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TRANSCRIPTION IN CARTOGRAPHY

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TRANSCRIPTION IN CARTOGRAPHY

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Introduction.

This paper is directed at the cartographer and not at the linguist. Therefore the stress is on the practical aspects of g e o g r a p h y and c a r t o g r a p h y . The problem is not discussed in a general way: we are not concerned with the methods of transferring geographical names from script A into script B, but rather with the possibilities of transferring names written in non-Latin alphabets into the L a t i n a l p h a b e t . Where popular transcriptions are concerned only the German versions are discussed in greater detail. Only those non-Latin alphabets which are of interest to the cartographer will be dealt with.

In cartography today it is an established principle to use material in the original language whenever possible. If a new map of Bulgaria is produced in Vienna, Berne or Munich, good Bulgarian maps as well as the most recent official register of Bulgarian place-names are required. In this particular case the material used will be written in a non-Latin (i.e. in the Bulgarian) script. What is the cartographer to do who draws a map for Latin-alphabet areas? He has to render the Bulgarian alphabet legible for the map user who is accustomed to reading the Latin script. Since the number of countries using non-Latin alphabets is considerable, this is a genuine problem for cartographers.

I. The Concept of Transcription.

Unfortunately, there are no generally accepted definitions and designations for the various systems of transference. Recently there has been a tendency in the English and German literature of placing transcription and transliteration on the same level: transliteration is understood to be a reversible letter-by-letter

transference whereas transcription is regarded by some as the phonetic rendering of the pronunciation of the original language by means of the "receiver" alphabet¹ and by others as the sum total of all transference methods excepting transliteration.² Nothing is gained by this interpretation. We only get a name for one method (transliteration) and another name for another method or methods (transcription), but no name for the overall concept. Formerly, the sum total of all the methods used was known as transcription. In 1968 the International Organization for Standardization (ISO) in its most recent recommendation concerning the transliteration of Greek offered definitions which are in accordance with this tradition and correspond to the original Latin meaning of the terms.³ The sum total of all methods is called **t r a n s c r i p t i o n**: "The operation of representing the elements of a language, either sounds or signs, however they may be written originally, in any other written system of letters or sound signs." **T r a n s l i t e r a t i o n** is one method of transcription: "The operation of representing the characters (letters or signs) of one alphabet by those of another, in principle letter by letter. This method of conversion is applied specifically when representing one purely literal alphabet such as Cyrillic by another literal alphabet, such as Roman." "In transliteration, letter for letter equivalence is ideal, but absolute consistency of application may not be possible. In some cases, diacritical marks or letter groups may be used, but they should be kept to a minimum. In designing any system of transliteration, a particular effort should be made to achieve direct reversibility insofar as this is possible, to facilitate reconstitution of the text in its original form should this be necessary." So much for the most recent definitions of the International Organization for Standardization (ISO).

¹"Transcription is a method of transferring names from one language to another in which the sound of each individual name is represented as accurately as possible in the script of the second language." Definition A in United Nations Conference on the Standardization of Geographical Names, Geneva, 4-22 Sept., 1967, Vol. I, Report of the Conference. New York 1968, p. 6.

²M. MANGOLD, Transliteration und Transkription, Heft 7, Duden-Beiträge. Mannheim 1965, p.9, line 9 seq.

³ISO-Recommendation R 843, Internat. System for the Transliteration of Greek Characters into Latin Characters, ed. by ISO, s.l. 1968, p.5

Transcription is possible not only in respect of alphabetic and syllabic scripts, but also in respect of word and sentence scripts, ideographic and even unwritten languages. Transliteration, on the other hand, is possible only in respect of alphabetic or, at the most, syllabic scripts.

For practical purposes the old terms "scientific conversion", "library conversion" and "popular conversion" may also prove quite useful. The former two usually refer to transliterations whereas the latter designates all those methods in which a non-Latin alphabet is rendered by means of the (in our case) German alphabet without the use of special letters, diacritical signs, accents, etc. In this context it remains open whether we are concerned with an attempt at transliteration frustrated by the limitations of the German alphabet, an equally unsuccessful attempt at representing the sounds of the original language or some mixed solution. A detailed investigation into methodical conversion problems was made by M. MANGOLD.⁴

At the United Nations Conference on the Standardization of Geographical Names, Geneva, 4-22 September 1967, treatment of the question of defining the various conversion methods was adjourned.⁵ As a matter of fact, these questions are not of primary concern to the cartographer.

Although the following two problems have no direct bearing on the conversion of non-Latin alphabets short mention will be made of them here:

First of all, the R o m a n a l p h a b e t r u l e. Whenever the local geographical names of a Latin-script area are to be given on a map all special letters, diacritical signs, accents, etc. of the original language should remain unmodified according to this rule. This is not a new stipulation. It was accepted

⁴Transliteration und Transkription, loc. cit.

⁵loc. cit., Vol. I, p. 6

as early as in 1871 at the First International Geographical Congress at Antwerp as well as at the Second International Geographical Congress in 1875 and at the Fifth Congress in 1891.⁶ It was again formulated at the First World Map Conference in 1909⁷ and most recently in 1967 at the United Nations Conference on the Standardization of Geographical Names.⁸ The Roman alphabet rule is applied in all maps and charts produced for international use; it does not exclude the use of exonyms in the various language areas. This is to say that when it is deemed necessary the spelling Bukarest will be used in German, Bucharest in English, Bucarest in French and Boekarest in Dutch. If, however, for some reason or other the original Rumanian name is to be given it must be București and not Bucuresti. Spellings such as Besançon, Forlì, La Coruña, Kaposvár, Łowicz are the rule in our maps, whereas strangely enough names like Gorjantsi, Chwar and Tirgowishte for Gorjanci, Hvar and Tîrgoviște⁹ are still to be found in German atlases, as though the Slovene, Croat and Rumanian alphabets need not be followed as closely as the Hungarian or Polish alphabets. Real difficulties are encountered when special letters cannot be reproduced with the available type setting equipment. However, even then the Roman alphabet rule should be

⁶International Standardization of Geographic Names, Background-Paper, submitted by the Government of the Federal Republic of Germany to the United Nations Technical Conference on the International Map of the World on the Millionth Scale held at Bonn, 3-22 August 1962, presented by Ständiger Ausschluß für die Rechtschreibung geographischer Namen, Bonn 1962, p. 1.

²ibid., p. 2

³"The Conference, recognizing that the accents and diacritical signs which accompany the Roman alphabet letters of many languages are an integral part of the spelling of these languages, in which they express such essential features as the tonic accent, the length and degree of openness of vowels, and other significant aspects of pronunciation and meaning, recommends that in international use all geographical names officially written in these alphabets by the countries concerned should remain unmodified and keep their distinguishing marks, even, and indeed particularly, when they are written in capital letters."
United Nations Conference, loc. cit., Vol. I, p. 13, Resolution 10.

⁹DIERCKE Weltatlas, ed. by Georg Westermann Verlag, 136th edition, Braunschweig, Berlin, etc. 1967, p. 45, 65.

strictly observed. After all, in cartography the technical possibilities are much greater than in letter-press printing. In this context I am thinking of the Croat or Vietnamese đ, the Danish, Norwegian or Faeroese ø, the Icelandic or Faeroese þ, the Maltese ħ, the Polish ł, and the Icelandic þ. The 1967 Geneva Conference recommended that even when a name is printed wholly in capital letters all accents and diacritical signs should remain unmodified.¹⁰ It would be even better if cartographers stopped writing names wholly in capital letters (MAJUSCULES). BEARN is ambiguous, BÉARN (with É) is not. In order to be able to replace FRUŠKA GORA by Fruška gora I must be familiar with Berbo-Croat orthography (capitalization, non-capitalization). If I want to use minuscules on my map I shall have to look for some source giving the name of GIESSEN in lower case letters, because the official spelling of German geographical names does not necessarily correspond to the modern orthographical rules. It could be either Giessen or Gießen. Thus the Roman alphabet rule by coming out against transcription within the Latin-alphabet area does have some connection with the problem of transcription.

Another marginal problem of this type is the question of exonyms. Exonyms are geographical names used in a certain language area for topographical features outside that area and differing from the local official names, e.g. Milan, Mailand etc. for Milano¹¹; Venise, Venice, Veneția, Benátky, Velence etc. for Venezia¹²; Vienne, Vienna, Bécs, Beč, Dunaj etc. for Wien¹³; Tagus, Tage, Tago, Taag etc. for Tajo/Teju¹⁴; Oostelijke Alpen etc. for Ostalpen/Alpi Orientali/Alps/orientals/Vzhodne Alpe/Istočne Alpe/

¹⁰Text of Resolution see Footnote 8.

