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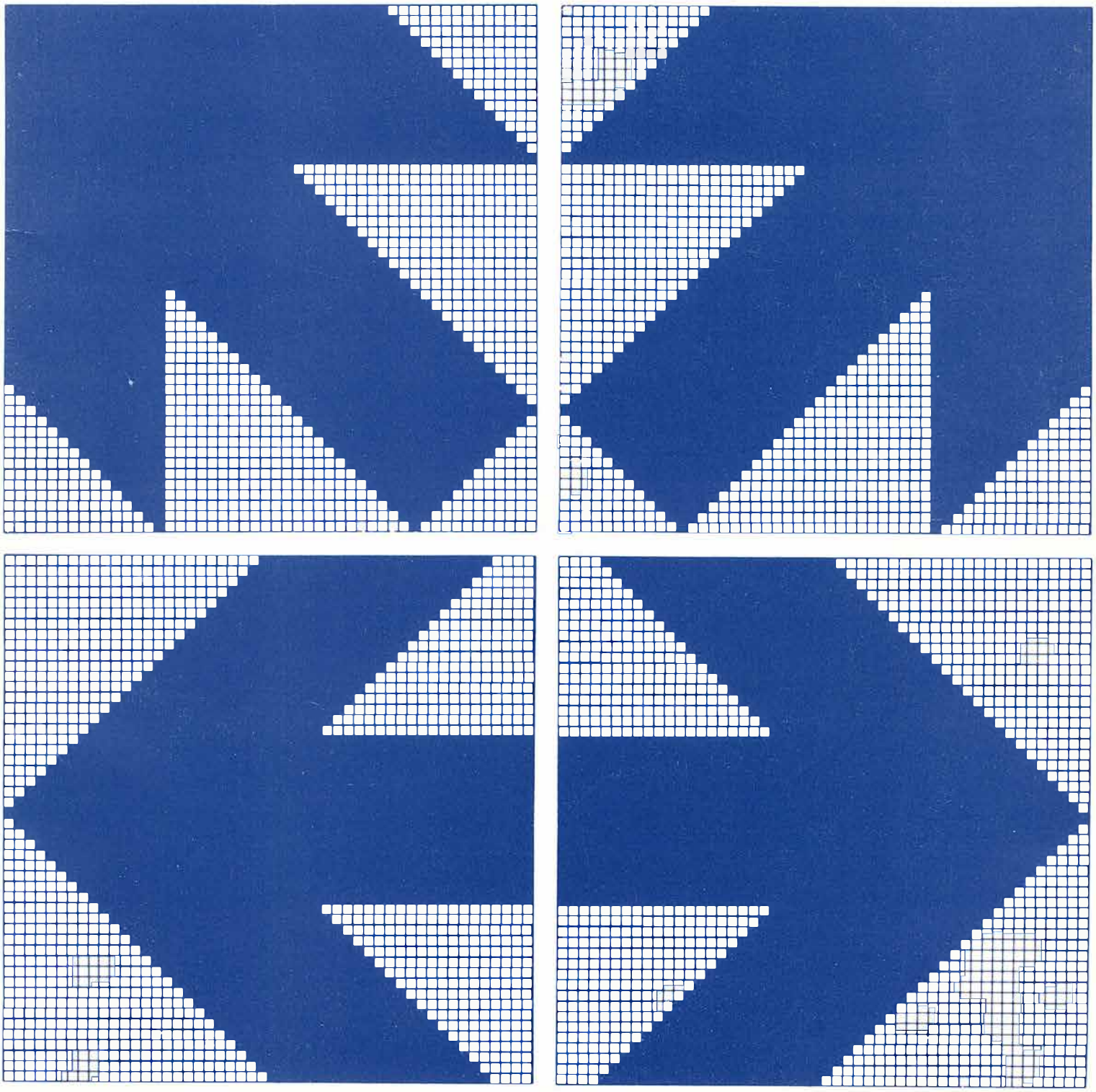

ART·SCIENCE·ART·TECHNOLOGY·ART

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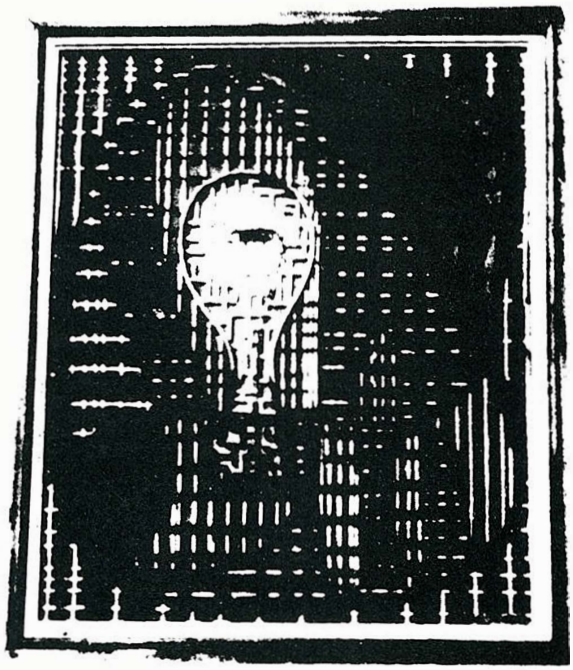

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Aims and Scope

Leonardo is a quarterly international professional archival journal for artists, art teachers and other interested in the contemporary visual or plastic fine arts.
Illustrated articles by artists are published which deal with aspects of their work, with no restrictions on artistic tendency, artistic content and medium.

Leonardo also contains articles on developments in the other arts, on new materials and techniques of possible use to artists and on subjects in aesthetics, architecture, education, the natural and social sciences and technology.

Selected texts of a special character are published in the *Documents* section. Also included in the Journal are the following sections: *Terminology. International Science-Art News, Aesthetics for Contemporary Artists, International Opportunities for Artists, Calendar of Events, Books and Letters*

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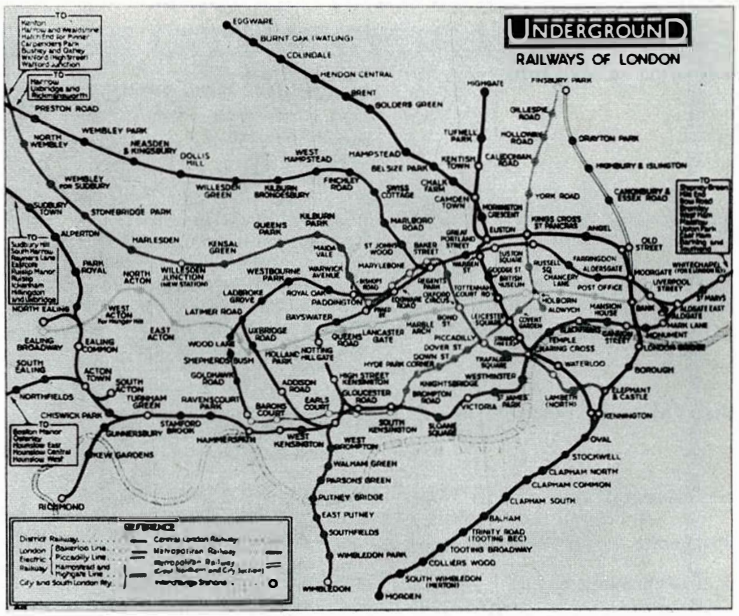
The London Underground diagram

John A Walker

Below, the first route guide to the London Underground, designed by F H Stingmore, which was in use from 1919 to 1933



There are a number of reasons for choosing a diagram as a subject for analysis: diagrams employ a variety of means to encode information; the signs they contain are intentional and clearly presented; therefore, diagrams are relatively simple to decipher compared to paintings. In a diagram the functional features of the image can be readily distinguished from the non-functional, whereas in a painting this may not be such a straightforward task (for example, when a viewer studies a modern painting he or she may have difficulty in deciding whether scratches in the paint surface were made by the artist or whether they are accidental additions).

A valuable characteristic of objective human knowledge (objective in the sense that it exists in the public domain) is that macrocosmic systems which are only fully comprehended by a few specialists are made known to ordinary citizens by means of microcosmic models. This feature of knowledge, so familiar that it is taken utterly for granted, is exemplified by the London Underground Diagram (henceforward 'LUD') a two-dimensional model which, through the agency of reproduction, is made available to the general public for consultation at any point both within and without the London Underground railway network (the macrocosm). Millions of travellers make use of the LUD millions of times every week, yet no one appears to pay it any special attention: passengers look *through* it rather than *at* it. Although this indifference can be interpreted as a tribute to the superlative functionalism of its design, one might have expected some sign of appreciation from British art critics since most of them reside in London and since the diagram is, arguably, a masterpiece of twentieth century graphic art. Until now the only substantial article on the LUD and its designer Henry C Beck (1901–74) is a factual account of its development by the graphic artist Ken Garland. (1)

The Underground *diagram* is also commonly referred to as an Underground *map* but the former description lacks certain features typical of maps (though, as we shall see later, diagrams and maps do share some characteristics).
In order to elucidate the distinction between diagram and map it is necessary to state some obvious features of maps: most maps are graphic representations of the whole, or part, of the Earth's surface. they reduce a three-dimensional world to a two-dimensional plane.
Because they depict curved surfaces on flat pieces of paper, distortions occur and because the size of each piece of paper is much smaller than the size of the area it maps, great reductions of scale occur. In spite of their distortions maps exhibit a high degree of isomorphism with the areas they represent graphically: if an accurate map of a relatively small, flat region of the Earth were enlarged until it was equal in size to that region then it would fit over it exactly. Such is not the case with the LUD: if enlarged to the actual size of London it would diverge markedly from the geography of the terrain for the simple reason that it is a highly schematic representation of the Underground system and furthermore, unlike a map, it is not drawn to scale. These aspects of the diagram can mislead passengers who try to use it as a guide to the location of surface features or as a guide to the actual distances between stations; they soon discover how approximate the diagram is in relation to the actual surface topography of London.
The radical difference between map and diagram can be seen at a glance if the first route guide to the Underground—a map designed by F H Stingmore in use from 1919 to 1933—is compared to Beck's design.

Beck conceived the idea of the diagram in 1931 and though it was originally rejected as 'too revolutionary' it replaced Stingmore's map in 1933. From 1933 to 1959 Beck was responsible for the design of the diagram and its numerous revised editions. The current diagram, designed by Paul E Garbutt, is heavily indebted to Beck's classic design and London Transport ought to acknowledge this fact by printing a credit to Beck on the diagram.
Revisions of the LUD were (and still are) necessitated by the opening of new tube lines but new versions were also produced in order to incorporate additional information suggested by staff or members of the general public. Many revised versions were abandoned as failures because the 'improvements' tended to overcomplicate the design.

Beck was by profession a draughtsman and it was during a period of unemployment, after having been made redundant by London Transport, that it occurred to him that he could "tidy-up" the old "Vermicelli" map of Stingmore's "by straightening the lines, experimenting with diagonals and evening out the distances between stations."
As Garland has pointed out, Beck's three most significant innovations in 1931 were: (1) substitution of diagram for map; (2) restriction to three directions of lines (horizontal, vertical and diagonal); and (3) enlargement of the central area.
The design problem which prompted these innovations was that of accommodating within a limited rectangular space all the lines radiating towards the outlying districts of London and, at the same time, maintaining clarity in the overcrowded centre. The problem was aggravated every time a new tube line was introduced. Beck realised that clarity and geographical truth were antithetical to one another and that geographical accuracy had to be abandoned in favour of clarity.
In other words, Beck's choice of diagram rather than map was the result of an evaluation of different modes of representation in relation to the needs of the travelling public.
There is a general lesson here: no representation tells the whole truth about reality, every representation is partial and selective in what it depicts; every picture conceals as much as it reveals. Consequently, an artist's choice of representation must be based on what he or she considers are in the best interests of those he or she has chosen to serve.

Before consideration can be given to the pictorial conventions and coding mechanisms of the LUD it is necessary to tabulate its components:

(1) Network: the diagram consists of a number of lines converging towards a central core delimited by the Circle line. The lines intersect at various points to form a network structure. To ensure clarity this network is inscribed on a uniformly white ground.

(2) Ground: the rectangular poster is displayed vertically like a painting but, unlike a picture, its four dimensions have directional properties, that is, top/bottom and left/right are implicitly understood by the viewer to represent North/South and East/West. In one version of the diagram a north-pointing arrow was introduced but it was quickly realised that this symbol was redundant).

(3) Border: most large posters of the diagram have borders consisting of a thick blue line while diagrams printed as pocket-sized folders have borders consisting of a narrow black, or blue, line.

(4) Grid: the ground of the current diagram is divided into squares by a co-ordinate grid which, when used in association with a list of station names, enables strangers to London to pinpoint the location of stations on the diagram.

(5) Colour: each tube line is assigned a distinctive colour which enables them to be easily distinguished and memorized. Names and colour codes of all the lines are given in a key contained in a box placed in a corner of the diagram. At one stage the coloured lines also incorporated their names in printed form but this awkward piece of design contradicted the colour coding system (though it did have one advantage; when the diagram was printed in black and white the lines could still be identified.

(6) River: the only surface feature represented on the LUD is the River Thames which is depicted by means of a blue band. This band includes the words 'River Thames' and it narrows progressively from right to left to indicate downriver—upstream.
As a result of the process of geometricization the natural undulations of the Thames have virtually disappeared in the graphic symbol. Another departure from reality is that the tube lines which pass under the river are printed over it in the diagram.

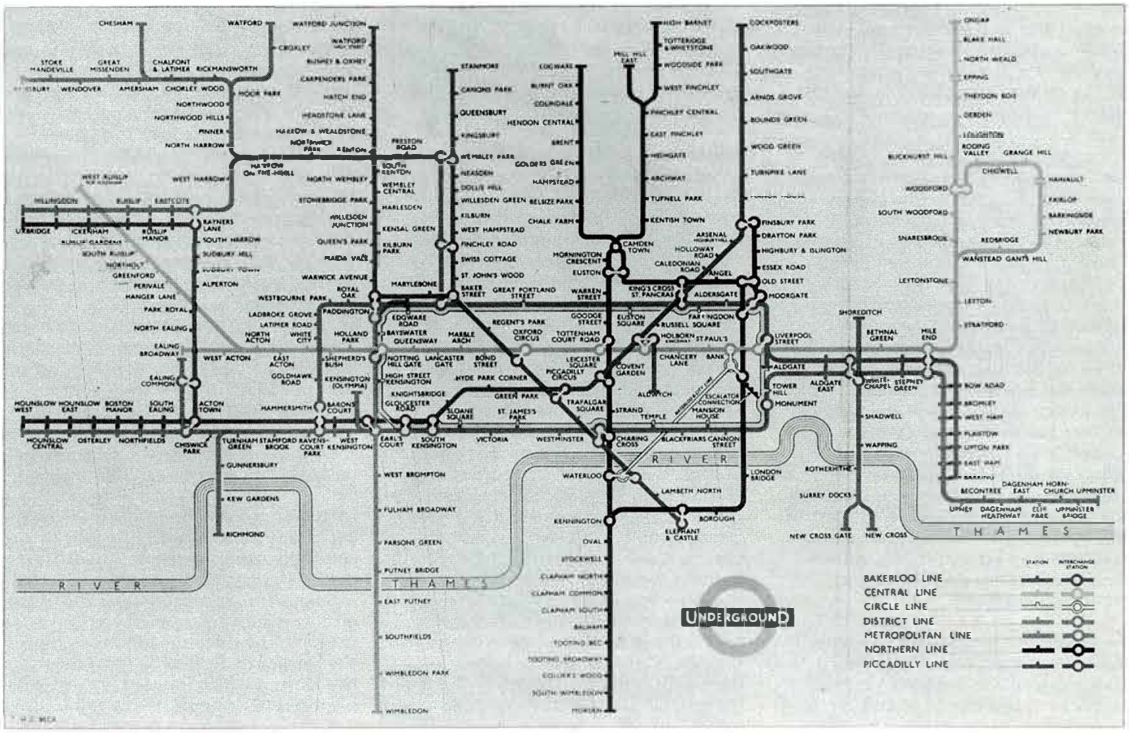
icographic 14/15, 1979, pp 2-4
Author's address:
87 Hillfield Avenue,
London N8 7DG
England

(7) Stations: these are indicated by square ticks on the lines and by circles (some of which are interlinked to indicate interchange stations).

(8) Language: the diagram contains a number of English words and phrases: names of stations and lines; explanatory statements; title of diagram; name of designer.

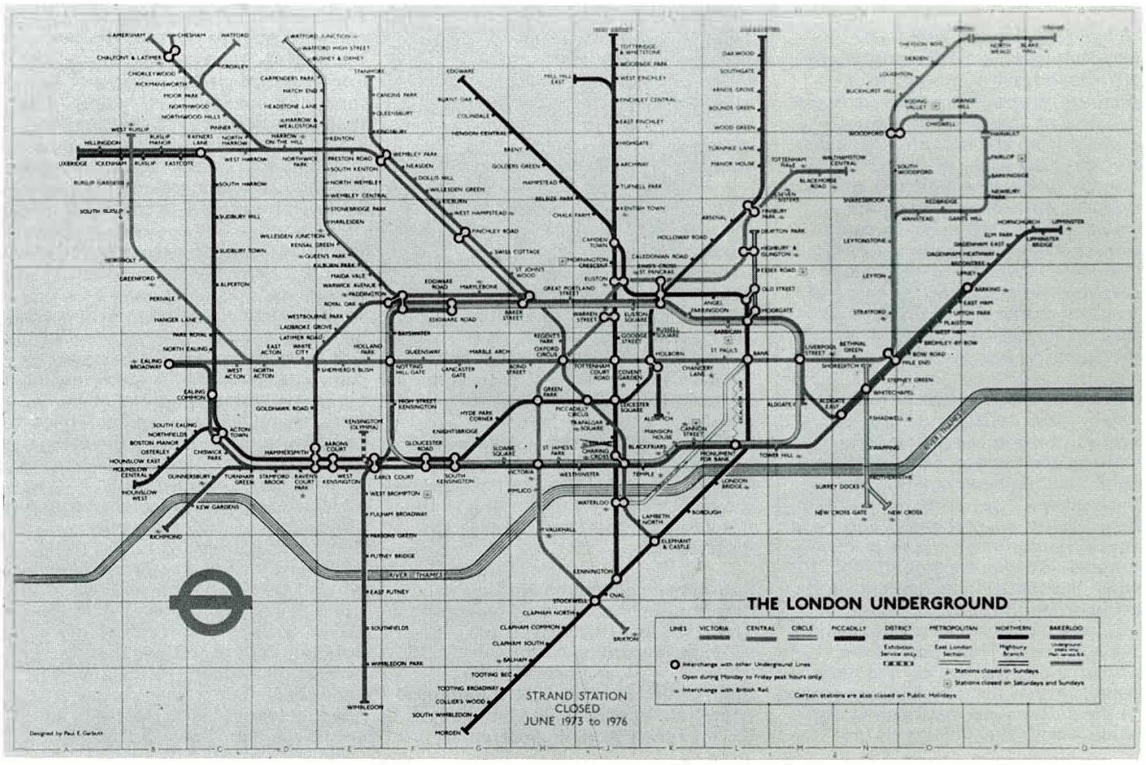
(9) Miscellaneous symbols: a zig-zag line to show an escalator connection: the logo of British Rail to indicate Underground stations which link-up with British Rail stations; red crosses and stars to indicate stations whose opening hours are different from the rest; a plan view of an aircraft to indicate Heathrow Airport; a circle intersected by a horizontal bar— the symbol of London Transport.

It has already been established that the LUD does not represent its object in the manner that maps normally do but nonetheless the diagram is, to a degree, an iconic representation of the Underground system. Charles Morris remarks: "a sign is iconic to the extent to which it itself has the properties of its denotata"; and since both the diagram and the tube system are networks of lines the first is, in this respect, an icon of the second. Essentially the diagram depicts a set of points and the way they are joined up. In the terminology of graph theory it is a 'finite connected graph.' Consequently, it reproduces precisely those properties of the Underground system which are of most significance to the traveller and ignores other properties which are of little significance to the traveller. Network analysis is now a commonplace technique of business management. Its purpose is to solve network routing problems by finding the optimum paths between nodes in relation to such factors as time, distance and cost. Every time a traveller on the Underground uses the diagram to work out the best and cheapest route from starting point to destination he or she is unwittingly solving a network routing problem. The value of the diagram is that it makes it possible for the traveller to journey to his or her destination in logical space (by alternative routes if necessary) before he or she commits himself or herself to travelling to it in physical space. Leonard Penrice points out that in making railway journeys travellers "play a kind of game according to certain rules. They start and finish journeys at stations; they count, and recognise the name of, stations they go through; and they change from one line to another at certain points." (4) Penrice argues that Beck's achievement was to design a diagram "on which an identical game could be played according to essentially similar rules." The relation between railway and diagram is not, according



Above, the London Underground diagram designed by Henry C Beck, in its 1959 version.

Below, the present London Underground diagram, design by Paul E Garbutt.



to Penrice, a static resemblance such as one finds in a photograph: the diagram and the traveller "together constitute a kind of working model of the railway, and not a static representation."

All copies of the LUD inside the Underground system represent their own location (this is one characteristic which the LUD shares with maps). Charles Sanders Peirce explains, "on a map of an island laid down upon the soil of that island there must, under all ordinary circumstances be some position, some point, marked or not, that represents *qua* place on the map, the very same point *qua* place on the island." (5) Thus once we are inside the Underground our position is always locatable on the diagram.
When we consult it on a station platform our first task is to establish our position in relation to the rest of the network. At one time diagrams contained an arrow and the phrase 'you are here' to single out the station in question.

As a sign, the directional character of the rectangular ground is purely conventional: the diagram as a stimulus object does not contain any symbol indicating the fact that its top edge is 'North.' This property is imputed to the diagram by the traveller whose interpretation of the diagram is governed by the context of transportation and general knowledge concerning the conventions of map reading. In an art gallery the 'same' rectangular ground would invoke a different set of conventions.

In logic the purpose of a linear enclosure, and in art the purpose of a frame, border or mount, is to establish the boundary of a particular universe of discourse, to isolate a domain from the flux of experience. But since the edges of the poster literally demarcate the limits of the domain, the presence of a graphic border in the LUD might seem an unnecessary move on the part of its designers. However, by repeating graphically the rectangular shape of its support, the border emphasises that the domain it encloses is a metaphorical one not a literal one.

Just as the diagram functions as a key or index to the underground system, the grid used for locating stations and the box explaining the colour coding operate as keys to the diagram. They are signs within a sign. Clearly the grid does not denote anything exterior to the diagram; it merely divides the ground into equal segments. Cross referencing is achieved by the combination of two arbitrary codes: the alphabetic and the numerical. These devices are printed along the vertical and horizontal axes of the grid. Since the key to the diagram is a meta-sign (a sign about a sign) the purpose of the frame which encloses it is, like quotation marks in a conventional text, to mark the boundary between object-sign and meta-sign, so that the viewer does not confuse the two in reading the diagram.

While the colour coding of the lines is totally arbitrary and monosemic (in the LUD 'yellow' has no meaning apart from 'Circle Line') it is inevitable that for regular travellers the colours will acquire connotative meanings apart from their denotative ones. The emotional associations developed in response to the colours of the lines will vary from person to person; their potentiality for meaning is infinite. However, the sense of inappropriateness which most Londoners feel when they learn that the red Central Line was once orange in colour demonstrates how closely each line becomes identified in our minds with its tincture. Exceptionally, the hue of the Central Line does seem to extend beyond the realm of the arbitrary in that this line is compositionally one of the most important, since it functions as the base-line or spine for the rest of the network.
Its structural importance is signalled by the fact that it is assigned the most dynamic colour in the spectrum.

Turning now to the representation of the river Thames. Water is naturally colourless but according to the conventions of map-making, it is always blue. At first sight this seems a purely arbitrary coding but it is in fact 'relatively motivated' (to use Saussure's terminology), that is, on cloudless days water is blue. Furthermore, blue is generally experienced as a 'cool' colour; therefore it signifies the coldness of water. The narrowing of the graphic river from right to left indicates, of course, the narrowing of the river which occurs from East to West.

Of great importance is the fact that the meaning of the graphic image is mediated linguistically.
Imagine the diagram bereft of all names of stations and lines and without the explanations given in the key. It would still display the structure of the Underground system but its effectiveness as a guide would be nullified. As Roland Barthes has pointed out, one of the chief functions of linguistic elements accompanying images is to anchor their meaning. (6) Without a title on the LUD a stranger to London would not know what system the diagram represented.

Subsidiary signs found within the diagram, such as the logos of London Transport and British Rail, are symbols (according to Peirce's triad of signs: index/icon/symbol), that is, conventional signs standing for large-scale transportation enterprises. On the other hand, considered in isolation each logo has iconic features; for example, the two horizontal lines in the British Rail logo obviously represent railway lines. The iconic features of the London Transport logo are more problematical. Various interpretations of it have been offered: it represents the wheel of a railway engine; it represents London (the circle) and London Transport's ability to criss-cross the city (the horizontal bar).
The London Transport logo reminds us that the LUD is but a single unit in a much larger system of signs encompassing the whole of London's tubes and buses. Taking a narrower view, it can be readily appreciated that the LUD is the 'mother' of a whole series of route diagrams depicting parts of the network, that is, those displayed in station passageways and inside tube trains.

In addition to its denotation 'Underground system,' the LUD has acquired a supplementary signification in the years since it was introduced: as a decorative motif on gifts and souvenirs produced for tourists, the diagram functions, like the images of St Paul's, the Tower, the Houses of Parliament, etc, as a symbol for London. Since the LUD was consciously composed it necessarily signifies a set of aesthetic values, in this instance, certain principles of design historically associated with Classicism; namely, order, unity, harmony, stability, purity, clarity, economy, anonymity of finish, and rationality. These values are not communicated via symbols; on the contrary, they are signalled by the perceptual characteristics of the sign vehicles themselves; for example, the impression of clarity is achieved by the use of lines with hard edges rather than blurred edges and by the use of a range of colours which are highly differentiated from one another. Similarly, the impression of purity is achieved by the use of saturated hues.

In conclusion, a few remarks about the utility value of the LUD.
Frank Pick, for many years an administrator for London Transport, dedicated himself to improving the quality of design for the London commuter by commissioning leading modern architects to build new stations and leading graphic designers to produce typography and posters for the Underground. Beck's diagram was not commissioned by Pick, it was a lucky bonus which matched the philosophy of utilitarianism—Bentham's concept of the greatest happiness for the greatest number—which I take to be the ideology of the London Transport executive in the 1930s. Utilitarianism can be criticised on the grounds that it permits dictatorship—providing it is benevolent—and perhaps today a designer would feel it necessary to encourage public participation in the decision making process leading to a design solution, rather than producing a design on the public's behalf, without consultation.

Marx claims, in *Das Kapital,* that "the utility of a thing makes it a use-value." Things which have use-value for others besides the person who made them have social use-value. However, the fact that the LUD has social use-value does not mean that it escapes being a commodity. Clearly the original design which Beck produced while employed as a wage labourer by London Transport could now be sold as commodities, but even the copies of the diagram given away 'free' by London Transport are commodities: they have no use-value except for those travelling via the Underground and this service costs money, therefore the use of the diagram is included in the price of tickets.

What is important about the LUD is that it is a sign of exceptional richness and social utility.
It is a work of graphic design which literally works every day, and evolves year by year to meet changing circumstances, hence it provides a model for the role of art in a future society.
Designers generally tackle specific problems which are set by others, consequently they rarely have the opportunity to question the broader context within which the design problems are posed.
This is the factor which limits the usefulness of the LUD as a model for current art practice.

References

1 Ken Garland 'The design of the London Underground Diagram,' *Penrose Annual* vol 62: ed by H Spencer (Lund Humphries, 1969) pp 68-82.
See also Ken Garland 'Obituary: Henry C Beck' *Design* (312) December 1974, p 86.
There are two further short articles: Arthur Berger 'London's Underground as a work of art.' *San Francisco Chronicle,* 12th June 1975, p 21; Leonard Penrice 'The London Underground Diagram' *Graphic Lines* (1) 1975 pp 19-22.

