of 1866). But equally one would not necessarily become a mischievous playboy by engaging in some exciting hypotheses and challenging the largely implicit theories on the nature of words and meanings. Perhaps we shall get genuinely new developments only when universities show more interest in lexicology, undertake serious research in it, and develop some teachable approaches to lexicological theory.

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China's War of Words

David Bonavia

Gradual simplification of the Chinese script, and its eventual abandonment in favour of the Latin alphabet, is a hot political issue in China, and with good reason. It has been controversial for years, but because Mao decreed it the principle was accepted, and the main focus of contention has been the method and timing.

Now that many of the policies of recent years are being rethought, it is likely that a fresh look will be taken at this one, too. In their early policy statements, the present ruling group have proclaimed that they intend to push ahead with script simplifications, but there seems to be less emphasis now than there was last year on romanisation. Chiang Ching was evidently keen on romanisation, for during the period of her last, fatal ascendancy in the summer of 1976, the teaching of the Latin alphabet in Chinese primary schools was propagandised harder than at any time in the past.

This followed a foul-up in the previous year, when the New China News Agency announced that henceforward all personal and place names would be spelt in the official *pin yin* version of the Latin alphabet in its foreign-language services, instead of the older Wade-Giles system still widely used in such publications as the *Peking Review*. The scheme was mysteriously dropped, without any explanation, and it was almost certainly an aspect of the political infighting which was brewing at the time.

Few subjects are surrounded by more fallacies than the Chinese script. In the West there are such popular myths as that in Chinese characters the symbol showing two women under a roof means "discord." This says more about Western family life than it does about the Chinese language, for the character in question does not exist. It is true, however, that a pig under a roof means "home," a woman under a roof means "peace,"

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and three women together means "lechery." The Cantonese also use an archaic character showing a woman between two men, to mean "angry" *(nau)*, probably by derivation from the concept of jealousy.

Another common fallacy is that Chinese newspapers are printed with a limited range of less than 2,000 characters. In fact, to read even the *People's Daily* it is necessary to know well upwards of 2,000, and keep a good dictionary at one's elbow. To be properly educated in Chinese, one should know some 5,000-6,000 characters. The total number of recorded characters is over 70,000, most of them rare, archaic or used only once in the whole known corpus of Chinese literature.

The official simplification policy is threefold: that everyone in China should eventually learn to speak and understand *pu-tung-hua* or standard modern Chinese; that in the long run Chinese should be generally written in the *pin yin* system using the Latin alphabet while in the meantime the use of this alphabet should be propagated in schools and used for the convenience of foreigners in certain cases; and that the process of reducing the number of strokes required to write existing Chinese characters should go forward.

There are many practical snags. One is that it will be 20 years at least before everyone in China proper can understand *pu-tung-hua,* let alone the Overseas Chinese and all the people of Hongkong and Macau. The *pin yin* system has never really caught on, and though Chinese schoolchildren learn it, they probably forget it in later life. And continuing simplification of the Chinese script itself means constant revision of reference works and teaching materials, which is confusing and costly.

The *pin yin* system is also somewhat misleading for foreigners. It spells the letter *s* as *x,* and the English *chi* as *qi,* so that China's first emperor, Chin Shih Huang, is in danger of being mispronounced by foreigners as Quincey Huang. *Pin yin* also has its merits, but like Wade-Giles it requires tone marks, which are a nuisance to write. Its principal advantage is in the elimination of the troublesome apostrophe in Wade-Giles.

These, however, are technical subissues. The big question is whether it is practical and desirable to write Chinese in an all-phonetic system, be it *pin yin* or any other. To foreigners unfamiliar with the Chinese script, it seems obviously desirable, but many are unaware of the difficulties and disadvantages involved.

First, a phonetic script is useless until spoken Chinese is as standardised as, say, English. Second, Chinese is only partially a phonetic language. Its classical literature is written in a semi-ideographic script which is often meaningless when read aloud today, because of the huge number of words which have identical pronunciations but are written differently.

Thus, the romanising of Chinese would cut off all but a handful of scholars from their own traditional culture, except to the extent that it was translated into modern colloquial Chinese and written phonetically. This would put it at the mercy of interpretations imposed by politicians and hacks—something which is possible only to a lesser extent if the traditional script is retained. Some aspects of the 1974 anti-Confucius campaign—which, it is now being hinted, was really aimed at Chou En-lai—turned on points of textual interpretation meaningful only in the context of Chinese characters.