¹¹English, French, German, Italian

¹²French, English, Rumanian, Czech, Hungarian, Italian

¹³French, English, Hungarian, Serbo-Croat, Slovene, German

¹⁴English, French, Italian, Dutch, Spanish, Portuguese

Keleti-Alpok¹⁵; Ätna for Etna/Mongibello¹⁶; Rakousko etc. for Österreich, Austria¹⁷; Switzerland etc. for Schweiz/Suisse/Svizzera/Svizra¹⁸. To denote the name customary in German use the not very precise expression "Auslandname" is also found (to the German speaker Zürich is an "Auslandname" but not an exonym of the German language), in English the term "conventional name" is used (Den Haag is the Dutch conventional name for the official 's-Gravenhage, it is no exonym; The Hague, La Haye, L'Aia, La Haya¹⁹ etc. would be exonyms). For our purposes the exonym is of interest insofar as there is no clear-cut dividing line between exonym and conversion form. I regard Nisch, Nis as outdated transcription forms for Hw̄w̄, others consider it a German or Hungarian exonym which should be retained because of the importance of the town. Similarly, it is difficult to say whether we are faced with a violation of the Roman alphabet rule (no transcription!) or with an exonym. In the case of Constanța - German Konstanza, French Constantza, Czech Konstanca - it would be possible to maintain that the place is so important that even purely orthographical variants may be regarded as exonyms. However, this does not sound quite so convincing with regard to the common German variants of Montblanc and Istanbul for Mont Blanc and İstanbul.

II. Which Type of Transcription for Cartography?

In German, transliterations and popular transcriptions are used for many non-Latin alphabets, e.g. for the Russian and Arabic alphabets. For other non-Latin alphabets such as for the White Russian alphabet only transliterations are used. Should we choose a popular transcription or a scientific transliteration? The advantage of the popular transcription lies in the fact that everybody can read and pronounce it; the closeness of this pronunciation to the original pronunciation is not significant in this context. The scientific transliteration, on the other hand, will frequently be unintelligible to persons who do not speak foreign languages unless they have the use of a key,

¹⁵Dutch, German, Italian, Romansh, Slovene, Serbo-Croat, Hungarian

¹⁶German, Italian, Italian local

¹⁷Czech, German, English

¹⁸English, German, French, Italian, Rhaetic

¹⁹English, French, Ital. Span.

because the special letters used are completely unfamiliar. For this reason popular transcriptions will certainly survive for quite some time, if only because they can always be printed without any difficulties. They should, however, remain confined to popular works. In cartography, the use of these popular transcriptions is problematic even in atlases for the upper division of secondary schools. As far as scientific cartography is concerned the use of p r e c i s e t r a n s l i t e r a t = i o n s would certainly be desirable. Here the unambiguous identification of a topographical object and optimum reversibility are paramount considerations. Some examples taken from Greek serve to illustrate this problem: even an experienced scholar of the Greek language will be unable to identify the following names in their popular German transcriptions: Agriani, Aetope=tra, Ambelia; these might read Ἀγριανή, Ἀγριάνη or Ἀγριᾶνοι ; Ἀειόπετρα or Ἀεισπέτρα ; Ἀμπελεία , Ἀμπελιά or Ἀμπέλια . These are by no means construed examples, but names taken from the official register of Greek place-names.²⁰ Besides these popular transcriptions exonyms will be frequently encountered. On a small-scale German school map of Greece Iraklion, Wolos and Serrä may still be acceptable alongside Sparta, Korinth, Athen and Theben, in a large-scale atlas for international use, however, Ἐράκλειον , Βόλος and Σέρραι would certainly be preferable.²¹

One more aspect deserves mentioning with a view to international usage: there are at least as many popular transcriptions of the Russian, Greek, etc. alphabets as there are major languages, but there are only few scientific transliterations for every non-Latin alphabet. Efforts are being made to reach agreement on a single scientific transliteration for every non-Latin alphabet, although a variety of popular transcriptions will inevitably survive since every receiver language has its spelling peculiarities. It should, however, be possible for every language area to use not more than one popular transcription for each non-Latin alphabet of any importance in its cultural relations.

²⁰ Lexikōn tōn Dēmōn, Koinotētōn kai Oikismōn tēs 'Elládos, ed. by Ethnikē Statistikē 'Upēresis tēs 'Elládos. Athēnai 1963.

²¹ Ἡράκλειον, Βόλος, Σέρραι

What is spelled Kuibisev, Voronej and Smolensk in a Rumanian popular transcription becomes Kujbisev, Voronyezs and Szmolenszk in Hungarian.²² For this reason scientific transliterations are certainly preferable in international scientific usage. In cartography this has long been an accepted fact. In a memorandum pertaining to the International Map of the World Professor A. Penck in 1892 called for the use of transliterations²³, a suggestion which was accepted by the Sixth International Geographical Congress in 1895.²⁴ The 1967 Geneva Conference on the Standardization of Geographical Names recommends the use of not more than one scientific romanization system per non-Latin alphabet thus excluding popular transcriptions of any kind.²⁵

Since, however, in the majority of cases no agreement has as yet been reached concerning one single transliteration system per non-Latin alphabet the choice rests with the cartographer. Unfortunately, the 1967 United Nations Conference in Geneva failed in fundamental questions to come up to the resolutions of the World Map Conference and the International Geographical Congresses. As early as in 1892 Professor A. Penck in his above-mentioned memorandum made a suggestion which is probably the best solution anyway: he recommended transliteration on the basis of rules issued by the country concerned, or on the basis of rules originating from international agreements. These fundamental suggestions are encountered again and again in the resolutions of World Map Conferences, International Geographical Congresses and International Congresses of Onomastic Sciences.²⁶

²² Куйбышев, Воронеж, Смоленск.

²³ International Standardization, loc. cit., p. 1.

²⁴ ibid., p. 2.

²⁵ United Nations Conference, loc. cit., Vol. I, p. 12.
Resolution 12.

²⁶ International Standardization, loc. cit., p. 1 - 5.

In the few cases in which the adoption of a transference system for international use was recommended the 1967 Geneva Conference on the Standardization of Geographical Names chose systems officially employed in the countries concerned.²⁷ This means that the principles formulated by Professor A. PENCK have practically been accepted, even though in theoretical discussions it was pointed out that the choice of the method of transference should rest with the users of the receiver alphabet rather than with the users of the donor alphabet.²⁸ If a country which does not use the Latin alphabet decides to adopt an official romanization system and uses it in maps and publications - at least vis-a-vis foreign countries - foreign cartographers would certainly be misguided in employing a different transference system even if - from the scientific point of view - their system should be better. Considering that in Yugoslavia itself post office rubber stamps, maps and street signs give only lj, nj and dž for љ, њ, џ there would be no sense in substituting ĺ, ħ, ĝ in foreign maps of this area, even though these variants, which are found only in a few scientific works, follow the principle of strict transliteration more closely. Like Serbo-Croat Irish also uses two alphabets, though without any regional differentiation; we are here concerned with a case of genuine digraphy. Even if the Latin script did not constantly gain ground in Ireland it would be senseless to consider the adoption of any transference system other than the official one and to replace the digraphs bh, ch, dh, fh, gh, mh, ph, sh, th by single letters with a diacritical sign although this would probably be the better transliteration. The official conversions of the Serbian and Irish alphabets are still reversible; however, in certain cases the cartographer will even forego the justified demand for a reversible conversion system (transliteration) in favour of the principle that the official romanization system adopted by a country not using the Latin script should be accepted by the other countries. This will not be easy, and it will be considered only in cases where the country concerned makes frequent use of this official romanization system: in maps, statistical publications, street signs etc. Librarians and documentation workers, however, will have to go on using transliteration.