2 Typewritten statement by Beck in possession of Ken Garland.

3 Charles Morris *Signs, language and behaviour* (New York: Braziller, 1955) p 23.

4 Op cit

5 Peirce quoted in *Peirce's concept of signs* by D Greenlee (The Hague/Paris: Mouton, 1973) p 55.

6 Roland Barthes *Rhetoric of the image, Working papers in cultural studies* (1) Spring 1971.

Symbol for deafness

The wheelchair symbol, which denotes access and facilities for people handicapped by a lack of mobility, is now very widely known. It is understood and respected both nationally and internationally.

Deafness is an invisible handicap which is only rarely regarded or understood by the general public. Yet it can be even more isolating than an inability to walk. The isolation of the deaf and hard of hearing people is made still worse by unconcern or an unawareness of their needs, especially in busy places like rail and bus stations, airports and so on.

At the suggestion of Alfred Morris MP, the British Minister for the Disabled, a competition was held for the design of a symbol which could be displayed in these and other public places to indicate to deaf and hard of hearing people that a member of staff is available who understands their communication difficulties and who is prepared to spend a little time in helping with their enquiries.

Over four thousand suggested symbols were submitted for the competition, with prizes of £300, £150 and £75 being offered for the winning entry and runners-up. The competition was jointly sponsored by the British Association of the Hard of Hearing, The British Deaf Association, The National Deaf Children's Society, and the Royal National Institute for the Deaf.

The Panel of Judges made the following comments:

"Essentially, we were looking for content: in other words, the message that it should have meaning, internationally, to developing as well as developed countries. We then looked at style which we believe should aid recognition and ensure memorability. We looked for a high degree of economy and the ability for it to be read from a distance and in small sizes. In looking at the entries we firstly dismissed all those that relied on words or initial letters which would automatically make them unsuitable for other languages. The next group of submissions we dismissed were those that were highly complex. Thirdly, the group of designs that had a negative message such as a cross over the ear which was felt to be potentially misleading. Those designs that were based on the use of a hearing aid were also thought unsuitable because of the overlap with audio systems.

This reduced the submissions to about about 100 which mainly concentrated into two areas. Firstly, those that combined an ear and a question mark; secondly, those that used the world-wide gesture of a hand cupped behind the ear. The winning design is, in the Judge's view, one that combines economy of line with significant meaning to most deaf people of the world and the submission showed the design in various sizes to prove its legibility. The second prize was given to the best of the designs based on an ear and a question mark. For the third place the award is given to a design whose content is similar to the first prize, but whilst the Judges thought the style was not sufficiently easy to read at a distance, they were impressed by the new thinking in the work, which was supported by sketches showing the design *in situ.*

Symbols for tourist guides and maps

The symbols shown here have been prepared by the British Tourist Authority, the National Tourist Boards of England, Scotland, Wales and Northern Ireland and the Republic of Ireland for the use of publishers of maps and guide books providing information for tourists.

They hope that publication will help encourage a wider use of these symbols thus making them more familiar to the travelling public.

The symbols are displayed in alphabetical order and fall into six categories considered to be appropriate for use in guide books. These categories are:

Camping and caravan sites
Holiday camps/Chalet parks, etc
Serviced accommodation
Self-catering accommodation
Sports and recreation facilities
Tourist facilities
Symbols considered suitable for use on tourist maps or diagrams

001 002 003 004 005 006 007 008
009 010 011 012 013 014 015 016
017 018 019 020 021 022 023 024
025 026 027 028 029 030 031 032
033 034 035 036 037 038 039 040
041 042 043 044 045 046 047 048
049 050 051 052 053 054 055 056
057 058 059 060 061 062 063 064

065	073	081	089	097	105	113	121
066	074	082	090	098	106	114	122
067	075	083	091	099	107	115	123
068	076	084	092	100	108	116	124
069	077	085	093	101	109	117	125
070	078	086	094	102	110	118	126
071	079	087	095	103	111	119	127
072	080	088	096	104	112	120	128

129	137	145	153	161	169	177	185
130	138	146	154	162	170	178	186
131	139	147	155	163	171	179	187
132	140	148	156	164	172	180	188
133	141	149	157	165	173	181	189
134	142	150	158	166	174	182	190
135	143	151	159	167	175	183	191
136	144	152	160	168	176	184	192

001 Abbey/Cathedral
002 Advance booking recommended
003 Advertisement in guide
004 Aerial activities
005 Airfield—licensed
006 Airfield—unlicensed
007 A la carte
008 Arboretum/Botanical gardens

009 Art gallery/Museum
010 Athletics/Field games
011 Baby minding facilities
012 Ballroom (for hire)
013 Bed and breakfast only
014 Boating activities/Sailing
015 Boat hire/Power cruising
016 Building of historical/architectural interest

017 Camping site
018 Canoeing/Rowing
019 Caravans for hire
020 Caravan site—Touring
021 Castle
022 Caves open to the public
023 Central heating in bedrooms
024 Chapel or small church—Roman Catholic church—Protestant church

025 Chemical/Sewage disposal unit
026 Children's facilities/Playroom
027 Children's play area
028 Children—Special rates for
029 Cinema
030 Clothes washing/Drying facilities
031 Coach parties accepted
032 Coarse fishing

033 Collection and delivery of mail
034 Commended hotel/Guest house or Restaurant
025 Communal lounge
026 Communal wash basins not under cover
027 Communal wash basins under cover
028 Conference facilities available
029 Cooking facilities/Availability of stoves
040 Coracle maker

041 Cots for hire
042 Country park
043 Covered parking facilities
044 Craft centre/Local crafts/Cottage industries
045 Credit cards accepted
046 Cross Channel car ferry
047 Cycling
048 Deep sea fishing from boat/Sea fishing

049 Deer stalking arranged
050 Diabetic and/or vegetarian diets
051 Dogs admitted
052 Domestic help
053 Double/twin bedded room
054 Electric cooking
055 Electric points for caravans
056 Electric points for razors

057 Electricity/Gas bought by Meter/Meter charge for bedroom heating
058 Entertainment centre/Theatre
059 Evening entertainment
060 Farm produce available
061 Fenced and guarded camp
062 Ferry—pedestrian
063 Ferry—vehicular
064 Field study centre

065 First aid post
066 Fishing on hotel's private waters
067 Food shop
068 Four-poster bed
069 French and at least one other language spoken
070 Game fishing
071 Games and sports area
072 Garage/parking facilities on the premises

073 Garage/repairs workshop
074 Garden
075 Gas cooking
076 Gas cylinders available
077 Go-karting
078 Golf (nine or eighteen hole course as required)
079 Greyhound racecourse
080 Ground floor bedroom

081 Guided tours
082 Hairdressing
083 Holiday camp/Chalet site/Purpose-built self-catering accommodation
084 Horse-drawn caravan
085 Horse racecourse
086 Horse riding facilities/Pony trekking
087 Hotel
088 Immersion heater

089 Individual cubicles with wash basins
090 Industrial archeological site
091 International airport
092 Laundry/valet service
093 Licensed club on site
094 Lifeguard patrol
095 Lift
096 Lighting throughout camp

097 Linen for hire
098 Linen provided
099 Loudspeaker/PA system
100 Mains sewage connection
101 Marina
102 May be booked through Travel Agent/Commission paid
103 Midweek bookings accepted
104 Mini golf

105 Motel
106 Motor caravans accepted
107 Motor cycling
108 Motor racing
109 Mountain resort
110 Native fortress
111 Natural attraction
112 Nature reserve

113 Narrow gauge railway
114 Night porter
115 Only accessible by foot
116 Packed lunches provided
117 Parking
118 Parking not permitted
119 Parking area for private boats and trailers
120 Period banquets

121 Petrol pump (distance in numerals may be added if required)
122 Picnic site
123 Pitches for static caravans
124 Pleasure boat trips
125 Post office
126 Potholing
127 Pottery
128 Power boating

129 Prehistoric monument
130 Prehistoric site
131 Private bathroom
132 Public bathrooms
133 Public house
134 Pursuits centre
135 Radio in bedrooms

137 Recreation/games room
138 Reduced rates for old age pensioners
139 Reduced rates/weekends/off season/Special packages
140 Refrigerator
141 Refuse disposal
142 Residents lounge
143 Restaurant/eating place
144 Rock climbing

145 Roman remains
146 Rooms regularly equipped for family use
147 Rooms set aside for non-smokers
148 Sand yachting
149 Sauna bath
150 Seaside resort
151 Service/Cover charge added to bill
152 Shooting arranged

153 Showers—cold
154 Showers—hot
155 Single room
156 Skiing/Skiing arranged
157 Slipway for boats
158 Snacks
159 Solarium
160 Some bedrooms without hot and cold water

161 Special Christmas programmes
162 Squash facilities
163 Statue
164 Stone cross
165 Subaqua activities
166 Suitable for wheelchairs/disabled guests
167 Surfing
168 Swimming pool

193
194
195
196
197
198

169 Swimming pool—indoor
170 Target sports
171 Telephone in bedroom
172 Television in bedroom
173 Tennis courts
174 Tents for hire
175 Toilets (with water closet)
176 Toilets (without flush)

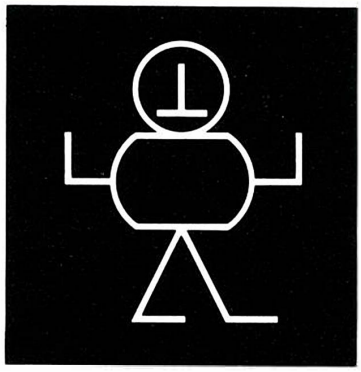
177 Tourist information
178 Tourist information (alternative version)
179 Town trails/England and Wales
180 Town and car trails/Scotland
181 Traditional dishes
182 Unlicensed
183 Viewpoint
184 Washing and ironing facilities

185 Washing machine
186 Washing-up sink(s)
187 Water—cold
188 Water heater
189 Water supply/Water—hot
190 Water drainage for caravans
191 Water points for caravans
192 Water skiing

193 Wildlife park
194 Wooded areas
195 Woollen Mill
196 Working farm
197 Youth hostel
198 Zoo

Blissymbols, for the handicapped—a manner of speaking

Jack Anson Finke



Next to the problem of world peace, the issue of a world language is paramount in international affairs. Educators and sociologists envisage a link between the two and suggest that, if we can once achieve a single language for the world, peace will naturally follow in its wake.

Even if we reject the possibility that an international language would lead to a decrease in international conflict, the desirability of such a langauge at this stage of the world's affairs is nevertheless undeniable. Not only would diplomacy, commerce, tourism, education, science, religion, and the arts benefit, but there would be fuller enjoyment of life and more opportunity for the pursuit of happiness.

What is it, then, that prevents our taking the fateful step in the direction of a world, or universal, tongue? Nothing except the question of just what that tongue is to be.

There have been many serious attempts to find this world tongue, with *Esperanto* and *Interlingua* establishing themselves as the two frontrunners. Esperanto is simple in its sounds and structure, thoroughly logical, and reasonably international —provided we restrict our views of what constitutes internationality to the western world, the Latin world, the Germanic and Greek worlds. But these are days when Slavic and Oriental and Third World nations are forging rapidly ahead and demanding their place in the sun, side by side with the countries of the West. To the speech-habits of the Russian, the Chinese, the Japanese, and the African, Esperanto makes practically no concession.

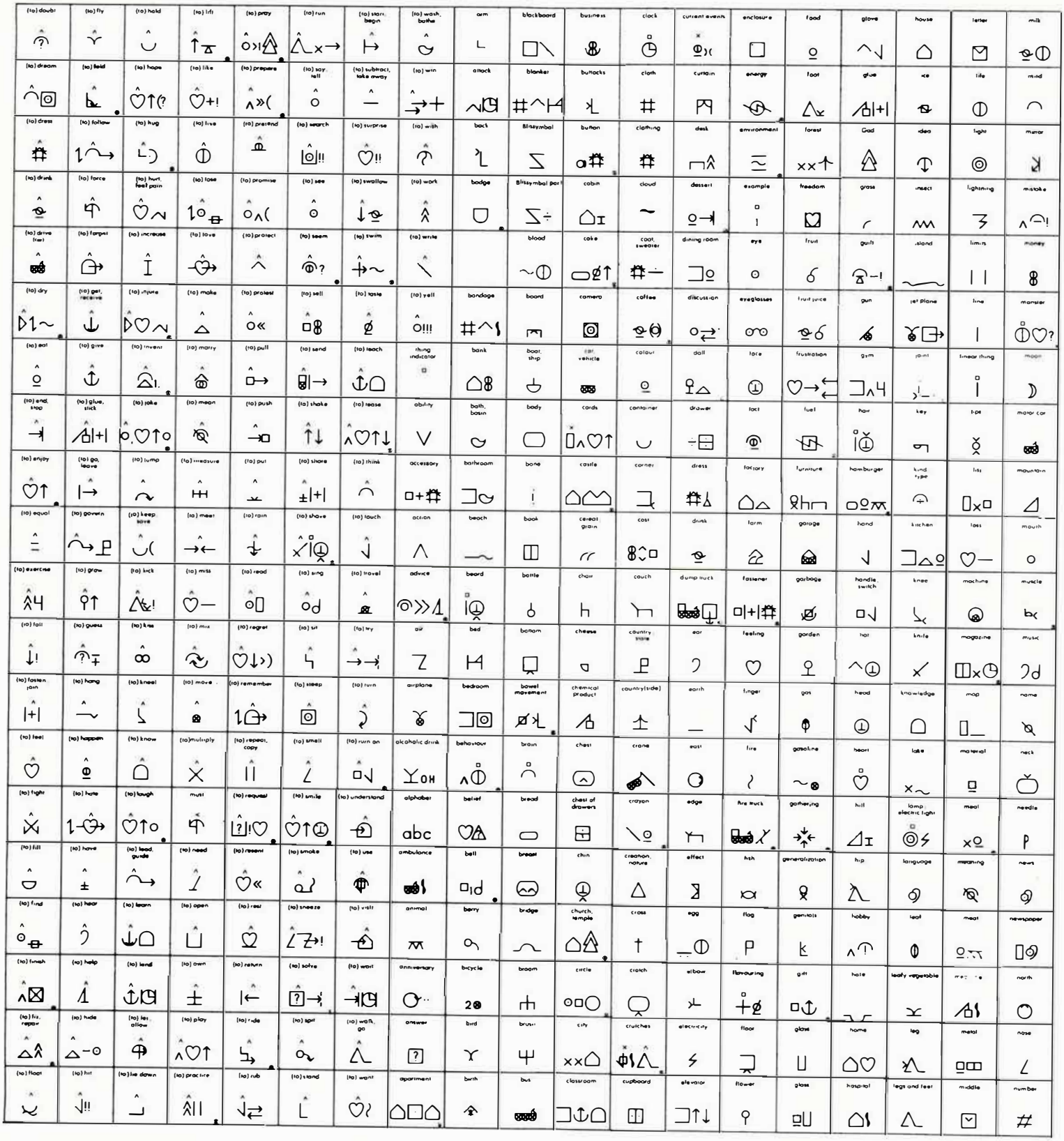
Interlingua, the much publicized product of a group of outstanding linguists—who have laboured over this problem for decades—is even less satisfactory from a truly international point of view, since it is merely a compromise between Latin-Romance and English. The real obstacle to the adoption of a constructed language seems to be the covert opposition of the world's major governments, who find it expedient to keep their citizens isolated behind linguistic iron curtains for purposes of internal control and propaganda.

From the standpoint of suitability and adaptability, English has thoroughly proved itself. It is precise and concise for commercial use at the same time that it is capable of infinite distinction of shades and meanings for literary purposes. Its vocabulary is not only the most abundant in the world, but the most international of all major national languages—more international, in fact, than that of Esperanto.

The further spreading of English, despite the language's obvious advantages, is impeded by precisely the same psychological factors that obstruct the increase of foreign= language learning among English speakers. Children learn languages easily and naturally, but adults do not. The learning of another language at the grown-up stage is fraught with difficulties, as anyone who has taken up a language in high school or college or afterwards can testify.
There have been many attempts to simplify the English language and its spelling, yet little attention has been given to an area more heartbreakingly lacking in communication—a language for the seriously handicapped who cannot communicate at all.
Have you ever wondered how you would feel if not one person in the whole world could understand what you were trying to say?
For an estimated one and a half million non-vocal children and adults so physically handicapped, this is not a rhetorical question. It represents an agonising frustration which must be dealt with every day of their lives.

These one and a half million handicapped have never spoken or, because of an injury, will probably never speak again. Among them are some one hundred and fifty thousand victims of cerebral palsy—a disability which causes neuromuscular incoordination due to brain damage occurring before, or during, birth. The victim may suffer from poor muscular coordination or muscle spasms that seriously interfere with movement. The speech and voice lack precision and speed and, frequently, cannot be understood at all by any listener. They are left with only undifferentiated guttural sounds and grossly feeble gestures to use in relaying their thoughts to others.

For an alert individual to be unable to communicate with others because his speech is not understandable is the ultimate frustration.
This is especially significant with the palsy victims, where their multiple and severe handicaps preclude the substitution of other avenues of communication (such as writing or the use of sign language). Although they appear to be


(to) doubt
(to) fly
(to) hold
(to) lift
(to) pray
(to) run
(to) start, begin
(to) wash, bathe
arm
blackboard
business
clock
current events
enclosure
food
glove
house
letter
milk
(to) dream
(to) field
(to) hope
(to) like
(to) prepare
(to) say, tell
(to) subtract, take away
(to) win
attack
blanket
buttocks
cloth
curtain
energy
foot
glue
ice
life
mind
(to) dress
(to) follow
(to) hug
(to) live
(to) pretend
(to) search
(to) surprise
(to) wish
back
Bilssymbol
button
clothing
desk
environment
forest
God
idea
light
mirror
(to) drink
(to) force
(to) hurt, feel pain
(to) lose
(to) promise
(to) see
(to) swallow
(to) work
badge
Blissymbol part
cabin
cloud
dessert
example
freedom
grass
insect
lightning
mistake
(to) drive (car)
(to) forget
(to) increase
(to) love
(to) protect
(to) seem
(to) swim
(to) write
blood
cake
coat, sweater
dining room
eye
fruit
guilt
island
limit
money
(to) dry
(to) get, receive
(to) injure
(to) make
(to) protest
(to) sell
(to) taste
(to) yell
bandage
board
camera
coffee
discussion
eyeglasses
fruit juice
gun
jet plane
line
monster
(to) eat
(to) give
(to) invent
(to) marry
(to) pull
(to) send
(to) teach
thing indicator
bank
boat, ship
car, vehicle
colour
doll
face
frustration
gem
joint
linear thing
moon
(to) end, stop
(to) glue, stick
(to) take
(to) mean
(to) push
(to) shake
(to) tease
ability
bath, basin
body
cards
container
drawer
fact
fuel
hair
key
type
motor car
(to) enjoy
(to) go, leave
(to) jump
(to) measure
(to) put
(to) share
(to) think
accessory
bathroom
bone
castle
corner
dress
factory
furniture
hamburger
kind, type
kiss
mountain
(to) equal
(to) govern
(to) keep alive
(to) meet
(to) rain
(to) shave
(to) touch
action
beach
book
cereal, grain
cost
drink
farm
garage
hand
kitchen
loss
mouth
(to) exercise
(to) grow
(to) kick
(to) miss
(to) read
(to) sing
(to) travel
advice
beard
bottle
chair
couch
dump truck
fastener
garbage
handle, switch
knee
machine
muscle
(to) fall
(to) guess
(to) kiss
(to) mix
(to) regret
(to) sit
(to) try
air
bed
bonom
cheese
country, state
ear
feeling
garden
hat
knife
magazine
music
(to) fasten, join
(to) hang
(to) kneel
(to) move
(to) remember
(to) sleep
(to) turn
airplane
bedroom
bowel movement
chemical product
country(side)
earth
finger
gas
head
knowledge
map
name
(to) feel
(to) happen
(to) know
(to) multiply
(to) repeat, copy
(to) smell
(to) turn on
alcoholic drink
behaviour
brain
chest
crane
east
fire
gasoline
heart
lake
material
neck
(to) fight
(to) hate
(to) laugh
must
(to) request
(to) smile
(to) understand
alphabet
belief
bread
chest of drawers
crayon
edge
fire truck
gathering
hill
lamp, electric light
meat
needle
(to) fill
(to) have
(to) lead, guide
(to) need
(to) resent
(to) smoke
(to) use
ambulance
bell
breast
chin
creation, nature
effect
fish
generalization
hip
language
meaning
news
(to) find
(to) hear
(to) learn
(to) open
(to) rest
(to) sneeze
(to) visit
animal
berry
bridge
church, temple
cross
egg
flag
genitals
hobby
leaf
meat
newspaper
(to) finish
(to) help
(to) lend
(to) own
(to) return
(to) solve
(to) wait
anniversary
bicycle
broom
circle
clutch
elbow
flavouring
grit
hole
leafy vegetable
north
(to) fix, repair
(to) hide
(to) let, allow
(to) play
(to) ride
(to) spit
(to) walk, go
answer
bird
brush
city
crutches
electricity
floor
glass
home
leg
metal
nose
(to) float
(to) hit
(to) lie down
(to) practice
(to) rub
(to) stand
(to) want
apartment
birth
bus
classroom
cupboard
elevator
flower
glass
hospital
legs and feet
middle
number

subnormal because of their physical appearance and distorted speech patterns, an indicative statistic is that more than one-half of these victims have normal, and even above normal intelligence.
Children, particularly, who cannot express themselves to their parents, lose control over their environment. If they cannot respond to their teacher, they cannot participate in class discussions. If they cannot exchange expression with other children, they become morose. Thus unable to communicate at all, such children become understandably isolated, passive and totally dependent.

This was the depressing situation until a revolutionary invention begun in 1942 by Charles Bliss was brought to breakthrough fruition in 1971. Created as a universal, non-verbal language based on early Chinese picto= ideographs, *Blissymbolics* was discovered and adapted for use with the nonspeaking handicapped child at the Ontario Crippled Children's Centre in Toronto.

The symbols are a visual, meaning= based communication system capable of conveying all aspects of human experience. Due to the underlying logic of the system, basic symbol elements can be used to construct simple and compound variations which provide a vocabulary of infinite size.

Blissymbols have changed the entire outlook of physically handicapped persons of a wide age and intellectual range—with great strides now being successfully taken at speech centres throughout the United States with the mentally handicapped, deaf, autistic, aphasic, and stroke patient populations. A major advantage of the system is that the ability to read is not a prerequisite. It allows users at the pre-reading level not just to identify and ask for simple concrete objects, but also to think and question and express themselves. In short, to be able to communicate effectively and at will through the use of symbols.

Charles Bliss was born in Austria then under the Hapsburg Empire where, he says, ten different nationalities "hated each other because they thought and spoke in different languages." When Hitler came to power, Bliss (a Jew) was sent to Dachau and, later, Buchenwald—from which, with the help of friendly guards, he made an incredible escape. Arriving in Shanghai from Britain in 1942, he found the key to what would become his life's work. While in China, he observed that although the Chinese might have difficulty in understanding each other's dialect, they had no trouble at all when reading—for their script was based on standardized symbols.

To Bliss, this was the clue: what if someone could invent a language system based not on sound but on meaning--a system removed from a phonetic base that could surmount all cultural barriers?
He thought he was onto something. Interned by the Japanese in 1943, he emigrated after the war to Australia where he buried himself in working out the idea. Six years later, in 1949, he completed his opus, a three-volume manuscript, entitled *Semantography,* the book that is both the rationale of and the text for his language system.

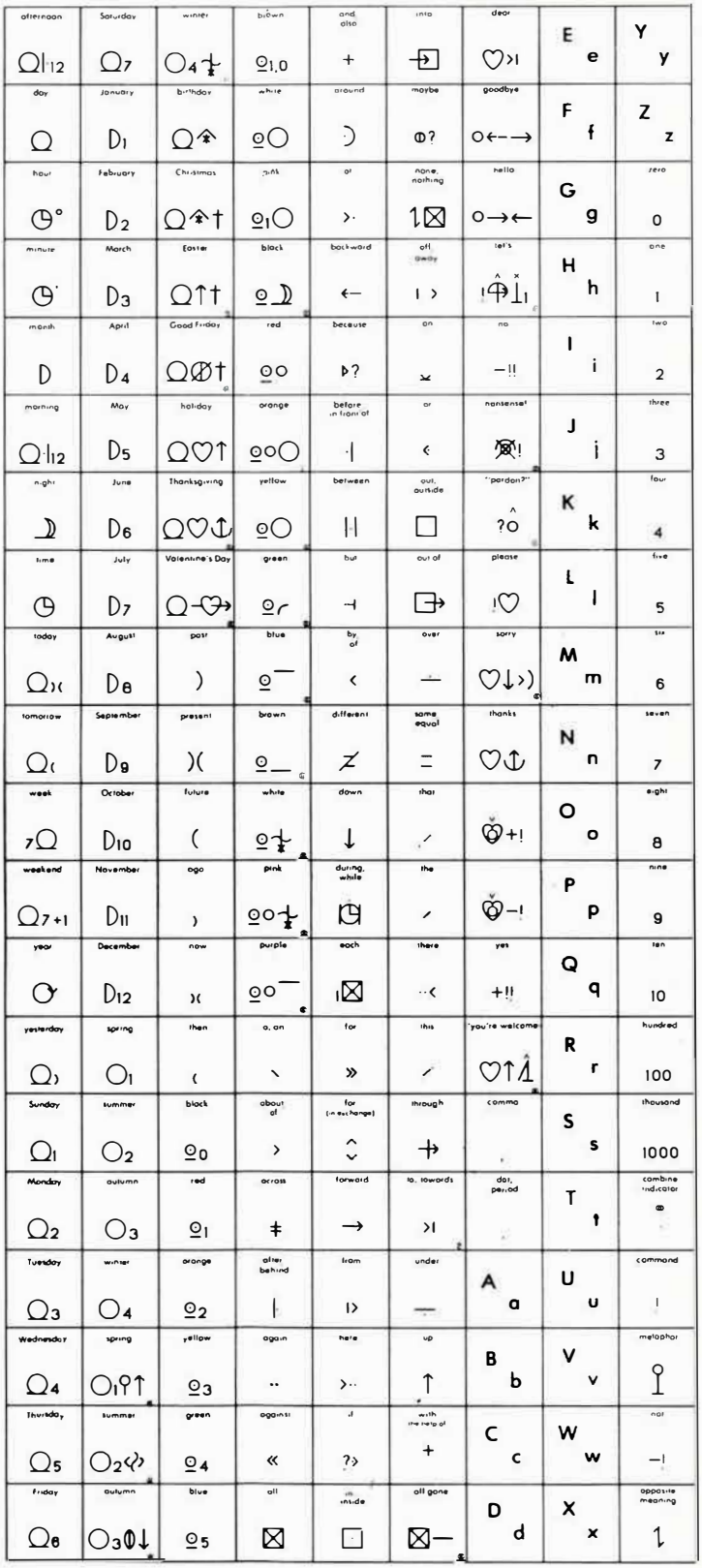
Bliss's aim was for a system that was complete: he wanted to provide the world with a symbol system capable of conveying any meaning.
To that end, he incorporated picto-graphs, ideographs, and arbitrary symbols into a cohesive, logical and simple system—a system whose direct reference to meaning made it easily learned.

