REPORT ON THE WORLD BRAILLE SITUATION

(NOTE: A summary of this report has been circulated as
a Conference document for the Fourth Session of
the General Conference, under the symbol PRG/8).

Description of the Braille System.

1.   The Braille system consists of sixty-three symbols being the
permutations of the six dots comprised in the domino six.
For purposes of easy reference the dots of the left-hand
column are numbered 1-2-3 from top to bottom and those of the right-
hand 4-5-6.

2.   Roman Braille "A" is Dot 1; "B" Dots 1-2; "C" Dots 1-4 and so
on. The first ten letters of the Roman alphabet are formed from the
top four dots, the second ten letters comprise the first ten repeated
plus Dot 3, a similar symmetry continues the division of the sixty-
three symbols until seven groups of symbols have been formed.

3.   In Roman Braille, the alphabet absorbs twenty-six of the signs,
ten are devoted to International punctuation marks, while the
remainder are used variously according to the needs of particular
languages. For example a broad uniformity is observed in allocating
the signs to the accented letters in French, Italian, Portuguese,
Dutch etc.

4.   The first ten letters preceded by a numeral sign provide the
cardinal numbers.

5.   Where Braille has been fully developed two "Grades" are used.
In Grade 1 all words are fully spelt, letter for letter with the
visual script. Grade 2, normally used by more advanced students and
for everyday purposes, embraces a greater or lesser range of con-
tractions for common words, conjunctions, prepositions, prefixes,
suffixes and common combinations of letters; the purpose of Grade 2
is to ease the task of reading and writing and to economise in space
and cost of production. Standard English contractions include for
example single Braille symbols for such combinations as AND, AR, BLE,
CH, ED, ER, and FOR. It is important that there should be uniformity
of contractions within each language or possibly within groups of
closely allied languages.

6.   Louis Braille early applied his system to writing music for the
blind and twenty years ago an International Musical Notation was
agreed upon in conference. Braille indeed has shown itself to be
immensely versatile, capable of expressing not only language and
music, but numerals, mathematical and chemical symbols and also as
being adaptable for use as commercial shorthand.

7.   It is applied too, to the faces of watches, meters and gauges
of various kinds; to the marking of playing cards and to other
purposes.

8.   Braille printing is expensive and almost if not all of it is done by voluntary organizations, usually with the aid of a State subsidy. Printing is done by the dots being stereotyped on soft metal plates by a power-driven machine. These plates are then set up on a flat or rotary press and printed on thick paper, usually dampened for the purposes of embossing without rupture to the paper.

9.   Blind and sighted voluntary hand-transcribers of single works also supply valuable and special books to Braille libraries.

10.   The International Postal Union has extended special concessions for the carriage of Braille by post, which has greatly facilitated correspondence between blind people and the circulation of Braille magazines and library books.

The Problem.

11.   The problem, for the solution of which Unesco is asked to lend its facilities, arises from the fact that while in the greater part of the world Braille characters to a large extent fulfil the same function, there are areas which have diverged altogether and others which have become the unhappy possessors of six or eight radically different arrangements of the sixty-three symbols for the same language or group of languages. In many of the areas affected governments have planned wide blind welfare schemes, but they are faced with the immediate problem that Braille printing and blind education on any substantial scale is impossible until final decision has been made as to a single Braille script.

12.   Technically indeed the solution is not as difficult as it might appear. The real difficulties seem to lie more in the facts that linguistic areas and political frontiers do not coincide, that several languages are in daily use within some countries and that those who know the present limited systems, small though their numbers may be, are sometimes reluctant to face the task of learning a new system. For these reasons local negotiation has proved slow and unproductive.

13.   Under these circumstances the Government of India deemed it the best course to ask Unesco to arrange for discussion on an international level, in the hopes that Braille uniformity might be arrived at by common agreement.

14.   The background, history and various aspects of the problem will be dealt with in succeeding sections.

The Background.

15.   Scattered through history since earliest times are records of blind men and occasionally blind women, who played a prominent part in the affairs of their countries, sometimes as administrators, sometimes as poets, philosophers, historians or musicians. Among the humbler, despite almost overwhelming difficulties and discouragements, some found useful outlets with which to satisfy, partly at least, their craving for a niche in society and for something with which to fill

their endless hours of darkness. It might be only grinding corn, drawing water, tending cattle or simple spinning. Although they lacked sight, their mental and muscular powers were potentially as good as their neighbours. The question was by what ways and means could they put these energies to use?

Pre-Braille Methods of Touch Reading.

16. The sympathy of sighted people plus the ingenuity of the blind themselves led to many practical experiments to break this bondage and to bring literature within the reach of the blind. The history of these efforts has been summarized by the American authority, Dr. Harry Best, in his work "The Blind".

17. "The first recorded attempt was made about 1517, by Francisco Lucas, of Saragossa, Spain, who contrived a set of letters carved in thin tablets of wood. This was brought to Italy about 1575 and improved by Rampansetto of Rome, who used larger blocks, but incut instead of raised. Both systems failed because of the difficulty of reading them. In 1651 George Harsdorffor of Nuremberg revived the classical method of a wax-covered tablet in which letters could be cut with a stylus. About 1676, Padre Terzi devised a kind of cipher code based on a system of dots enclosed in square and other figures and also an arrangement of knots tied in strings. Jacques Bernouilli is said to have used this system, as well as incised tablets, in teaching a blind child to read in Geneva in 1711.

18. "In 1640, Pierre Moreau, a notary of Paris, had brought out a system of movable raised letters in lead, and about the same time Scholberger, of Konigsberg, used letters made of tin, and a century later, Le Notre du Puisseau, who lived near Paris, cast metal letters. These systems suffered from two main defects: the letters were rough to the touch and they were hard to make out.

19. "Other devices were employed. For example, Maria Thereas van Paradis, who did so much to encourage Hauy, was instructed by the aid of pins stuck in cushions. In his "Letres sur les Aveugles", Diderot tells of a blind woman, Mlle de Salignac, born in 1741, who had been taught to read from letters cut out of paper.

20. "When Valentin Hauy founded his school in Paris in 1784 his pupil Leuseur found by accident that he could feel the outlines of an "O" which had been strongly impressed on a sheet of paper. Hauy at once set about embossing books and experimented with certain types. Embossed literature had been invented, but the old difficulty of a script which could be easily read by touch remained. It was the evolution of this script by Louis Braille in 1829 which completed the system under which the blind read today.

21. "It was not, however, until some fifty years later that the Braille system was universally adopted and numerous other forms of embossed type were devised both on the continent of Europe, in Great

Britain and in America. Perhaps the chief of these were the systems of James Gall of Edinburgh, whose works were the first to appear in relief type in the English language; of John Alston of Glasgow and of Dr. Moon of Brighton."

The Invention of Braille.