In any case, modern educational psychologists appear to have established that children learn to read mainly by recognising visual patterns, and associating them with sounds and ideas, rather than by spelling words out letter-by-letter. A wholly phonetic system of learning would make it almost impossible to learn English, with its many anomalies such as *plough, rough, cough,* and *though.* Polish and certain other languages also have great orthographic eccentricities, which by no means prevent schoolchildren from learning their spelling.

In this respect, Chinese characters are actually superior to alphabetic languages, because most Chinese characters contain a visual element indicating their general meaning. Chinese children learn to write and read Chinese with no more apparent difficulty than English children learn their own script.

The final proof that written words are learned mainly as mental images is the Japanese script, in which Chinese characters are extensively used and are read in two or more completely different pronunciations according to their context, rendering the original phonetic element of the characters all but meaningless. Yet Japan has one of the highest literacy rates in the world, since literacy is more a factor of prosperity and social organisation than of script.

Perhaps the most serious objection to Chinese characters is that they are difficult for most adult foreigners to learn, and Westerners are usually at or over student age before they decide to take up Chinese, if they ever do. It needs a good two years' full-time study for a moderately intelligent European to learn enough Chinese characters to read even the *People's Daily* with modest fluency, four years to acquire modest competence in literary Chinese, and the better part of a lifetime to be a good scholar of the language. By contrast, a European of normal abilities can learn to speak Russian quite fluently in one year's full-time study, and Russian is generally accounted one of the hardest languages in Europe.

However, the simplification of existing Chinese characters by reducing the number of strokes required to write many of them was arguably a misguided reform. It saves no paper, since the overall size of the characters has not been reduced. True, it made the characters somewhat easier to learn, thus speeding the literacy campaign in the early stages, but it also makes them more difficult to read quickly—just as a shorthand writer has more and more difficulty transcribing notes, the more the abbreviations that have been used.

It would have been quite possible to continue printing Chinese in its old, unsimplified form (which many people find more pleasing aesthetically than the queer, hollow shapes of the simplified characters). The populace, meanwhile, could have continued using the informal simplified forms which have been in common use for hundreds of years in brush-written Chinese, and from which most of the modern simplifications were derived in any case.

Romanisation would also cut off China's main channel of communication with its most important truly Asian neighbour, Japan. At present, Japanese and Chinese who do not speak each other's languages can communicate fairly well by writing a possibly garbled form of literary Chinese to each other. Japanese studying Chinese are in the odd position of being able to write the language before they can speak it, since thousands of Chinese characters are still in general use in Japan. Chinese people learning Japanese have to learn two Japanese syllabaries (of no great complexity), as well as the vocabulary and grammar of a rather complex native language totally different from Chinese. But on the whole, Chinese learn Japanese with more facility than any other people except Koreans.

Romanisation would make written Chinese and Japanese as different from each other as English and French. The Japanese themselves, who could romanise more easily than the Chinese because of the more phonetic character of their literary language, have staunchly continued to use characters, despite the fact that this sometimes makes it impossible for them to read each other's business cards accurately. (The pronunciation of Chinese characters in Japanese names is particularly eccentric.)

The South Koreans continue to use many Chinese characters in their newspapers, and write their names with them, though the North seems to have succeeded in doing away with characters in favour of the Hangul syllabary. Since China's relationship with Japan is almost certain to grow more important over the ensuing decades, romanisation would be quite a serious setback to mutual communication.

Another argument against romanisation is that the Chinese characters are one of the world's great cultural treasures, and to consign them to the museum would be an act requiring much more mature consideration than the subject has commonly been given in the headlong rush towards phonetic script.

Book Review

Colin Banks

Catalogue of the Edward Clark Library (with typographical notes by Harry Carter and an essay on the Printing of Illustrations by Frank P. Restall). P. J. W. Kilpatrick, general editor. Edinburgh: privately printed for Napier College of Commerce and Technology, Lothian Regional Council, 1976. Two volumes, 685 pages, 74 illustrations. SBN 902703 12 9.