²⁷ United Nations Conference, loc.cit., Vol.I, p.13 seq., Resolutions 13, 14, 17

²⁸ ibid. p.4

The best solution would be for every country which uses one or more non-Latin alphabets to adopt one transliteration system (not just some type of conversion) for each non-Latin alphabet and to actually use this transliteration in its cultural dealings with Latin-script countries. The country concerned would then - if only to a limited degree - have two writing systems, and the Latin-script countries would have to use the secondary Latin script in compliance with the above-mentioned Roman alphabet rule. Should there be no officially recognized conversion system the most widely used international system will be chosen. Of course, preference will be given to a system accepted by the country in which the respective non-Latin alphabet is used. For us it is moreover important to know whether the international conversion has been accepted or is being used in the German-speaking area. For a long time librarians and linguists have tried to arrive at precise scientific transliterations, and not entirely without success. Thus we have philological transliterations-which may show minor variations-of the Cyrillic alphabets, of the Arabic alphabet and of the Indian alphabets. The International Organization for Standardization (ISO) has been issuing transliteration tables for quite some time. It may be regarded as the overhead organization of the various national standards organizations and co-operates with the United Nations ("liaison status").²⁹ The tables compiled so far are the result of thorough and intensive investigations and pay due regard to the wishes of the donor countries. This organization should be recognized and supported as the competent body for the elaboration of international transliteration tables. If necessary, geographers and onomatologists could submit their suggestions concerning changes and/or improvements through the respective international channels or through the national standards organizations of ISO. The attempt to arrive at international solutions without paying due regard to the work of ISO would be a waste of time and money. Moreover, it would

²⁹The following countries are members of ISO: Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Czechoslovakia, Denmark, Finland, France, Germany, Great Britain, Greece, Hungary, India, Iran, Ireland, Israel, Italy, Japan, Mexico, Netherlands, New Zealand, Norway, Pakistan, Peru, Poland, Portugal, Rumania, South Africa, Soviet Union, Spain, Sweden, Switzerland, United Arab Republic, United States, Yugoslavia.

further complicate and eventually discredit international co-operation. Anyway, it is not the task of the geographer to work out transliteration tables, he only chooses those which to him seem most suitable in the light of what has been said above.

The advantages of a single international conversion system for all disciplines are quite obvious. It would but complicate things unnecessarily if cartographers and librarians and documentation workers chose different solutions. It will, however, be inevitable for gazetteers to give geographical names in several versions, whereas in cartography one version only must be chosen.

III. Non-Latin Alphabets Important in Cartography.

For practical purposes the various sections are arranged by countries; the order in which the countries are enumerated is not haphazard but is based on the following considerations: we start with a variant of the Latin script, the Irish alphabet, go on to the Greek alphabet from which ours is indirectly derived and then pass on to the alphabets based on the Cyrillic script, a derivation of the Greek alphabet. In connection with the Soviet Union the Armenian and Georgian alphabets are discussed along with the others although their origin is different - they are usually included among the Iranian scripts which in turn are derived from the Semitic group. Then we move on to the Semitic scripts, first the northern (Arabic and Hebrew alphabets), then the southern varieties. These are followed by the large group of Indic alphabets from the eastern border of Pakistan to the western border of Vietnam. Because of the arrangement by countries no subdivision into northern and southern groups has been made here. We then leave out the large Latin-script area of Malaysia, Vietnam, Indonesia and the Philippines, so dear to the western cartographer, and find ourselves in the Chinese-script area which includes Chinese-derived Japanese and Chinese-influenced Korean. The non-Latin alphabets of the official languages of states and member states of federations are taken up in this list whereas languages of autonomous administrative units are not included. For technical reasons I have used only the Greek and Cyrillic letters in giving examples of names from non-Latin

alphabets. Moreover, I have not included any conversion tables and should like to refer to the following bibliography of works which should be available in any cartographic library. In quoting the titles I first of all give the abbreviated form later on used in this paper, then the full title and finally a short annotation:

Geographieduden = Wörterbuch geographischer Namen, Europa (ohne Sowjetunion), edited by the Ständiger Ausschuß für geographische Namen (Permanent Committee on Geographical Names). Mannheim 1966. The Permanent Committee on which delegates from the Federal Republic of Germany, from Austria and Switzerland are represented carries on research on geographical names in the German-speaking area for specialized cartographic requirements. Austria's participation in the scientific work of the Committee is based on the permanent contact with the Austrian Academy of Sciences. This work contains the original Latin alphabets of all official European languages as well as conversion tables for Greek, Bulgarian, Macedonian, Serbian, Russian, Ukrainian and White Russian.

Westduden = Duden, Rechtschreibung, 16th edition, revised by Dudenredaktion. Mannheim 1967. The appendix includes conversion tables for the Greek, Bulgarian, Russian, Arabic and Persian alphabets.

Ostduden = Der große Duden, 16th edition, ed. by H. Klien, Leipzig 1967. Conversion tables for the Greek and Russian alphabets.

Preußische Instruktionen = Instruktionen für die alphabetischen Kataloge der preußischen Bibliotheken vom 10. 5.1899, 2nd edition 1908, reprint, Wiesbaden 1964. Annex II of Instruktionen contains a "Schema zur Transkription fremder Schriftarten" (Scheme for the Transcription of Non-Latin Alphabets). The following alphabets are included (the original names used in Instruktionen are given in parentheses): the Russian, Ukrainian (Little Russian), Old Bulgarian, Modern Bulgarian, Serbian and Rumanian (Walachian) alphabets, the Devanagari (Sanskrit) and related alphabets, the Arabic, Persian and Turkish alphabets, the Urdu (Hindustani) alphabet, the Malay, Hebrew, Syrian,

Ethiopian, Coptic, Armenian and Georgian alphabets. The Preußische Instruktionen are highly significant and authoritative for the entire German-speaking area also with regard to the conversion systems given; in Austria they have to be used by all public libraries in accordance with ministerial decree.

DIN 1 460 (kyr.) = deutsche Norm (German standard) DIN 1 460, Transliteration kyrillischer Buchstaben, ed. by Deutscher Normenausschuß (German Standards Committee), s.l. (Berlin) 1962. The table contains the international transliteration of the Cyrillic alphabets of the following Slavic languages: Bulgarian, Macedonian, Serbo-Croat, Russian, Ukrainian and White Russian. Since the "Deutsche Normen" are generally recognized and accepted in the entire German-speaking area, this table may be regarded as highly authoritative.

ISO-R 9 (Cyr.) = ISO Recommendation R 9, International System for the Transliteration of Cyrillic Characters, 1st edition, ed. by International Organization for Standardization (ISO). s.l. 1954, 3rd printing 1966. The table gives the Bulgarian, Serbian, Macedonian, Russian, Ukrainian and White Russian alphabets. It was approved among others by the German-speaking countries Austria, Germany and Switzerland and was adopted in Germany as DIN 1 460 (kyr.). Partly improved upon by Draft ISO R 1 243 (Cyr.). While this paper was in print Draft ISO R 1 243 (Cyr.) was published under the title ISO Recommendation R 9, International System for the Transliteration of Slavic Cyrillic Characters, 2nd edition, September 1968, first printing August 1969.

Draft ISO-R 1 243 (Cyr.) = Draft ISO Recommendation No. 1 243 (improved text), International System for the Transliteration of Slavic Cyrillic Characters, ed. by ISO. s.l. I. 1968. The table is more comprehensive than ISO-R 9 (Cyr.). It is to be expected that the draft will soon become an ISO-Recommendation; this draft was approved among others by the German-speaking countries Austria, Germany and Switzerland and by the English-speaking countries Great Britain and the United States. While this paper was in print, Draft ISO-R 1 243 (Cyr.) was published under the title ISO Recommendation R 9, International System for the Transliteration of Slavic Cyrillic Characters, 2nd edition, September 1968, first printing August 1969.

ISO-R 233 (Arab.) = ISO Recommendation R 233, International System for the Transliteration of Arabic Characters, first edition, ed. by ISO, s.l. 1961. The Recommendation includes the Arabic and the Persian alphabets and was approved, among others, by the German-speaking countries Austria, Germany and Switzerland as well as by the former colonial powers in the Arab area, France, Great Britain and Italy.

ISO-R 259 (Hebr.) = Recommendation R 259, Transliteration of Hebrew, first edition, ed. by ISO. s.l. 1962. The transliteration was approved among others by Israel itself, by the German-speaking countries Austria, Germany and Switzerland and by the former mandatory power Great Britain.

ISO-R 843 (Gr.) = ISO Recommendation R 843, International System for the Transliteration of Greek Characters into Latin Characters, first edition, ed. by ISO. s.l. 1968. The Recommendation was approved by Greece itself.

Romanization Guide = Romanization Guide, rev. ed., ed. by The Geographer, Office of Strategic and Functional Research, Bureau of Intelligence and Research, U.S. Department of State Office of Geography - Department of the Interior. s.l. 1967. The Romanization Guide is a collection of conversion systems used by the United States Board on Geographic Names (BGN). The transcriptions are largely identical with those of the Permanent Committee on Geographical Names for British Official Use (PCGN). The following alphabets are included: Amharic, Arabic, Bulgarian, Burmese, Chinese, Greek, Hebrew and Japanese, Khmer, Korean, Laotian and Mongolian, Nepali, Persian, Russian and Serbian, Thai and Ukrainian. This work is important above all for overseas areas.