22.   Braille had its beginnings in a raised dot system invented by Captain Charles Barbier, a French Artillery Officer in 1819, but his scheme was unsatisfactory and it was only when radically modified between 1829 and 1834 by Louis Braille, a blind instructor in the School for the Blind in Paris, that it became the excellent embossed script we have known ever since as "Braille". None of the pre-Braille types met the real needs of the blind. They were based chiefly on resemblances to Roman letters, and were bulky and costly to produce; they could not be written by the blind nor were they readily adaptable to the expression of other than Roman scripts. But here at last was a remarkably simple script, perfected by a blind man, which opened wide the gates to knowledge, literary enjoyment, the ease to correspond privately with blind friends and to wider opportunities for employment for which the blind had longed. Braille was to prove itself to be astonishingly versatile, capable not only of providing a simple medium for reading and writing European languages, but equally effective in expressing every language in the world as well as numerals, punctuation and mathematical symbols, musical notation and commercial shorthand.

23.   But the day of Braille was not yet. "The system" writes Dr. Best, "did not prove popular and it was opposed as arbitrary and impossible, but the professors and pupils at the Paris school, where it was tested, realized its immense superiority over Roman letters for the blind. Louis Braille was allowed to teach it unofficially and out of school hours only and not until 1854, two years after the death of its author, did Braille become officially adopted at the Paris school."

Braille in Britain.

24.   In England too, the "Battle of the types" dragged on. The Bible was embossed in no less than five cumbersome systems. It was only in 1868 under the leadership of Dr. T.R. Armitage, himself blind, that England accepted Braille. Commenting on the situation at that time he wrote in "The Education and Employment of the Blind" 1886 - "The two main causes of this lamentable state of things seemed to be that inventors of systems and managers of institutions generally had their sight, and, misled by this sense, they could not understand or enter into the real wants of the blind. It is a curious and instructive fact that the two systems which are now in most favour with the blind themselves and which have most vitality in them, are due to two blind men, M. Braille and Dr. Moon ...... among the more intelligent of the blind the opinion had long been gaining ground that for any good results to be obtained, the question must not be settled

FOR the blind, but BY the blind themselves .... The relative merits of the various methods of education through the sense of touch should be decided by those and those only who have to rely upon this sense." To carry out this policy, Dr. Armitage collected a group of intelligent and educated blind men and together they founded the British and Foreign Blind Association, later renamed the National Institute for the Blind, a body which has played no small part in the pioneering and printing of Braille for use throughout the world. Under its influence Braille soon became the educational medium of the British blind.

Acceptance of the "'Généralisation' of Braille unmodified" for European languages.

25.   Braille spread rapidly throughout the Continent. A series of congresses, chief among them an International Congress in Paris in 1878, agreed upon a consistent policy in the application of the system to the differing needs of European languages. It applied to Braille the characteristic which had marked the evolution of visual scripts throughout the ages - under which each written symbol tended to adhere to a particular sound or function. There had already been several attempts to rearrange the symbols on the principle of allotting those with the fewest dots to the letters in each language which recurred most frequently, notably in the German Braille of 1876. Redrafting on this principle was also advocated at the Paris Congress by Mr. Smith of Boston, U.S.A.   The following extract is taken from the proceedings:

26. "Mr. Smith of Boston, in a carefully studied memorandum, proposed to modify the Braille system, by chosing signs most quickly formed for the letters which occured most frequently in each language.
"This idea had already been applied without success.
"The care and the calculation which Mr. Smith had given to the study lent weight to his argument and perhaps would convince those who had doubts, but it did not persuade those who used it.
"The conclusions come to by Mr. Smith were in opposition to the desire for unification which had brought about the Conference.
"As a result the Commission, though appreciating the hard work and time which Mr. Smith had given to his study, declared that they could not adopt his conclusions."

Mr. Meyer said: "The Commission proposes that you should adopt unmodified Braille because it embraces both reading and writing and it fulfils the two principal needs of the intelligence of mankind. It is not enough for the blind man to know how to read, it is also necessary that he should be able to convey his thoughts by writing, and this he can only do by writing Braille .... In proposing the adoption of the Braille system we would make it clear that the UNMODIFIED system of Braille is understood, the French Braille and none other.

"M. le President. ' .... Those of the opinion that the Braille system unmodified represents the best method for teaching the blind reading and writing and that there is need for generalization of usage

until a better method is discovered will raise their hands.'
The Congress pronounced by a strong majority in favour of the
'généralisation' of the Braille system unmodified."

27. This policy was emphatically reaffirmed by International
Conferences at Brussels in 1902 and Cairo in 1911, when the old pro-
posal to rearrange Braille symbols on the basis of frequency of
recurrence was once more brought up.

Divergences in America.

28. In the 1870's Braille was still a novelty. Built up as it
was on a geometrical arrangement, it could be set out in a multitude
of patterns, which opened the way to enquiries as to whether Louis
Braille had allocated the symbols to the best advantage or alternative-
ly whether his selection was appropriate to other languages than French.
Two new adaptations as well as the original French Braille were
established in the United States of America. For nearly half a
century the protagonists of each vied with one another. Students who
learnt one of these could not read the literature printed in the others,
while the cost of production was fivefold what it might have been.
A series of conferences extending from 1905 to 1918 at length brought
agreement to return to Louis Braille's original system. The American
divergences, excellent as the intentions behind them were, gravely
delayed blind education. Fourteen years later agreement between
the U.S.A. and Britain brought final unity in both Grade I and
Grade II for the whole of the English-speaking world.

29. This phase in America is of particular moment for it is
analagous situations in Asia and Africa which have led to the present
studies.

Braille in Latin-America.

30. In 1929 a request was made to the organizing committee of a
world conference on blind welfare, to have been held in Vienna, that
the question of a single Spanish Braille should be considered. For
various reasons this conference was cancelled and apparently some
Spanish Braille difficulties have not yet been resolved.

31. Leading authorities in the printing of Braille for Latin
America have represented to us the obvious handicaps which this
situation is imposing.

32. "Lack of unification of Spanish Braille is only concerned with
the system of contractions, (Spanish Braille stenography as we call it).
In Spanish-American countries the Argentine method is widely used.
This method has undergone changes following the various suggestions
made by experts of different countries interested in the matter.

"In Spain, a different Stenography is used, and it is very
desirable to secure unification by conciliating both the Argentine and
the Spanish methods. This problem is of the utmost importance for the
cultural progress of the Spanish-speaking blind and in my opinion, it

can be solved by means of a congress of all Spanish-speaking repre-
sentatives of the blind."

Absence of Policy in Asia and Africa.

33. Braille was soon being adapted to express Chinese, Japanese,
Hindi, Urdu, Tamil, Arabic, the unwritten tribal languages of Africa
and a score of other tongues. Missionaries, mainly British, American
and German, were the chief pioneers, reinforced later by enthusiastic
voluntary workers, including people whose mother-tongues were concerned.

34. Excellent as this was, a variety of factors led both to a
multiplicity of adaptations for the same language or language group and
to sharp contrasts in the methods of adaptation. Braille was still
new and as was evident from the divisions in America, its characters
had not yet become fully identified with particular sounds and functions.
No co-ordinated world authority existed to guide workers in the techni-
calities of their task; no study of the whole field of non-European
languages as regards Braille had been attempted and the pioneers
working at remote stations, far removed from one another, knew little
of what was being done elsewhere.

35. Unavoidably these circumstances gave rise to six or seven
Chinese and Arabic Brailles; at least eight were planned for Indian
languages, while no single principle guided the Brailling of other
Oriental scripts.