This catalogue has been printed and privately distributed by means of the Clark Bequest, a fund raised from the estate of Edward Clark (1864-1926) inheritor of the Edinburgh book printers R. & R. Clark. The accumulation of good fortune started in the early years of the nineteenth century for the printing firm had been an offspring of A. & C. Black, publishers then of *Encyclopedia Britannica*. Later, Clarks gathered into their presses all the Waverley novels, and by the death of Tennyson could commit thirty machines to the Laureate's works. From this industry and prosperity Edward Clark was able to set aside in his will £10,000 "to further the teaching of typography," together with another such sum to endow a printing school in Edinburgh. However, Edinburgh already had such a school, so the second £10,000 was used by the founder trustee to start a typographic library. Hence, this catalogue of the first forty years of book collecting.

William Maxwell, this trustee, is probably known to most of us now as the recipient of an amusing correspondence on matters of typographical minutia with Bernard Shaw. These letters were often irascible and one-sided, but they spanned a working life time. If only all of us had such appreciation and good luck from our clients!

Maxwell actually started his working life in a grocer's shop, but through the acquisition of shorthand rose to be Edward Clark's secretary, and on Clark's death the managing director of R. & R. Clark. To the interests and personality of Maxwell the library owes most of its titles.

The collection had three aims: to chart the development of typefaces and typography in the west, with emphasis on the private press move-

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ment; to represent the history of the illustrated book; and to represent the history of bookbinding. It is the intention, declared in the catalogue, "that the library should continue to grow as a living entity." This is the business now of the present keeper, Mr. Kilpatrick, who has edited this catalogue in two volumes. Volume one is set out century by century, each preceded by an essay from Harry Carter in his most pithy and sometimes waspish style. There are many illustrations; if only there were many more and bigger! For a sad thing about catalogues is that they are only the unfleshed skeleton of a collection. Volume two has chapters on the evolution of bookmaking, on publishing and selling, on typeforms, on printers, on page design, and a long monograph by Frank Restall on the history of printed illustration.

This latter is, I reckon, helping to set the balance right, for very little happens in the first three or four hundred years in the techniques of printing books other than the increasingly successful contribution made by the various picture processes.

There can be no doubt that up until the nineteenth century the collection fulfills its purpose of providing characteristic comparative material. Often, as amongst the 150 incunabula, this will be by means of a single leaf. But how else could one feature side-by-side a 42-line Bible, printing by Schöffer, Rusch, Sweynheym and Pannartz, Jenson, Johannes Siber, and a score of French fifteenth-century printers? It is not all mainstream stuff either: there is an example of the superb, round, firm Spanish Redonda lettering that alone should expose to any open-minded Scottish student the shabby standards of the Sassenachs; of Caxton, de Worde, and Pyson.

Of course, this so far is the shadow of calligraphy rather than the substance of printing. But when we come to Aldus, Carter says in his notes on the sixteenth century, "We find a book form which has persisted to the present. The size, style, and layout of Aldine roman and italic . . . have become part of the great enduring traditions of book printing, the next 450 years were to see this style gradually to prevail against latter innovation and the earlier appearance of books from the Rhineland." Carter sees the battle as between pen influenced "gothic" letters and forms descended from Roman stone inscriptions. The Roman influence was maintained by Tory's classically derived decorations and borders, and the battle was decided by the engraving skill of Garamond and later Robert Grandjon. Their newfound expertise shaped ranges of size-related typefaces that owed their conception to metal and lead, not quill and brush.

The other factors of the emergent book trade are clearly marked by Carter: for example, international printing with the arrival of Plantin at Antwerp in 1555, and the German monster apparatus of much the same date—the Frankfurt book fairs. By the end of the century, Grandjon's types turned up in practically all the countries represented. In this way, the collection points up the early international character of the trade. However, nationalism will out. The first Bible to be printed in Scotland (1576-9) was no better than the English ones other than it used a roman type; for as Carter puts it, "the association of early Calvinism with humanist printers lead to the use of the roman letter for Bibles and liturgies in the Calvinist churches."

The treasures of the sixteenth century are abundant, including all the innovations of the Venetians and the publications of the Italian writing masters; perhaps most covetable of all: Robert Estienne's Bible in three sizes of Greek cut by Garamond. The punches for these are still at the Imprimerie Nationale. In reading Carter's notes one is struck by how often these early punches and matrices do still exist: in Oxford, at Deberny & Peignot, at Haarlem, and in the Plantin Moretus Museum. Later we can see, for instance, that the second folios of Shakespeare could still be set using the original mats.