Foreign Alphabets = Alphabets of Foreign Languages, 2nd edition, 1933, enlarged reprint, ed. by the Permanent Committee on Geographical Names for British Official Use (PCGN). London 1956. This fundamental comprehensive work deals with those languages

which are of importance for English cartography. In the following the languages are enumerated in the order observed in the book: (C) indicates that a conversion table is included: Dutch, German, Danish, Norwegian, Swedish, Icelandic, Faeroese, "Flemish", Irish (C), Gaelic, Welsh, Italian, Spanish, Portuguese, French, Rumanian, Provençal, "Walloon", Catalan, Russian (C), Ukrainian (C), Bulgarian (C), Serbo-Croat (C), Slovene, Czech, Slovak, Polish, Lithuanian, Lettish, Albanian, Greek (C), Armenian (C), Georgian (C), Finnish, Estonian, Hungarian, Arabic (C), Uighuric (C), Persian (C), Pashtu (C), Malay (C), Turkish (C), Hebrew (C), Amharic (C), Basque, Afrikaans, Maltese. Moreover, the following languages are discussed briefly from a historico-linguistic point of view: Frisian, Manx, Cornish, Sardinian, Rhaetic, White Russian, Kashube, Sorb. As far as the conversion tables are concerned the Romanization Guide is the more modern and more authoritative source; however, this work is of lasting importance for the cartographer doing research on geographical names.

British Standard 2 979 = British Standard 2 979: 1958, Transliteration of Cyrillic and Greek Characters, ed. by British Standards Institution, London 1958. In two separate parts British Standard gives the "British system" for the conversion of the Cyrillic alphabets of Russian, Ukrainian, White Russian, Bulgarian, Serbo-Croat and Macedonian and the "international system" for the same alphabets as well as the Cyrillic alphabet for the Moldavian language. Moreover, transliteration tables for Church Slavonic, Rumanian Cyrillic and Greek are included. The tables were prepared with the co-operation of representatives from all pertinent fields of science, above all documentation workers, geographers (PCGN) and experts in Slavonic and Hellenic studies.

WK 2,5 Mill., = Schreibung der geographischen Namen auf der Weltkarte 1 : 2,500,000, ed. by the National Office of Geodesy and Cartography (editor-in-chief S. Radó). Budapest 1962.

Whereas the International Map of the World does not give any detailed instructions concerning transcription, this modern work represents a highly valuable contribution to research on geographical names in cartography, thus testifying to the high standard of this discipline in Hungary.

First of all, mention is made of the difficulties encountered by cartographers in respect of Latin-script languages. This is followed by synoptic transcription tables in which the most important systems are shown side by side, which aids the cartographer in his choice of one system. All official Latin-alphabet languages are included. Moreover, the work contains conversion tables for the following alphabets (same order as in the book): Serbian, Irish, Chinese, Russian, Bulgarian, Mongolian, Greek, Arabic and Persian, Pashtu, Hebrew, Amharic and Korean.

Translittération de l'arabe = Principes de translittération de l'arabe en caractères latins, ed. by Institut Géographique National (IGNF), Paris 1967. This work gives detailed transcription instructions for French cartographers for use in Arabic countries in which French is the first foreign language.

GILJAREVSKIJ-GRIVNIN = R.S. GILJAREVSKIJ, V.S. GRIVNIN, Opređelitel' jazykov mira po pis'menostjam. Moskva 1964. This is the standard work on the alphabets of the world and contains the alphabets of 65 languages used in the Soviet Union as well as of 146 other languages spoken throughout the world.

In the following discussion of the various languages many facts are mentioned for which no sources are given. The reason for this is that linguistic details may be found in the standard grammars of the various languages - for the cartographer their titles would be of little if any value. The reports of the various delegates to the 1967 United Nations Conference on the Standardization of Geographical Names in Geneva, where I represented Austria, provided me with a host of valuable information on the use of administrative languages as well as on the linguistic aspects of lettering maps of overseas countries.

a) I r e l a n d

Like German Irish has two alphabets, but like the Gothic characters in German the Irish alphabet is but a variant of the Latin script. It is derived from the Latin semiuncial and is increasingly being replaced by the Latin script. There are school maps and a private book of names in the Irish script, but official maps and registers are published in the Latin alphabet. There is one system of conversion in Ireland, the script can only be transliterated with the aid of a key. Such a key is found in Foreign Languages, p. 13-17, and WK 2,5 Mill., p. 32.

b) G r e e c e

Modern Greek uses the same alphabet as Ancient Greek. Modern Greek orthography is largely historical. In German there has long been a popular transcription of modern Greek names which attempts to take into account at least to some extent the phonetic peculiarities of Modern Greek. The Permanent Commission on Geographical Names uses this transcription system in a somewhat modified form in Geographieduden, key: Geographieduden, p. xxiv-xxvii. The limited usefulness of this system for maps has already been mentioned.

Very often German maps use the classical transcription of the Greek alphabet (Key: Geographieduden, p. xxiv-xxvii) for Modern Greek names, which is a somewhat doubtful method. Since the classical transcription defers to the phonetic peculiarities of Ancient Greek it is not suited for the Modern Greek language with its completely different pronunciation. Moreover, Modern Greek has certain orthographical peculiarities unknown in Ancient Greek. For purely formal reasons, e.g., the Modern Greek name Νκίωνα would be impossible in Ancient Greek and the transcription Nkiona which is found in maps must therefore be rejected (the classical transcription of $\eta\kappa$ would be nk; however, in Ancient Greek $\eta\kappa$ can never be used initially). The conversion system offered in Ostuden (key: p. xxv) is somewhat better. This

system uses the classical transcription for the individual Greek letters (plus the spiritus asper or rough breathing sound), but does not pay regard to the fact that in Ancient Greek letters were pronounced differently depending on their position within a word; on the other hand, the pronunciation of Modern Greek is not taken into account either. If this system differentiated between ϵ and η , between \circ and ω and did not omit the accents, it would be a real transliteration. In Greece itself two types of transcription are in use: a popular French system (postal and railway services) and a popular British system (official statistics). Both systems are based on the pronunciation of Modern Greek which is rendered more or less successfully by means of French and English orthography, respectively. However, they are not always quite consistent. Neither of the two systems is so well established in Greece that it may be considered authoritative. For the cartographer whose paramount consideration is the identification of topographical features in printed sources a conversion based on the pronunciation of the donor language is of limited usefulness only, particularly in Greek where there is a considerable discrepancy between the orthographical and the phonetic forms. What is required is a transliteration of the type given in ISO-R 843 (Gr.), 1968. The usefulness of this transliteration is enhanced because Greece itself has approved it. As may be seen from the "British Standard 2 979: 1958" where this transliteration is also found, it is not a completely new system. For this reason Great Britain has also approved the ISO key.

c) C y p r u s

The first official language is Greek written in the Greek alphabet. Therefore the general remarks concerning the Greek alphabet and its conversions (see b) Greece) apply here as well. However, the influence of English, the former administrative language, is still so strong that in geodesy (Survey of Cyprus) and statistics the conventional English names are used. Where there are no such exonyms, the Greek names are transcribed in accordance

with a popular English system which differs from the "BGN/PCGN 1962" system.³⁰ Should anybody want to know how the Cypriot names are spelled in the official language he will not be very happy with the latest map of the Survey of Cyprus, Administration Map 1 : 253,440 , 3rd ed. 1965, s.l. 1966. In the following you will find the names as given on this map and the Greek originals along with the ISO-transliterations (in parentheses): Cyprus/Κύπρος (Kýpros); Nicosia/Λευκωσία (Leukosía); Famagusta/Ἀμμόχωστος (Ammóhostos); Limassol/Λεμεσός (Lemesós); Olympus/Ὀλυμπος (Olumpos); Kyrenia/Κερύνεια (Kerúneia); Palea Paphos/Παλαίπαφος (Palaípaφος). A gazetteer can afford to go into detail here, but for the cartographer it will also be difficult to do without secondary forms. Moreover, the fact that Turkish is the second official language has not been taken into account.

d) Y u g o s l a v i a

The Serbian Alphabet

The Serbo-Croat language which is the official language in the republics of Serbia, Croatia, Bosnia and Hercegovina and Montenegro is written in Latin characters (latinica) and in Cyrillic characters (ćirilica): in Croatia the latinica prevails, whereas in the rest of the country the ćirilica is more frequently found. There is an authoritative conversion key which was taken over in its original form into the ISO tables: ISO-R 9 (Cyr.), DIN 1 460 (kyr.) and Draft ISO-R 1 243 (Cyr) as well as ISO-R 9 (Cyr.), 2nd ed.³¹ Official maps, registers of place-names etc. in Latin script are readily available even in those parts of Yugoslavia where the Cyrillic alphabet is used.