36. Broadly three methods were followed:

Method I INTERNATIONAL BRAILLE. Most of the adaptations were made
on a system complementary to that laid down by the European conferences,
namely that characters in the new alphabet or syllabary were given the
Braille signs which already carried corresponding or nearly corres-
ponding sounds. Where letters sprang from the same historic root
such as the Persian Lam, Mim and Nun, or the Hebrew Lamed, Mem and Nun,
the original Braille L, M and N were allotted. For sounds in the new
alphabet additional to those used in Europe, the planner had necessarily
to make arbitrary adaptations, though these were usually arranged on
some system. Some of the European contractions such as the English
CH, TH, SH, and OW, were embodied to represent single Oriental
characters carrying these sounds.

 Oriental and African languages, Brailled under this method
include Turkish, Armenian, Hebrew, Persian, Hindi, Urdu, Gujrati,
Marathi, Kanarese, Tamil, Malayalam, Sinhalese, Burmese, Siamese,
Malay, Union Mandarin Chinese in Malaya, Cantonese (partly), Swahili,
Hausa and a number of unwritten tribal tongues.

37. Method II. CONCURRENT SEQUENCES. It has been held by some workers
that it is of predominant importance to preserve the original French
sequence of the Braille signs and at the same time to maintain strictly
the sequence of the alphabet being Brailled. The French sequence is
an undoubted aid to the beginner in learning his letters, although
adherents of the International system point out that under modern

teaching methods, alphabetical sequence is no longer regarded as important and also that it is possible to arrange letters in various other ways which aid learning. In any event, they consider it of ephemeral value only, outweighed by the greater and more lasting advantage of uniformity in sound values.

This system of concurrent sequences was followed for a short time in one of the early American Brailles by the interpolation of W in the place occupied by the French X, thus giving the English X, Y and Z different Braille signs from those used for these letters in France. It was also the system formerly used in Greece. Four of the Arabic codes use it, and Uniform Indian Braille (1944) applies it to languages using the Devanageri script.

38. Method III. SCIENTIFIC REARRANGEMENT OF THE SIGNS TO SUIT THE NEEDS OF PARTICULAR LANGUAGES OR LINGUISTIC GROUPS. This was usually done with a view to easing the task of reading and writing or economizing space. As already mentioned, divergences of this type were planned or used for a number of years in Germany and America. This was also the case with Hebrew until 1938 and Sinhalese until 1940, when the former accepted and the latter returned to International Braille.

India had three such Brailles - Oriental for all Oriental languages, Shah Braille for Bengali and Advani Braille for Sindhi.

The ideographic scripts of Eastern Asia presented their own problems, which then seemed could be best met by special improvizations. Japan has only one adaptation (Ishikawa) and printing in it has been established on a moderate scale. Chinese and Korean Brailles also belong to this group. They appear to be quite unrelated either with one another or (with few exceptions) to International Braille.

Divergences and the motives behind them.

39. A brief history of the main divergences from the original Braille and the motives behind them is given in Appendix "F". These divergences appear to represent a justifiable phase of experimentation which, although in most cases they yielded a more facile Braille for the specific languages concerned, brought counterbalancing disadvantages vis-a-vis the Brailles of other tongues.

The Arabic Situation.

40. Appendix "A" gives details of the seven Braille adaptations arranged for the expression of Arabic script. Three of these are read from right to left and four from left to right. Two of them retain sound relationship with International Braille, while different principles or selection of individual symbols divide the remainder. The variations between the three which read from right to left (two designed in Egypt and one in Palestine) are limited to the representation of vowels and contractions.

41. In 1948 the Joint Committee of the British Colonial Office and the National Institute for the Blind, London, submitted a report on

"Blindness in British African and Middle East Territories" and its
observations on the Arabic Braille situation are given in Appendix "3".
The following is a short extract - "Everything should be done to foster
a maximum interchange of Braille Arabic literature between Egypt and
the British Colonies. The difficulty in this connexion is that at
least five codes of Arabic Braille have been devised, each differing
slightly from the others, and until agreement has been reached on a
standard code full co-operation cannot be attained. To solve this
difficulty we recommend that the Palestine Government and the Egyptian
Government, should each nominate two Braille experts to meet as a
committee under an independent chairman to discuss these conflicting
codes and endeavour to reach agreement, after consultation with other
countries interested in the development of a single Arabic code. It
should be added that no Braille code can be considered satisfactory
unless it accords with International usage, and this principle should
be accepted as an axiom by any committee which is appointed."

42.   Because of disturbed conditions little headway has been made
in the Braille situation since this report was written.

43.   The influence of Arabic literature, its script and of the
Muslim faith stretch from the Atlantic right across the old world to
the Pacific and have integrated with the cultures and languages of
many other peoples - Persia, Turkey, Afghanistan, Pakistan, India,
Malaya, the Swahili and Hausa speaking areas of Africa and elsewhere.
Probably these wide associations will need to be kept in mind in a long
view planning of Arabic Braille.

China.

44.   Complete information on the present situation of Chinese
Braille has not been easy to obtain; reports indicate that there have
been from six to eight different systems but it is uncertain how many
are still in actual use. A movement has been on foot for some time
to establish Union Mandarin Braille as the Standard Braille for China;
it does not use International sound values except for D, M, N, and P,
and in this way differs from the International Union Mandarin Braille
of Malaya.

45.   The "Report on Blindness in China" made to the Ministry of
Social Affairs, Nanking, 1949, says: "The Ministry of Education,
Nanking, supplied us with the following table regarding Braille codes
in use in China.

Ku Shou Tung Wen	408 symbols	This is the earliest kind used in China. It is still used in some schools in North and North-East China.
We Fang Yung Yin	44 symbols	Used in some schools in Central China.
Ke Hua Sin Mo Ke Ming	63 symbols	Used in some schools in Kwangtung and Kwangsi.

Sin Mu Ke Ming   54 symbols   Used in most parts of China.

(The last of these codes is the one
usually termed Union Mandarin Braille).

"We strongly recommend that before any extensive Braille printing is done by a central Braille printing house, the whole question of a standard Chinese Braille code should be studied carefully in order to design the best possible Braille in accordance with the following three objectives:

(a) To keep Chinese Braille within the International Braille system of the world on the "same-sound same-sign" principle;

(b) To bring about one single standard Chinese code for the whole of China; and

(c) To bring the code as far as practicable into line with the equivalent simple arrangement of sound symbols for sighted Chinese."

Movement towards Braille Uniformity in India.

46.   The problem in Asia was recognized long ago. One of the most vigorous attempts to resolve it was made at the beginning of the century by Messrs. Knowles and Garthwaite, an experienced missionary and a leading educationist in Madras.   In 1902, working under the auspices of the British and Foreign Bible Society, they published "Oriental Braille" as "One alphabet for the blind of all Oriental languages", which they hoped would be "final and permanent."

47.   Like the two divergent American Brailles of those days, it was built up on the principles of frequency and symmetry.   In so doing it sacrificed all sound relationship, symbol for symbol with International Braille;   and possibly for this reason, though tried out in some languages for many years, it has gradually passed out of use.