The Carter introduction to the sixteen hundreds sets off with a majestical sweeping announcement: "The first half of this century was spent fighting about the ideas of the previous century and the second half in repairing the damage done during the first half. The lack of new ideas and the hardening of the old are reflected in printing." Holland, with a maritime supremacy, included books with its flourishing exports and accommodated scholars and scholar printers. There are many books in the catalogue from Reformation strongholds: the pocket Elzevirs, but not, unfortunately, an atlas from Blaeu.

This was a time of typographic and illustrative innovation in new books expressing new thoughts about religion and the natural sciences. Facilitating this was a more precise way of engraving on copper, leading to all manner of scientific and technical illustration. There are splendid examples of copper engraving here—from the press of Jean Moretus and from the Imprimerie Royale—and this style of engraving profoundly influenced letterforms.

Things were a little less splendid on the provincial skirts of Europe. In England, for instance, the market was not large enough to nurture a book trade in our native language, and what market there was could be provided for, better and cheaper, by printers in Holland. (There are Bibles from Amsterdam with false London and Edinburgh imprints.) The Dutch blotted up the international demand for Greek and Latin printing, then added Hebrew, Armenian, Arabic, Hungarian, and Russian to their facility. Meanwhile back in England, Carter speaks of "the soft packing, over-wet paper, and soaking pull characteristic of British seventeenth-century printing." One of the many examples of this is the Order of the Coronation of Charles II printed in Aberdeen from a type so worn as to be unattributable. Carter explains the English liking for rulework frames around their print as being helpful for inking and impression, but I suspect our national unease when faced with pure line, and a defeated indulgence in "smugging" that erupts like acne over every English artifact every hundred years or so—namely Strawberry Hill Gothick, The Great Exhibition of Britain (1851), and The Festival of 1951.

The Clark Library well illustrates the rococo decoration of the early eighteenth century but this was best conveyed in books through the copperplate engraving. The book buyer was "less interested in the cut of the type or the quality of the printing"; so the book trade became divided between "fine and ordinary." As the eighteenth century progressed, so did English publishing—we now had the emergent wealth and education of a middle class; in 1725 we had William Caslon.

Previous to the production of Caslon's fonts, one can read from this catalogue that for the most part books were made up of a rag-bag of ill-assorted types. Caslon changed all that with romans, greeks, and italics in a complete range of graded sizes and stylistically of one family. For this style, Caslon drew heavily on Dutch models—as indeed did Constable look back to Hobbema of a hundred years before; as did all English craftsmen, in furniture and carving, pottery and architecture.

In the second half of the eighteenth century, England produced its first printer to raise the "Mechanick Exercises" to Art: John Baskerville. In the Clark Library one can easily compare his style to earlier and similar experiments from the French Royal Printing House. One can see how his style was copied and exaggerated in France, in Spain, and, above all, by Bodoni in Italy—and how much Baskerville retained that was essentially his own.

Here Carter gives himself rein and his long shadows of history dip into an absurd future: "The fashion for wide spacing of words and lines sponsored by some of the greatest typographers, Baskerville, Bodoni, and Firmin Didot, was a heresy, and led to a reaction *which may easily go too far*." But this rush of blood to the pen is not typical; Carter's detailed scholarship is unchallengeable, and with his bigger brush he usually paints a convincing picture. For instance, he shows that French typographic style spread with Napoleonic conquest—alongside the mushrooming Hôtel de Ville architecture sprouted neo-classical typefaces a la Didot. Britons, however, will not be led by the French, but reached the same ends via Bodoni. These ends could not, of course, have been achieved though without increased abilities in punch cutting and striking, and the introduction of power machines. But for Carter it is about here, in the first years of the nineteenth century, that truly fine printing comes to a halt.