³⁰Romanization Guide, loc. cit., p. 24-27.

This system was devised in 1941 by the Permanent Committee on Geographical Names, but was not used in Cyprus.

³¹Preußische Instruktionen, loc. cit., p. 143 give: њ = l', њ = h, њ = d', v = ğ. However, modern library practice in the German-speaking countries prefers lj, nj, đ, dž in accordance with the Croat alphabet.

The Macedonian Alphabet

A separate Cyrillic alphabet was developed for Macedonian, the official language of the Republic of Macedonia. Officially Macedonian is written only in this script. The transliteration is very close to that of the Serbian alphabet; the only difficulty lies in the rendering of the following three characters which are not found in Serbian: *ř*, *ķ*, *s*. Here the scientific transliteration and the ISO transliteration differ from the Serbo-Croat version as used in official Yugoslav publications as e.g. in the Latin-script edition of the register of Yugoslav place-names. The character *s* which is taken from the Latin alphabet is always rendered by *dz*. The characters *ř*, *ķ* are rendered by *ǰ*, *k* in Draft ISO-R 1 243 (Cyr.) and DIN 1 460 (kyr) whereas in Serbo-Croat they become *đ* and *ć*.³² The Serbo-Croat system is found in *Geographieduden*, p. xxviii, the ISO key given in the same work is out of date insofar as the Macedonian *s* is concerned. Certainly *ǰ* and *k* go further in underlining the peculiarity of the Macedonian language than *đ* and *ć*, but the latter are promoted and popularized by their use in official Yugoslav publications.

e) B u l g a r i a

Officially Bulgarian is written in Cyrillic characters only. For use in German-speaking countries a popular conversion has been devised which is given in *Geographieduden*, p. 23. In many countries philologists and onomatologists, documentation centres and libraries use a scientific transliteration also known by the name of "library" or "philological transliteration." This transliteration is characterized by the use of the letters and diacriticals of the Croat and Czech alphabets; the bridge formed by the Serbo-Croat language with its two alphabets is, so to speak, extended eastward and northeastward. That is to say that

³² *Pravopis hrvatskosrpskoga književnog*, ed. by Pravopisna komisija, Zagreb - Novi Sad 1960, p. 165.

the transliteration of Serbian ж, з, њ, њ, њ to Croat ž, z, c, č, š can be used for Cyrillic in general, i.e. Cyrillic ж, з, њ, њ, њ corresponds to Latin ž, z, c, č, š. Variants are found where the bridge loses its usefulness, i.e. where the Bulgarian alphabet has its own special characters. It is generally agreed that the only appropriate conversion system for scientific publications in German is some sort of philological transliteration. Transliterations of this type are used among others by Preußische Instruktionen, ISO, the German and the Bulgarian Standards Committees. In the British Standard 2 979 the British Standards Institution provides both an international transliteration in accordance with ISO-R 9 (Cyr.) and a "British system." From the cartographer's point of view the best systems are those given in Draft ISO-R 1 243 and ISO-R 9 (Cyr.), 2nd ed., and the transliteration of the Bulgarian Standards Committee. Draft ISO-R 1 243 and ISO-R 9 (Cyr.), 2nd ed. suggest that a Cyrillic character should always be transliterated by the same Latin character no matter in which of the many Cyrillic alphabets it is used. This is an immense advantage for the librarian and documentation worker because it permits mechanical transliteration without requiring even the most basic knowledge of the donor language. Where it is desirable to underline the individual character of the various languages certain variations are recommended in the ISO key. Similarly, language groups in which tradition favours certain transliteration variants contained in the table may use these variants and the conversion will still be a transliteration. This should appeal to the Anglo-Saxon countries which can thus avoid the unfamiliar characters č, š, ž etc. and may use the digraphs ch, sh, zh etc. instead. For us the following rules are important: њ = šč, variant št; з = " , variant ä; ж = h, variant ch. These variants are of great interest to the cartographer because in his case it is particularly "desirable to respect the original character of the Slavic alphabet." Anyway, Bǎlgarija looks better than B"lgarija. Moreover, by permitting these variants we continue a tradition: Preußische Instruktionen: št, ũ and ch; ISO-R 9 (Cyr.): št, ä, h and possible variant ch; DIN 1 460 (kyr.): št, ä, ch.

In the meantime the philological transliteration system recommended by the Bulgarian Standards Committee in Standard BDS 1956-56 is being increasingly used in official maps for international use as well as in other publications. Standard BDS 1956-56 conforms to Draft ISO-R 1 243 (Cyr.) and ISO-R 9 (Cyr.), 2nd ed., with the exception of $\text{b} = \text{j}$, not ' and $\text{z} = \text{â}$, not â . Whereas the 1963 "Road Map of Bulgaria" 1 : 900,000, ed. by the General Administration for Geodesy and Cartography still contains Kardshali, Mitschurin and Gorna Orjachoviza, the 1965 "Road Map of Bulgaria" 1 : 800,000, ed. by the Central Administration of Tourism of the Council of Ministers, the "Atlas Automobile - Autoatlas - Road Atlas Bulgaria" 1 : 600,000, ed. by the General Administration for Geodesy and Cartography as well as more recent maps give Kârdžali, Mićurin and Gorna Orjahovica. This is to say that the transliteration system of the Bulgarian Standards Committee may be regarded as sufficiently established in the country itself to warrant its adoption in international cartography as is the case in the Map of the World 1 : 2,500,000.

f) S o v i e t U n i o n

The Latin Alphabet

The regional official languages Estonian, Lettish and Lithuanian are written only in Latin characters. Therefore one has to be very careful to avoid back transliteration of Russian transcriptions with the aid of a Russian/Latin conversion key because this might result in a distortion of the original. The Russian name of Pärnu (German Pernau) is пернов , but today the Estonian name is used in Russian, the transcription reading Пярну . A back transliteration would yield Pjarnu. The usefulness of Pjarnu in Russian publications may be open to discussion. In international cartography it should read either Pärnu or Пярну .

The Russian Alphabet.

Russian is the administrative language of the Union, the official language of the Russian Federation and the second administrative

language in the other Union Republics. The question whether the lettering of a map of the Soviet Union should be in Russian only or in the languages of the various union republics has no bearing on the problem of transcription. The Russian script is a Cyrillic script insofar as like the other "Cyrillic scripts" it is based on the Cyrillic alphabet. In German there are at present two popular transliterations of the Russian alphabet: the West German transliteration as given in Geographieduden, p. xxix, and the East German transliteration as shown in Ostuden, p. xxvi-xxix. The West German transliteration "corresponds to the transcription developed in Mannheim on March 2, 1962 by a commission consisting of ministerial representatives, scientists and members of public life." The East German system goes back to W. STEINITZ and "was approved in its latest version (1950) by the Ministry of Public Education of the German Democratic Republic for use by schools, public authorities and administrative agencies." Thus only the East German system is officially authorized. Without going into the respective merits of one or the other system I should like to make one fundamental statement: the development of a popular German conversion system of the Russian script is closely related to German orthography. To this day changes and modifications of German orthography have been carried out in co-operation with all German-speaking countries. In this particular case no such co-operation took place, which has certainly been detrimental to the cause. No Austrian or Swiss representatives were invited to Mannheim. Therefore none of the two versions is in any way authoritative for Austria. In actual fact, however, the version given in Geographieduden and in Westuden (page 798) will certainly take root, since Ostuden is not available in Austria. The differences are (West German variant/East German variant): $\text{r} = \text{g}$, sometimes w/always g; $\text{e} = \text{jo}$ or o with varying differentiation signs; $\text{x} = \text{sch/sh}$; $\text{u} = \text{i}$, sometimes ji/i , sometimes ji , sometimes i ; $\text{u} = \text{i}$, sometimes not transliterated/ i , sometimes j , sometimes not transliterated; $\text{u} = \text{schtsch/stsch}$; $\text{b} =$ not transliterated, sometimes j /never transliterated. Doubtlessly the most striking differences are sch/sh and schtsch/stsch .