48.   The movement for Indian unity has continued down to the present time.   Successive conferences of the blind and of workers for the blind have asked for government action and sometimes added a request that the single Indian Braille, when designed, should be based on the principle of sound association with International Braille.   Between 1941 and 1945 two fresh unified Indian systems were designed.   One of these, planned under government auspices, maintains the complete break with International Braille sound values which Oriental Braille originated, while the other is the application of International Braille to Indian languages.

49.   In India in 1945, Bengali, Sindhi, Telugu and one school teaching Marathi and Gujrati used Brailles derived from Oriental Braille, while Tamil, Malayalam, Kanarese, Hindi, Urdu, Punjabi and five schools teaching Marathi and Gujrati used Brailles built up on international sound relationship.   In essence, therefore, the alternative systems considered by the Government of India represent the two schools of

thought and experience, one diverging from and the other adhering to International Braille.

50. In July 1949, Professor Humayun Kabir, Joint Secretary to the Government of India, Ministry of Education, wrote in the New Beacon, the journal of the National Institute for the Blind, London - "Our aim should be to have a single Braille code for the whole world. If, however, this cannot be achieved just now on account of the wide differences in scripts used by the various language areas, we should at least reduce the number of Braille codes to two: one for countries using the Roman script and the other for Asia and Africa. We believe that Uniform Indian Braille which has tried to reconcile the claims of Sanskritic, Perso-Arabic and Dravidian alphabets may well supply the basis for the formulation of the latter code.

"It is, however, essential that all interested in the welfare of the blind should adopt an objective and non-partisan attitude towards the complex problems of designing a unified Braille code for the world."

51. Professor Kabir has also sent us a copy of the resolution passed by the Indian Expert Braille Committee on 20 July 1949, the text of which is given in Appendix "H".

Extent of International Braille.

52. The terms "International", "universal", "généralisation", "uniform" and "standard" are scattered over the pages of Braille history. "Universal" for instance was used by Dr. Armitage in 1886, while in 1938 "The International Hebrew Braille Code" replaced the old Hebrew Braille "because we must make concessions in the interests of uniformity".

53 Geographically Europe, North America and South America and Australasia use only International Braille. In Asia, Turkish, Armenian, Hebrew, Persian, Urdu, Punjabi*, Hindi*, Marathi*, Gujrati*, Kanarese*, Tamil, Malayalam*, Sinhalese, Burmese, Siamese, Malay, Chinese, Mandarin (partly), Cantonese (partly) and of course Russian have this system.

54. In Africa three written languages, Swahili, Hausa and Africaans and 10 or more unwritten tribal tongues follow suit, the only language not of the International pattern being Arabic.

55. Lists of International and non-International Brailles are given in Appendices C. and D.

56. In Europe and America the solution of the problem of a type for the blind and the institution of a European policy was followed by the setting up of substantial Braille printing presses and of large libraries of Braille works. Blind education progressed rapidly and Braille readers began to make heavy demands of the new libraries. Appendix "E" gives the figures - as yet incomplete - of present production and of library stocks in European Braille. This appendix also sets out the

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* Save so far as their use may have been affected by the new Uniform Indian Braille.

details of India's limited Braille resources and it may be added that
the situation is similar in China and the Arabic countries because,
pending the solution of the Braille problem, substantial production has
not been practicable.

57.   As matters are, 99 % of present Braille production and library
stocks is in International Braille and in the meantime educated blind
people in Asia and Africa remain chiefly dependent on western sources
for their Braille literature, a situation which should be corrected.

58.   Various communications have mentioned plans for or the actual
erection of Braille printing presses in a number of Oriental and African
countries; - Egypt, Palestine, India and Malaya; and Braille printing
has also been making substantial progress in Latin America.

Braille Policy primarily for decision by the Blind.

59.   Dr. Armitage has commented upon the difficulty sighted people
have in comprehending the subtle differences between the physical and
nervous actions of seeing and feeling.   In studying a Braille chart,
eyesight embraces a much larger field than can the finger of a blind
man, nor can the senses of sight and of feeling be readily compared.

60.   Dr. Armitage's remarks on this subject in 1886 are quoted in
para. 24 of this report.   His views have long been standard practice,
under which questions of Braille are settled primarily by the blind
themselves in consultation with educationists, linguists and phoneticians.

Enlargement of Specific Points.

61.   For the information of those to whom the subject of Braille is
new, it may be as well that certain points should be enlarged upon.

62.(1) Braille the only script the blind have.

        Sighted people, considering any problem of world scripts, natur-
ally call to mind the extraordinary variety of symbols, curves, strokes
and dots inscribed from right to left, left to right, or top to bottom
of the paper, which the world employs to record the spoken word.   It
may be no easy matter for them to realise that the blind, be their
language Italian, Arabic, Tamil or Chinese, have but one script - Braille
and only Braille - that in fact the blind are the sole possessors of a
single world script.   The problem before us needs to be considered in
this light and all that it implies.

63.(2) Parallel between visual scripts and Braille.

        Apart from the fact that seeing people have many scripts and the
blind but one, and that seeing people look at their scripts while the
blind man feels his, there seems to be no fundamental difference between
a written and an embossed script.   Appendix "G" quotes passages from
the Encyclopaedia Britannica relative to the evolution and functions of
visual scripts, the characteristics of which also appear to be marking

the growth of Braille. As regards visual scripts, as well as Braille, there are movements towards unification and simplification to meet the needs of commerce, press and intercourse in a world ever more closely knit by rapid communications and increased international contact.

64.(3) World Phonetic Braille impracticable.

It is accepted that the sixty-three signs of the Braille system are too few in number to provide a fully phonetic alphabet for all world languages. The scope of the sixty-three symbols can be extended within limits by the employment of compound symbols (usually a symbol preceded by one or more of the dots of the right-hand column, Dots 4,5 and 6) or by the positional use of symbols, for example the punctuation marks may be used as letters in such positions that no ambiguity can arise. These methods of expansion, however, are strictly limited by practical considerations, and should be avoided in Grade I alphabetical Braille.

65.(4) Full expression of alphabets and syllabaries.

It is accepted as fundamental that, except where ideographic scripts make it impracticable, Grade I Braille expresses every character and mark of the visual script concerned. In order that education in schools for the blind, and examinations and inspections by officers of education departments, may be carried out in accordance with the standards called for in sighted schools, it is necessary that Braille textbooks should be the same as those used in the sighted schools and expressed in a parallel literary medium. For other purposes - the study of classical or religious literature, and to give the blind the ability to use the ordinary typewriter - it is essential that Braille should be fully representative of the visual script.

As explained elsewhere, the general Braille literature of most countries is expressed in a Grade 2 Braille which embodies many contractions for common words, combinations of letters, prefixes, suffixes etc. These abbreviations, however, are representative of the fully written text.

66.(5) Mother-tongue sound value of Braille symbols.

Whether the Braille of a language is built up on the International principle or on one of the alternative methods, it is accepted that the essential sound value of each Braille character is and must be that of the visual counterpart in the script concerned. Although Sinhalese, for example, employs International Braille symbols for such Sinhalese characters as carry the same or nearly the same sound, the essential pronunciation remains the Sinhalese and not the International. No language loses its own essential character and the blind child's approach to learning is through his own mother-tongue. He gives the same names to his Braille letters as the sighted child gives to his visual letters.