However it was from the revival of Caslon type by Pickering ("a typographer of genius"), and then the Caxton Memorial Exhibition, that the handcrafted revival movement could be launched. The 1877 exhibition was promoted by William Blades, Henry Bradshaw, and Talbot Baines Reed—and so also modern bibliography was born. In the same year, the Fell types were reused, and Robert Bridges brought them to the attention of poets. Altogether, Carter has pulled us courageously over some uncongenial industrial development to stand confidently and more happily on his own ground. All these inky monuments, and many lesser pieces of nineteenth-century printing, are in evidence at the Edward Clark Library and often tartly commented on in the catalogue. For example: "1830. London. Thomas Davison for T. Cadell, *et al.* Rogers, Samuel. *Italy A Poem.* 8vo. With goffered edges. An interesting exercise in the romantic style. The light-faced fully developed Modern type, minutely finished, and the delicate engravings aim at the same refinement. About this time, people ceased to notice type." And Carter is a master of the concluding finality: "His taste was flamboyant and his printing was more decorative than good. Hubbard went down with the Lusitania in 1915."

With the twentieth century we meet the observation that expensive machinery did not permit "standing time" (which allowed for points of style to be debated on the shop floor). "So the trade allowed itself to be relieved of these problems and they were, in future, to be determined by 'amateurs'—the direct descendants of William Morris." But the sentence on which judgement of the remainder of the collection falters, reads: "The obvious failure of aesthetes to make books convenient and easy to read told in favour of a more conservative school. . . ."

So it is with the twentieth century that I think a slight timidity shown by the trustees turns into a complete retreat. And to my mind, pronouncements such as the above seek to justify the moral abdication of the twentieth-century English Speaking Typographical Establishment from the culture of its time and inheritance of the future. This establishment can be identified, here and in the collection, as what my old radical colleague Allen Hutt called "the Bruce Rogers, Stanley Morison, Beatrice Warde, Oliver Simon Axis"—with some lightweight support from the second line in the chorus: Francis Meynell, W. A. Dwiggins, and the Golden Cockerells.

Carter, with great percipience, does here identify the problem but then goes on to applaud the wrong answer: If it was as Carter suggests above, a battle between standards and profit in commercial book production, then the hinge was surely the American Bruce Rogers. Rogers was decidedly not an amateur, nor was he a printer—but, nevertheless, he was the chap who decided where each size of type should be precisely placed on a page. From a base at Cambridge University Press, he imposed recognition of himself as a new kind of beast: a *professional* designer of lettering and bookwork. The results, as can be seen in the Edinburgh Library, were superb books, but the hand that made them still had its feet, body, and head deep in the past.

More progressive influences are hard to find in the collection and for the English conspiracy did little to encourage the early attempts by J. McN. Whistler, and even Harold Curwen to introduce new thinking into typography. The Dada experiments, the Vienna Secessionists, the Bauhaus, and de Stijl movements had no credence here at all and are unrepresented in the Clark Library; only in the very late 30's did Jan Tschihold arrive to support Eric Gregory of Lund Humphries and visit an England with its back turned on forty years of European culture. English books of the first sixty years of this century were well printed and deadly dull, and this catalogue shows just that.

If I were to choose just one book from the collection to stand for the whole period, a rather nasty edition of Saint Joan might do: it has pretentious margins and tipped in art paper illustrations, these by Ricketts. It is excessively modest that this book and the equally untypical (for Shaw) *Black Girl* are the only Bernard Shaw books in the library. R. & R. Clark printed all Shaw's books and Maxwell's friendship with him has been alluded to—again I suspect this was because in the eyes of the establishment, Shaw was an experimental maverick offending the greater orthodoxy.

Shaw dictated that all his title pages should be set left; he restricted the sizes of type that were to be used, and that face to Caslon. He fussed about the relationship of text to picture; sometimes, as in *Black Girl,* writing the text and drafting the illustrations together. He would edit his copy on proof to make a good looking page. And in the end, after half a century, much of this has now entered the cannons of good book production. What was seen as eccentric was equally unrecognised by Maxwell for what it became: a popular base for a production revolution. Amongst the few books here that do seem to have absorbed something of a world dialogue is the Nonesuch *Genesis,* with Paul Nash wood engravings and Koch's Neuland type. Surely there was more of Nash in this than Meynell? Again, there was Kessler's and Gordon Craig's

Cranach Press *Hamlet* and Tschichold's *Penrose* of 1937(?). Peter Behrens, the architect and designer of type and books, also represented the avant garde in the 1920's, but he is not to High Roman Carter's taste: "scant respect for tradition characteristic of Germans at that time."