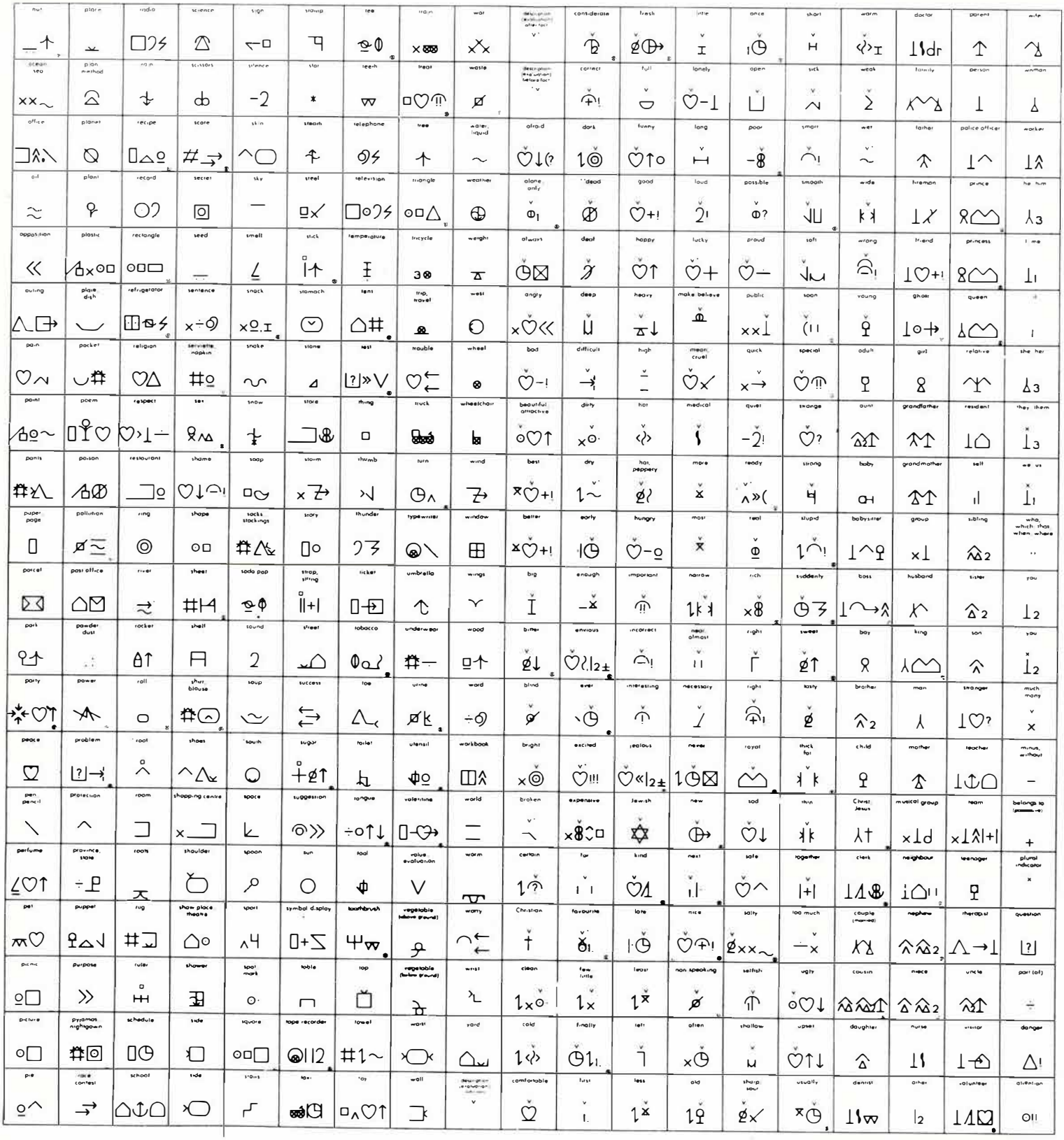
Bliss uses only 100 basic symbols, relating to meaning rather than sound. But he combines them to make thousands of meanings.
Often they imitate the things they stand for or, at least, provide visual clues. The system is concise, logical, and downright fun—especially for children. It facilitates the expresion of concepts and abstractions, rather than allowing only the limited concrete responses which can be expressed by a picture.
The system has an advantage over the manual communication of the deaf in that the use of symbols need not be restricted to those selected message receivers who understand the system, as is true for sign language.

Each Blissymbol is always displayed in combination with a written word, representing the concept expressed by the symbol. This enables the symbol user to communicate with anyone in the environment. Intended message receivers need not learn the Bliss system in order to understand the nonvocal communicator's message—they simply read the words displayed with the symbols.

The visual simplicity of the symbols makes them quickly and easily learned. They can be arranged on a "symbol board" to suit the needs of the individual. Because the display is portable, communication is possible in everyday living for both wheelchair users and those who are mobile.

Another advantage over sign language is that the use of Blissymbols is not restricted by a symbol user's physical impairments. For those who cannot point to their symbol display, remote= control devices can be used to indicate the desired symbols. Levers, knobs, touch paddles and, recently, video screen keys activate





switches that control either a pointer or tiny lights that illuminate the symbols as they are selected.

Parents of the vocally handicapped have reported that, with the symbols, their children do not have to resort to temper tantrums or any other unsocial way to indicate displeasure. They are able to analyse their own feelings and express them with their symbols, allowing for a much better understanding of themselves.

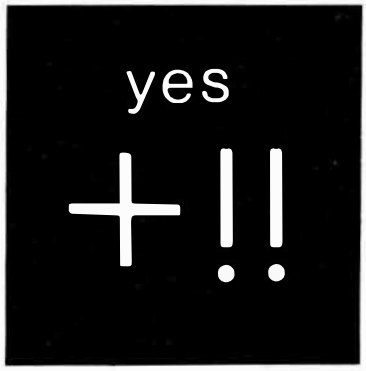
Socially, symbol users are able to interact with a wider range of people. The child's ability to interact on a social level with others and to communicate with an interested stranger will go a long way in helping to correct the public's misconception that cerebral palsy and its accompanying speech problems are synonymous with severe mental retardation.

And it is not only the public that has misconceptions. At the Ontario Crippled Children's Centre—which was one of the original experimenters with Blissymbolics—Charles Bliss was told of one little girl who was taught to use his symbol board. One of her first questions to her parents was: "Why are you not speaking to me?" The mother and father were utterly shaken. Both were truly loving parents who just hadn't understood that their daughter desperately needed people to talk to her, even though she had been unable to respond.

Before the symbol breakthrough, another parent recalled having lived through seven years of heartbreak. "My daughter would try so hard to tell us things. She'd make guttural sounds and we'd all strain to catch the idea. Finally, in total frustration, she would bang her wheelchair tray, put her head down and cry uncontrollably. We all felt so helpless." Now—having learned the Bliss system—her daughter smiles, holds up her finger for attention, and just points to her board.

Today, there are more than twenty-five hundred Americans using the Blissymbols—with many hundreds more exploring their use, especially in the areas of nonverbal cerebral palsied and mentally retarded persons of varying ages and disabilities. With these populations, the symbols are used primarily to provide a means of communication—although they may also be used to foster cognitive development and assist in developing reading readiness skills.
To a lesser extent, they are being used with autistic children and children with severe articulatory difficulties and expressive language deficits.

There are those of in the graphic arts who at times get carried away with the "importance" of our work. We would do well to give a little thought to the wonderful workings of Charles Bliss. Communications is an essential of the human condition. It is the vital link to understanding.
As Bliss himself puts it: "We can cry a billion tears, write a thousand words, pass a hundred laws. . . but, still, understanding begins with communication."



This article was first published in the journal Upper and Lower Case, *published by the International Typeface Corporation, Volume 2, number 4, December 1978.*
We are grateful to them for permission to republish it in this issue. Acknowledgements and thanks also go to the Blissymbolics Communication Institute, 862 Eglinton Avenue Eeat, Toronto, Ontario, Canada M4G 2L1, who should be contacted for any further information.

Pattern design and literacy for the retarded

Jorge Frascara

It has been demonstrated that cerebral palsied children have difficulties in edge discrimination (Nelson 1962; Nelson and Wise 1964). In the light of this research, Clement and Nelson studied the capability of cerebral palsied children to discriminate various surfaces, and the possibility of using patterns as backgrounds for letterforms (a different pattern per letter) in order to introduce additional clues for letter recognition.

For his initial experiments Dr Nelson used Letratone half-tone dot patterns. Using these as backgrounds for letters he demonstrated that the performance of children using these patterned backgrounds was better than that of children using blank backgrounds.

Three years ago I proposed to Dr Nelson that it might be possible to devise more distinctive backgrounds than those offered by mechanical half-tones. I also suggested that any good solution ought to allow the patterns to be reduced down to 15 millimetres in height, so as to allow them to be used in books for initial readers (to frame words and short sentences).

Pattern design programme

I organized a project with my first year students from the Department of Art and Design in order to devise originals for the patterns.

The programme had as a fundamental concern an increase in the number of visual variables used in the design of the patterns. Letratone dot patterns move along two variables; darkness and fineness. My programme included the following 19 cases based on 6 variables:

a Component

1 Dot
2 Line
3 Dash

b Percentage of black

4 6%
5 12%
6 24%

c Fineness

7 Thick (1/72 of the height of the pattern)
8 Thin (1/144 of the height)

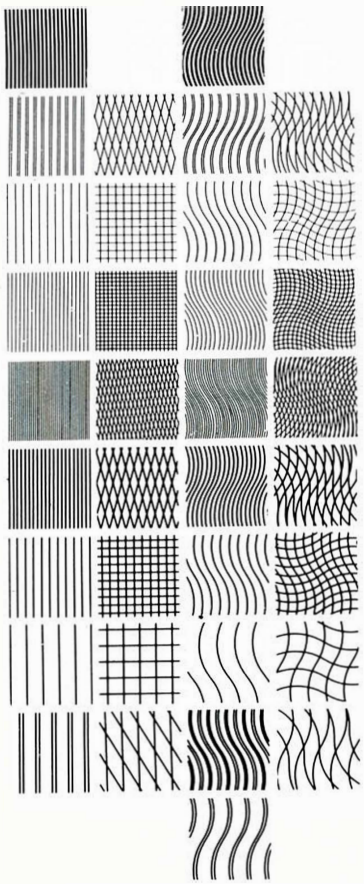
d Shape of the pattern

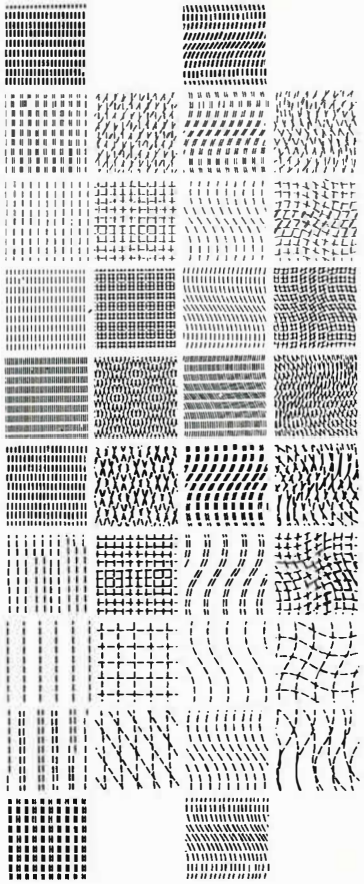
9 Straight
10 Curved

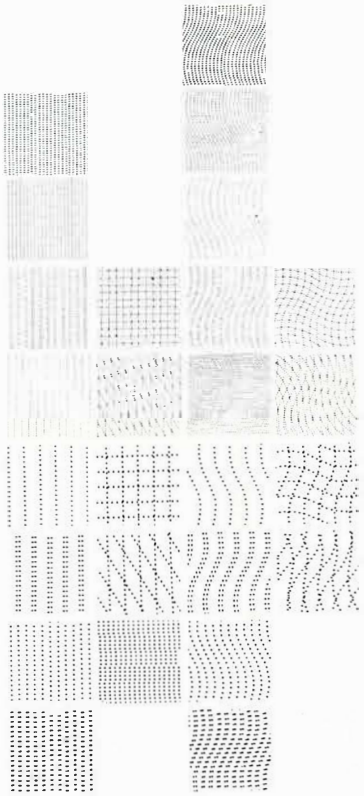
A joint project is being developed by the Departments of Art and Design and Psychology in the University of Alberta. It deals with the design of an improved alphabet that would facilitate the learning process of letterforms for retarded children.

The project and the initial research were begun by Dr Thomas Nelson, Professor and Chairman of the Department of Psychology. He was joined by the author of this article in September 1976.

icographic 14/15, 1979
Author's address:
Department of Art and Design
University of Alberta
Edmonton, Alberta
T6G 2C9 Canada







e **Interval**

11 Regular (constant gap between components)
12 Irregular (two alternate widths)

f **Direction**

13 Vertical
14 Horizontal
15 Vertical + Horizontal
16 16 Diagonal 60%
17 Two 60% diagonals crossed
18 Two 30% diagonals crossed
19 Two 45% diagonals crossed

Production

The programme as such provided 504 possible patterns. In order to avoid similarities, 284 possibilities were discarded before production.

The number of originals prepared was 12 and the total of 220 patterns produced was achieved through photographic processes of addition and combination.

Selection of the best 30 patterns

Once the 220 patterns were produced a test was developed in the Department of Psychology under the direction of Dr Carol Ladan in order to select the most distinct 30 patterns to be used as backgrounds for the letters. (26 for the Upper case Latin alphabet, plus 4 for other languages eventually to be used with the system).

Addition of the letters

The alphabet chosen was Helvetica Medium, which offers a simple shape and a stroke thickness that clearly contrasts with the components of the patterns.

The letters were matched with the backgrounds following two basic principles:
a There should be a clear contrast between letter and background in order to avoid confusion (ie straight stroke letters on curved pattern backgrounds).
b The most similar letters should be mounted on the most distinct backgrounds (a confusion matrix was used as reference for this problem).
A group of designers and artists was called in to advise the author in this matching process.
Once the letters were added to the backgrounds, these were adjusted in width in order to provide good letter-spacing when framing words. In this situation patterns will contact one another, leaving blank spaces between words.

After two years of research and improvement, the device has recently been patented by the University of Alberta. It is now about to be used in a two year experimental programme coordinated by Dr Nelson, involving normal children with learning disabilities.

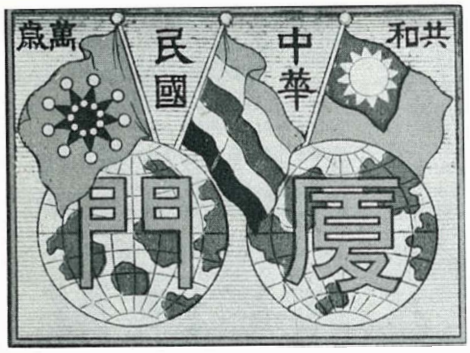
For this purpose, 30 sets have been produced. Ten of the standard alphabet (blank backgrounds), ten of the Letratone backgrounds, and ten of the form discussed in this article. They show the letters mounted on wood chips that the children can manipulate in order to develop a series of learning strategies and discrimination tests.
The chips are stored in vacuum= formed, slotted boxes. These boxes are fitted with a detachable lid that doubles as a display-tray on which the letters can be arranged in arrays forming words. The boxes were designed and produced by Jim Egler, Coordinator of the Division of Industrial Design in this department.

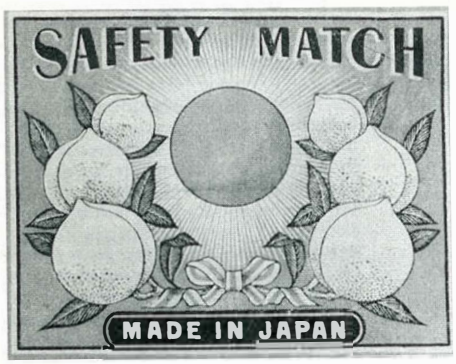
In the long run, the teaching programme foresees a progressive change in the intensity of the backgrounds, from black into light greys, as the children improve their knowledge. The aim is to provide a gradual transition to the use of the standard alphabet, once the patterns have performed their role as initial recognition clues.

We are now at the beginning of actual implementation. The performance of this alphabet will be evaluated against the standard alphabet and the one with Letratone backgrounds.
The performance of each letter will also be evaluated and changes in the design of some backgrounds may be recommended after the experiment. Perhaps even a comprehensive revision of the system will be possible on the basis of the experimental data.

Japanese match box graphics

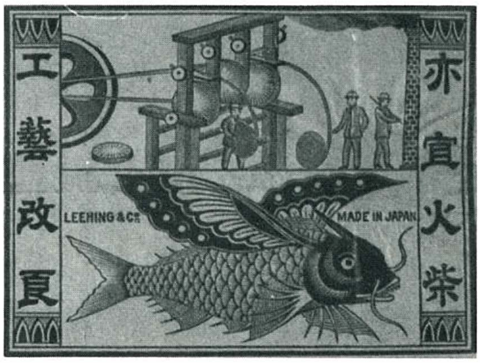
We show here part of a fine collection of late nineteenth and early twentieth century Japanese match box covers, from the collection of Peter Wyles of Eltham, London. Although many of the designs are palpably derived from European models, all of them exhibit rare charm. Unfortunately, we cannot show the vibrant colours of the originals.



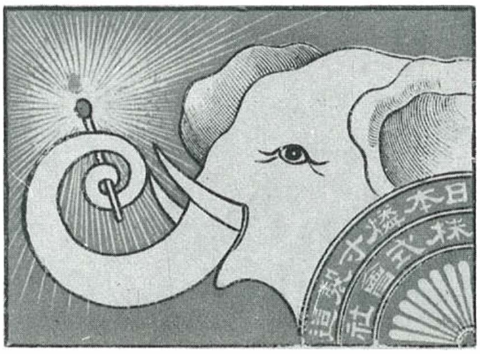



孔雀爲記
文發監造
MADE IN JAPAN


SAFETY MATCH
TRADE
MARK
HATAGIN KOBE JAPAN


工藝改良
亦宜火柴
LEEHING & Co
MADE IN JAPAN


中華民國公司
中華民國公司




採柂圖上等火柴
隆順監製


吉
建德洋行監造


還我河山
KOYEKISHA JAPAN


怡和洋行
TRADE
MARK
SEISUISHA HIOGO JAPAN


K.HARIMA.MADE IN JAPAN


同孚泰行
KOBE JAPAN

Type research at the London College of Printing

АБВГД
ЂЕЁЖ
ЖЗИЈК
КЛЉ
ЉЉМ
НЊО
ПРСТ
ЋУФХ
ЦЧ
ЏШ

абвгд
ђежж
зијклл
љљмн
нњо
сћуфхпр
цчџш

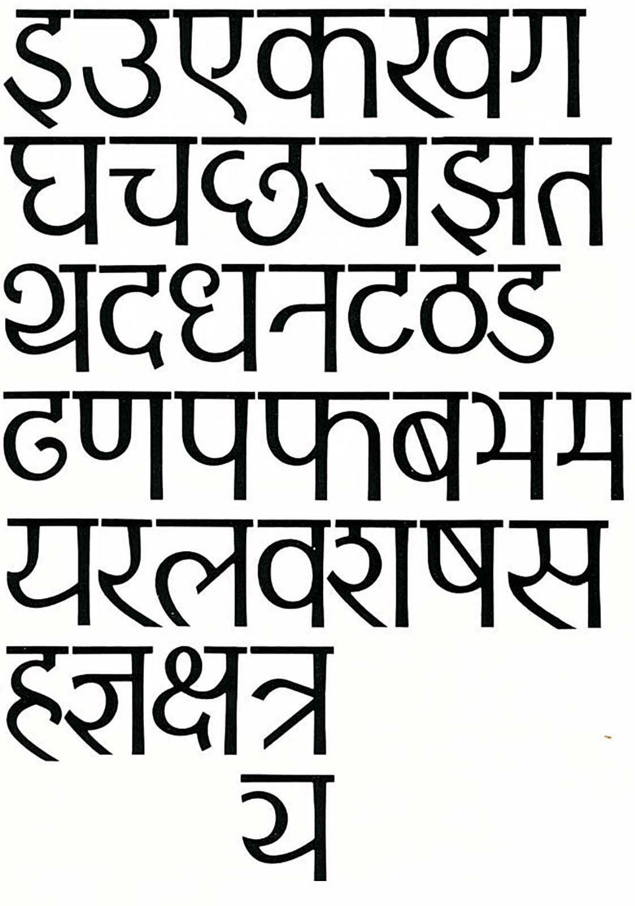
We show here a range of non-Latin type faces designed by staff and students of the Type Research Unit of the London College of Printing. The Unit was initiated to give students who had qualified in typographic design an opportunity to study type design. The Unit is under the direction of Fred Lambert, a designer with considerable experience of type design.

The Type Research Unit has found particular interest among overseas students from countries where there has been little development in type design. Since its inception, designs have been developed for Arabic and Farsi, Devanagari, Gujerathi and other Indian languages, Thai, Cyrillic and Hebrew.

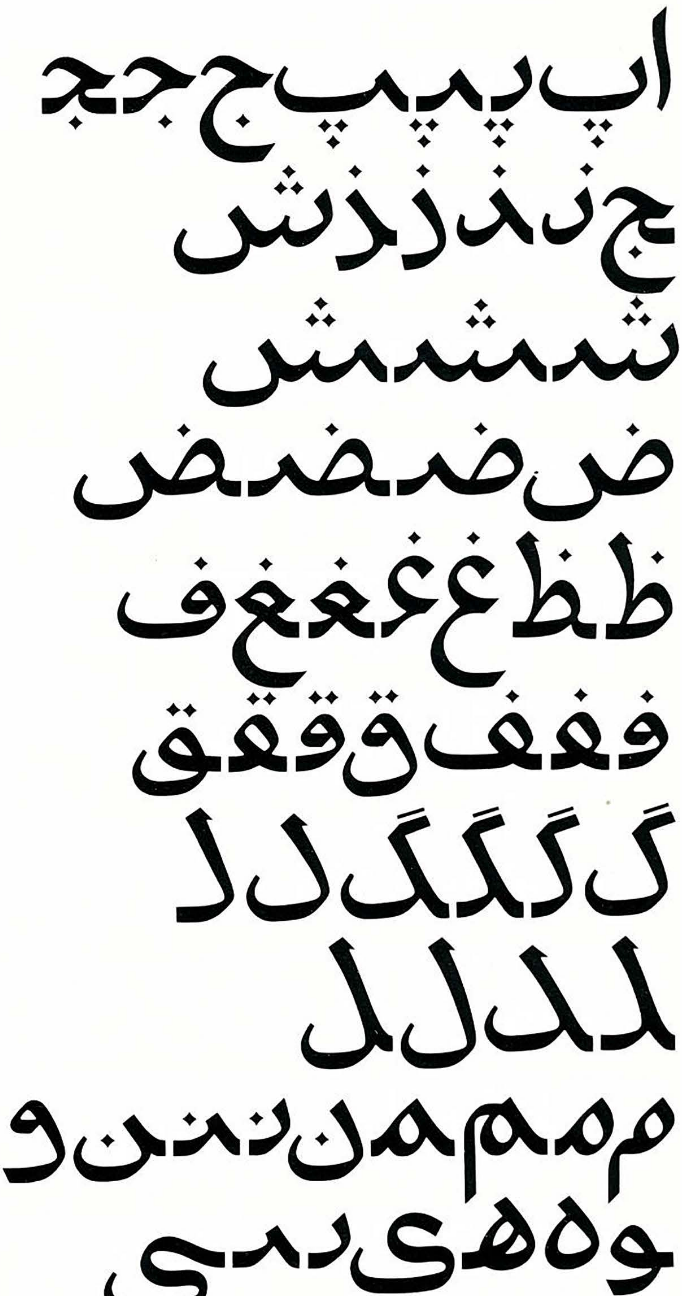
АБ
ВГДЂЕЖЗИЈК
ЛЉМНЊОПРС
ТЋУФХЦЧЏШ
абвгдђежзијкл
љмнњопрстћ
уфхтпћнц

Cyrillic alphabet based on the typeface 'Compacta,' designed by Fred Lambert

Cyrillic alphabet based on the typeface 'Helvetica,' designed by Fred Lambert



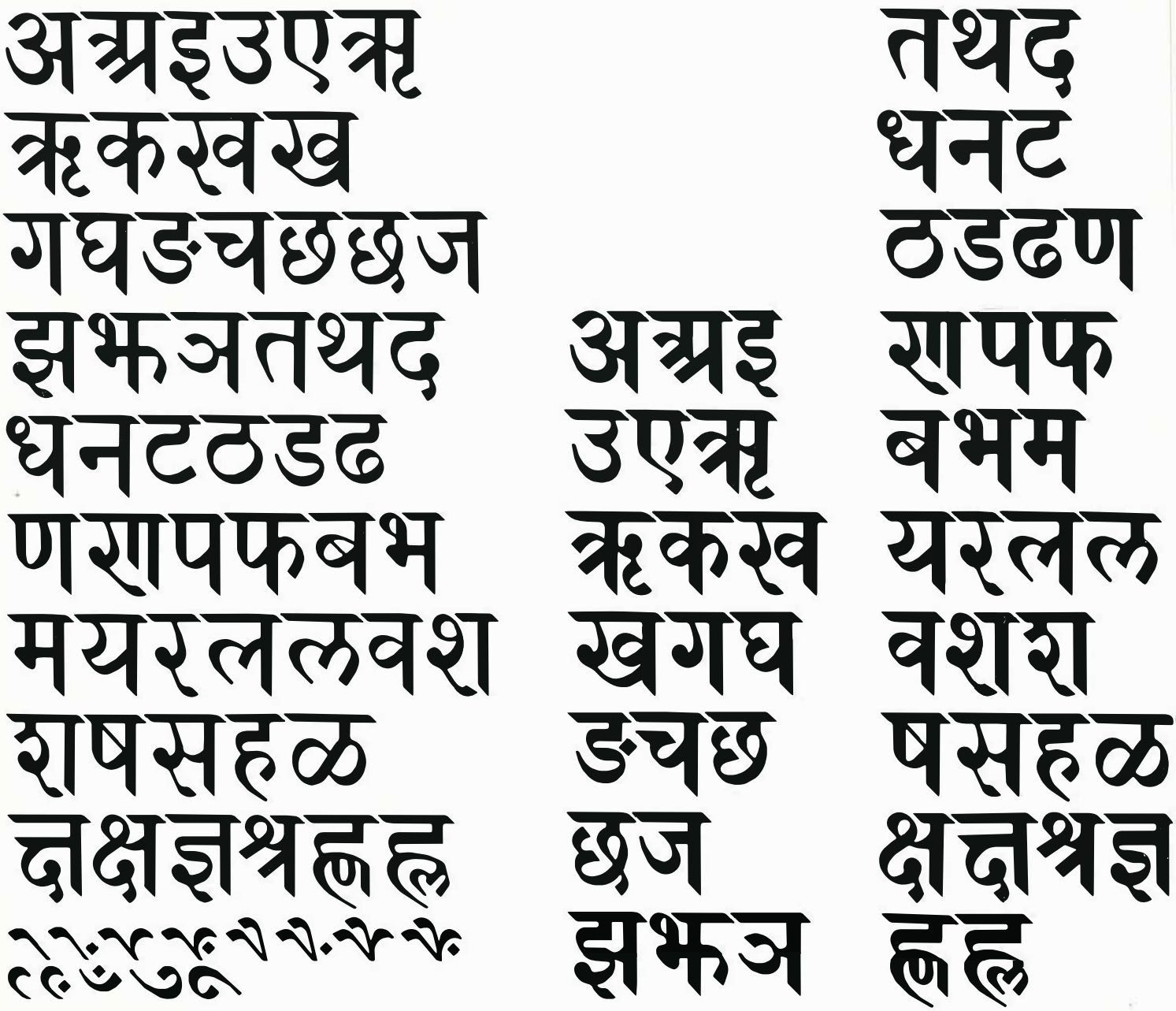
Above, Pushpa—Devanagari, designed by Fred Lambert. Below, Sarswiat—Devanagari, designed by Usha Agarwal



Above Kahlil—Farsi, designed by Usha Agarwal

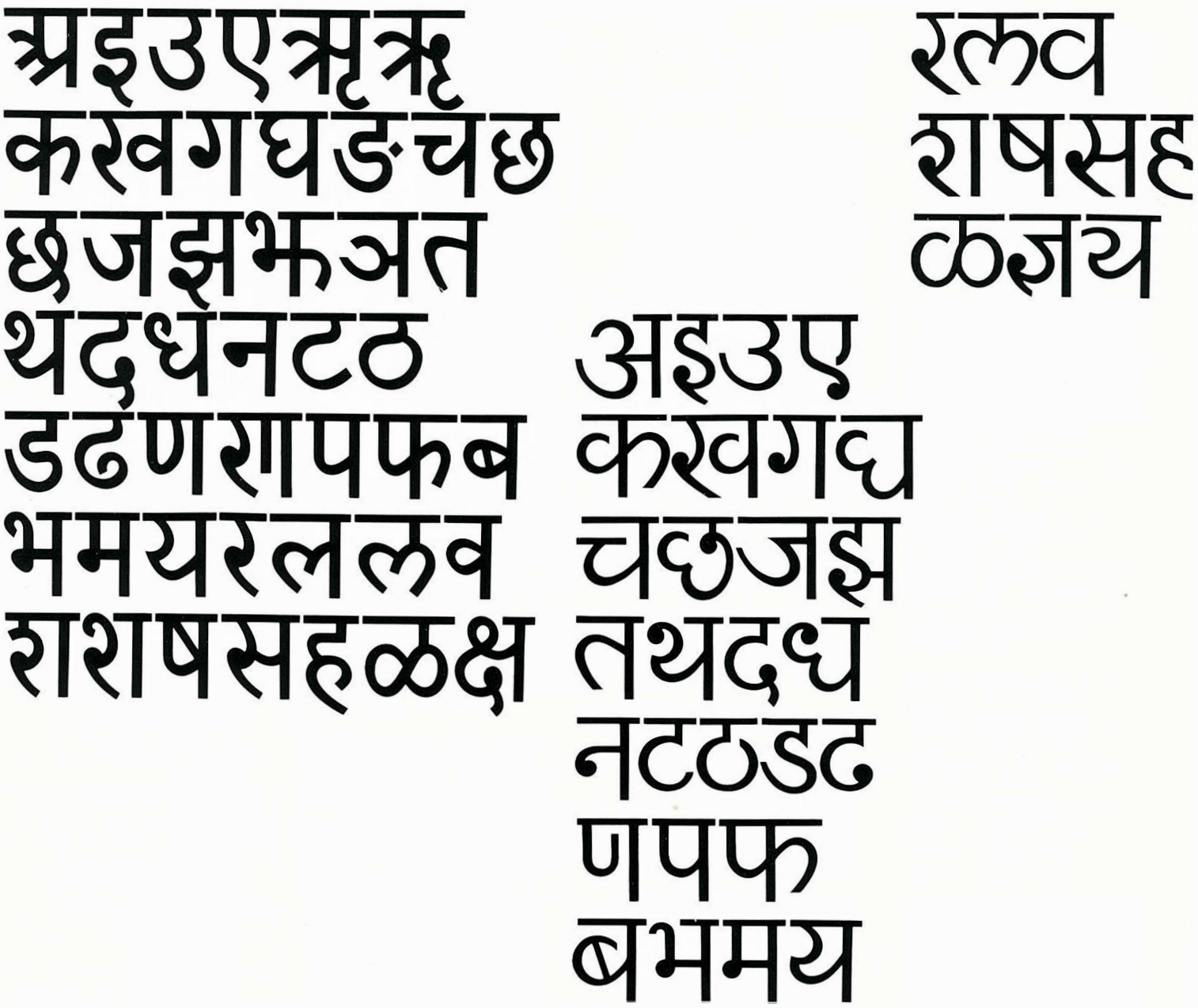
Type research at the London College of Printing

The Indian alphabets shown here have been designed by Usha Agarwal, with the advice of the All India Typefounders Association and leading Indian calligraphers. They are to be drawn for computerised setting and have been researched for readability and clarity. All the main Indian languages are to have type designed 'in series.' Only the main characters are shown here because of the large number of half and compound characters involved. Founting, keyboard layout and typographic rules have also been devised for all these languages.