67.(6) Facilitating the reading of foreign languages.

In Braille uniformity it is accepted that the linking of

Brailles by using the same symbols for the same sounds does not of itself
teach a blind student a second language. Within varying scales the
Braille symbols of second languages convey approximately the same symbols
as those of his mother-tongue; as in the case of any sighted person
learning a foreign language, the blind student begins by mastering the
key to any special pronunciations in its alphabet.

Lack of uniformity between Brailles involves the blind reader in
avoidable mental effort. He finds himself constantly having to give
to the Braille symbols quite different sounds from those these symbols
convey to him in his familiar mother-Braille. When for example he has
grown up on a system employing Dots 1-3-4 for the M sound and Dots 2-3-4
for the S sound, it is confusing for him to find in another language
that Dots 1-3-4 convey the S sound and Dots 2-3-4 the M sound.

68.(7) Summary of aims.

(a)   The primary purpose of Braille has of course always been to provide
a form of writing which will serve blind people in their education,
employment, intercourse and literary enjoyment. More specifically it
sets out in fully written form every class of literature of each mother-
tongue, or, if so desired, expresses it in abbreviated form representa-
tive of the full text.

(b)   The object of uniformity is to provide the easiest written medium
for the blind student to learn, read and communicate in other languages
than his own. This is a cultural and practical advantage everywhere in
the world, but more especially so in certain areas where educated and
even uneducated people are bi or tri-lingual, where children of several
languages may be gathered in the same school, or where higher education
is given in a different language from the child's mother tongue.

Summary of Present World Braille Questions.

69.   The immediate Braille needs seem to be:-

(a) The establishment of the best single Braille for China.
(b) The selection of the best uniform Braille for all the Indian
languages.
(c) The provision of a uniform Braille for Arabic and its
associated languages.
(d) The complementary question of the Brailles of those countries
which, while they have but one Braille, do not adhere to the
original stem nor have any relationship with one another's
Brailles. This appears to be the case in Japan and Korea.
(e) This brings us to the major consideration - the possibility
of a world Braille, which would if accepted solve in principle
the foregoing problems.

70.   In the earlier stages of the movements towards unity in China,
India and the Arabic countries, each was primarily concerned with
achieving unity within its own group. In India, however, during the
past thirty years several recommendations have been made by conferences
of the blind and of workers for the blind, to the effect that the single

Braille when planned should be based on sound relationship with the
west - virtually an Indo-European Braille. As a natural corollary,
thought was given to the possibility of simultaneously resolving the
Chinese, Indian and Arabic problems, not as separate entities, but as
one. While, in the past, Braille in India had been concerned with
Indian languages and with the reading of English Braille coming from
British and American presses, it was just as necessary to make provision
for close Braille association between the Arabic countries and India,
India and China and so forth. Although Braille had emanated from
Europe, the day could not be far distant when its use would be general
throughout Asia and Africa as it was then in Europe. This in turn gave
rise to the question - "The blind have a common script used throughout
the whole world: - cannot we solve these major Braille problems by
applying the practical principle of the same Braille characters for the
common sounds and purposes in the greatest number of languages?"

71.		This question had 60 years of experience for its background.
The majority of Indian schools, for example, used Indo-European Braille
covering Hindi, Urdu, Gujrati, Marathi, Kanarese, Tamil and Malayalam.
The Indian sub-Continent presented a sufficiently wide range of languages
with such contrasting roots, scripts and usages as fully to test the
capacity of Braille to link widely varied scripts by sound and functional
relationship. All three charts for single Indian Braille embraced the
Indo-Aryan, Dravidian and Persi-Arabic linguistic groups, including
Arabic itself, and the capacity of Braille to do this, or to link all
the European language scripts seemed never to have been questioned.
Ceylon taught three languages in its schools, Sinhalese, Tamil and
English, in a uniform Braille system, while Malaya presented another
example of linking four scripts as different from one another as they
could possibly be - Malay (Arabic), Chinese, Tamil and English.

72.		Other Brailles with practical experience of European-Oriental
unity included Turkish, Armenian, Hebrew, Persian and Burmese.

73.		Thus there were many working examples of European-Oriental
Braille, Persi-Arabic-Indo-Aryan Braille, Arabic-Tamil-Chinese-English
Braille and in Ceylon Sinhalese-Tamil-English Braille. Apparently a
rational growth, springing from practical needs and widening horizons.
Added up they might almost be said to produce a European-Turkish-
Armenian-Hebrew-Persi-Arabic-Indo-Aryan-Dravidian-Burmese-Siamese-Malay-
Chinese Braille! Patchy though it was in places, it was nevertheless
related by many Braille characters of common sound stemming from the
original Braille root.

74.		Appreciating this situation and anxious that the best course
should be taken at this critical point in Braille evolution, the
Ministry of Education of the Government of India has said - "If a
satisfactory world Braille script is devised by International agreement
in the same way that English Braille was standardized in 1932 by
agreement between the English-speaking countries of the world, we shall
not hesitate to fall into line with the rest of the world."

75.   (f) The arrival by agreement at a uniform system of Spanish
            Braille contractions mentioned in para. 30.

Several Schools of Thought.

76.   The predominant method of treatment outlined in this survey
has been that of expanding Braille uniformity by representing the same
character or the same or similar sounds by the same Braille letter, as
far as that can be done.

77.   This was the method decided upon by Congresses in Europe in
the early days of Braille, and upon which all European and much Oriental
and African Braille has been linked together.

78.   It is the characteristic which has marked the evolution of
visual scripts throughout the centuries, and is the system employed in
other efforts to bring Braille uniformity to considerable groups of
languages with varied scripts - as illustrated in "Oriental Braille"
and "Uniform Indian Braille".

79.   Other schools of thought exist. . One favours the principle
of "concurrent sequences" (Method II. para. 37). Another thinks that
the inhabitants of the countries concerned should work out their own
Braille codes to suit themselves. The latter has been the method, or
perhaps the lack of method, followed in Asia and Africa over the past
70 years. It seems questionable whether a continuance of laisser-faire
would bring better results than in the past.

80.   The Government of India has suggested that should a single
world Braille prove impracticable, there might be two systems, each with
same-sound/same-sign uniformity within itself but stemming from two
distinct roots. One would stem from the original French Braille and
the other, a second world Braille system springing from a new arrangement
of the dots in Asia, all Oriental Braille to stem from this new root.

81.   If accepted this would certainly give two separate fields of
unity and would yield the uniformity in Asia so much desired. Consider-
ation might first be given to several questions. Is it necessary, when
the blind world has but one fixed set of symbols, to divide the use of
them into two different systems? Might not such a division perpetuate
confusion and disunity in the areas where the two systems must in-
evitably overlap ? Would it not place an avoidable burden on blind
students who wished to learn and use both an Oriental and a European
language ? And would it not be establishing a two-system situation
ill adapted to meet changes in and interminglings of languages and
scripts in this increasingly integrated world?

82.   These are matters for international discussion. The essential
elements in the several points of view, and the spirit behind the
approach on the high international level, provide a hopeful setting for
mutual understanding, compromise and agreement.