In scientific cartography popular conversions will hardly be employed; in this case a choice between the two systems is easily avoided by the adoption of a transliteration. The only appropriate system would appear to be the philological transliteration which is used internationally by philologists and onomatologists as well as by librarians in many countries (e.g. in all German-speaking countries). Sources: Preußische Instruktionen (p. 142; also given in Ostuden, p. xxvi-xxix as "library transcription"). ISO-R 9 (Cyr.) as of 1954 gives the same system except for the following differences: medial $\text{z} = "$ instead of - and $\text{x} = \text{h}$ with ch as a possible variant instead of just ch in Preußische Instruktionen. DIN 1 460 (kyr.) as of 1962 is based on ISO-R 9 (Cyr.); deviations: $\text{x} = \text{ch}$ with reference to ISO's first choice h ; in accordance with ISO-R 9 (Cyr.) medial $\text{z} = "$, - as given in Preußische Instruktionen is also mentioned. As far as the Russian alphabet is concerned Draft ISO-R 1 243 (Cyr.) is in complete accordance with ISO-R 9 (Cyr.). For English-speaking users certain variants are provided which are consistent with the overall system (zh , kh , sh , ch etc.). The "international system" given in the British Standard 2 979: 1958 conforms to the recommendations of ISO-R 9 (Cyr.). Draft ISO-R 1 243 (Cyr.) was approved by the German-speaking countries Austria, Germany and Switzerland and the English-speaking countries Great Britain and the United States; the Soviet Union also lent its co-operation.

In the Soviet Union today different conversion systems are used in different fields. For information on this point I am particularly indebted to Mr. R.S. GILJAREVSKIJ, university lecturer. The conversion system generally used in libraries and documentation centres is identical with the transliteration given in ISO-R 9 (Cyr.). It is found in R.S. GILJAREVSKIJ and I.Z. FRIDMAN, *Opisanie knig na inostrannyh jazykah*, Moskva 1956, p. 176; R.S. GILJAREVSKIJ, *Otraženie literatury na inostrannyh jazykah v bibliotečnyh katalogah*, Moskva 1963, p. 83; and A.I. MIHAJLOV, A.I. ČERNYJ and R.S. GILJAREVSKIJ, *Osnovy informatiki*, 2nd edition, Moskva 1968, p. 241.

In small-scale Latin-script maps for international use the Central Administration for Geodesy and Cartography uses a system given in "Pravila meždunarodnoj transliteracii russkih imen sobstvennyh latinskimi bukvami" (Rules for the International Transference of Russian Proper Names into Latin Characters). These rules were developed between 1951 and 1956 by the Linguistic Institute of the Academy of Sciences of the USSR and are given in WK 2,5 Mill, p. 47 seqq., This cartographical conversion differs from ISO transliteration R 9 (Cyr.) as follows (Soviet library conversion/"Pravila"): e = always e/ e, sometimes also je; ë = always ë/ 'o, sometimes o, sometimes jo; ъ = always i/i, sometimes ji; x = h/ch; ъ = "/not transliterated; ъ = é/e; ъ = always ju/'u, sometimes ju; ъ = always ja/'a, sometimes ja. In contrast to ISO-R 9 (Cyr.) the conversion of Russian proper names as developed by the Linguistic Institute of the Academy of Sciences is not a transliteration in the strictest sense of the word. It is used, e.g., in the English edition of the anniversary edition (2nd edition) of the Atlas Mira, "The World Atlas", ed. by the Central Administration for Geodesy and Cartography, Moscow 1967, and in the international map on the scale 1 : 2,500,000.

From the point of view of international cartography the ISO transliteration (=Soviet library conversion) is preferable for two main reasons: first of all, it is a reversible transliteration and, secondly, it serves as a basis for the widely used conversions of the other Cyrillic alphabets of the Soviet Union as will be shown below.

A special conversion system for use in international telegraphy was introduced in 1966 by the Ministry of Transport. The British system is used for the registration of ocean-going vessels.

The Ukrainian Alphabet

First of all, a few general remarks concerning the official languages of the Soviet Union: apart from a few exceptions foreign cartographers seem to take note of Russian, Estonian,

Lettish and Lithuanian only. As may be seen from the constitution of the Soviet Union or the constitution of a Union Republic this is certainly unjustified both from the constitutional and from the practical points of view. The official register of Ukrainian place-names uses the Ukrainian language only³³, just as the official register of place-names of the Russian Federation uses Russian only.³⁴ The registers of the other Union Republics are generally bilingual with the respective official language of the Union Republic taking precedence over the Russian language.³⁵ In the Ukraine the supply of cartographic material in Ukrainian is considerable, but in the other Union Republics maps in the respective official languages are also readily available. Frequently parallel editions of geographical works and maps are printed in Russian and the respective official language.³⁶

The Ukrainian alphabet is a Cyrillic alphabet used for writing the East Slavic Ukrainian language, the official language of the Ukrainian SSR. There is no traditional German conversion worth mentioning. In the Soviet Union the library conversion given by R.S. GILJAREVSKIJ in *Otraženie literatury na inostrannyh jazikah v bibliotečnyh katalogah*, Moskva 1963, p. 83-86, is used for the Ukrainian alphabet. Apart from minor deviations this system is identical with the one given in *Preußische Instruktionen*, ISO-R 9 (Cyr.), DIN 1 460 (kyr.), British Standard 2 979: 1958 (international system) and, finally, Draft ISO-R 1 243. The latter provides variants "for such cases where it is desirable to respect the original character of the Slavic alphabet." This is certainly true in cartography. The following variants are used: r = h instead of g; u = y instead of i; i = i instead of i; x = ch instead of h. See also Bulgaria.

³³Ukrains'ka RSR, *Administratyvno-terytoral'nyj podil*, ed. by Prezydijum verchovnoi rady Ukraïns'koï RSR, Kyïv 1962.

³⁴RSFSR, *Administrativno-territorial'noe delenie*, ed. by Prezidium verhovnogo soveta RSFSR, Moskva 1965.

³⁵e.g.: RSS Moldovenjaské, *Ympércire administrativ -teritorialé/ Moldavskaja SSR, Administrativno-territorial'noe delenie*, ed. by Prezidiumul sovetului suprem al RSSM. Kišinéu 1965.

³⁶e.g.: D.A.MIRSKIJ & M.M.RADUL, *Žeografia RSS Moldovenešt'*. 3rd ed. Kišinéu 1963=*Geografija Moldavskoj SSR*, 6th ed. Kišinev 1966.

The White Russian Alphabet

The White Russian alphabet is a Cyrillic alphabet used for writing East Slavic White Russian, the official language of the Byelorussian SSR. What has been said about the Ukrainian alphabet also applies to White Russian except for the fact that White Russian is not contained in Preußische Instruktionen. Cartographers are advised to use the Soviet library conversion as given in R.S. GILJAREVSKIJ, Oтраženie, loc. cit., p. 83 seqq., Mention should moreover be made of Draft ISO-R 1 243 (Cyr.) which is very close to the Soviet library system and provides additional variants to underline the original character of the White Russian alphabet (r = h instead of g, i = i instead of ï, x = ch instead of h).

Cyrillic Alphabets of Non-Slavic Languages of the Soviet Union.

Since we are concerned only with the official languages of the Union Republics, the following alphabets fall into this group: the Moldavian alphabet for East Romance Moldavian spoken in the Moldavian SSR; the Tajiki alphabet for modern Iranian Tajiki spoken in the Tajik SSR and the Azerbaijani, Kazakh, Uzbek, Turkmen and Kirgiz alphabets for the Turkic languages Azerbaijani, Kazakh, Uzbek, Turkmen and Kirgiz spoken in the respective Union Republics. Some of these languages were at some time or other written in Latin characters: Moldavian is a variant of Latin-script Rumanian, Azerbaijani was written in Latin characters between 1922 and 1940 as were Uzbek, Turkmen and Kirgiz between 1927 and 1940 and Tajiki and Kazakh between 1928 and 1940. The Latin-script area has thus lost a region of considerable dimensions. The special characters of the short-lived Latin alphabets of Soviet Asia are found in GILJAREVSKIJ-GRIVNIN. Except for the Moldavian alphabet all the other above-mentioned alphabets make use of special symbols unknown in Russian; usually they are only minor modifications of Russian characters.

36 (cont.) Or: RSS Moldovenjaské l : 600,000, ed. by Direkcija ženeralè de žeodezie ši kartografie, Moskova 1965 = Moldavskaja SSR l : 600,000, ed. by Glavnoe upravlenie geodezii i kartografii, Moskva 1965.

The Moldavian alphabet is identical with the Russian alphabet except for the fact that the Russian characters ё, ъ and ь are not included. This alphabet can therefore easily be transcribed according to the Russian transliteration key. Whoever wants to underline the fact that Moldavian is but a variant of Rumanian will choose the more complicated transference into the Rumanian alphabet as given in the British Standard 2 979: 1958.