Modi—Devanagari, designed by Usha Agarwal

Modi Bold—Devanagari, designed by Usha Agarwal

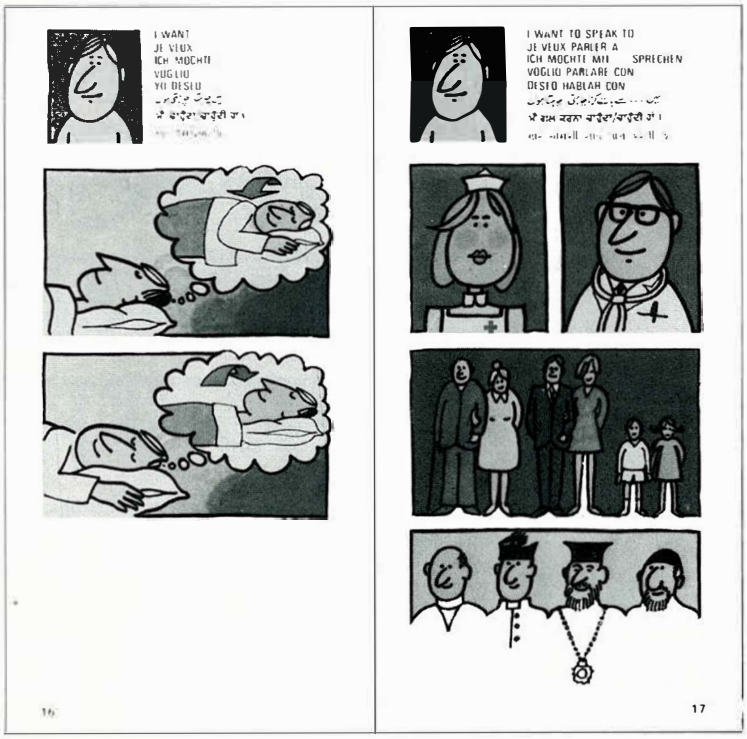


Kalpana—Devanagari, designed by Usha Agarwal

Tanjore—Devanagari, designed by Usha Agarwal

Tell us what's wrong in Pictures—a medical phrase book

We show here four double spreads from a recently produced booklet devised by the Health Education Council of Great Britain.
The booklet is an attempt to use picture language to enable non= English speaking patients in British hospitals to communicate with doctors and nurses.
The Consulting Editor for the venture was Dr Eric Trimmer.



Computers and laser technology speed up Chinese printing

The British printing company Monotype has sold its laser-printing method of computerising the Chinese language to book publishing houses in Peking and Shanghai.
Now it is negotiating computer type-setting for Chinese newspapers outside China and expects to complete more orders shortly.

Professor Brian Gaines, Monotype's technical director and deputy chief executive, who has recently returned from China, explained the delicate problem of trying to please everyone over the political implications of the Chinese language.

The printers wanted about 60,000 characters available to the computer system, but there was puritanical opposition on the ground that such profusion would be "putting China back." There were demands for restriction to the 4,000 characters used in newspapers.
(Chairman Mao restricted himself to 3,006). The compromise result was: 8,000 characters immediately available on line with another 15,000 characters obtainable on the keyboards from storage.

Because of the problems of getting the many and complex characters of the Chinese and Japanese languages onto a computer keyboard —most Japanese computer systems still use English, and most Chinese newspapers are still produced by manually picking out each bit of type —the printers literally roller-skate along rows of cabinets.

Several ideas have been tried to beat the problem, one of them from Cambridge University. Monotype's solution comes from Professor S C Loh, of the Chinese University of Hong Kong.

It is dazzlingly simple: instead of having a separate key for every character, each ideogram is constructed by a sequence of key-strokes. In effect, the operator draws the character by choosing each element in the traditional sequence taught at infants' school.

Computer printing represents a considerable advance over existing mechanical methods—even with roller skates, it takes about 30 hours to get one edition of the *People's Daily* into type.

A Chinese typewriter, for example, has approximately 2500 characters with two supplemetary founts of 1200 characters. The typewriter has only one 'key' which operates a long arm which claws up the required ideogram. However, the typewriters tend to become personalised; the typists like to set out the founts in their own fashion so that no other typist can readily use the machine. This method produces about a thousand characters an hour—nearly four seconds per character.
Loh-style computer keyboards, linked to laser printers, enable the operator to produce 3000 characters an hour.

The systems installed in Peking and Shanghai were first used in the summer as demonstrations for the Chinese printing industry.
These demonstrations included a phone-line data link between the two cities so that material keyboarded in one could be printed in the other.
The systems began their proper work, printing books, last month.

Monotype first demonstrated the system to a Chinese government delegation at a printing conference in Hong Kong last December.
The company sees a market not only in printing (there are more than 300 Chinese language newspapers around the world) but also in word-processing systems, where the computer replaces the office typewriter.

New ways to view world problems

icographic 14/15, 1979

To understand and solve problems, policy makers and researchers often spend countless hours examining reams of reports. Similar efforts may be occurring almost simultaneously in different countries and organizations.

Is there a better way to convey essential information to people worldwide?

To explore that question, the East= West Centre's Open Grants division invited five visual communicators from the USA, Japan, India, and Iran to become research fellows and work as a team.

From various disciplines, the team members were: Dr Shyam S Agrawal, an audiovisual specialist from the Central Electronics Engineering Research Institute, Pilani, India; Dr Mei-Ling Hsu, professor of geography at the University of Minnesota; Coordinator Aaron Marcus, a graphic designer formerly an assistant professor at Princeton University and now in the College of Environmental Design at the University of California, Berkeley; Yukio Ota, art director of the Advanced Social Planning Institute in Tokyo, Japan; and Dr Ebrahim Rashidpour, head of the Educational Technology Centre at the University of Tehran, Iran.

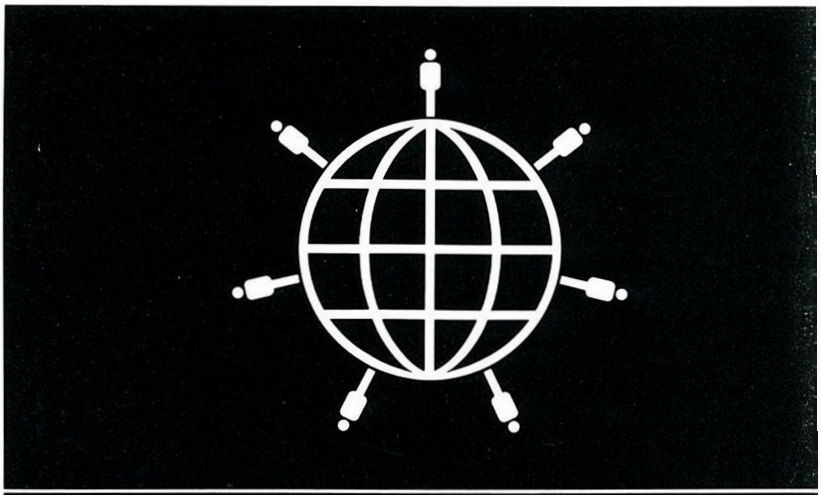
For four months, they reviewed existing international symbols and visual languages, studied more than 500 pictograms and 200 composite images, revised and refined 70 of them and, in effect, developed a new visual language.
They then organized the symbols and images into a carefully positioned and timed sequence to convey complex concepts about the inter-dependence of nations and peoples, with emphasis on the energy crisis.
The result was a single-screen slide show, a show that depends primarily on images, not words, for communication.
To enhance impact, all images (except a colour photograph of the earth) appear in black and white, with the images as white symbols against a deep, black background.
Thus, in a darkened room, the viewer sees only the stark reality of facts, concepts, and significance of global interdependencies.

The show may represent a new dimension in international communication. At the very least, the team hopes the show will inspire other academic, research, professional and governmental organizations to visualize their own concerns more effectively.

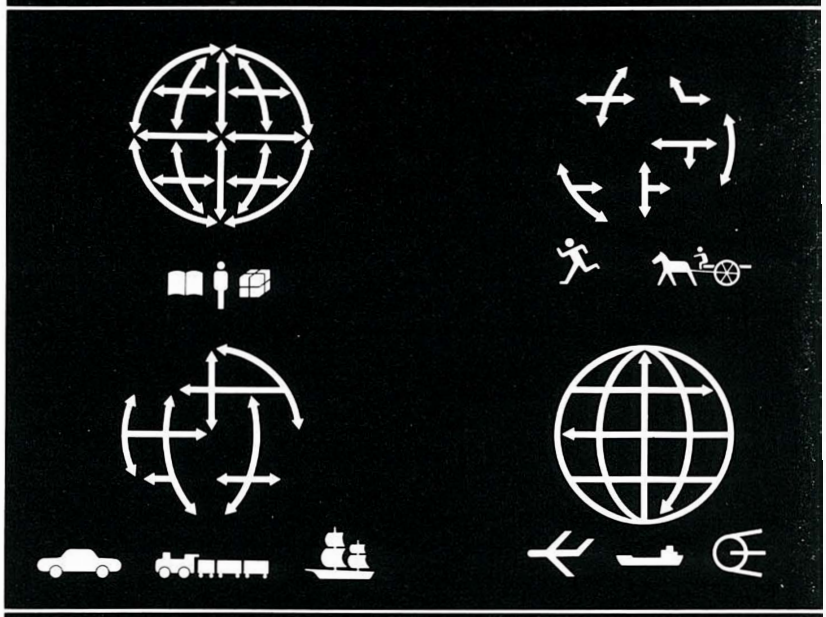
Excerpts are shown on the next seven pages. We have added narrative material to link the excerpts and describe the symbolism.

Visualizing global dependencies

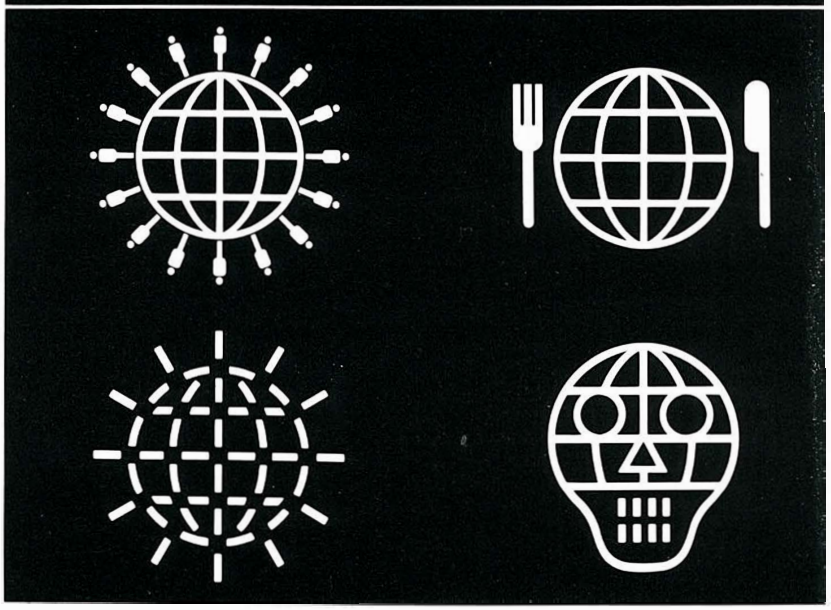
The earth,
a home for more than four billion people,
is a place of greatly increasing
diversity and complexity.



Ideas, people and goods are moving faster
and faster and intermingling.

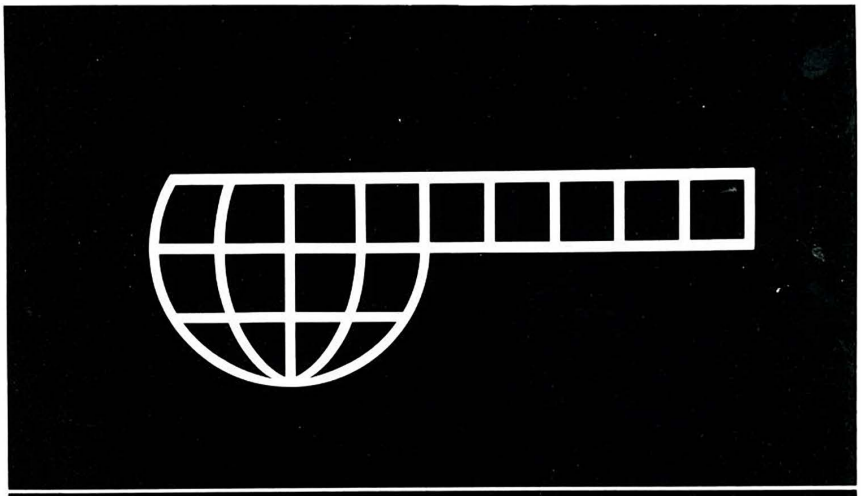


There are rising challenges in the changing
world, caused by global situations
of population, food, energy
and environmental pollution.

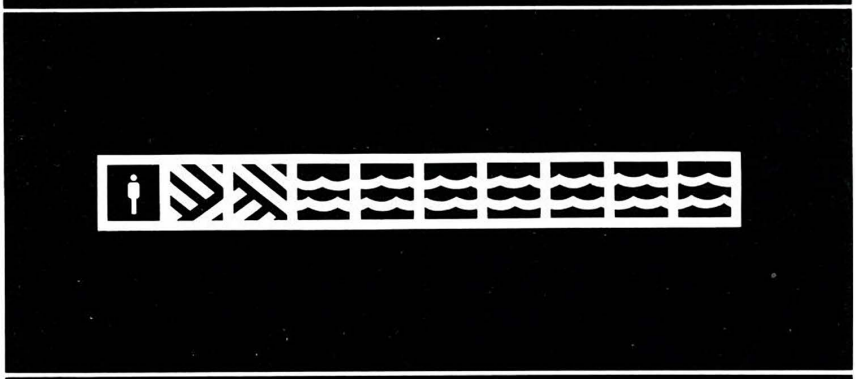


Population

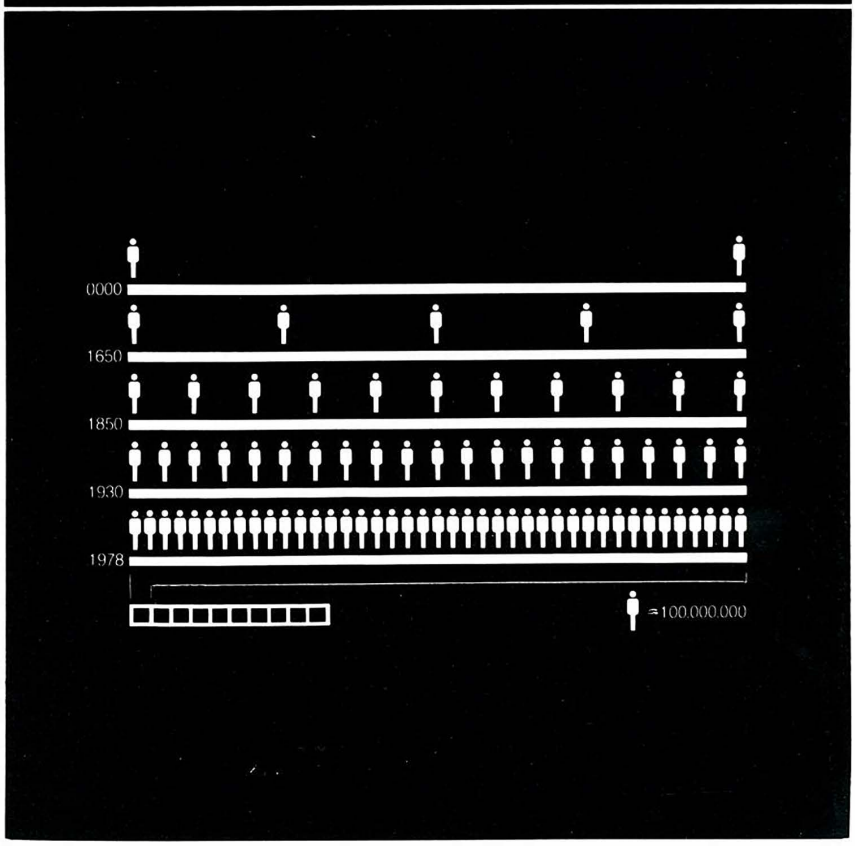
As we unfold the earth. . .



. . . we find that it has limited usable land
and resources,
that populated areas comprise
only one tenth of the global surface.

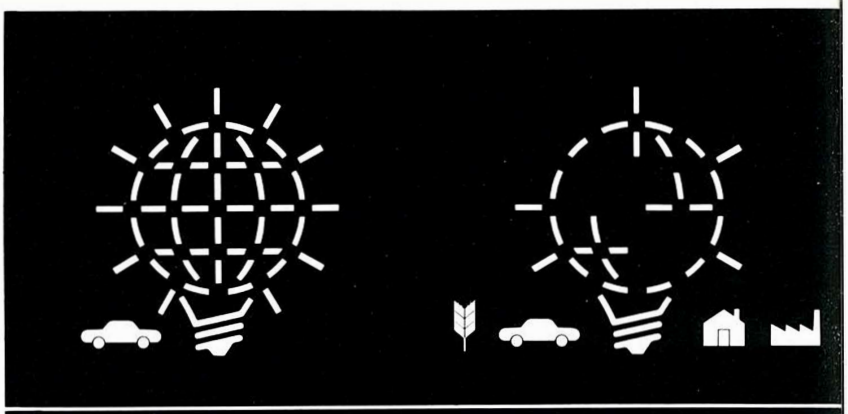


The world's population has doubled four
times in the past 2000 years.
Each time, the doubling has occurred at
an ever-increasing rate.

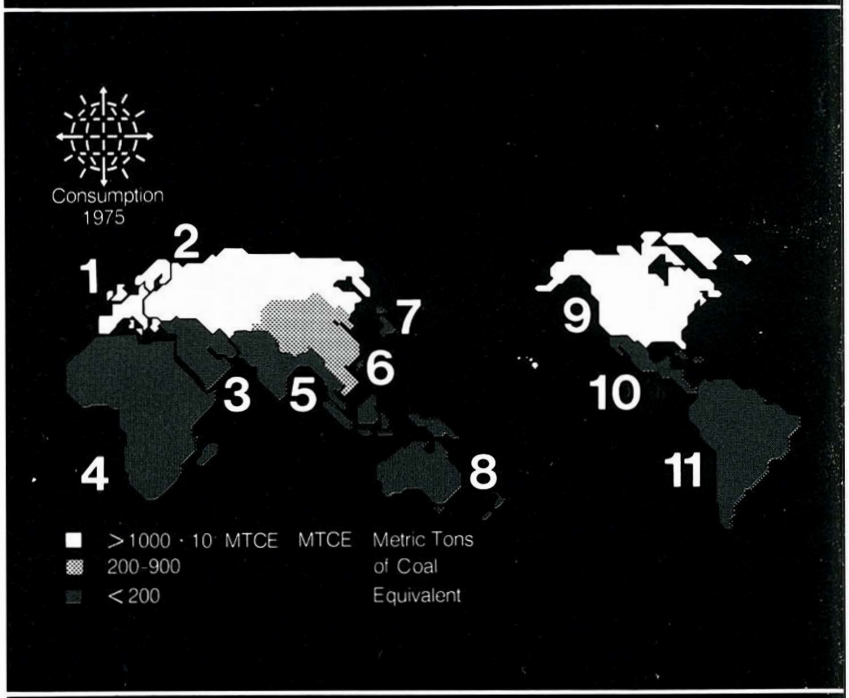


Energy

Population growth raises several concerns and challenges.
One is the increasing use of energy for agriculture, housing, transportation and industry.



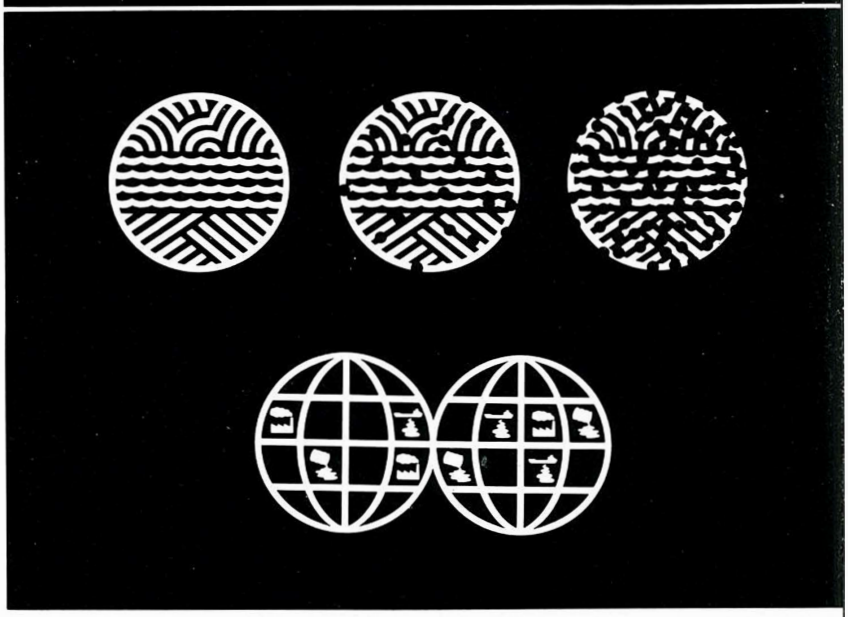
Some regions consume much more energy than others.



Pollution

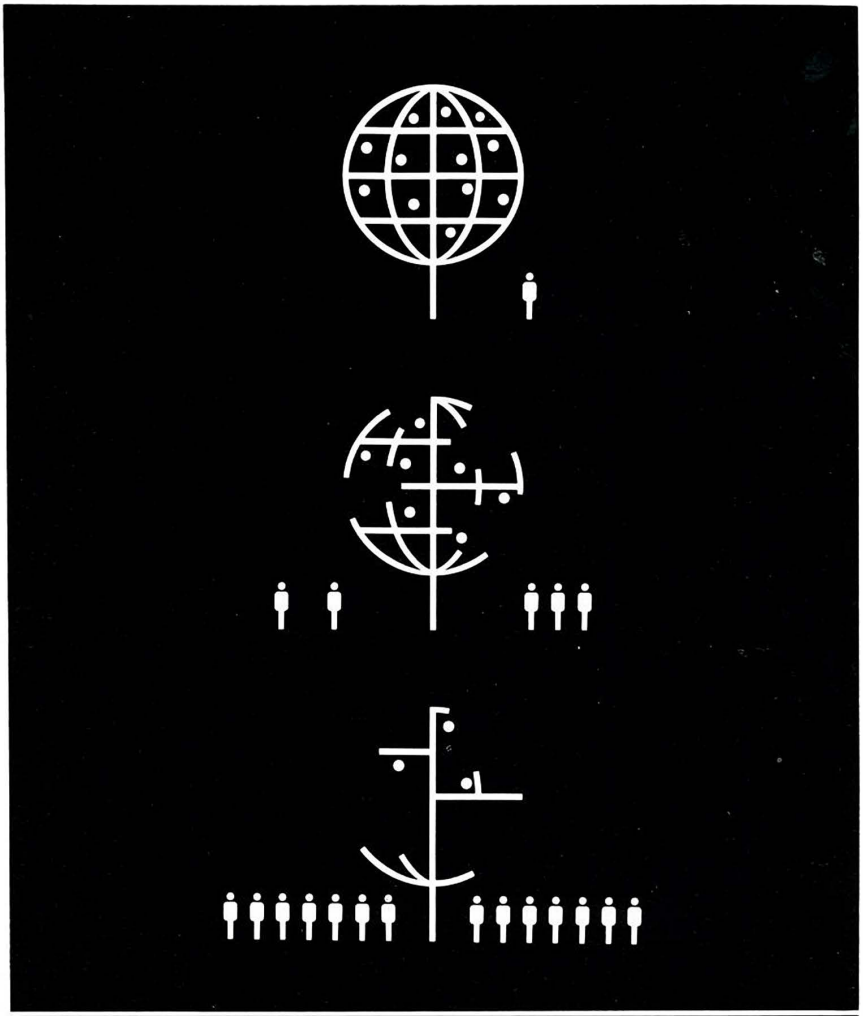
Heavy consumption of certain kinds of energy depletes limited resources and increases pollution of air, water, and land.

Pollution in one part of the world can affect the other parts.