Suggested Approach to Solution.

83.   It is suggested that solution may lie along the following

lines:-

84.   1. In the light of present and future needs and of the history and principles of Braille, consideration should be given at an international Conference to the establishment of a World Braille, which though not aiming at being universally phonetic, would take advantage of the valuable degree of sound relationship allowed by the 63 Braille characters.

85.   2. This would call for tabulating the Braille signs under some such classifications as the following:-

(a) Braille signs for the letters or sounds, or roughly similar sounds, which are in common use throughout most of the world's languages.
(b) Braille signs for sounds which, while not generally occurring in European scripts or languages, may be in wide use in the scripts or languages of Asia and Africa.
(c) Braille signs for letters or sounds in common use throughout one or more linguistic groups.
(d) Irregular Braille signs reserved as far as possible for the rare characters or sounds used only in a few languages or a single language.

(While the Braille signs of class (a) would be expected to carry the same sounds almost everywhere, most of those in class (b) would, in Asia and Africa, carry different sounds from those in European languages.   In class (c) some signs would carry particular sounds throughout one group of languages and other sounds in a different group.   This is imposed by the limitations of the 63 symbols).

86.   3. International acceptance of the foregoing primary objective would in principle solve the existing regional Braille problems in China, India, the Arabic countries and elsewhere, the Brailles of which could then be discussed in detail and built up in accordance with the world system.

87.   4. Consideration should be given to smoothing out the remaining disunities in cardinal numbers, punctuation and other marks, mathematical and chemical symbols etc. and to strengthening their world wide use.

88.   5. Consideration should also be directed towards bringing about unity in contracted Braille within one language or related languages wherever this might be required.

89.   6. Finally consideration might be directed towards the question of setting up a small Braille Council, associated with some international organization for the blind, or other appropriate authority, to correlate future Braille development and to advise on such problems of Braille usage as might be referred to it from time to time.

<div align="right">

Clutha Mackenzie.
Consultant on Braille.
25 August 1949.

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List of Arabic Brailles collected from the Government of Egypt; the Government of India; the Government of Malaya; the National Institute for the Blind, London; the Association Valentin Hauy, Paris; the Ala-iya School for the Blind, Palestine; and the Federation des Aveugles d'Afrique du Nord, Alger.

1. Armitage old Egyptian Braille.
2. Modern Official Egyptian Braille.
3. Dajani Palestine Braille.
4. Freres Carmes, Bagdad Braille.
5. Vienot Bourgin, Morocco Braille.
6. Uniform Indian Braille (Arabic alphabet).
7. Standard Indian Braille (Arabic alphabet).

Characteristics of the various systems.

Three (Armitage, Egyptian, Official Egyptian and Palestine) are read from right to left; four (Bagdad, Morocco, Uniform Indian and Standard Indian Braille) read from left to right.

Two of the foregoing, i.e. the Bagdad Braille of the Freres Carmes and Standard Indian Braille (used in Malaya), are based on International sound values; the latter is described as being a "tentative draft only and its perfecting awaits consultation with Arabic Braille experts in Arabic-speaking countries."

The numerals and punctuation of the Bagdad Braille, Standard Indian Braille, Vienot Bourgin's Morocco Braille and Uniform Indian Braille are International. The numerals of Armitage Egyptian, Official Egyptian and Palestine codes are International in reverse.

Uniform Indian Braille (Arabic alphabet) has no sound nor Braille relation to other Arabic Brailles.

The Armitage Egyptian, Official Egyptian and the Palestine codes retain the principle of concurrent sequence between Louis Braille's original and the Arabic alphabets, but the Braille letters are reversed and are read from right to left.

Vienot Bourgin's Morocco Braille retains the same concurrent sequence between the French sequence and the Arabic sequence without reversing the Braille signs and is read from left to right.

Extract on Arabic Braille from "Blindness in British African and Middle East Territories". Report of the British Colonial Office and the National Institute for the Blind, London.

"In the Near East, the main problem is to produce Braille books for school use, but, as a number of adults already know Braille, adult literature will also have to be provided. English works, produced by the National Institute for the Blind and the American Foundation for the Blind, will be suitable for this area. Provision will have to be made for the following other languages:-

(1) GREEK. Braille in this language will be required for Cyprus, and arrangements for its provision should be made with the Greek Lighthouse for the blind in Athens, which proposes, in the near future to establish a Braille printing press.

(2) HEBREW. The Jewish blind in Palestine already obtain what appears to be an adequate supply of Hebrew Braille from America.

(3) CLASSICAL ARABIC. A Braille printing unit is being established at the Government school for the blind in Ramallah in Palestine and this, when it attains full production, should be capable of supplying Classical Arabic Braille for the Near East Colonies. Equipment for printing Braille, of an old-fashioned German design, exists at the Syrian Orphanage in Jerusalem, and the possibility of repairing this equipment and using it for additional production should be considered.

We understand that the Egyptian Government is planning to establish a Braille printing press in Cairo. Everything should be done to foster a maximum interchange of Braille Arabic literature between Egypt and the British Colonies. The difficulty in this connexion is that at least five codes of Arabic Braille have been devised, each differing slightly from the others and, until agreement has been reached on a standard code, full co-operation cannot be attained. To solve this difficulty, we recommend that the Palestine Government and the Egyptian Government should each nominate two Braille experts to meet as a committee under an independent chairman to discuss these conflicting codes and endeavour to reach agreement, after consultation with other countries interested in the development of a single Arabic Braille Code. It should be added that no Braille code can be considered satisfactory unless it accords with international usage, and this principle should be accepted as an axiom by any committee which is appointed."

Table showing Extent of International Braille.

(a) Classical & Archaic Languages

Greek
Latin
Runic
Anglo-Saxon
Gothic

(b) Living European Languages.

French
English
Erse
Welsh
Gaelic
Italian
Spanish
Spanish (Catalan)
Portuguese
Flemish
Dutch
German
Danish
Islandic
Norwegian
Swedish
Finnish
Polish
Latvian
Litovian
Estonian
Czech
Croatian
Serbian
Hungarian
Roumanian
Bulgarian
Russian
Modern Greek
Esperanto

Asiatic Languages.

Turkish
Armenian
Hebrew
Arabic (Freres Carmes, Bagdad)
Persian
Urdu (Shirreff)
Punjabi (Shirreff)

Asiatic Languages (Cont.)

Gurmukhi (Shirreff)
Hindi (Shirreff & Nilkanthrai)
Gujrati (Nilkanthrai)
Marathi (Nilkanthrai)
Kanarese (Mysore)
Tamil (Palamcottah)
Malayalam (Palamcottah)
Sinhalese
Burmese
Siamese
Malay (Arabic Script)
Chinese (Union Mandarin, Malaya)
Cantonese (partly)

African Languages

Swahili (East African littoral)
Hausa (Northern Nigeria)
Africaans

Unwritten Languages

Araucanian (Chile & Argentine)
Kabili (North Africa)
Dinka (Southern Soudan)
Ibo (Southern Nigeria)
Ga)
Ewe) (Gold Coast)
Twi)
Luganda
Chinyango (Southern Soudan)
Nyanja (Central Africa)
        S. and S.E.
Xosa (South Africa)
Polynesian
Solomon Islands

Table showing Extent of Divergent Brailles.