For rendering the other Cyrillic alphabets of the non-Slavic languages of the Soviet Union into the Latin script the Soviet library system as given in R.S. GILJAREVSKIJ, *Otraženie*, loc. cit., p. 83-86, and in *Bulletin des bibliothèques de France*, Vol. 6, No. 6, Paris, June 1961, p. 283-293, is recommended. This system forms the basis for the ISO-Draft of the Hungarian Office for Standardization which is available in the libraries of the national standards organizations under the following heading: Hungarian Office for Standardization, ISO/TC 46 SC 2 (Hungary - 1), May 1967. The 14-page table gives transcriptions for the alphabets of the following languages: Moldavian; (Iranian languages:) Kurdish, Ossetic, Tajiki; (Caucasian languages:) Abazin, Abkhaz, Adyge, Avar, Chechen, Dargin, Ingush, Kabardin, Lak, Lezgin, Tabassaran; (Finnic languages:) Komi, Komi-Permian, Mari (mountain), Mari (meadow), Mordvin-Erzya, Mordvin-Moksha, Udmurt; (Ugric languages:) Khanty (Kasym), Khanty (Sharkal), Khanty (Vakh), Mansi; (Samoyed languages:) Nenets, Selkup; (Turkic languages:) Altaic, Azerbaijani, Balkar, Bashkir, Chuvash, Karachay, Karakalpak, Kazakh, Khakass, Kirgiz, Kumyk, Nogay, Tartar, Turkmen, Tuva, Uighuric, Uzbek, Yakut; (Mongolic languages:) Buryat, Kalmyk; (Manchu-Tungusic languages:) Even, Evenki, Nanai; (Paleo-Asiatic languages:) Dungan, Chukcha, Koryak, Nivkh; (Eskimo-Aleutan languages:) Eskimo.

Moreover, mention should be made of E. RICHTER'S work "Zur Transliteration der zusätzlichen Buchstaben in den Alphabeten der Völker der Sowjetunion mit cyrillischer Schrift" (1961/62) (The Transliteration of Special Characters in the Alphabets of the Peoples of the Soviet Union Using the Cyrillic Alphabet)³⁷

³⁷ Dokumentation, Fachbibliothek, Werksbücherei (Hannover), Vol. 10, p. 128-133

He does not only give the Soviet library conversion but also the German library transliteration as worked out by German libraries for the following alphabets: Deutsche Staatsbibliothek, Berlin, for the alphabets of Azerbaijani, Bashkir, Chuvash, Kazakh, Kirgiz, Ossetic, Tajiki, Tartar, Turkmen, Tuva, Uzbek and Yakut; Niedersächsische Staats- und Universitätsbibliothek, Göttingen, for the alphabets of Mari, Nenets, Udmurt. The cartographer who wants to go into further detail should moreover know how to transliterate the special Cyrillic characters of these alphabets into Russian Cyrillic characters as shown by STAROSTIN in 1965.³⁸

The Armenian Alphabet

The Armenian alphabet is used for Indo-European Armenian, the official language of the Armenian SSR. The script goes back to 406 A.D. It has borrowed much from the Iranian and Greek alphabets. The conversion is given in Preußische Instruktionen, p. 148.

The Georgian Alphabet

It is used for the Georgian language, the official language of the Georgian SSR. The script belongs to the Iranian group of alphabets, the order of the letters in the alphabet is influenced by the Greek language. The conversion is given in Preußische Instruktionen, p. 148.

g) M o n g o l i a

Since 1946 Mongolian, the official language, is written exclusively in the Cyrillic alphabet. There are few deviations from the Russian Cyrillic alphabet. Pending the conclusion of the above-mentioned ISO transliteration of the alphabets of non-Slavic languages using Cyrillic characters the conversion given in WK 2,5 Mill, p. 54, is recommended for use. It is closer to the international and to the German scientific conversions than the "BGN/PCGN 1964 system" presented in the Romanization Guide, p. 53.

³⁸Transkripcija sobstvennyh imen. Moskva 1965.

h) The Arab Countries

The Arabic alphabet is defective in that it omits the vowels. For special purposes, sacred books (Koran), school books, etc. additional marks and diacritical signs are used to identify vowels. Such vowelled texts are required for the conversion of Arabic names into the Latin alphabet. For this reason the 1967 Geneva Conference on the Standardization of Geographical Names recommended that the Arabic-speaking countries should provide comprehensive documentation for all geographical names in which the vowels and diacritical signs are supplied.³⁹ In Germany a popular conversion of the Arabic alphabet was developed and approved by a group of West German experts and has standardized existing usage. It is given in Westduden (p. 800). It is one drawback of this table that it does not show how an Arabic character is transliterated into a Latin character; we only see how some unidentified type of "transliteration" is turned into a "transcription". This is all but lost on the general user because a conversion table which does not give the donor alphabet is of very limited usefulness only.

For the cartographer the popular German conversion is not acceptable. A scientific philological conversion has long been in existence. It conforms to the systems given in Preußische Instruktionen and - with a few modifications - in ISO-R 233 (Arab.) as of 1961.

Since, however, the English and French languages play such an important role in the Arabic-speaking countries where they are widely used in business, communications and education, it is impossible to disregard English and French romanization systems, all the more so as Arab cartographers use these languages either exclusively or in addition to their own. Italian and Spanish conversions have lost their importance except in the Spanish colonies in West Africa. Formerly a Spanish conversion system was

³⁹United Nations Conference, loc. cit., Vol. 1, p. 13, Resolution 11

used in Spanish Morocco, an Italian system was employed in Libya. In Libya Italian was replaced by English. Today the spheres of influence of the English and French languages show the following distribution: French: Mauritania, Morocco, Algeria, Tunisia, Lebanon, and Syria; English: Libya, Egypt, Sudan, Jordan, Iraq, Kuwait, Saudi Arabia and the other states of the Arab peninsula. The influence of these languages is particularly prominent in cartography. In Morocco, Algeria and Tunisia only the Latin alphabet is used in mappings. Maps of Algeria in Arabic lettering are extremely rare. In Libya, Egypt, Jordan, Syria, Lebanon, Saudi Arabia and Kuwait the surveys use both alphabets. The survey of Egypt applies a special system of conversion, the so called "Survey of Egypt System". Otherwise the conversions of the Permanent Committee on Geographical Names and, in the French sphere of influence, of the Institut Géographique National (IGNF) in Paris are generally used. The most recent versions of these transcriptions are the "BGN/PCGN 1956 system" in the 1967 Romanization Guide, p. 5-9, and the Principes de translittération de l'arabe of 1967. The 1967 United Nations Conference in Geneva recommended that the Arabic-speaking countries should agree on a single system for the romanization of geographical names. If this should prove to be impracticable they should consider the use of two systems, one based on English, the other on French. In keeping with the above-mentioned language distribution each individual country would, of course, use only one of these systems.⁴⁰ The international map on the scale 1 : 2,500,000 uses either the "BGN/PCGN 1956 system" or the IGNF conversion depending on the respective sphere of influence.⁴¹

i) S o m a l i a

Although Cushitic Somali is the national language it has as yet little literary importance so that Arabic, Italian and English -

⁴⁰ibid., p. 13, Resolution 12.

⁴¹WK 2,5 Mill., loc. cit., p. 58-61.

which is about to supersede Italian - are considered as official languages. In Somalia names written in Arabic are usually transcribed according to the "BGN/PCGN 1956 system".⁴² The same system may be used in international cartography.

j) I r a n

Persian is written in the Persian alphabet which adds four letters to the Arabic alphabet. Westduden (p. 799) gives a popular German transcription which corresponds to the popular German transcription for the Arabic alphabet (p. 800). An evaluation of this system is found under h) The Arab Countries. The 1967 United Nations Conference in Geneva recommended that in international cartography the system officially adopted in Iran should be used for the romanization of geographical names.⁴³ This system was set forth by the Iranian Government in the publication entitled "Transliteration of Farsi Geographic Names to Latin Alphabet (September 1966)", Teheran 1966. If uniformity is the paramount consideration, ISO-R 233 (Arab.) as of 1961 has to be used. Even though a single transliteration system for all Arabic-speaking countries would certainly be desirable, the use of different transliterations for Arabic and Persian does not represent too great a problem from the cartographer's point of view. It is to be assumed that as the "Persian Latin script" becomes more firmly established it will be taken over by ISO. In Preußische Instruktionen the additional symbols of the Persian alphabet are also taken into account.⁴⁴

k) A f g h a n i s t a n

Iranian Pashtu is the indigenous language of Afghanistan. Pashtu and Persian are the official languages. Pashtu is written in the

⁴²Romanization Guide, loc. cit., p. 5-9.

⁴³United Nations Conference, loc. cit., Vol. 1, p. 13, Resolution 13.

⁴⁴loc. cit., p. 145.