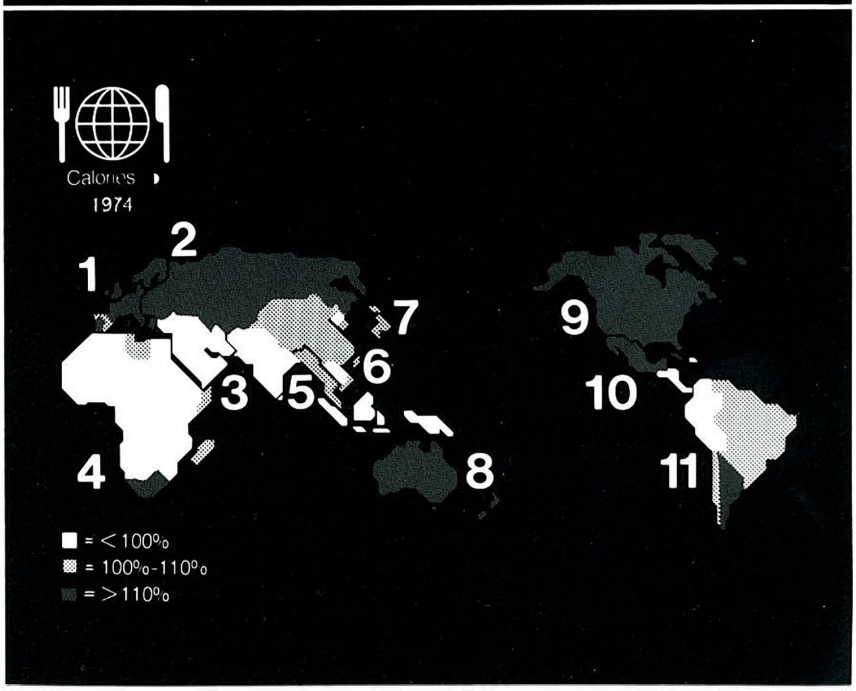


Food

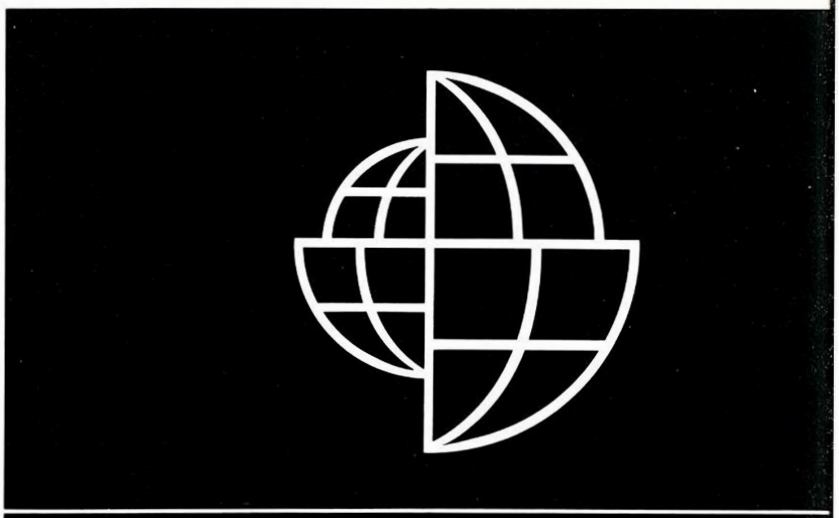
Global food supplies are progressively weakened by increased population.



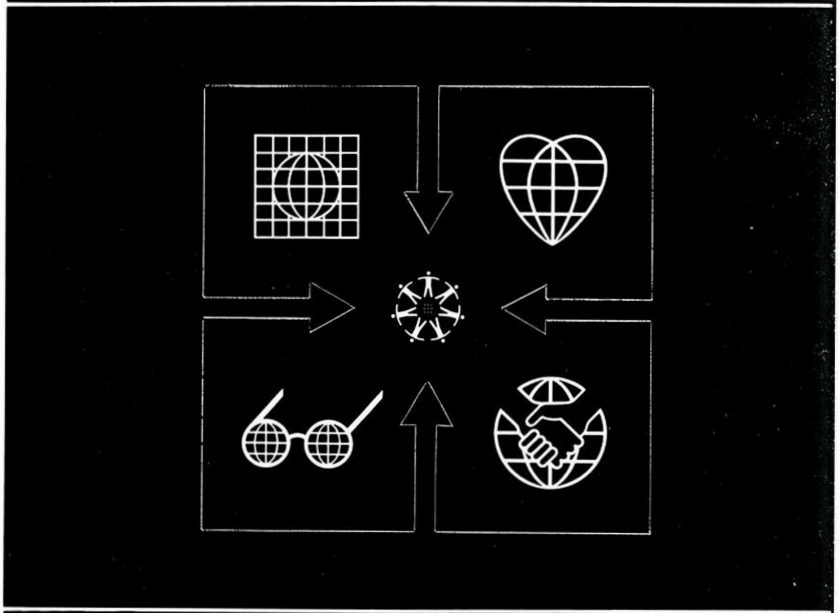
People in some regions of the world consume more than adequate supplies of calories;
people in other regions don't get enough calories.



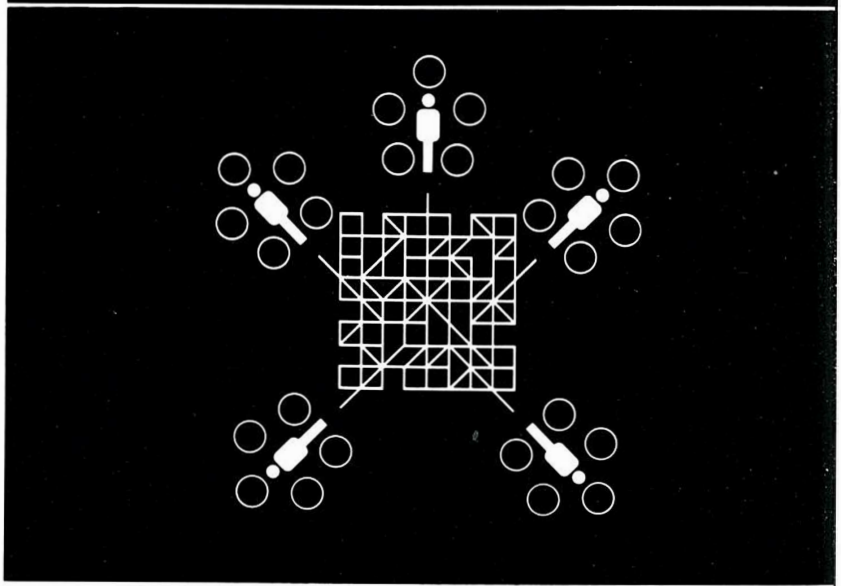
Because of problems related to
population, food, energy, and pollution,
there are scarcities and imbalances
in the world.



Solutions to these problems will require
more and more global interrelationships.
We need to view the world as one system.
We need a new global ethic
and global cooperation.
Only then can we fulfil the basic
needs of all people.

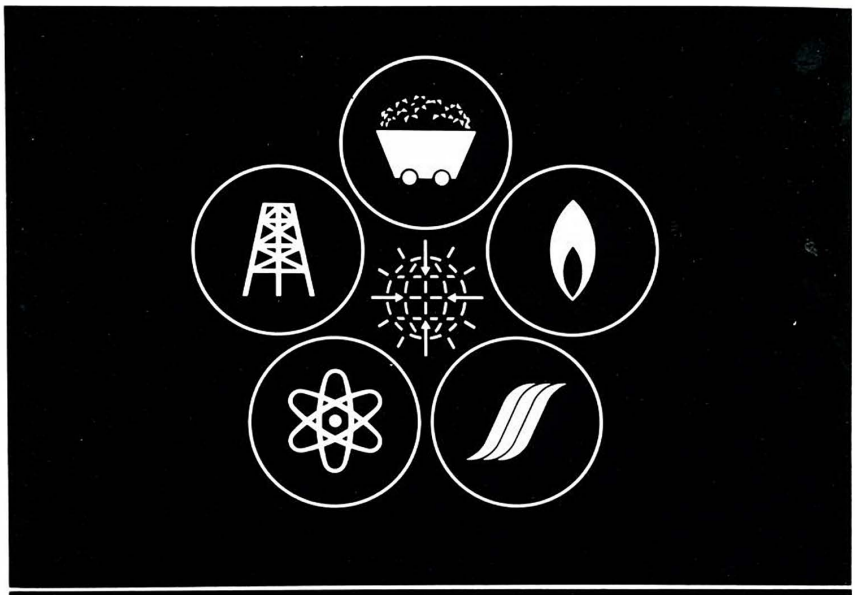


The needs of one person and one nation
are related to the needs of other
persons and nations.
The problems of global planning become
immeasurably more complicated
when the needs of all people are
integrated into global solutions
to global problems.
The solution of one problem is related
to the solution of other problems.



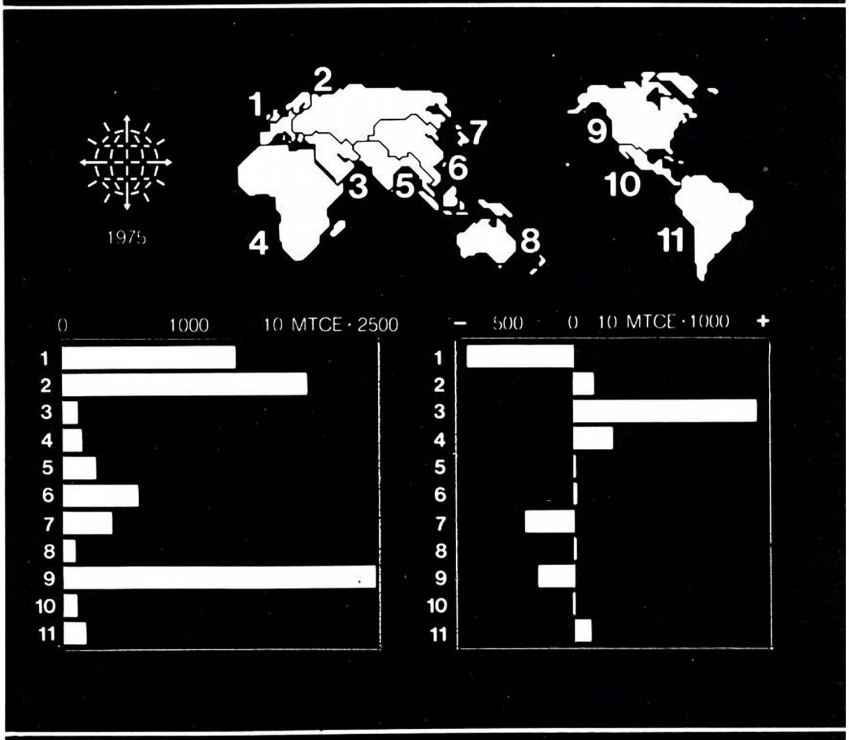
Global interdependence from the energy perspective

Conventional sources of commercial energy include oil, coal, natural gas, hydroelectricity, and nuclear power.

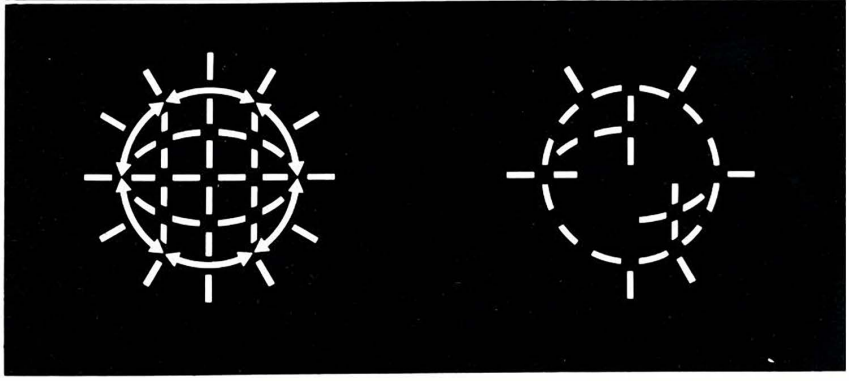


The energy each person consumes is different in each region of the world. (See chart at near right).
Some regions consume more than they produce.
Others export their excess production. (See chart at far right).

With uneven consumption and production, energy cannot flow without global cooperation.

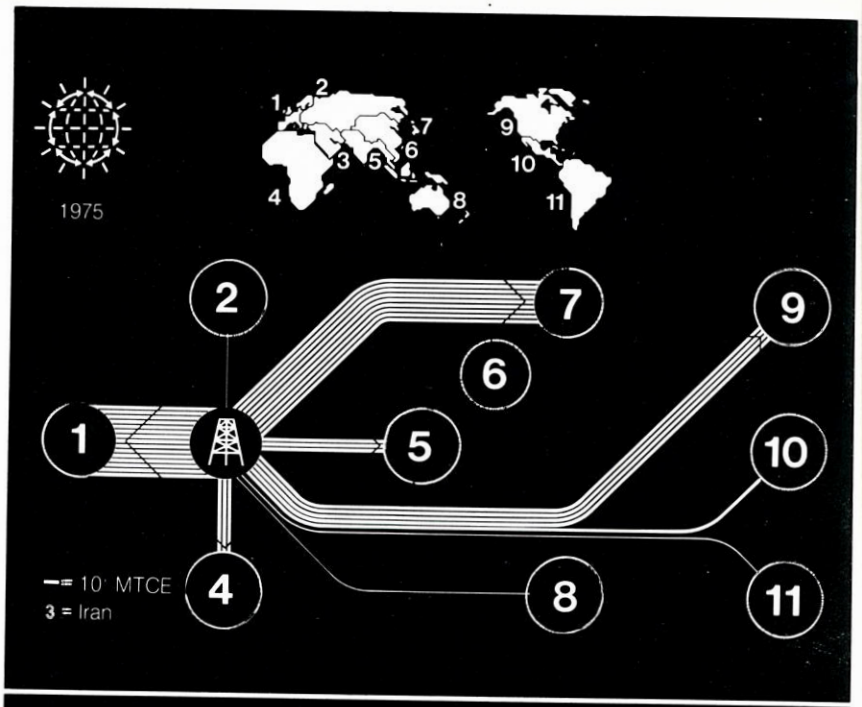


In the recent past, world energy consumption has been increasing rapidly, This is leading to the depletion of energy resources.

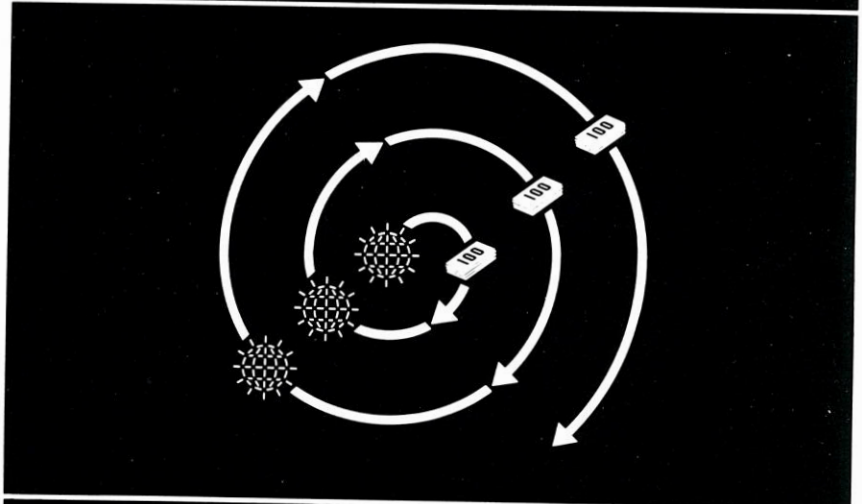


For further information about the show, please write to "Open Grants, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96848."

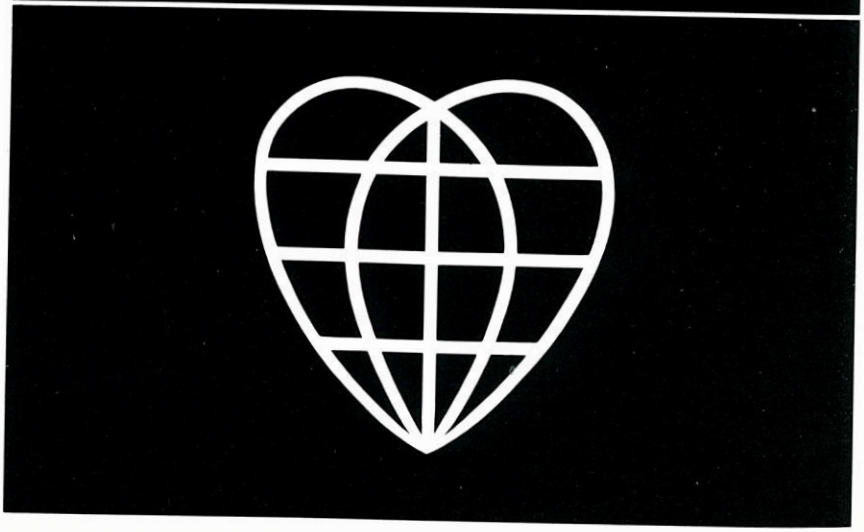
The movement of oil from Iran to other regions (1975) is an example of the interdependence of regions.



Energy shortages cause increases in prices not only of energy but also of other commodities whose production requires the use of substantial energy.
The impact of energy on the environment is another global concern.
But energy is very important for economic development.
We seem to be caught in an endless spiral.



The global energy situation requires us to share the earth's resources rationally and equitably.
The energy problem is linked to other interdependency situations such as food, pollution, and population.
Solutions to these interrelated global problems can be achieved only in a spirit of interdependency, mutual concern, and cooperation among people across national boundaries.



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Consejo Internacional
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Secretariat
Marijke Singer
Warren House St Paul's Cray Road
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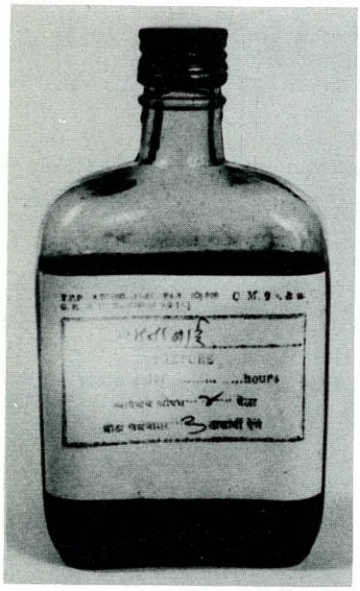
Signs of hope—good news for Bombay outpatients

Stephen Raw

The author examines a recent proposal for labelling drugs for a Bombay hospital outpatient's department. The solution employs a well-founded graphic system using symbols but without overlooking the very particular locality in which it is to work



Above, the label as in use today

There are 600 million people in India. 456 million of them are illiterate. In Bombay the proportion is considerably higher.

Imagine yourself as one of these unfortunates. Worse still, you need medical attention. But you're lucky enough to live in Bombay, a large city with some form of free medical treatment. At the hospital you wait your turn to be seen, It's crowded. Patients, doctors, nurses come and go, doors open and shut, people's names are called. You become confused—even frightened.
At last a doctor examines you, diagnoses the trouble and writes a prescription telling you when to take the medication and in what doses. Now more waiting while the drugs are prepared. Eventually, your name is called out from the dispensary and an anonymous hand pushes the bottles through the hatch. You've forgotten what the doctor said so you attempt to ask the pharmacist to decipher what is on the label. He's busy and cannot give more than the briefest of explanations. But by now, in your state of near despair you need someone's undivided attention. Instead you leave the hospital in nothing short of a quandrary.

A stone's throw away from the Sir J J School of Applied Art in Bombay, hospital staff have been increasingly aware of the inadequacy of written instructions for many of their patients. Doctors found that medication was not taken or taken in the wrong mixtures or quantities. Small wonder that newspapers periodically carry reports about deaths by poisoning. Yes, the label has the word 'poison' written in seven languages but to no avail. However many languages, they would never convey the idea of danger to someone who could not read. Without exaggeration then, into this 'life and death' situation the School was invited to design a system of labelling all the drugs dispensed from the hospital in a mannner that would facilitate correct intake of application of the given preparations.

The students who undertook the task set-to with enthusiasm and determination. But their entusiasm led them, in the words of their professor, 'to design without removing their *Graphis*-tinted spectacles.' The results were pretty to look at but design failures.
Some betrayed their obvious Western influence by using symbolic knives and forks—something meaningless to most Indians who only use their right hands to eat with!

Professor Sathaye decided to do the job himself, and in this case to teach by example. Before making marks on paper he went along to the hospital (something the students had overlooked to do) and there identified the confusion that accompanied a visit to the doctor outlined above. Even the hospital had missed this important stage in the process. They had seen the waiting room every day but had not, as the designer must do, put themselves in the position of the recipient.

In the manner of classic design work the solution was not far behind the problem, once articulated.
Here non-verbal symbols had to be found that would be of relevance and meaning to the patients in question. A system of consistency and application was then required to make the thing practicable.
The simplicity of the solution, as so often happens, betrays the work involved but not its potential effectiveness.

To take one example of the problem; some medicines need to be taken before a meal, some after. Now even the most humble Bombay household provides a drinking vessel and a finger bowl of some description with the meal, which beforehand stand either side of the plate or dish. After the meal they are empty and in the same way that Westerners signal the end of the meal by putting their knife and fork together, so the Indians place their cups inside the dish. I say 'Indians' loosely but how do I know, how does Professor Sathaye know that this is how they finish their meals in Calcutta?
The answer does not matter for this is not a grandiose system devised with an eye to international or even national use. This work, quite simply, recognises one of the essential elements in any design solution—that of correct scale.

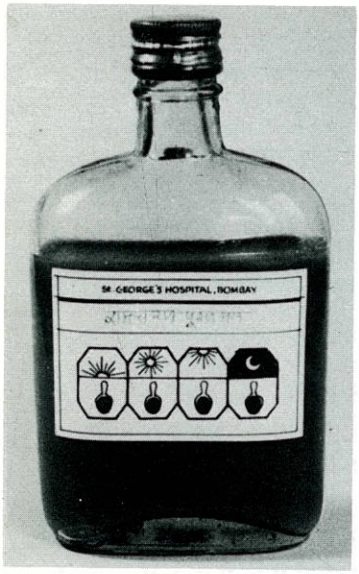
One symbol, that of the sun, comes from local folklore tradition called *Tantric*. These sophisticated forms are somtimes used on doorsteps or thresholds, often being marked out in salt to ward off evil spirits and invite good luck to rest on that house. They have provided the designer with a *local* answer to a *local* problem. Only by living in that particular culture can he utilise such information knowing it to be effective communication. How could it be otherwise? And yet when we examine much of the design work around us, it is imposed on the situation from outside. Indeed that sort of scepticism remained when I saw Shri Sataye's choice of a skull and cross-bones to denote poison.
Surely, I said to myself, he too has, in this one respect, succumbed to temptation and borrowed a western piece of symbolism.
Later, still very doubtful whether the illiterates of Bombay would have heard of, or seen anything like the 'Jolly Roger,' I visited the rock-cut temples on Elephanta Island.
There at the zenith of Hindu sculpture was the god Siva displaying in his head-gear a beautifully carved skull and cross-bones some 1,400 years old!

Another important aspect of this design solution is that it does not try to change the workings of the hospital—although it would not be the first time that radical change has been spurred by 'humble graphic beginnings'—rather it accepts the situation and attempts to eradicate or reduce the problems.
So the patients still have to mark time in the waiting room, but with the aid of educational charts they can profitably use this period learning or clearing up anything which they do not quite understand. If still not sure, the patient has the opportunity to check the label with the chart before leaving.

That same acceptance of the situation as it is, holds true for the overworked pharmacists.
Pre-printed labels or outlines to be filled in are quickly selected and torn off perforated sheets, much like large postage stamps, and stuck on to the bottle.

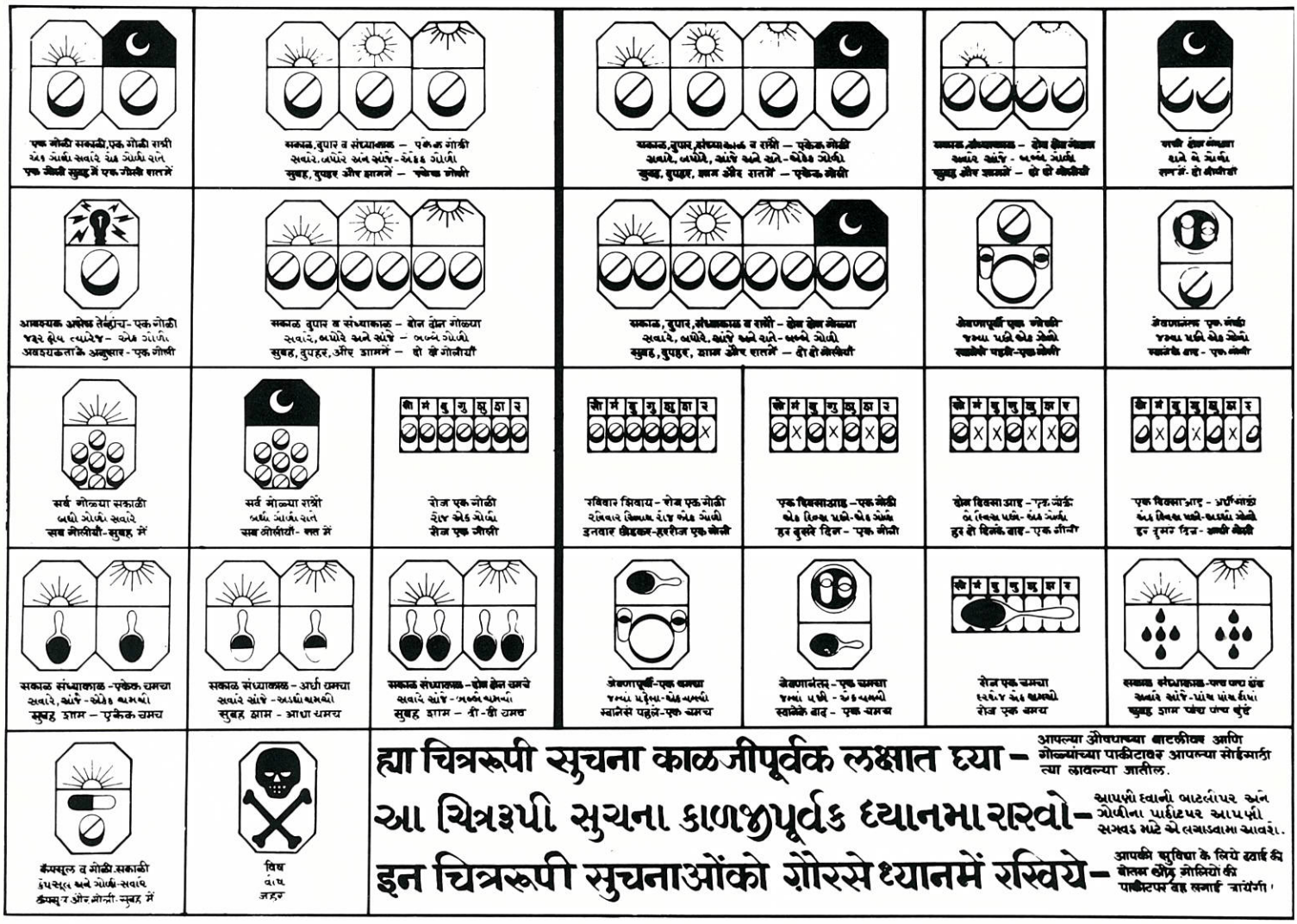
The cost for launching this scheme has been estimated at Rs 35,000, most of the money being allocated for advertising and educational publicity. Coverage of the idea has been given by the *Times of India* and at present the system is being prepared again for submission to the World Health Organisation.
One hopes they will see the scheme as a worthy contribution to true community medicine.