Arabic	(5 different systems)
Yiddish	
Sindhi	(Advani)
Marathi	(Oriental)
Gujarati	(Oriental)
Bengali	(Shah)
Telugu	(Oriental)
Uniform Indian Braille	(For all Indian languages)
Chinese	(Foochow)
Chinese	(Kien-ning; it is uncertain whether this is still used)
Chinese	(See also list supplied by the Ministry of Education) See China Section
Korea	
Japanese	
Bata (Toba)	(It is uncertain whether this is still used)

Statistics (incomplete) of annual Braille Production and of Library Stocks.

TABLE A-Production.

Press.	Magazines & Pamphlets.	Volumes.
American Printing House for the Blind Kentucky.(1947-1948)	499,801 magazines 14,881 pamphlets 3,664 music	39,798
American Foundation for Overseas Blind, Paris.(1949)	24,000 magazines	
National Library for the Blind, London. (1948)		3,962
National Institute for the Blind, London. (1947-1948)	124,921 magazines 15,935 pamphlets 351,145 newspapers 5,559 music	37,005 1,365 music
National Institute for the Blind, London. Student's Library.		1,000
Victorian Association of Braille Writers, Melbourne. (1949)	792 magazines	
Association Valentin Hauy, Paris.	24,000 magazines	
Canadian National Institute for the Blind, Toronto. (1949)	5,125 magazines (circulation)	

TABLE B Library Stocks.

Library.	Magazines & Music.	Volumes.
Library of Congress, Washington D.C. (1948) Supplies a return covering 26 libraries throughout the U.S.A.	42,002 magazines 20,301 music	469,350
National Library for the Blind, London. (1948)		277,705 (including Moon)
National Institute for the Blind, London, Student's Library. (1948)	7,479 music	22,000
Edinburgh & S.E. of Scotland Society of Teaching the Blind to Read at their own Homes. (1948)		5,000
Canadian National Institute for the Blind, Toronto. (1949)		16,470
Victorian Association of Braille Writers, Melbourne. (1949)		20,225
Royal Sydney Industrial Blind Institution, Australia. (1949)		15,000 (including Moon)
New Zealand Institute for the Blind, Auckland. (1949)	26 different mags. monthly	7,000
Association Valentin Hauy, Paris. (1949)	15,000 music	150,000

TABLE C

The following is "Appendix H" contained in the "Report on Blindness in India, 1944", prepared by a Joint Committee appointed by the Central Advisory Board of Health and the Central Advisory Board of Education to the Government of India, showing languages, number of Braille readers, Braille works available and Braille code used.

School	Language	Estimated no. of active readers	New pupils qualifying annually	Books available in Braille	Braille code used
Patna	Hindi Urdu Bengali	100	5	68 Hindi and Sanskrit	Shah.
Ranchi	Hindi Kurubha (Oraon) Mundari Ganeoari	20	7	School books stories and the Bible	Shirreff
Allahabad	Hindi Urdu	50	8	None to speak of	Shirreff
Sharp Memorial School, Rajpur	Urdu	50	2	8 works & the Bible	Shirreff
St.Dunstan's Hostel for Indian War-blinded, Dehra Dun.	Instruction only in Roman and English			200 vols. English Braille & Bible in 5 Indian languages	English Braille
Emmerson Institute, Lahore	Urdu	200	5	7	Shirreff
Amritsar	Punjabi	70	10	75	Shirreff
Association for the Welfare of the blind, Lahore	Estimates a total of 50 active readers in the Punjab and a total of 75 Braille books including school text books in Punjabi, Hindi, Urdu and English.				

TABLE C (Cont.)

School	Language	Estimated no. of active readers	New pupils qualifying annually	Books available in Braille	Braille code used
School for the Blind, Karachi	Sindhi				Advani
Bahawalpur.	Urdu	2		57	Shirreff
Dadar school Bombay	Marathi	21	2	5 school books, 6 books of the Bible	Oriental
Victoria Memorial School, Bombay	Gujarati	75 including school pupils	20-25	Very few	Nilkanthrai
Poona	Marathi	15		Elementary	Nilkanthrai
Nagpur	Marathi Hindi	35	4	A few text-books	Nilkanthrai
Hyderabad Deccan	Urdu	6		A few school and religious books	Shirreff
Lutheran Mission, Rentachintala	Telugu Urdu	100	5	A few old textbooks and religious works	Telugu
Poonamalee	Tamil	30	6	6 Tamil, 57 English textbooks & religious stories & the Bible	Palamcottah
Cochin	Malayalam	5	3	A few old textbooks	Palamcottah
Mysore	Kannada	150	5	20 Kannada, 7 English School text & religious works	Mysore

TABLE C (Cont.)

School	Language	Estimated no. of active readers	New pupils qualifying annually	Books available in Braille	Braille code used
Palamcottah	Tamil	Few because no Braille library	10	Small number of old text-books, pamphlets and religious works	Palamcottah
All-India Lighthouse for the Blind, Calcutta	Bengali but others served	Estimates not more than 1,000 readers in India altogether and states they are severely handi-capped through lack of Braille literature.			
Baroda	Gujrati Marathi Hindi	5	5	A few school text-books only	Nilkanthrai
Calcutta Blind School, Behala	Bengali	100	12	School books to Matric standard only	Shah.

Brief History of Divergences and the Motives behind them.

We have already touched to some extent upon the various departures from the original French Braille. As the current Braille problem chiefly concerns the merits and demerits of divergent systems, it is as well that the history of these divergences should be presented.

The following comprise the main divergences in the past and present.

1. The German Braille of 1876, departed from the original Braille order to give the simplest signs to the most frequently used letter. Such strong opposition was raised, however, that the original form of Braille was reverted to at a congress in Berlin in 1879.

2. New York Point was planned by the New York School for the Blind in 1869. Its designers thought that more effective service could be secured from the six dots if the axis were horizontal and not vertical, that is the Braille sign was two dots high and three wide. A committee of blind men in London carefully compared this American system with the French and decided that the advantage lay with the latter. Dr. Armitage says -"As the different letters occur with varying frequency in different languages, it follows that if the New York system were generally adopted, each language would have a different alphabet, and the difficulty of reading foreign languages would therefore be greatly increased." Nevertheless New York Point continued to be the most used of the three American systems until the U.S.A. accepted International Braille in 1918.

3. American Braille designed in 1878 by the Perkins Institute for the Blind, Boston, was also based on the principle of frequency of recurrence for the selection of its letters. It too continued until America returned to the International system in 1918.

4. Dr. Armitage refers to another divergence which for a time modified American use of the original French Braille. "The little Braille that has been used in America has not been pure Braille, for "W" has been placed in its regular position in the alphabet as the 23rd. letter. This alteration in position adopted by the Americans necessitated the change of meaning of the last four signs in the alphabet; French "X" becoming "W"; the French "Y" becoming "X"; the French "Z" becoming "Y" and the French "c" cedilla becoming "Z". It is easy to understand what confusion this small change in the position caused."

5. Standard Dot was submitted in America in 1918 as a compromise between the various Anglo-American Brailles but was not accepted.