The breakthrough to a more liberal, lifegiving, modernity came, I think, with the demise of the enthusiastic amateur and the decline of the superannuated compositor and the publisher's production man. It came with the emergence of the professional graphic designer, career trained to design books, and it came mostly after this catalogue comes to an end—by the 1960's. I would suggest as criteria of contemporary excellence the exploitation of sophisticated machinery; the imaginative use of new processes and techniques; superb detailing of difficult typographic problems; and enough sensibility to produce a book that is sympathetic and stimulating to its audience.

What is well, and what is poorly represented of our time? When Carter calls Carl Ernst Poeschel "probably the greatest printer of this century," this needs to be listened to, but more examples are needed. There is nothing here from MIT Press; only one example from the Spiral Press where Joseph Blumenthal applied the excellence he learnt at Munich from the Bremer Press; nothing from Norlunde in Copenhagen (right in the mainstream of the collection, one would think); no Tauchnitz paperbacks, no Tschichold Penguin pocket Shakespeares, nor the Schmoller folio edition; nothing from Max Caflisch; no catalogue by Sandberg at the Stedjlelik, but warming to see an early Dutch *Bij, de Bezige*. This is a game we all can play—please send suggestions to the editor or to the library not to me.

Volume two itemises the reference material, books on the making of books; on bookselling, on lettering (a fine collection of Edward Johnston, born in Edinburgh I am reminded); on printers and their materials, manuscripts, drawings, and above all on illustration. After typography, illustration is the largest crumb left from this cake, and Frank Restall contributes extensive notes.

He chooses to do this mainly through a 120-page monograph on the history and development of illustration reproduction processes, drawing his examples from the Clark collection. Perhaps what is left on the plate are really plums, for if you will accept my heresy that not much that was fundamental happened to the printing of type between Gutenberg and photocomposition, then our main interest is the increasing part played by pictures in books. It so happens that this causes a log jam of ideas in the nineteenth century, and all this has combined to produce problems for Restall. It has forced him into a prose that reads like tombstones in a churchyard—dates follow names, followed by encapsulated virtues. Good points are made nevertheless. Renaissance books at first followed earlier unillustrated classical texts, and Restall demonstrates that narrative illustration came with printing in the vernacular and then school books. The integrated printed and picture book was a proven artifact with the *Hypnerotomachia Poliphili*, a fact exploited by Dürer and the younger Holbein. Their works did much to circulate and establish the decorative art forms of their time. This was done by way of woodcut borders, and out of these also grew "typographical flowers." Illustrations to books in science, astronomy, and anatomy followed through the sixteenth century. Restall goes on to observe that, in the following century when metal engraving overtook cutting on woodblocks, decoration appears to overcome illustration.

Since the Clark Library is primarily interested in the putting of ink onto book paper, the division caused by metal engraving between the printing of the text and the printing of the pictures is rightly lamented. The story of the revival of wood engraving by Bewick is retold, as is the later revitalization of this "one machine action for both print and picture" process. There are examples in the Library of the supreme skills of Baxter, the Dalziels, Vizetelly, and Edmund Evans. We also have demonstrated the way in which wood engraving hitched a ride on the back of photography into this century. Meanwhile, the comparative ease with which large chromolithographic plates could be used to reveal wonders of topography, architecture, palaeography, and illumination fed new styles to a rapacious industrial revolution. But, again, when we come to our own times, it seems that Malevich, Lissitzky, Mondrian, and Paul Klee had never lived; that technical illustrations had stopped dead together with mathematical typesetting, at the end of the eighteenth century. But this is the fault of the collection, not Restall.

Let us hope that the days have passed from this reverential gazing on the palimpsests of Messrs. Morison, Meynell, et al.,—all their cobbling together of fancy styles in well-rubbed calf on a second-hand last. It is to be hoped that the splendid library is building on its great foundation of books from earlier times and will now find books worthy of our own times.

Harry Carter's introductions to each century represented in the library must be reprinted in a form that makes them available immediately to a wide audience.