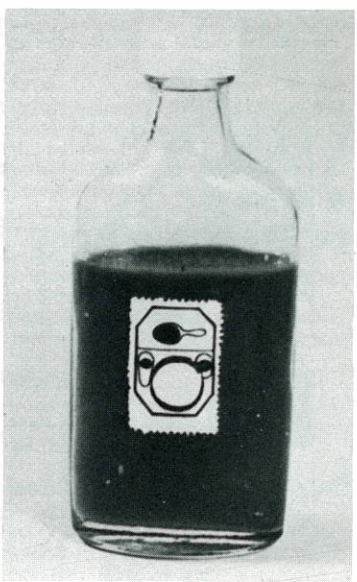
Below, the redesigned label with symbols indicating that a tablespoonful of the medicine should be taken four times per day

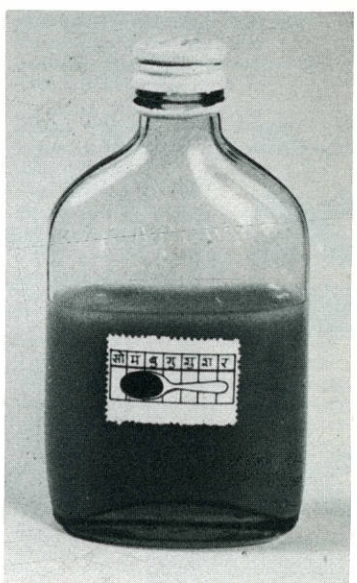


A chart setting out the proposed symbol system. Although the written explanations are in Devanagari script in Hindi, most readers should find the coding self-explanatory. Below, bottles and packets, showing the proposed 'stamps.'

icographic 14/15, 1979
Author's address:
Faculty of Art and Design
Department of Communication
Arts and Design
Manchester Polytechnic
All Saints Manchester M15 6BR
England



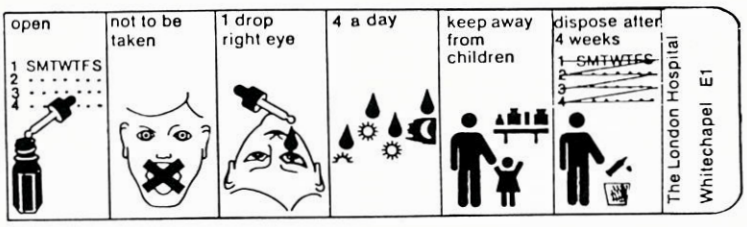




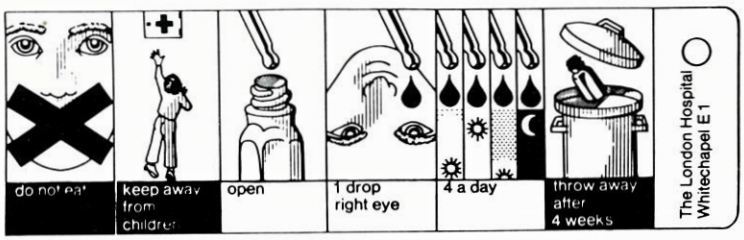
Pictorial prescription labels

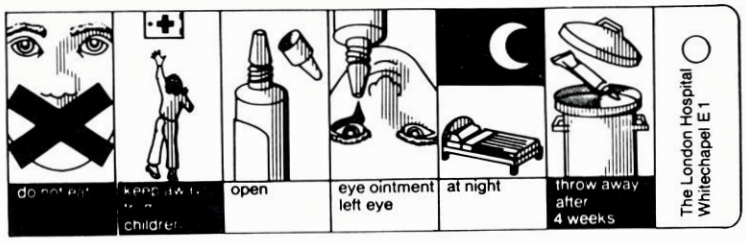
Jeremy Bratt

The author, who was formerly at the Central School of Art and Design, London, has been writing a post-graduate thesis on the design of prescription labels

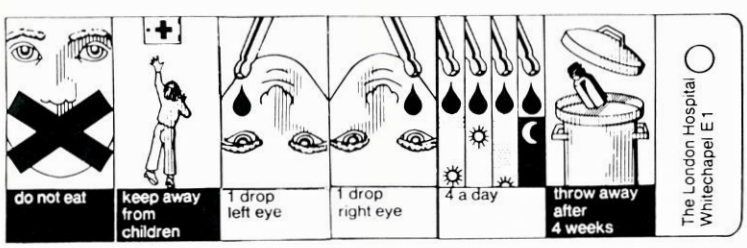


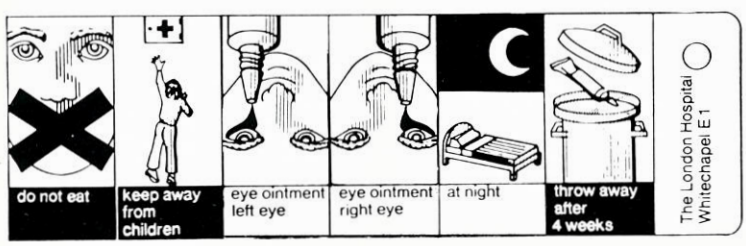
First prototype pictorial label
Figures 1a and 1b





Second prototype pictorial label
Figures 2a and 2b





Third prototype pictorial label
Figures 3a and 3b

Why research is needed

At present, all labels in Britain, both prescription and non-prescription products, presume literacy of the patient; they mean nothing to those who cannot read.

In the United States of America several studies have been conducted into the number of patients who make errors in taking prescribed medications. In contrast, little work has yet been done on this subject in the United Kingdom, except on the degree to which pregnant women follow their prescriptions for iron pills. None of the studies so far conducted takes into account the level of literacy of the patients who make errors in following their prescriptions. Results in the United States demonstrate that most errors are made in large cosmopolitan communities. The following figures for three American cities show the approximate percentages of their population who made errors in the early 1970s.

Kansas City	25 - 30%
Seattle	60 - 65%
New York	80 - 85%

The figure for New York reflects the existence of many people in its large cosmopolitan 'ghetto' areas who neither speak nor understand English adequately and who fail, therefore, to understand the instructions written on their prescriptions.

In the United Kingdom as a whole there are two-and-a-half-million officially know adult illiterates, both immigrant and indigenous. There are certainly many more who are not recorded in official statistics. The London Hospital, Whitechapel, is faced with a substantial problem in this respect among out-patients. This is because many people in the East End of London which it serves are immigrants from Asian, African and West Indian countries. These immigrants, while usually literate in their own languages, often have difficulty with English and many are officially regarded as illiterate. Many other adults in this area are illiterate, either as a result of inadequate education or bad health. After comprehensive discussions in which members of the London Hospital Pharmacy department pointed out that—for obvious reasons—the problem reached its most extreme form in the case of illiterate ophthalmic out-patients, it was agreed that there was a very real need to improve the present prescription labels.

The system in use at present

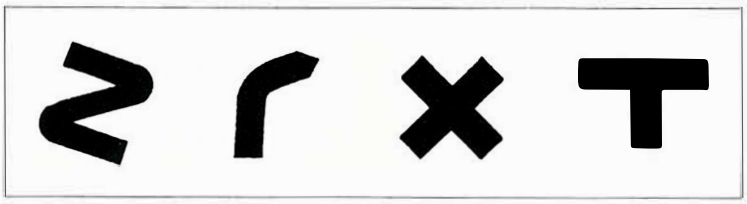
Nearly all ophthalmic prescription labels currently in use are completed by hand, many on printed forms which give a number of alternative instructions of which the pharmacist deletes those which are irrelevant. This process, and the writing of any

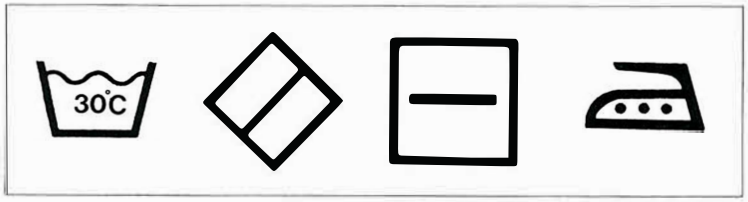
icographic 14/15, 1979
Author's address:
25 Herrick Road
London N5 2JX
England

additional directions needed, are carried out under poor conditions. The pharmacist writes standing up; working conditions are overcrowded, especially at lunch time and in the late afternoon when many patients call for their prescriptions; lighting is poor. These trying conditions contribute to the deterioration of the pharmacist's work. Labels are checked for errors, but there is little control over illegible hand-writing. Given these conditions, the introduction of a standardized printed label would greatly ease the task of the pharmacist and help increase his efficiency. The slow process of writing labels by hand results in slow dispensing and, therefore, in long queues in hospital pharmacy departments. Besides wasting the patient's time, this may also reduce his understanding of his prescription. Having had a long wait for his medication, probably after a long wait for his consultation with the doctor, the patient may be too bored or impatient to pay much attention to the verbal instructions given him with his prescription. It may be only on reaching home, after a long and tiring day at the hospital, that the patient examines the label on his medication only to find that he cannot understand it and has forgotten what he was told.
He may then either misuse the medication, thus wasting both it and the pharmacist's time in dispensing it, or he may return to the hospital and demand yet more of the pharmacist's time when he asks for another explanation on how it should be used.

A postgraduate experiment for the Central School of Art and Design was accordingly carried out by the writer in 1975-7, the aim of which was to design a new prescription label conveying its information by clear diagrams and minimal clear text so as to be understood by the widest possible range of people. This, it was hoped, would help decrease the number of errors made in the self-administration of medication by both illiterate and literate out-patients and also enable the pharmacist to pass on his instructions to out-patients quickly and efficiently and in a manner which the patient cannot fail to understand. This can be called 'Vernacular Graphics,' in contrast to the highly stylised, conventional forms which have been adopted by the International Organization for Standardization and which are not always easily understood by those unfamiliar with them.

Progress of the experiment
The mistakes made by patients taking prescribed medications fall into four main categories: errors of omission, of purpose, of dosage and of timing. These errors may arise from the patients' inability to understand instructions owing to





4a Series of bends *4b Right bend* *4c Crossroads* *4d 'T' junction*

5a Washable *5b Launder with care* *5c Dry flat* *5d Use hot iron*

their illiteracy; to their illness itself, eg, in ophthalmic cases because of their poor eyesight, which makes it difficult for them to see small diagrams and instructions written in small print; to the bad design of the label on their prescriptions; to the inadequacy of the explanations given them by the doctor or pharmacist; to a combination of some or all factors. The scope for error tends to increase with variety of medications prescribed.

An analysis of labels from the Ophthalmic departments of various London hospitals showed that the information which had to be included could be conveniently divided into the three following categories:

—the type of medication and the amount to be taken: **What**
—the route of the medication: **Where**
—the timing of the medication: **When**

These three categories were studied as separate problems but, from time to time during the study, the designs proposed to convey information under these three headings were examined together in order to ensure uniformity in style between different parts of the various prototype labels. Both the Pharmacy and the Ophthalmic departments decided to include the following cautionary information:
Not to be taken
For external use only
Keep away from children
Dispose after four weeks

The results of the test of the first prototype label (figures 1a and 1b), on 100 illiterates (graph No 1) showed that there was considerable scope for improving comprehension of some sections of the label
The worst results were on the **When** part: on the calendar sections of the designs for 'Open' and on 'Dispose after four weeks.' Several changes in the design were made in the light of these results. First, the lack of uniformity in the design of the label was considered muddling, with its two different styles of drawing, uncontrolled line drawings and filled-in solids. Secondly, an important general point was whether or not to use background shapes in order to distinguish instructions from cautions and to emphasise the latter. We considered using one or two background shapes—either a circle or a triangle—for the cautionary information, but it was felt that many patients, unfamiliar with international symbols, would probably be more confused than helped by background shapes of this kind. Thirdly, a general point was researched at length:
to find the best wording to use in the small portions of text on the label in order to make it as simple as possible to understand. The basis of this research was a study of the 'Social Sight Vocabularies' which are taught to adult literates. These are lists of specially chosen key words used by tutors on literacy schemes. Literacy tutors suggested that the completed texts should be placed beneath rather than above the illustrations, in order to draw the attention of illiterate users of the label to the illustration before the text.
The text on the instructional information, (What, When, and Where), remained untouched as it consisted of simple words. The cautionary information was altered as follows:
Not to be taken became **Do not eat.**
The statement **Keep away from children** was left untouched as it consisted of simple words;
Dispose after 4 weeks was changed to **Throw away after 4 weeks.**

Further tests
A test was carried out with the second prototype label (figures 2a and 2b) on 100 illiterates and 100 literates (graph No 2). The chief alteration in design recommended as result of the second test and of discussion, both with the subjects tested and with doctors and pharmacists, concerned the unsatisfactory instruction 'Open.' It was decided to delete the instruction from the label both because it was felt that all patients would be sufficiently intelligent to realise that, in order to use the medication, they must open it and, as the instruction is not required by any pharmaceutical regulation, it seemed unnecessary to have it. It had been included in the first place in order to complete the sequence of the patient's actions as he opens, uses and disposes of the medication (figures 1a and 1b).
The advantage of removing this instruction was that space was made to include a second inverted face on each label (figures 3a and 3b), so that the treatment of each eye could be shown. The pharmacist would then simply delete the face not required or leave both if both eyes were to b treated. The choice of different labels was reduced from twelve in the first and second prototype to four in the third. The only instruction which it was not found possible to illustrate in a way comprehensible to the majority of illiterates was **Throw away after 4 weeks.**
The rest of the images incorporated in the label finally suggested were understood by at least 65% of illiterates, the best results being achieved by the cautions **Do not eat** and **Keep away from children.**

The four labels were based on the following guidelines, which many months of experimenting suggest should be followed for any future design of pictorial labels in order to make them easily understood by illiterate and literate patients in the United Kingdom:

Where possible clear photographs should be used rather than line drawings. Where this is not possible, line drawings should be clear and unambiguous.

Words, if used, should be placed under or beside the illustrations—never above.

Short texts only should be used since large areas of text obviously mean nothing to the illiterate, and worry the semi-literate.
Short words only should be used.

Move away from stylized drawings
The style of imagery used in these still experimental labels, (especially figures 2 and 3), could be classified by some graphic designers as a backward step in the general developmer of the internationally accepted conventional style graphics development by the International Organization for Standardization. This form of over=simplified, refined graphics, which in some cases becomes very nearly

abstract, is very successful over a wide range of subjects such as road signs for the motorist (see figures 4a, b, c, d), electrical circuit diagrams for the electrician and music signs such as notes, clef, etc, for musicians.
In other cases, however, symbols and signs like those used to instruct the buyer of a garment what he or she should or should not do when washing it (figures 5a, b, c and d), are often difficult to understand. In the case of the Pictorial Prescription labels one is dealing very closely with human beings who are physically sick. The refined international conventional style graphics are lost on them: they are too complicated, inhuman and far too insensitive to be used in the medical field. Compare the imagery of the cautionary information, **Keep away from children,** in figures 1a and 1b where the drawings of the child and adult are too simplified, with those of figures 2a and 2b where the drawings are more figurative. When testing, both styles were understood (compare graphs nos 1 and 2), but there was a higher level of comprehension with the more figurative drawings.

The international conventional style graphics referred to above are all vernaculars in their own right, which need to be taught and learnt over a certain period of time. With Pictorial Prescription labels, on the other hand, there is little or no time to teach the patients, so the labels must from the start be very clear in their pictorial concept and designed to cater for the visual perception of the majority of the patients.
Asian, African and West Indian immigrant patients have, for the most part, resided long enough in the United Kingdom to become accustomed to the forms of visual communication which surround them in their new environment, eg, television, advertisements, road signs and cinemas. These forms of communication develop their visual perception and enable them to understand the pictorial labels.
The design of such labels therefore requires an *ad hoc,* 'national' approach. Labels designed in London or elsewhere in the developed countries will not necessarily be interpreted correctly in Africa and Asia. To assume otherwise is asking for trouble, as has been proved many a time. The efforts of a graphic designer from a developed country working with local illustrators would be far more successful in solving problems of labels for medicine, nutrition, contraception, use of fertilizers, etc, in an African or Asian country than would a preconceived system imposed from the outside.

The necessity for further studies
The Prototype Pictorial Prescription label under discussion is only the beginning in what could be a vast and useful field of graphic design, but government departments, international organizations and pharmaceutical companies appear not to have realised this yet. Thus there has been no financial backing for this experiment; these experimental labels have accordingly died in infancy, which is very sad.
Further improvements could still be achieved by more testing, more discussion and amendments to parts of the design. It is not claimed that the images suggested are a perfect solution, since a vernacular in pictures, like a language of words, is constantly growing and changing. More studies should be conducted in the designing of similar labels for use in the United Kingdom for other types of prescribed medication and

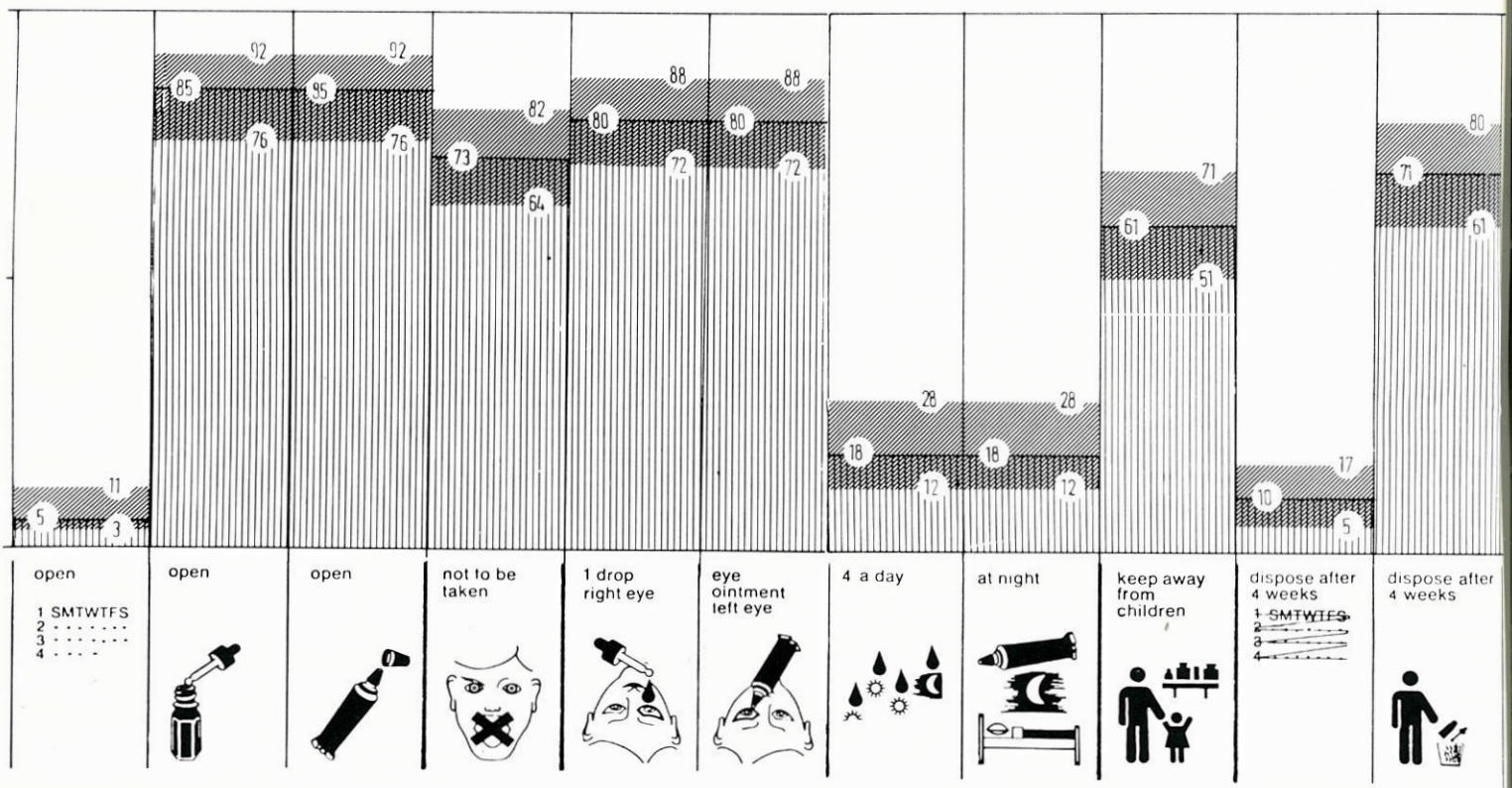
Graph No 1

Shows the results of tests effected on 100 illiterate students on both the cautionary and instructional information of Label No 1

Denotes the number of illiterates who understood

Denotes the 95% Confidence Belt*

**Confidence Belt: this shows the range within which the results of a similar test of the illiterates and/or literate population of the UK might be expected to lie. The coincidence limits shown were calculated from the charts of C J Clopper and E S Pearson: 'The use of Confidence of Fiducial limits illustrated in the case of the Binomial,'* Biometrika, *Vol 26, 1934, pp404-413*



for medicines supplied over the counter. Since the pictorial approach breaks the language barrier, the labels should present no problems either to illiterates or minority groups who have difficulty in understanding English.

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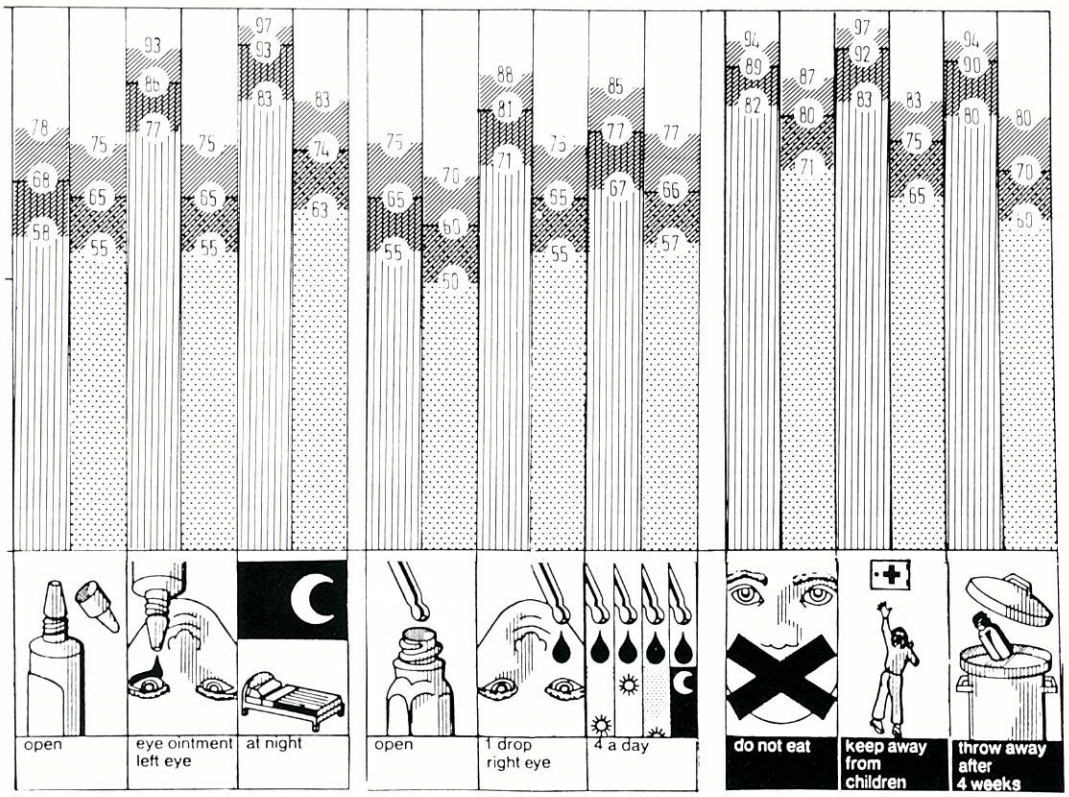
Graph No 2

Shows the results of tests effected on 100 illiterate students and 100 literate patients on the instructional information and cautionary information designed for Label No 2

Denotes the number of illiterates who understood

Denotes the number of literates who understood

Denotes the 95% Confidence Belt*



Design students project—graphic symbols for public information

We publish here some of the results from the recent Icograda design students project—Graphic Symbols for Public Information, in which design students from many countries were asked to work on the design and development of test symbols.

Foreword

This project is particularly interesting because it links three areas of work that have been important for Icograda throughout our 15 years' existence. Design education, signs and symbols, and interdisciplinary working collaboration with other international organizations.

In fact, the first Icograda Student Project (1964) called for the design of part of a public information sign system. This was a pioneer project that had significant consequences. At that time the haphazard proliferation of conflicting sign systems was not yet seen as a major public problem, and ISO, the International Organization for Standardization, was not yet involved.

We have always firmly believed that designers should not only produce images but should also share responsibilities for the decisions leading to those images. This is all the more crucial in matters of public information where careless decisions create situations of danger, misdirection and confusion.

Icograda played a considerable part in identifying the dangers inherent in the uncoordinated, unsystematic production of public information signs and in defining the methods and criteria for the development of more effective international systems. Icograda has collaborated very closely in the work undertaken by the International Organization for Standardization.

It is very satisfying to see this contribution taken a step further through the test symbol programme.

Peter Kneebone
Chairman, Signs and Symbols working Group

The proposal for an international student project involving the design of public symbols, made at the Icograda General Assembly in Lausanne (May 1977) at first evoked some ambivalent feelings. Some of us recalled earlier student design competitions or projects of similar nature that had not worked out as successfully as hoped. The ramifications and difficulties inherent in such a proposal were usually not immediately apparent.

Luckily, enthusiasm carried the day. A concerted effort by the organizing committee, clarifying in detail the nature and purpose of the project, cleared up all possible misunderstandings.

The response by the various schools, staff and students to this unusual challenge was beyond expectations, both in quantity and quality.

To the reasons for success mentioned below by Jorge Frascara (the solving of a real problem; cooperation rather than competition) must be added; the very carefully drafted brief and the circular letters and other correspondence.

While various contributions from the members of the organizing committee helped to distill the essence of the brief, all the credit for an imaginativer meticulous and thorough coordination of the project must go to Jorge Frascara.

A very high level of communication with an international body of students, staff and professional colleagues was achieved and the result speaks for itself.

Last, but not least, a word of appreciation is due to the University of Alberta, Edmonton, which encouraged and facilitated our work related to this project in material and other ways.

Walter Jungkind
Chairman, Education Working Group

Introduction

In May 1977, during the Icograda General Assembly in Lausanne, this project was proposed by Peter Simlinger and myself after informal conversations with Mauro Kunst, Ryszard Otreba, Isern i Castro and Mir i Borrut.

Following the acceptance of the proposal an organizing committee was formed and included the following members: Peter Kneebone, Icograda Secretary General and Chairman of the Signs and Symbols Working Group; Walter Jungkind, Icograda Immediate Past President and Chairman of the Education Working Group; Ernest Hoch, Chairman of the Standardization Working Group (Icograda advisors); Peter Simlinger, Vice President of the Austrian Society of Designers (BOG) and Chairman of the Public Information Symbols Working Group of the Austrian Standards Institute (liaisson with ISO) and Jorge Frascara, Convenor of ISO TC 145 SC 1 Working Group 2, *Design Criteria for Public Information Symbols* (coordinator of the project).

This committee was responsible for the contents of the circular letters sent to the participating schools establishing the nature and details of the project.

When we started the project we were aiming at around ten samples per referent. We were very pleased, therefore, to have received 20 to 40 samples per referent, with a total of more than 1200 entries.

The significance of this is twofold: firstly, the goodwill shown by institutions, staff and students to this project even though no prizes were being offered, only the excitement of participation in the solving of a real problem. Not competition but cooperation; no awards but involvement in a learning experience. This, we feel, marks a turning point in international design projects. Secondly, the general high quality of the work sent, representing a variety of cultural aspects.

In addition to the significance of the volume of the contributions as an aid to the development of the ISO programme, it is also important to mention that, because of comments and visual solutions developed for this project, Sub Committee 1 of ISO TC 145 will revise the definition of a series of referents (ie, 'rescue equipment,' 'arrival,' etc). This represents a positive contribution towards achieving a more visually orientated description in the definition of referents.

Destination of the material

The material received has already been passed on to ISO TC 145 SC 1 for its use in the 1979 testing programme. This programme will last approximately 15 months. At the end of it a report will be prepared adding symbols from other sources included in the programme. At that time we will get in touch with the participants. That will be around the end of 1980.

Under ISO TC 145 SC 1 Working Group 2 I will invite the instructors involved in this project to cooperate in the analysis of the test results in order to develop design criteria for public information symbols on the basis of objective data. The work may break new ground in design methodology for public information symbols. Its success will depend once more on the good will and commitment of the people involved. In the light of the present experience, we can be confident.

Jorge Frascara
Project Coordinator

Identification of entries

Each symbol shows six digits in the lower left corner. The first digits indicate the referent. The second two indicate the school and the instructor. The third two indicate the student.