6. Another divergence was that of the Abbé Carton of Bruges who endeavoured to "arrange the points of the Braille letters so as to bear some resemblance to the corresponding Roman letters." The intention was to aid the pupil, if he happened to know anything of the shape of Roman capitals to learn the new symbols.

7. Oriental Braille 1902 mentioned in paragraphs 46 and 47 for "All Oriental languages" and now obsolete.

8. Derivatives of Oriental Braille. Shah Braille (Bengali) and Advani Braille (Sindhi) were used for these Indian languages until 1948.

9. Uniform Indian Braille designed in 1944 by a Government Committee to provide a single Braille for all the major languages of the sub-Continent. It is based on a different principle from Oriental Braille, placing its emphasis on the need to adhere to the original French Braille sequence and the sequence of the Devanageri syllabary.

10. Several Arabic Brailles, e.g. those of Egypt and Palestine, have been planned on the same principle as Uniform Indian Braille with the difference that these Arabic Brailles are read from right to left. There is no correspondence between the phonetic values of the Arabic and Uniform Indian codes as a consequence of their sharing the same principle.

11. The ideographic scripts of Eastern Asia have in the past presented difficult Braille problems and in solving them, divergences were made in order to accommodate them to Braille's sixty-three symbols. The forty to fifty thousand Chinese ideographs have been rendered in six or eight Chinese Brailles ranging from fifty-four to four hundred and eight symbols (including compound signs). Since these were designed, advances have been made in the expression in Romanised form of Chinese, Korean and Japanese ideographs, which seem to offer an easier road for the establishment of a single and simpler Braille script.

The intentions of the planners of divergent Brailles were always excellent. They are summarized here:-

(a) The early German divergence, American Braille, New York Point, Standard Dot and Oriental Braille all aimed at reducing the labour of writing and easing the task of reading by allotting the signs containing the fewest dots to the most frequently recurring letters.

As the frequency factor, however, varied from language to language, uniformity under this principle was found to be impossible.

(b) New York Point aimed also at economy of space, an important consideration because of the bulk and cost of Braille books.

(c) The desire to make alphabets or groups of letters easy to memorize by linking them by dot symmetry is one of the aims of Uniform Indian Braille, was also one of the aims of Oriental Braille, and lies behind several of the Arabic Brailles. It was employed indeed by Louis Braille himself and while valuable for instructional purposes, it held certain disadvantages. In its application to the French alphabet it gave difficult signs to some letters of high frequency while easily readable signs fell to such comparatively little used letters as B, C, K, L and X. It was this which chiefly inspired the type of divergence in para. (a) above.

With other languages, the moment the alphabetical sequence varied from French, either Louis Braille's symmetrical sequence or the alphabetical sequence of the other language had to be disrupted. If his sequence and the sequence of the local alphabet were both to be regarded as sacrosanct

(the principle of concurrent sequences), little uniformity of sound between the Braille characters of one language and another was possible.

Which was the more important factor - a symmetrical arrangement of dots which might help the new pupil to learn his Braille letters, or that each Braille character should carry the same or nearly the same sound or fill the same purpose in the maximum number of languages?

In Europe the International congress of 1878 decided that the latter was the more important, and that the individuality of each character should be respected.

The motive behind the divergences in the ideographic scripts lay in the need to accommodate the many thousands of characters together with their tones within the limited compass of Braille.

Extract from the Encyclopaedia Britannica illustrating the parallel nature of Braille and Visual scripts.

In the 9th Edition of the Encyclopaedia Britannica Mr. John Pelle writes - "The Phoenicians could only become acquainted with the Egyptian symbol and sound together, the one would naturally suggest the other; and we should expect that they would first take the symbols belonging to those sounds which exactly corresponded in Egyptian and Phoenician, then the symbols which did not exactly correspond to their own, but which seemed in each case the most analagous to them; but that there would never be any violent rupture between the symbol and its old sound."

In the 14th Edition Dr. B.F.C. Atkinson writes - "The name alphabet .... denotes a set of characters, or, as we call them, letters, each of which represents a given sound or sounds. This representation is necessarily rough and of quite a general character. This is easily seen in the case of the first letter of the English alphabet, for example, which represents different sounds in the words father, man and take. But even in cases where a letter is regarded as representing a single sound, it does so roughly, taking no account of differences of intonation, tone or pitch, nor of stress, nor of slight variations of pronunciation which vary not only between one individual speaker and another but also, from time to time in the case of an individual in accordance with the position of a given sound in a work, of a word in a phrase, or with the nature of the phrase to which he is giving utterance. In this connection writing stands in much the same relationship to speech as speech does to thought; if language is not a sufficiently delicate instrument to express the nuances of human thought, writing is a less delicate intrument still, and any attempt to multiply signs and characters to keep pace with the subtle variations of the human voice would only impair their usefulness.

"An alphabet is a highly developed, artificial form of writing. The connection between sound and character is conventional and not essential."

It would be wise, if in this matter of Braille we should attempt no more than visual scripts succeed in doing. It is safe to assume that with Braille also "to multiply signs and characters to keep pace with the subtle variances of the human voice would only impair their usefulness." Dr. Atkinson continues - "The alphabet then is the form of writing that to those people who have developed, borrowed or adopted it has been found the most convenient and adaptable. Its use is acquired in childhood with ease ... It may also be passed from one language to another without difficulty. The same can equally well be written of Braille.

Braille being new has been experimented with (See Divergences) but, probably we cannot go far wrong if in adapting Braille to the world's scripts we follow in the wake of visual writing.

With only a hundred and twenty years of history behind them, Braille letters in general have already acquired specific values; and, although in experiments to improve the system, rearrangements of sound values have been made, they have shown the same resistance to change as visual letters have.

Resolution passed by the Expert Braille Committee on Uniform Indian Braille.

"The Expert Committee on Uniform Indian Braille, having worked out a Braille Code for all Indian languages belonging to the Dravidian and Indo-European groups, the last written either in Indo-Aryan and in Persi-Arabic scripts and keeping to the principle that, in order that the blind may feel at home among the sighted of their community, the Braille code should enable them to produce as nearly as possible the writing of the sighted using the same language, note with pleasure that the Government of India have referred the wider question of the world uniformity of Braille to the Unesco.

"They hold that, even if all the world languages adopted rational phonetic orthographies, it would not be possible to have a Uniform World Braille based upon the "one sign one sound principle", so long as 63 is the limit of the number of signs available. But the Unesco could use its influence to bring about such uniformity as already exists among the sighted. They note with regret that even in the matter of punctuation and arithmetical signs, the two leading Braille systems, the French and the English, differ and make it difficult for those who are evolving new Braille codes to work for uniformity.

"The Committee further feel that where new languages scripts are being evolved, as in China and some parts of Africa, the alphabets devised should be arranged on a rational basis as obtains in India, to enable such areas to have uniform codes with larger linguistic regions in preparation for such time as the whole world could have a world-script for both the sighted and the blind.

With this end in view, the Committee request the Government of India to forward the Uniform Indian Braille, as finally worked out by them and accepted by the Government for use in schools for the blind in the Indian Union, to the Unesco to serve as a model in all areas where Braille is in the process of development."