Colin Banks

Résumé des Articles

Traduction: Fernand Baudin

L'étude scientifique des "littératures thematiques" *par Conrad Rawski*

L'article s'adresse aux questions fondamentales de la nature, l'origine, et la fonction d'une "littérature thematique" (subject literature)—la compilation de tout savoir par rapport à un certain sujet. L'auteur developpe une conception (notion) généralisable d'une "littérature thematique" et la discute du point de vue suject, contenu, usage, et leurs relations mutuelles, indiquant également les aspects principaux d'une recherche scientifique sur ce genre littéraire. Il démontre qu' une interpretation structurelle offre un point de départ stratégique très prometteur pour des travaux théoriques et recherches analytiques. Les resultats de telles études à titre explanatoire sont examinés selon leur valeur pratique.

Une linéale cyrillique: l'alphabet russe et les modifications nécessaires pour en faire une linéale *par André Gürtler et Christian Mengelt*

Il est question de quatre séries de linéales cyrilliques pour le labeur et le titrage. Les auteurs examinent quelques caractères cyrilliques, anciens et modernes. Les reproductions montrent les modifications qu'il a fallu introduire dans les lettres de cet alphabet pour lui donner une couleur typographique uniforme.

Une étude comparative de l'intelligibilité du langage écrit et du langage parlé *par Laurence Walker*

Des travaux antérieurs ont amené l'auteur à tenter de mesurer la différence entre l'intelligibilité à la lecture et l'intelligibilité à l'audition du langage parlé. L'hypothèse de départ est qu'en raison des différences entre la structure linguistique de l'écriture monumentale et celle du langage parlé, la lecture procurait nécessairement un traitement plus exact des données du langage que l'audition. L'expérience a consisté à examiner le degré de compréhension littérale observable dans un groupe d'étudiants universitaires dont les uns avaient écouté des passages parlés et les autres avaient lu des passages écrits.

L'analyse statistique des résultats a révélé une différence significative entre la moyenne du groupe des auditeurs et celles des lecteurs dont les uns avaient lu à loisir, tandis que les autres avaient eu un temps de lecture égal à celui des auditeurs. La conclusion, c'est que la moyenne d'intelligibilité à la lecture témoigne effectivement d'un traitement plus exact des données de langage que l'áudition du langage parlé—du moins chez des lecteurs normalement instruits.

Le dessin, les lettres et les enfants *par Carol Walklin*

Les formes mêmes des lettres sont un moyen simple et naturel pour éveiller la sensibilité et la créativité visuelles; elles fournissent aussi le fondement possible d'un grand nombre de méthodes pédagogiques à l'usage des enfants. L'auteur reproduit et commente ce que des écoliers Anglais ont fait en dessinant et en écrivant des lettres, des mots et des textes.

Kurzfassung der Beiträge

Übersetzung: Dirk Wendt

Die wissenschaftliche Untersuchung von Sachliteratur *von Conrad Rawski*

Der Aufsatz spricht grundlegende Fragen der Natur, Entstehung und Funktion einer Sachliteratur—die Aufzeichnung allen Wissens, das ein Thema betrifft. Es wird ein verallgemeinerungsfähiger Begriff einer Sachliteratur entwickelt und mit Hinblick auf Gegenstand, Inhalt und Gebrauch sowie deren Beziehungen untereinander diskutiert. Die Hauptgebiete einer wissenschaftlichen Untersuchung von Sachliteratur werden angegeben. Es wird gezeigt, daß strukturelle Interpretation ein vielversprechender strategischer Ansatz für grundlegende theoretische Bemühungen und analytische Forschung darstellen. Die Ergebnisse solcher Studien, die auf Erklärung abzielen, werden auf ihre praktische Bedeutung hin untersucht.

Kyrillische Fraktur: Formale Veränderung beim Entwurf einer russischen Groteskschrift *von André Gürtler und Christian Mengelt*

Für eine neue kyrillische Groteskschrift wurden vier Serien von Text- und Plakatschriften entworfen. Historische und bestehende kyrillische Schriften werden zugeordnet: Illustrationen zeigen die Veränderung individueller Buchstaben in Richtung auf einen umfassend konsistenten Entwurf des gesamten Alphabets.