According to this code the identification is as follows:

Referents

01 No entry
02 Closed
03 Open
04 Emergency exit
05 Way out
06 Way in
07 Aircraft
08 Railway
09 Boat
10 Departure
11 Arrival
12 Tickets
13 Luggage claim
14 Left luggage
15 Lost and found
16 Restaurant
17 Toilet
17a Toilet (men)
17b Toilet (women)
18 Elevator (lift)
19 Out of order
20 Dispose
21 Do not dispose
22 Telegram
23 Currency exchange
24 Parking
25 Fire fighting equipment
25a Fire alarm
26 Rescue equipment
27 Police
28 Hospital
29 Accommodation
30 Item of cultural interest
31 Nature reserve
32 Place or item of natural interest
33 Sports area

Participating schools

01 Sheridan College, School of Visual Arts, Trafalgar Road
Oakville, Ontario L6H 2L1
Canada
Stan Shikatani, Coordinator
Gerhard Doerrie, Instructor

02 Nova Scotia College of Art and Design, 5163 Duke Street
Halifax, Nova Scotia B3J 3J6
Canada
Horst Deppe, Instructor

03 Bolton College of Art and Design, Hilden Street,
Bolton BL2 LJB
England
Ken Adshead, Instructor

04 Department of Typography and Graphic Communication
University of Reading
2 Earley Gate, Whiteknights
Reading RG6 2AU
England
Ernest Hoch, Instructor


16 01 08


16 03 02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16 06 01


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16 15 01


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05 Hungarian Academy of Arts and Crafts, Department of Typo-Graphics, 1121 Budapest Zugligeti ut 11-25
Hungary
Gyorgy Haiman, Chairman
Sandor Ernyei, Instructor (students 01 to 09)
Laszio Zsoter, Instructor (students 10 to 14)

06 National Institute of Design Paldi, Ahmedabad 380 007
India
Mahendra Patel, Chairman
Trikolesh Mujerkee, Instructor

07 Bezalel Academy of Arts and Design, 10 Shmuel Hanagid St Jerusalem 94592
Israel
Yarom Vardimon, Head
Asher Oron, Instructor

08 Design Department
Osaka University of Arts
Naniwa College, Terugaoka, Yata
Higashi-Sumiyoshi-ku
Osaka
Japan
Mori Kai, Head
Tadashi Ikeda, Instructor

09 Taller de Grafismo
EINA, Escola de Disseny
Av. Vallvidrera 44 bis
Barcelona 17
Spain
Antoni Selles, Instructor

10 Uygulamali Endustri
Sanatlari Yuksek Okulu
Grafik Bolumu
Besiktas, Istambul
Turkey
Turgay Betil, Instructor

11 Instituto de Diseno
Fundacion Neumann-Ince
Avenida San Miguel No 9
Urbanizacion Avila-Alta Florida
Caracas 105
Johann Ossot, Director
Peter Wezel, Instructor
Sigfredo Chacon, Instructor

12 Escuela de Artes Aplicadas y
y Oficios Artisticos
Ciudad de Balaguer 17
Barcelona 6
Spain
Alberto Garcia Calvet, Instructor
Miguel Royo Duch, Instructor

13 Ecole Cantonale de Beaux-Arts et d'Art Applique de Lausanne
4 Avenue de l'Elysee
1006 Lausanne
Switzerland
Jacques Monnier, Director


32 01 14


32 02 01


32 03 01


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32 14 01


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32 19 01


32 20 01

14 Departamento de Diseno
Facultad de Arquitectura
y Urbanismo
Universidad de Chile
Marcoleta 250
Santiago
Chile
Luis A Torres, Instructor
Jose Korn, Instructor

15 Diseno Grafico
Universidad de Chile
Sede Temuco
Casilla 54 D
Temuco
Chile
Salvador Lazcano, Instructor

16 Escuela de Diseno
Universidad Catolica
Los Navegantes 1919
Santiago
Chile
Sergio Silva Delano, Instructor

17 Devlet Guzel Sanatlar Akademisi
Findikili
Istambul
Turkey
Turgay Betil, Instructor

18 Department of Industrial Design
Ohio State University
373 Hopkins Hall,
128 N Oval Mall
Columbus, Ohio 43210
USA
Peter Megert, Instructor

19 The University of California
at Los Angeles
405 Hilgard Avenue
Los Angeles, California 90024
USA
John Neuhart, Instructor

20 Department of Design
University of Nairobi
PO Box 30197
Nairobi
Kenya
H S Zaidi, Instructor

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Instructors Ken Adshead (03) and H S Zaidi (20) served as liaison between the students and the coordinator of the project but were not directly working with the students for this project.

Heads, Chairmen and Directors are mentioned only when they served as liaison with the coordination of the project.

Acknowledgements for their contributions should go also to Zeynep Karafakioglu, who contacted the schools in Turkey and maintained a constant communication with the coordinator and to Isern i Castro and Mir i Borrut of the Spanish Society of Graphic Designers who linked the Spanish schools with this project.

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Participating students

Figures in bold indicate school number

01
01 Susan Budd
02 Chris Clark
03 Michael Depsey
04 Susan Edwards
05 Joni Ito
06 Jean-Pierre Lacroix
07 David Lemmond
08 Brian Roby
09 Nita Wallace
10 Helen Wynne
11 Cosimo Negro/ Helen Wynne
12 Cosimo Negro/ Susan Budd
13 Nita Wallace/ Susan Edwards
14 Susan Budd/ Cosimo Negro/ Nita Wallace/ Helen Wynne

02
01 Bruce Anhalt
02 Bonnie Greenwood
03 William Novoseduk
04 Jules Richard
05 Bill Robison

03
01 Alan Dearden
02 Brian Livesey

04
01 Sue Clarke/Sarah Morley/ Pat Norrish

05
01 Daniel Erdely
02 Jeno Eri
03 Berta Gabor
04 Dezso Kiss
05 Zoltan Kondor
06 Gyorgy Szabo
07 Tibor Timar
08 Laszlo Toth
09 Gyorgy Viszt
10 Sandor Snepp
11 Agnes Galocsi
12 Dezso Nagy
13 Bea Gyurkovics
14 Laszlo Oravecz

06
01 Mita Bhagat
02 Arti Doctor
03 Bashobi Dudhoria
04 Ranmal Jala
05 Rajive Manikoth
06 Shailesh Modi
07 Shailaja Nair
08 Ashok Panikar
09 Shailen Parker
10 Chaula Patel
11 Rajini Raghavan
12 Viswesh Sant
13 Amrita Sukumar

07
01 Eli Abu
02 Hovav Givati
03 Olga Lax
04 Suzanne Reboh
05 Miriam Rosenblum


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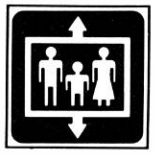
18 03 02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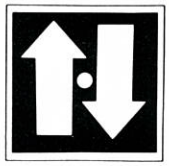
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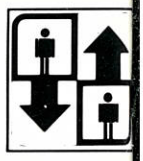
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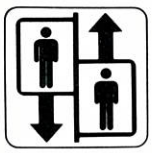
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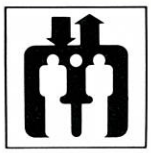
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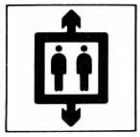
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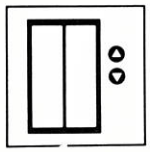
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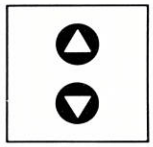
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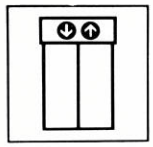
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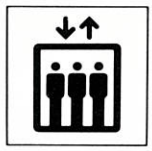
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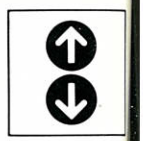
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08
01 Shigeno Araki
02 Sukeyasu Kanno
03 Mayumi Kitamura
04 Naoko Kubo
05 Toshiyuki Aoshima
06 Hiroshi Daba
07 Makoto Fushimi
08 Yukio Iga
09 Katsunori Hironaka
10 Iku Kobayashi
11 Chiaki Kiuchi
12 Mizue Kometani
13 Shunichi Onishi
14 Ryoji Ohashi
15 Suzuko Shoji
16 Hideki Sigemoto
17 Kiyomi Sonobe
18 Suenori Sakatani
19 Susumu Tabuchi
20 Isao Takayasu
21 Akihiko Tanaka
22 Satoshi Tanaka
23 Motonobu Tanaka
24 Yoshihiko Yamamoto
25 Tsuyoshi Abe
26 Chisato Ishimaru
27 Yutaka Okayama
28 Toshiko Boku
29 Takashi Doi
30 Hideyuki Fujiwara
31 Misako Ina
32 Kazuyo Nakata
33 Hiroyuki Ueda
34 Shunichiro Iwakoshi
35 Hiroshi Suginaka
36 Isamu Sato
37 Juichi Yanagi
38 Hiroko Tasuda
39 Kasuyo Nakata
40 Gakugi Kitano
41 Hiroya Sugimoto
42 Toshiko Boku
43 KenjiiTamagawa
44 Hiroshi Komatsu

09
01 Joan Aliu
Patricia Nunez
Jordi Riba

10
01 Ahmet Sakagun
Ergin Akis
Hadiye Akser
Celal Aydin
Zafer Baran
Huseyin Kilic
Sinan Mirza
Bulent Olcayto
Selomo Sadak
Kemal Simsek
Zeynep Terlan
Suat Tekin
Zuhtu Tokluoglu


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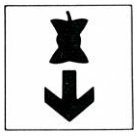
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11
01 Milagros Guzman
02 Irene Hoogesteyn
03 Salim Inaty
04 Maria de Lourdes Olivares
05 Helena Machado
06 Alberto Mendez
07 Maria Gabriela Pigna
08 Antonio Quintero
09 Carlos Sanchez
10 Nelson Sandoval
11 Francisco Segnini
12 Beatriz Adrian
Maria Fernanda Sosa
Maria de Lourdes Cisneros
13 Beatriz Adrian
Maria Fernanda Sosa
Carlos Sanchez
14 Juan Albornoz
Maria Lleixa
Michelle Rincones
15 Rosa Gonzalez
Ileana Truneanu
Ricardo Goldman
16 Helena Machado
Christian Porras

12
01 Antonio Aguilo
02 Xavier Bague
03 Jorge Barnau
04 Eduardo Berdague
05 Ignacio Canosa
06 Jorge Carbo
07 Ramon Caymel
08 Asuncion March
09 Alicia Mittans
10 Jorge Paris
11 Miguel Angel Prieto
12 Matias Rodriguez
13 Magda Sanjurjo
14 Montserrat Suner

13
01 No names were provided by the school

14
01 Roberto Galaz
Julia Martinez
Maria Montes
Francisco Villagran

15
01 Ovidio Jimenez H
02 Jaime Rodriguez A
03 Victor A/Olivera T

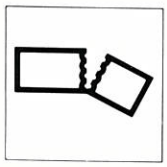
16
01 Valentina Fontaine
02 Ruth Kelly
03 Nicolas Racic

17
01 Hakan Sarihan/Mehmet Arif Koyunoglu

18
01 Joyce Cook/Angelika Peck/Karen Shenker
02 Doug Gillis/Mark Krumel/Danelle Troyer
03 Cheryl Pompura/Laura Gulasch/Cecilia Brundrett/Ivonne Foster
04 Dawn Copley/Jose Gimenez/Eric Rickabaugh
05 B Cains/D Dubick/F Hunker

19
01 Louis A Quirarte

20
01 William Esikhaty
02 David Awimbo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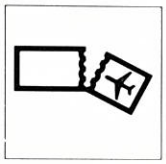
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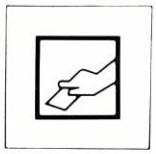
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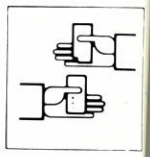
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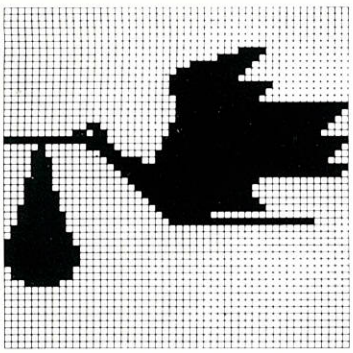
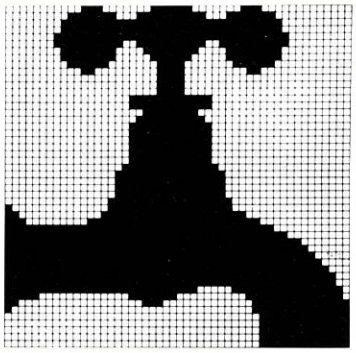
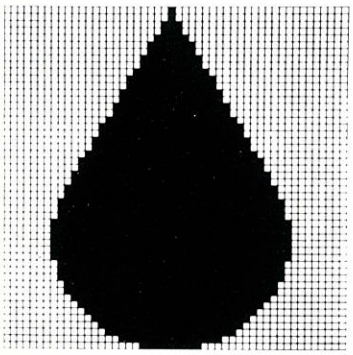
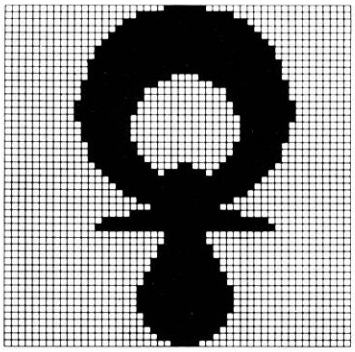
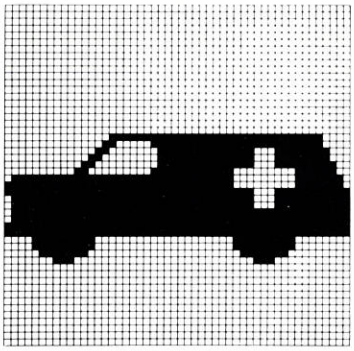
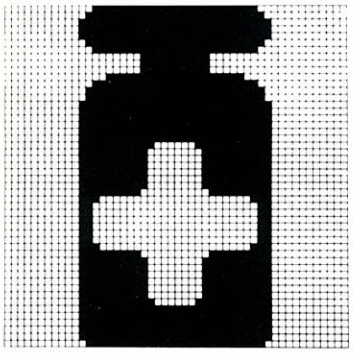
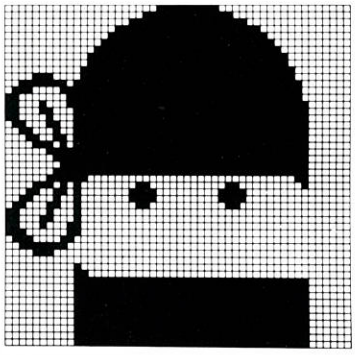
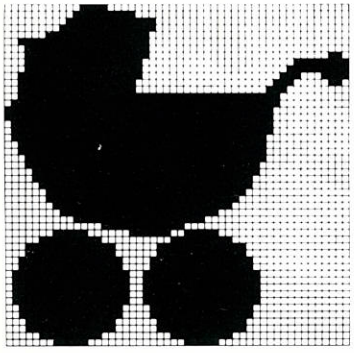
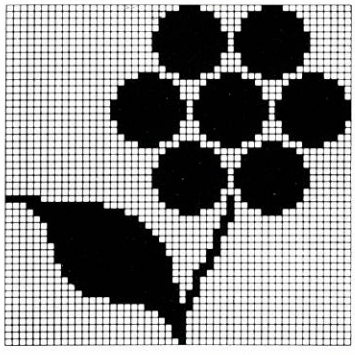
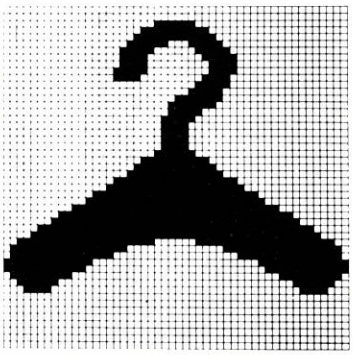
Signing system for a maternity hospital in Buenos Aires



We show here a signing system for a Maternity and Child Centre at the Durand Hospital in Buenos Aires, Argentina.
The scheme was devised by the Shakespear Design Studio, under the direction of Ronald and Raul Shakespear.
In collaboration with the architectura firm of Manteola/Sanchez Gomez, they devised a pictographic system intended to identify each of the various services within the hospital complex.
Existing wall finishes were used, such as aluminium, glass and plastics wall tiles, in order to mimimise the costs of implementation.
In this way, their 'supergraphics' have become part of the architecture of the buildings.

Obstetrics

Haematology

Emergencies

Creche

Paediatrics

Premature babies

Operating theatre

Florist

Washing facilities

Ambulance

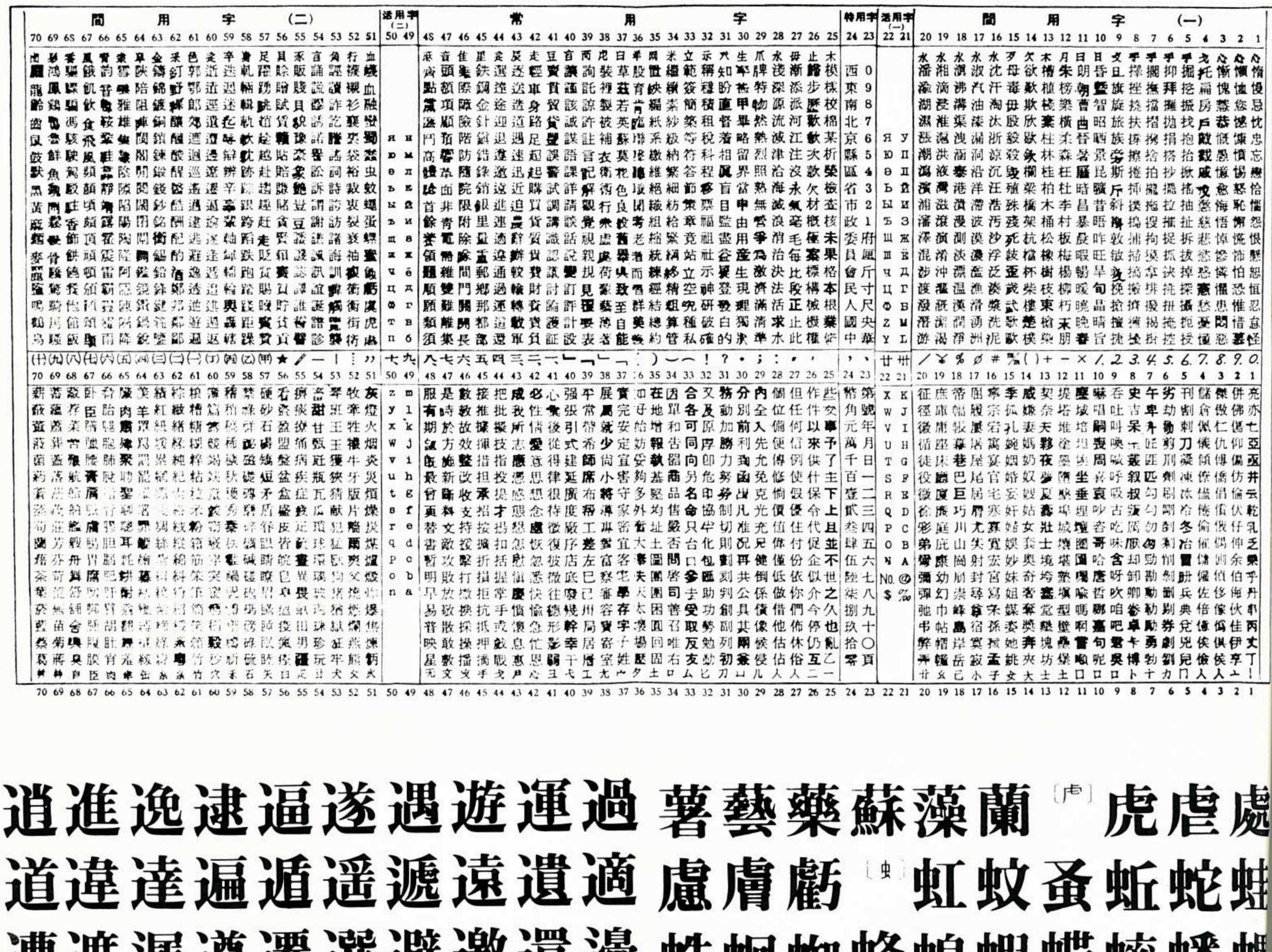
Cafeteria

Cloakroom

Begin difficult things while they are easy: do great things while they are small. The difficult things of the world must once have been easy; the great things must once have been small. . . A thousand mile journey begins with one step.

Lao-tse

Shown below is the layout of a Chinese typewriter and a double page spread from a Chinese type manual. It is items such as these which persuade the European layman that the Chinese writing system is unbelievably difficult.
In his concluding article, the author challenges some of these assumptions.



逍進逸逮逼遂遇遊運過 薯藝藥蘇藻蘭〔虍〕虎虐

道違達遍遁遙遞遠遺適 盧膚虧〔虫〕虹蚊蚤蚯蛇

遭遮遲遵遷選避邀還邊 蛛蛔蜘蜂蝗蝦蝶蟀蟋

〔舟〕舟航般船艙艦〔艮〕艮良 蟬蟲蟹蟻蠢蠶〔血〕血衆

艱〔色〕色〔艹〕芋芝花芳芽芥 衣初表袋袍袖被裁裂

芬苗苛苟若苦英茂茄茅 補裝裡裸製複褥褪褸

茫茲茶草荒荷莊莖莫菊 西要栗票粟覆〔見〕見規

菜華茹菌萄落葉著葡董 覺觀〔角〕角解觸〔言〕言訂

葬募蒙蒲蒸蒼蓄蓆蓉蓋 訊討訓託記訛訝訟訣

First steps on a thousand mile journey—part 4

Patrick Wallis Burke

icographic 14/15, 1979
Author's address:
Warren House
St Paul's Cray Road
Chislehurst, Kent BR7 6QA
England

AN

EMBASSY

FROM THE

East-India Company

OF THE

UNITED PROVINCES,

TO THE

Grand Tartar Cham

EMPEROUR OF

CHINA,

Delivered by their Excellencies

PETER De GOYER, and JACOB De KEYZER,

At his Imperial City of

PEKING.

WHEREIN

The CITIES, TOWNS, VILLAGES, PORTS, RIVERS, &c. In their Paſſages from CANTON to PEKING,

Are Ingeniouſly Deſcribed by Mr. *JOHN NIEUHOFF*, Steward to the AMBASSADOURS.

ALSO

An Epiſtle of Father *JOHN ADAMS* their Antagoniſt, concerning the whole Negotiation.

WITH

An Appendix of ſeveral Remarks taken out of Father *ATHANASIUS KIRCHER.*

Engliſhed and ſet forth with their ſeveral Sculptures, by *JOHN OGILBY*, Eſq; Maſter of his Majeſties Revels in the Kingdom of *Ireland.*

LONDON,

Printed by *John Macock* for the Author, MDCLXIX.

This is the title page of a book by Jan Nieuhof, a Dutch writer of the seventeenth century.
And it is his account of a trade mission to the Chinese Emperor that gave Europe its first authoritative picture of life in China during an early period of the Manchu dynasty.
Nieuhof wrote in Dutch, of course, but his massive book was swiftly translated into many European languages.
This English version, translated by John Ogilby, was published in 1669.
It proved so popular that a second, enlarged edition was printed in 1671.

Europe knew virtually nothing about China until the seventeenth century.
Although in the fifteenth and sixteenth centuries there had appeared fragmentary accounts of a place called 'China' and somewhere else called 'Cathay,' it wasn't until 1615 that somebody realised they were the same place.
These earlier reports were mostly works of the imagination, and it was not until 1615 that the first bit of non-fiction was published, telling of the travels of Bento de Goes during the year of 1598.

But it was the eighteenth century that bought China in a big way.
East-Indiamen flogged across the China Seas loaded with silk, porcelain, lacquer-work, goldfish, parasols, tea and rhubarb.
The arts went crazy about China.
Artists like Watteau began painting pictures in the Chinese manner.
Mr Chippendale manufactured furniture in what he termed the 'Chinese taste.'
Architects began evolving that nightmare confusion of East and West that we now know as 'Chinese-Gothic,' and a rash of pavilions and pagodas shot up all over Europe.
Anything that didn't move was lacquered.

Even the revolutionaries of the Age of Enlightenment were gripped by China fever as they heard the enthusiastic accounts given by the returning Jesuit missionaries.
Voltaire thought that the organisation of the Chinese Empire was the best the world had ever seen. Leibnitz even went so far as to suggest that Chinese missionaries should be sent to Europe, rather than that we should try to sell them our own particular brand of salvation. He was also fascinated by the Chinese writing system and was moved to predict the invention of a *Symbolis Universalis* in which pictorial symbols could be used in a simple symbolic logic—a universal writing not tied to a specific spoken language.

I'm not the first European to be intrigued and captivated by Chinese writing. Nor will I be the last.
During my lifetime, however, the Western world has viewed the Chinese with a mixture of suspicion and contempt, as it watched the disintegration and final overthrow of the decadent Manchu Empire.
Po-faced Mao, in his flat cap and faded blue denims, seems a far cry from the gorgeously-clad mandarins and the monumental dynastic glories of Ancient China.
So it is easy for us to forget the open mouthed wonder of Europe when it first learned of the mighty 'Middle Kingdom.'

This quaint engraving taken from Nieuhof's book, seeks to explain how the ancient Chinese characters have evolved.
Just as I did in my first article, he gives some examples of the before an after forms, and most of you should be able to recognise the 'sun' character, which he numbers 3 and 4
Perhaps Nieuhof was a poor draftsma for many of his characters are wildly innaccurate, whilst the birds he numbers 9 and 10 are pure fiction.
Nevertheless his descriptions of the spoken and written language sound authentic.

The English version of Nieuhof's book includes as an appendix a translation of part of Athanasius Kircher's 'China Monuments,' first published in Amsterdam in 1667. Kircher too, shows considerable knowledge of the spoken and written language, but he tends to exaggerate the difficulties involved in learning to write Chinese for he writes;

"... such and so infinite were their Characters, which though the modern Chineses taught by experience have rectified, yet at this day they have above eighty thousand, the study of which is the Apex of all their Learning; but they are able with 10000 to make out handsomly most expressions upon all occasions: Yet those that wade farthest into the puzzles and difficulties of so long Lessons and so tedious a Science, are preferr'd to the Highest Offices and Dignitaries of Place, which seldom happens till they grow Aged.
The hardness of the task ariseth from that they have no Alphabet, Declinations, nor Conjugations, but every Case and Gender in Nouns, and every Person and Tense in Verbs, with the like, have their several distinct Characters."

shin

So is Kircher right in his assessment of the difficulties?
Let's look first at the *formal* properties of Chinese characters.
Through long evolution they have acquired the kind of inherent 'rightness' that we recognise in pre=industrial farming implements or the tools of hand-craftsmen.

This is my old friend, the human 'heart' or 'mind,' and you may recall that it is one of that select group of characters that serve as 'radicals.'
In earlier times it designated all those things that have to do with the mind or the emotions.

Since the radicals are called upon to unite with one, two, three, or sometimes more additional characters to form other ideograms, they have to be adapted to squeeze them into the square framework that all Chinese characters adopt.

Some of the radicals retain their original shape and are merely condensed in their width or depth, whilst others are given new, abbreviated forms.
The 'heart' radical does a bit of everything.

chyy

Here it has been condensed into half the width of the square and is paired with another radical, meaning the 'ear.' Together they mean 'shame' or 'to be ashamed.'

whah wahng

Here it has been flattened to about half the depth of the square.
The character sitting on top of it means 'dead, ' and the idea that they form together means 'to forget.'
Maybe we could adopt 'dead=mindedness' for forgetfulness.

But when space is short in the horizontal dimension, the heart is given a new form. It looks almost as though the curved, central shape has been pulled straight and one of the 'tear=drops' (or are they drops of blood?) has been omitted.
This is what it looks like.

chirng

And here it is in action in this character meaning 'affection,' 'sentiment,' or 'sexual love.'

I'd like you to take a closer look at this little trio of signs.
Each of them have meaning in their own right, of course, but they have been brought together to form something new from the sum of their parts.
The resultant sign has strong, formal properties, obviously, but it allows you to do rather more than simply struggle to remember its shape.
As a further aid to memory, you can construct your own personal etymology.
Form can be augmented by *content.*

We know that the character on the left is the abbreviated form of the human 'heart' or 'mind.'
The character at top-right means 'monarch' or 'ruler,' whilst below it we have the character meaning 'moon.'
So now we've got 'heart-ruler-moon.'
Now to me, all this seems extraordinarily apt, particularly if I 'translate' the character as meaning 'the heart ruled by the moon.'
East and West have long shared a belief in the influence of the moon over the affairs of the heart, and both cultures would have agreed with Christopher Fry's assessment that;

The moon is nothing
But a circumambulatory aphrodisiac
Divinely subsidized to provoke the world
Into a rising birth-rate.