Das Verständnis für Schrift und spontane Sprache: eine vergleichende Untersuchung *von Laurence Walker*

Zweck dieser Untersuchung war es, einen Unterschied zwischen Leseverständnis und dem Verständnis für spontane Sprache zu erforschen, den eine frühere Untersuchung des Verfassers nahegelegt hatte. Es wurde vermutet, daß das Leseverständnis (wegen der Kanalunterschiede und wegen der Unterschiede in der linguistischen Struktur zwischen formaler Schrift und extemporierender Sprache) eine präzisere Form der Sprachverarbeitung sei als das Zuhören bei solchem Material. Daten zur Überprüfung dieser Hypothese wurden gewonnen, indem ein Text für Genauigkeit im wörtlichen Verständnis einer Stichprobe von Studienanfängern gegeben wurde, die entweder spontan gesprochene Textstücke gehört oder entsprechende geschriebene Texte gelesen hatten. Die statistische Analyse der Daten zeigte einen signifikanten Unterschied zwischen den mittleren Testwerten der zuhörenden Gruppe und einer Gruppe von Lesern mit beliebiger Lesezeit und einer Gruppe von Lesern, deren Lesezeit der Zeit entsprach, die den Zuhörern zur Verfügung stand. Es wurde geschlossen, daß normales Leseverständnis, zumindest auf dem Lesefähigkeitsniveau reifer Leser, eine präzisere Form der Informationsverarbeitung ist als das Zuhören bei spontanem Sprechen.

Buchstaben, Kunst, und Kinder *von Carol Walklin*

Buchstabenformen stellen ein natürliches und nützliches Mittel zur Ausbildung von visueller Aufmerksamkeit, Kreativität, und vielen Grundelementen der Kunsterziehung bei Kindern dar. Arbeiten englischer Kinder werden gezeigt, die ihr Experimentieren mit Buchstabensymbolen, Handschrift, Worformen und bedruckten Oberflächen demonstrieren.

Resumen de los Artículos

Traducción: Ana Fisch

El estudio científico de literaturas temáticas *por Conrad Rawski*

El artículo se refiere a las cuestiones fundamentales que conciernen la naturaleza, génesis y función de una literatura de temas —todo el conocimiento registrado que pertenece a un tema. Se desarrolla y discute una noción generalizable de una literatura temática en términos de objeto, contenido y uso y sus interrelaciones. Se indican los principales campos del estudio científico de literaturas temáticas. Se muestra que la interpretación estructural aparece como una prometedora presunción estratégica para esfuerzos teoréticos e investigación analítica. Los resultados de dichos estudios que arpiran a una explicación son examinados en su significación práctica.

Cirílico gótico: modificación formal en el diseño de un tipo de imprenta ruso sin serif *por André Gürtler y Christian Mengelt*

Se han diseñado cuatro series para la composición de texto y muestra para un nuevo tipo de imprenta cirílico. Se examinan los tipos de imprenta cirílicos históricos y existentes. Las ilustraciones muestran la modificación de los caracteres individuales hacia un diseño general consistente de todo el alfabeto.

La comprensión de la escritura y del lenguaje espontáneo: un estudio comparativo *por Laurence Walker*

El propósito de este estudio es de explorar la diferencia entre la comprensión del leer y la comprensión del lenguaje espontáneo ya sugerida previamente en una investigación del mismo autor. La hipótesis dice que debido a diferencias en la estructura lingística de escritura formal ye de lenguaje improvisado y a diferencias de cauces, la comprensión en el leer es una forma más precisa de procesar el lenguaje que la comprensión auditiva del mismo material. Datos para comprobar esta hipótesis se obtuvieron administando una prueba de precisión en la comprensión literal a un grupo modelo de estudiantes universitarios que habían sido expuestos ya sea a trozos de lenguaje espontáneo o a párrafos escritos equivalentes. El análisis estadístico de los datos revela una diferencia significativa entre le pobre marca del grupo auditivo y la humilde marca de ambos tanto el grupo de lectura sin control de hora y el grupo de lectura cuyo tiempo de lectura concordaba con el tiempo disponible de los oyentes. La conclusión fue que la comprensión de lectura normal, al menos en el nivel literal en lectores maduros demostró ser una forma mas precisa para procesar el lenguaje que el oir lenguaje espontáneo.

Letras, arte, y niños *por Carol Walklin*

Las formas mismas de las letras proveen de un medio útil y natural para la enseñanza a niños de una conciencia visual, creatividad y muchas ideas sobre educación de arte básico. Se ilustra el trabajo de niños ingleses en el que se muestra como ellos experimentan con letras símbolos, formas de letras, caligrafía y texturas impresas.

The Authors

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