And it matters little to me if a Chinese expert protests that my analysis is all wrong.
I am at liberty to extract whatever kind of metaphor I like, and use it as an additional finger-hold upon the memory.

I say this in answer to all those people who argue the inherent superiority of alphabetic writing, and point to the large number of characters that one needs to memorise.
Chinese writing is unquestionably difficult to learn.
But I believe that laymen exaggerate the difficulties.
More importantly, they seem blind to the considerable difficulties of our own alphabetic system.

her

Here is one further example of the evocative quality of the Chinese ideograms.
This character means 'grain.'
It's used as a radical, and was probably one of the earliest signs evolved by the inventors of the system. Grain would have figured large in their economy.
It still does.
In form it resembles the character for 'tree' but has a curved top that gives it something of the shape of a sheaf of corn.

huoo

And this is the character for 'fire,' which we've already met on a number of previous occasions.
Again, it's remarkably pictorial, suggestive of the flickering of a flame. It always reminds me of the 'Mr Therm' symbol once used by English Gas Board.

chiou

Now these two characters are brought together in the suggestive compound 'autumn.'
What better way could you find for portraying the season of mists and mellow fruitfulness?

It's an inspired piece of pictorial shorthand that takes us in imagination into the blazing fields of stubble following a successful harvest.

chour

But there is more. In this particular character, 'autumn' now finds itself above the human heart.
Are you willing to take a guess at the meaning of 'autumn-heart'?
Anyone who doesn't come up with such things as 'sadness,' 'sorrow' or 'melancholy,' has no poetry in his soul.
The idea of melancholy being the 'autumn-heart' is an arresting metaphor to which most of us can respond. However, the expert will tell you that the character meaning 'autumn' is only included as the 'phonetic' component.
Its purpose is merely to give you a rough idea of the pronunciation of the Chinese word for melancholy.
He's right, of course.
You can see this by comparing the respective phonetic renderings that I've written beside them.
But I absolutely refuse to believe that the inventor of this magical sign was not a poet, but simply a grammarian.
The thought processes that led him to choose these particular symbols may not be the same as mine.
Nevertheless, my 'reading' serves to make this character unforgetable to me. I can recognise its shape, but equally, I can deduce its meaning from the constituent parts.
It has become a well-known friend.
Which is why I believe that learning Chinese characters is not quite so difficult as many people imagine.

In Chinese writing, meaning centres around the graphic symbol.
And it is a graphic symbol with a visible etymology.
Our phonetically written words do not so readily exhibit the embryonic stages of their growth.
An alphabetic word, as Fenollosa puts it; '. . . does not bear its metaphor on its face.'
It is here that Chinese symbols show their advantage, for the memory can hold and use both their unique shapes as well as their reinforcing accumulations of meaning.
The written characters are beautiful in themselves, and their components full of subtleties, but they exhibit far more than this. They are alive with pictorial metaphor.
To write a poem in them is like stringing together clusters of minor poems—each one character long.
This is why it is impossible to compress these little 'thought-squares' into the envelope of an alphabetic word.

中国古时候有一位老人名叫愚公八九十岁了他家门前有两座山又高又大挡住了他家的出路一天愚公把全家人叫到一起說这两座大山对着咱们家门口太不方便了咱们把它搬走好不好他的儿子孙子们都很赞成只有他的妻子沒有信心她說你年纪这么大了连一块石头也搬不动还能搬走这两座大山吗那么多的石头又运到哪儿去呢大家說世界上沒有不能克服的困難我们把石头扔到海里去愚公的妻子不得不同意了第天愚公就带着一家人去搬山了他们早出晚归不怕困难每天挖山有个老头子叫智叟看见他们搬山觉得很好笑就对愚公說你这么大年纪了还能把两座大山搬走吗愚公回答說我虽然要死了但是我还有儿子儿子死了又有孙子我们的人越来越多山上的石头却越搬越少只要有决心就一定可以把山搬走智叟听了沒有話說愚公移山的事感动了上帝他就派了两个神仙把两座山背走了

愚公移山寓言

then
surely
can
mountains
move
away
Wise
Old
Man
hear—
had
no
words
say—
Foolish
Old
Man
removing
mountains
matter
move
God
He
then
sent
two
angels—
two
mountains
carried
away
on
backs

then
to
Foolish
Old
Man
said:
You
so
great
age—
still
can
two
big
mountains
move
away?
Foolish
Old
Man
replied—
said:
I
although
will
die
but
I
still
have
sons—
sons die—
also
have
grandsons—
Our
people
more
and
more
numerous—
mountains
on
stones
on
contrary—
more
move—
more
scarce—
As
long
as
have
determination

We
stones
throw
to
sea
in!
Foolish
Old
Man's
wife
could
not
but
agree
Next
day
Foolish
Old
Man
then
took
one-
family
people
to
move
mountains
They
early
departed—
late
returned
Not
fear
difficulties—
everyday
dug
mountains
There
was
an
old
man
called
Wise
Old
Man—
saw
them
move
mountains—
felt
very
laughable—

We
them
move
away—
Good
not
good?
His
sons—
grandsons—
all
very
approved—
only
his
wife
had
no
confidence
She
said:
You
age
so
great—
even
one
stone
cannot
move—
still
can
move
away
these
two
big
mountains?
So
much
stone
also
transport
where
to?
Everybody
said:
The
world
on
has
not
no
can
overcome
difficulties—

China—
ancient
times—
had
an
old
man—
name
called
Foolish
Old
Man—
eighty
ninety
year
old
His
house
door
front
had
two
mountains—
both
high
and
big—
obstructed
his
house
way
out
One
day
Foolish
Old
Man—
whole
family
People
called
together—
said:
These
two
big
mountains—
face
our
house
doorway—
too
not
convenient!

The Foolish Old Man who removed the Mountains

This is an ancient Chinese fable.
In an effort to give non-Chinese readers a flavour of the original, I have set an English translation in roughly the same form as the Chinese version.
This means that you are asked to start at the top right-hand side, then read down each of the columns, your eyes travelling from right to left. As an additional check, the first words of the story should read, 'China—ancient times—'
Since there is no punctuation, the words in bold type signal the beginnings of sentences.
I hope that this disorientation of your normal habits of reading helps you to experience the novelty of reading Chinese-style.

Most laymen think of writing as being no more than speech written down. So do a lot of linguists.
It is probably easier for Europeans to think of spoken language and script as being the same thing when they've been brought up on devices like the Latin alphabet.
But a look at the history of the alphabet shows that the idea of matching spoken sound with writing is comparatively recent.
Speaking and writing started from quite different beginnings, and it took a long time for the gap between them to narrow.
For example, it took the Greeks about a thousand years to think of adding vowel letters to the alphabet they got from the Phoenicians.
Early writing systems were visual and Chinese continues to be so.
In Chinese, the relationship between the spoken language and its script is totally different from that of spoken English and its alphabetic method of writing.
In a page of printed Chinese, each character sits on its own, equi-spaced from all its neighbours.
As we've already seen, each character has an equal right to be taken for a word—a word of just one syllable.
But, contrary to popular belief, the Chinese do not speak in mono-syllables. They chatter away in very musical-sounding strings of one, two or three-syllable words.
As a learner, I've often wished that these functional clusters of syllables could be indentified on the page.
This little fable, for example, opens with the word 'China,' a two-syllable English word.
Now if we look at the Chinese version, it might be helpful if the first two characters had brackets round them, or were pushed much closer together. Why? Because they form a two-syllable word, pronounced something like *jung-guo,* and meaning 'Middle Kingdom,' which is the name the Chinese give to the country that we insist on calling China.

But irrespective of the differences between alphabetic notation and Chinese script, both demonstrate that writing is much more than just a convenient way of recording speech.
Written composition seldom represents oral utterance.
When we write a proposition, it is a tangible representation of a piece of thinking. Through the agency of writing, we have managed to transform this thought into a physical object, something which now exists outside the confines of our mind.
We can now react to it as though it were, in fact, an object.
We can handle it, manipulate it, test it. It provides us with a finger-hold upon an otherwise tenuous experience.
For obvious reasons, written language tends always to take on a more elevated tone than spoken language.
Even the popular press in the West uses a vocabulary and syntax that is far removed from that spoken by the bulk of its readership.
In China, however, the problem is far more profound.
For thousands of years there has been a gulf between common speech (intelligentsia and peasantry alike) and the literary language.
This literary language, known as *wen yarn,* always aimed at expressing one idea with one character, rather than with compounds of more than one syllable. The poem in the last article is typical of this form of writing.
Sadly, this style has proved quite unsuited to modern life.
Lawyers trying to draft international agreements have found it inadequate.
So too have the translators of the political and economic ideas that modern China needed.
Today, newspaper articles in Chinese mainland publications are striving to find a style of writing that comes closer to the present-day spoken idiom. But as long as the classical literary language is held in esteem, there will be tensions between the old and new styles.

Mao Tse Tung often discussed the problems of relating the modern Chinese national language to that of the literary language of the past.
In a speech given in Yenan in Northern China in 1942, he offered this 'thought' on the matter;

"We must also learn to adopt what is still alive in the language of the ancients. . .
It goes without saying that we are resolutely opposed to the use of expressions or classical allusions that are already dead, but what is good and useful should be taken over."

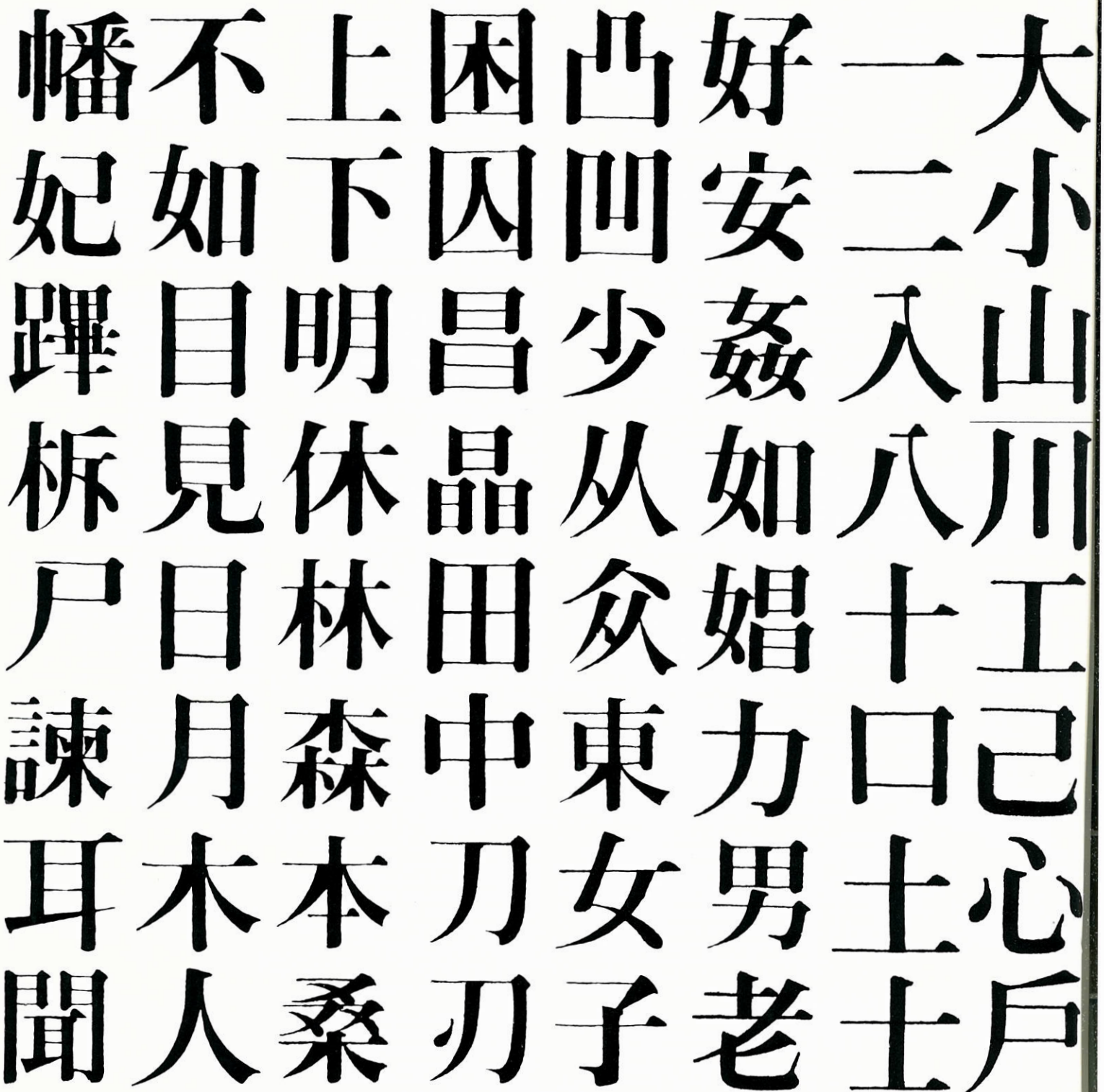
And he was as good as his word, since he made use of this ancient tale as part of his revolutionary propaganda.
It became a parable in which 'The Foolish Old Man' represented the Chinese revolutionary movement, and the 'two mountains' that they had to dig up and cart away were 'imperialism' and 'feudalism.'

The Chinese have never recognised absurd distinctions between manlines and the arts. The archetypal Chinese hero is both poet and man of action-a wordsman and a swordsman.
The Chinese writing brush and the thirteen string lute are said to have been invented by a famous military commander, and all educated Chines were expected to compose elegant poems about such things as nature, friendship and love, blighted or otherwise.
More than half of all Chinese literature is poetry.
It was no accident that Mao Tse Tun wrote gritty poems like *Chingkang-shan* and *The Long March,* and was also an accomplished calligrapher.
Such is the stuff of which Chinese superheroes are made.

The more one studies the Chinese writing system, the easier it is to see why the Chinese reverence their ancient ideograms. In a magical way they combine picture with story and even manage to provide a little of the resonances of sound.
To destroy the written characters was once regarded as sacrilege, and in times past it was an act of piety for Chinese to give money for collecting written and printed paper from the streets to save it from being trampled underfoot.
Such concern may seem bizarre to a Westerner. To most of us, letters and words are mere functional devices. But to the Chinese, each character has a high intrinsic value. They are precious objects, sacred symbols that can be enjoyed as individual icons with a value that is independent of their arrangement into literary form.

Here are most of the characters that have been introduced in this series of articles.
The reference to both volume number and page number relate to the first appearance of a particular character, even though it may subsequently appear more than once.
The references should enable you to find the meanings of the various characters shown here

The characters in their order of appearance



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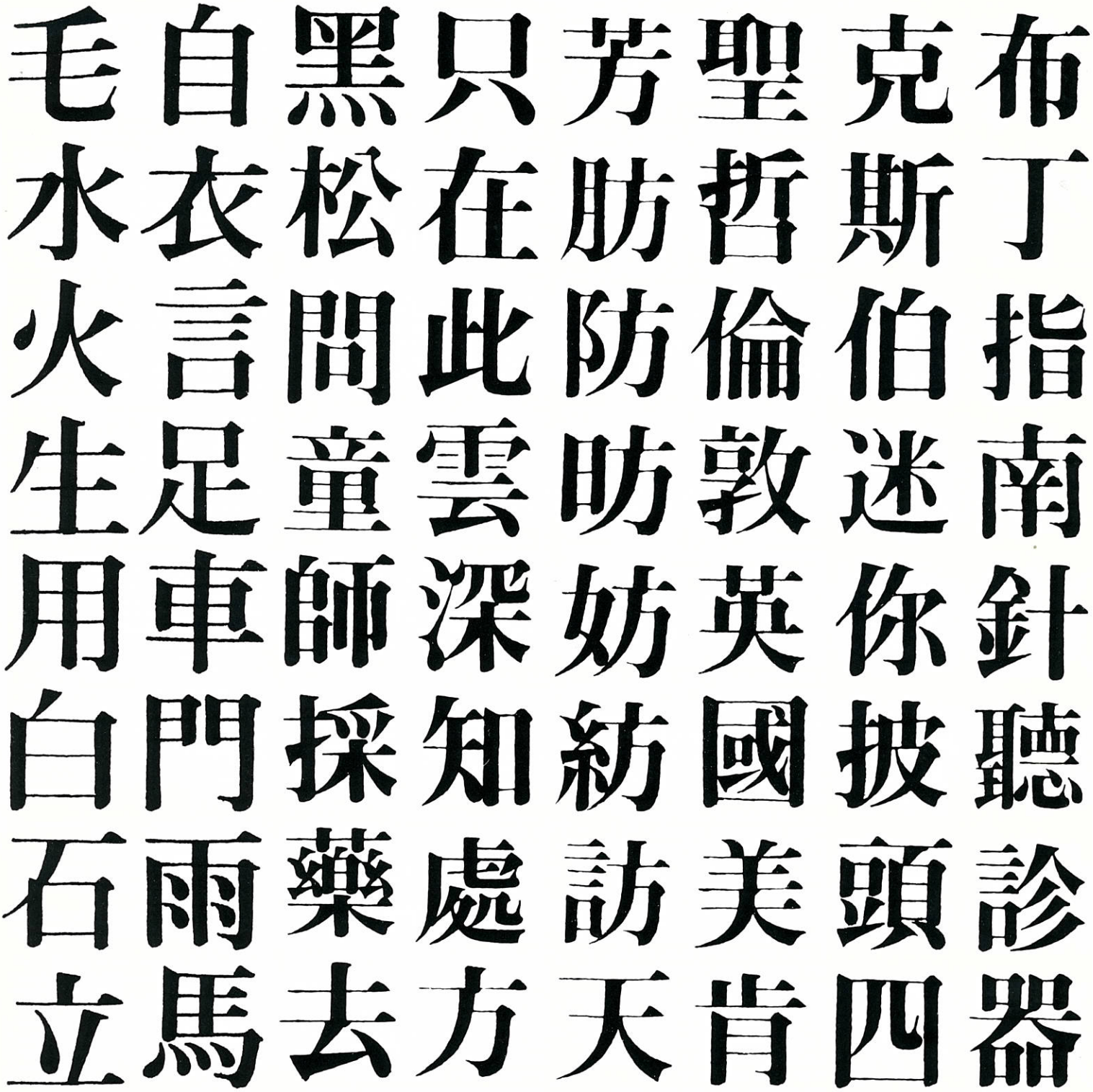

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The title given to these four short articles says everything.
I make no claim to being any kind of expert on China, the Chinese, or their unique method of writing.
My knowledge of the spoken language is limited to a fairly random collection of phrases and interjections, mostly in Mandarin, some in Cantonese.
I can recognise many hundreds of characters, of course, but one needs to know thousands.
As a result, a page of printed Chinese looks to me much as I imagine a page of printed English looks to a child of six or seven in the early stages of reading.
I have travelled to the Near East, never to the Far East.
What knowledge I have has been got from books and dictionaries, augmented by conversations with some of my Chinese students.
The students enabled me to check whether the assumptions I made through my reading, matched their knowledge of the system.
At first, they were mildly surprised by my interest. Most, not all, were woefully ignorant of their long history and seemingly indifferent to their own rich culture.
They were intent on becoming 'westernised.' But as I gradually learned more, it seemed to kindle in them a growing interest and enthusiasm.
I shall always be grateful to them.
I hope that they too gained something from our exchanges.
At no time, therefore, have I had any official lessons in Chinese.
I am a completely self-taught, non= expert.
My self-initiated studies began somewhat haphazardly in 1975, although I had long wondered about the mysteries of Chinese writing.

Why then, did I feel moved to write about it when my basic understanding was comparatively limited?
There were many reasons.
First and foremost, I was so excited by my discoveries that I wanted to find a way of sharing them with others. And since I am a graphic designer, rather than an academic, it was my hope that I could use graphic means to explain things more simply and visually than in many of the books I read. Most of these were serious and scholarly. Rightly so.
What they all missed, it seemed to me, was the drama and the poetry.

I had always thought the characters beautiful, but when I began drawing them, they seemed far more astonishing. All kinds of hidden subtleties emerged.
I began to see that this was no mere utilitarian approach to human communication, it was a genuine attempt to combine the literary and visual arts. In recognition of this fact, I set out to find a suitable way of combining the pictorial elements with the written text. Eventually, I settled for the present format, which echoes the technique of slide-presentation, and involved me in a trinity of occupations; graphic designer, artist and writer. Given the intricacies of the many characters, I felt it important to enlarge them so that the reader could see the detail.
In this way the characters would enjoy major prominence and provide a visual counterpoint to the greyness of the explanatory text.
Lacking the financial resources to have them typeset or filmset, I had to draw them. This was a time-consuming labour of love, but it taught me a lot. More perceptive readers will have noticed that I've improved as I've gone along.
The decision to model the characters on a typeface, rather than use calligraphy, was a conscious one.
Chinese printed characters, just like our printed letters, have a kind of neutrality. They do not speak to us of the men who made them.
Whereas Chinese calligraphy is an art form. Indeed, to the Chinese it is supreme among the graphic arts.
It is painted poetry and we have no equivalent in the West.
I suppose that the nearest most of us come to understanding what the Chinese mean about calligraphy is when we scribble our name on a cheque. This unique mark is ours alone. We've written it so often that it is a spontaneous, automatized skill. We can write it blindfold, and it says a great deal about us.
It has a life and vigour of its own.
It is possible for someone to copy it, of course, but no matter how perfect the replica, it will always lack the spontaneity of the original.
It is a dead thing.
This is what the Chinese calligrapher seeks to avoid. His writing must be a vivid extemporization.
Yet what he seeks is not the practised response of the well-drilled automaton, but a controlled, inspired improvisation.
In view of all this, it would have been impertinent for me to compete.

To me, Chinese printing looks superb, and I marvelled at the unknown designers who had painstakingly shaped each of these tens-of-thousands of characters.
The design of a Latin alphabet is child's-play by comparison.
Not all European typographers shared my enthusiasm, however.
I once showed a page of printed Chinese to a colleague and asked him what he thought. He said that individually the characters were very attractive, but that the overall appearance of the page was 'spotty.'
Maybe that tells us something about Western typographical practice, wherein Homer's *Iliad* looks roughly the same as *Winnie the Pooh*.

Another thing which struck me about much of the writing on Chinese was the essentially Western-eyed stance of the writers. Most of them seemed convinced that alphabetic writing is inherently superior to ideogrammatic writing.
I would like to think that these articles do something to challenge this bland assumption.
I have sought to show some of the ramifications of these delightful pictorial characters.
Their visual appeal, allied to their endless chains of mental associations, give to Chinese literature an extra dimension. Because it can draw on the richness of visual imagery, Chinese writing has a completeness, a greater life and colour than is possible with a written language of phonetic construction.
Since the individual words are not glued together with conjunctions or parts of speech, each ideogram can float free before the mind's eye.
Alphabetic poetry has a warp and woof. It is a knitted garment.
Ideogrammatic poetry, on the other hand, is more like a flock of pictorial ideas flying in loose formation.

This series of articles does not pretend to be anything more than an *aperitif*, designed to stimulate the taste-buds of the serious reader.
So that I hope that the bibliography which follows will provide some nourishment for those who have developed an appetite on the journey.
The list is not extensive, and may surprise a Chinese expert.
It is simply a record of those books that gave me most help in my personal explorations.
In some cases I have tried to explain why a certain book was of value to me. Which seems an appropriate point to acknowledge my debt to those writers, scholars and translators who have enabled me to take these first, hesitant steps on a thousand mile journey.

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Shu Ching, modernised edition of the translations of James Legge by Clae Waltham; George Allen and Unwin, London, 1972

An Embassy from the East-India Company of the United Provinces to the Grand Tartar Emperour of China, by Jan Nieuhof, translated into English by John Ogilby, 1699. Scholar Press Ltd, England

This is a facsimile reprint of one of Europe's first authoritative accounts of China. A captivating book, as interesting for its descriptions of China, as for its revelations concerning the rival European trading nations

Chinese Looking Glass, by Denis Bloodworth, Penguin Books, London

China: Inside the People's Republic, by the Committee of Concerned Asian Scholars, Bantam Books, USA 1972

Report from a Chinese Village, by Jan Myrdal, Vintage Books, New York 1965

Sources of Chinese Tradition, Volume II, compiled by W Theodore de Bary, Wing-Tsit Chan and Chester Tan, Columbia University Press, USA 1960

A fascinating series of translations of writings from various sources, dating from 1839 to 1957. It takes us from the Opium War between Britain and China to the founding of the People's Republic.

Philosophy

A Short History of Confucian Philosophy, by Lia Wu-chi, Penguin Books, London

The Way of Zen, by W Watts, Penguin Books, London

The I Ching, translated by James Legge, Dover Publications, New York 1963

Tao Te Ching, by Lao Tse, a new translation by Gia-Fu and Jane English, Vintage Books, New York 1972

Lao Tse is something of a mystery. We don't even know his real name. 'Lao Tse' merely means 'The old Master,' and he is supposed to have been a contemporary of Confucius. Towards the end of his life he wrote this obscure book of roughly 5000 words, which has subsequently been translated almost as often as the Bible. Apparently, after he had written it, he was whisked up into heaven, presumably sent for direct. Even the title is difficult to translate, but the authors' suggest 'virtue or strength lie in the natural order.' This slim volume is one of the touchstones of Taoism. The Taoists do not see the universe as a piece of celestial clockwork. To them it grows and develops in response to natural laws, just as humans do. Like Heracleitus, they believe that all is flux—nothing is fixed. Man should not, therefore, kick against the pricks, but simply allow himself to be swept along by the tides of universal change. Paradoxically, man's best course of action is non= action. When called upon to act, he must do the necessary minimum, otherwise he will create still more things to be done. Not surprisingly, Lao Tse's ideas have proved seductive to a growing number of young people. Nevertheless, the Tao Te Ching is essential reading for an understanding of the influences of Taoism upon Chinese thinking

Writing

Chinese Characters, their origin, etymology, history, classification and signification, by Dr L Wieger, Dover Publications 1965

This edition is an unabridged and unaltered republication of the second edition, published by the Catholic Mission Press in 1927. Immensely valuable for its illustrations of the origins and development of Chinese characters. The author sounds extraordinarily arrogant, perhaps a fault of the English translation

Chinese Written Characters, their wit and wisdom, by Rose Quong, Lund Humphries, London 1973

A charming introduction to a small collection of characters

Pictorial Chinese-Japanese Characters, by Oreste Vaccari, Vaccari's Language Institute, Tokyo, Japan

A quaint book designed primarily to aid learners in memorisation of various Chinese characters. The author's etymologies seem highly suspect, but are useful as mnemonics, if you don't feel able to invent your own

Lin Yutang's Chinese-English Dictionary, Chinese University of Hong Kong 1972

To me, the master work. An extra-ordinary compilation of the Chinese spoken and written language by a unique authority. Dr Lin Yutang was the first Chinese to found a Chinese language journal, noted for its wit and humour. He was also one of the few Chinese to write best= selling literature in English for the English-speaking world. His dictionary is particularly valuable in that it treats of modern Chinese usage in a time of social and technological change, as well as recording the language of Middle and Ancient China.

I have only one reservation. The romanised spelling system used throughout is that of Gouryuu Romatzyh. *Gouryuu Romatzyh (National Romanisation) was invented in 1923-4 with Lin Yutang as a co-worker on the project. Indeed, he was responsible for some of its key features. Someone once said that when any professor is appointed to a chair of Chinese, he spends his first year inventing a new system of romanising Chinese and the rest of his career fighting for its adoption. Having been in at the birth of Guoryuu Romatzyh, Lin Yutang understandably had an affection for his offspring. Unfortunately, this took no account of the fact that a rival system* Pinyin *(Spell-sound) had been the official romanisation system of the People's Republic since 1958. Perhaps it would have been asking too much of this great scholar to have had him abandon his brain-child, but it would have made much more practical sense.*

The Chinese Written Character as a Medium for Poetry, by Ernest Fenollosa, edited by Ezra Pound, City Lights Books, California, USA 1936

Sinologists ridicule it. I love it. Fenollosa championed Chinese poetic literature at a time when few Europeans or Americans were aware of its existence. His is a charming and perceptive essay, marred only by the occasional clumsy and often ill-informed interventions of his more eminent editor

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