Arabic character, with the additional Persian symbols and some others peculiar to itself. Only one recognized conversion developed by the Royal Geographical Society and known as R.G.S. II is available. It is given in Foreign Languages, ed. by the Permanent Committee on Geographical Names for British Official Use.⁴⁵ Together with the international map on the scale 1 : 2,500,000⁴⁶ this table is very useful for the transcription of the Pashtu alphabet. ISO-R 233 (Arab.) does include the Persian characters not contained in the Arabic alphabet, but disregards the letters and signs peculiar to Pashtu.

l) P a k i s t a n

The national languages of Pakistan are Urdu written in the Arabic alphabet and Bengali written in the Bengali alphabet (both modern Indic languages). English will be the official language until 1972 and is also used in the national survey so that the conversion problem is not yet topical for the German cartographer. The official Pakistani documentation is available in Latin script and does not require any changes. Urdu is written in the Arabic alphabet to which the Persian letters as well as some special signs peculiar to Urdu were added. The scientific transliteration is given in Preußische Instruktionen.⁴⁷ ISO-R 233 (Arab.) does not include the additional Urdu signs. For the Bengali alphabet which belongs to the Indic group of scripts there is no easily available conversion key.

m) I s r a e l

The official language is modern Hebrew (also known as "ibrit") written in Hebrew characters. For transliteration cartographers can use the ISO key ISO-R 259 (Hebr.). On the whole it conforms to the scientific philological conversion given in Preußische Instruktionen. ISO-R 259 (Hebr.) owes its special usefulness to the fact that it was approved not only by Israel itself but

⁴⁵p. 66 seqq.

⁴⁶loc. cit., p. 64.

⁴⁷loc. cit., p. 145.

also by the German-speaking countries (Austria, Germany, Switzerland) and by Great Britain and the United States. The "BGN/PCGN 1962 system" shown in the Romanization Guide, p. 28-33, is intended above all for English-speaking users, e.g. kh, sh for ISO k, s'.

n) E t h i o p i a

The official language of Ethiopia is Amharic, a Semitic language, written in the Amharic alphabet. The 1967 United Nations Conference on the Standardization of Geographical Names recommended that the transliteration of the Amharic script to be adopted by the Ethiopian national geographical names authority in the near future should be accepted as the standard international conversion system. Since in the Conference reports this conversion is called "Amharic-to-English transliteration system" and not "Amharic-to-Latin ..." or "Amharic-to-Roman ..." it is probably based on the English language.⁴⁸ Until this system is available existing conversions will have to be used. The following systems are available: the scientific philological library conversion as given in Preußische Instruktionen⁴⁹ and English, a French and an Italian system. The latter three defer to the orthographies of the receiver languages. Thus the library transliteration † becomes tch in French, c in Italian and ch' in English. The French and Italian conversions are found in WK 2,5 Mill.⁵⁰, the most recent English conversion is given in the Romanization Guide as "BGN/PCGN system".⁵¹ Until the official Ethiopian conversion comes into force cartographers will best use the library conversion which is internationally recognized in scientific circles.

⁴⁸United Nations Conference, loc. cit., Vol. 1, p. 14, Resolution 17.

⁴⁹loc. cit., p. 147.

⁵⁰loc. cit., p. 68 seq.

⁵¹loc. cit., p. 1-4.

o) I n d i a

For our cartographers the Indic scripts are still a secondary problem. The official language of the federal administration is Hindi written in the Devanagari script, but English is still indispensable. The official Survey of India maps use Latin characters. However, quite a few atlases and geographical works are already written in Hindi so that a Hindi-to-Latin transliteration for the lettering of maps deserves consideration. For this purpose the scientific philological conversion of Preußische Instruktionen, Table "Sanskrit und verwandte Alphabete" (Sanskrit and Related Alphabets)⁵² may be used because Sanskrit is also written in the Devanagari script.

Considering the dearth of relevant material it will hardly be possible for the cartographer to pay regard to the official languages of the various federal states. Since Hindi meets with strong disapproval in those federal states where it is not spoken, especially in states using Dravidian languages, Western cartographers will at some future time have to come to terms with these regional problems. In accordance with the Indian constitution the following 14 languages are officially recognized (altogether 1652 languages were counted in the 1962 census): the modern Indic languages Assam, Bengali, Gujarati, Hindi, Kashmiri, Marathi, Oriya, Panjabi, Urdu and ancient Sanskrit; the Dravidian languages Kanarese, Malayalan, Tamil and Telugu. As has been mentioned before Sanskrit is written in the Devanagari script which most modern Indic languages use as well. Besides, the Bengali script and the Urdu alphabet have some prominence. The Dravidian languages are written in the Tamil, Telugu and Malayalan scripts. Some languages use two scripts - here the religious differences play a certain role. This is only a glimpse of the difficulties with which the cartographer will be confronted in the future.

⁵²loc. cit., p. 144.

p) N e p a l

Nepali, a modern Indic language, which uses the Devanagari alphabet is the official language. For conversion purposes Preußische Instruktionen, Table "Sanskrit und verwandte Alphabete" (Sanskrit and Related Alphabets), p. 144, will come in handy or even better the "BGN/PCGN 1964 system"⁵³ which departs slightly from the library conversion to accommodate special linguistic features of Nepali. The same attitude may be observed in respect of the Bulgarian, Ukrainian and White Russian ISO variants.

q) B h u t a n

The national language of Bhutan is Dzongkha, basically a Tibetan language; besides, Tibetan written in Tibetan script is also spoken. All available maps use an English conversion which has to be taken over without changes.

r) C e y l o n

The official language is modern Indic Sinhalese written in Sinhalese script. Moreover, English plays a great role in business and education. The official maps use the Sinhalese and Latin alphabets. The transcription system is based on English. Western cartographers will adopt the official conversion.

s) B u r m a

The official language is Burmese written in Burmese script. Besides, English is used in business and education. In 1907 an official conversion key was adopted which was published in Rangoon in 1908 by the Office of the Superintendent, Government Printing. The official maps are printed in two scripts in accordance with the above-mentioned key. For this reason international cartographers encounter no conversion problems here.

⁵³Romanisation Guide, loc. cit., p. 54 seqq.

The "BGN/PCGN 1962 system" given in the Romanization Guide, p. 12-25, is an "amplified restatement" of the official 1907 version.

t) T h a i l a n d .

The official language is Thai or Siamese written in Thai script. In 1939 the Thai Government officially adopted a conversion system which was published in the Legal Gazette, Vol. 56, Part 2, Section 85, BE 2482. Thai maps use this system in a moderately simplified form which is to be found in the Romanization Guide as "BGN/PCGN 1963 system", p. 66-70. The official map of Thailand is written in two scripts (Thai and Latin alphabets) whereas the index is in Latin script only. The 1967 Geneva Conference recommended the official key for the transcription of geographical names for international use.⁵⁴

u) L a o s

The official language is Laotian, which belongs to the Thai group of languages, written in Laotian script. The Commission Nationale de Toponymie (CNT) adopted a conversion system which is also used in the official Survey of Laos maps all of which are printed in two scripts. This system is also used in international cartography. It is given in the Romanization Guide (p.46-51) as "BGN/PCGN 1966 system."

v) C a m b o d i a

The official language is Khmer, which belongs to the Mon-Khmer group of languages, written in the Khmer script. In 1959 the Service Géographique Khmère (SGK) devised an official conversion system which is used in the official map besides the Khmer alphabet. The key is given in a slightly modified form in the Romanization Guide (p. 16-20) as "BGN/PCGN 1962 system."

⁵⁴United Nations Conference, loc. cit., p. 13, Resolution 14.

w) C h i n a

Today Chinese is written in two scripts in a very special sense. In 1958 the National People's Congress officially introduced the Latin alphabet as an auxiliary script, not so much in order to establish relations to the Latin-script countries but rather to help the people throughout the country to learn the putonghua ('common language') more quickly. Putonghua goes back to the colloquial language of the educated classes in Peking and belongs among the northern dialects. Since the Chinese dialects are strongly differentiated especially as far as phonetic aspects are concerned and since the script, an ideographic script, which, however, is no longer pure, is unsuitable for the propagation of a uniform spoken standard, the government introduced a phonetic Latin script in order to ensure the use of putonghua throughout the country. This alphabet is taught at schools as an auxiliary script in addition to the Chinese script which has been somewhat simplified by official decrees. The new Chinese Latin script will also be taken over by international cartography. Of course, there will be no transliteration tables since the Chinese script does not use letters but characters which represent words. Thus, transcription dictionaries of Chinese characters will have to be used. It is to be expected that as the Latin script becomes more firmly established Chinese cartographers will increasingly employ it in their maps. Anyway, it will then be possible to apply the Roman alphabet rule in a wider sense to the Chinese language. The following examples (conventional German version/Chinese Latin script) will serve to illustrate the difficulties with which we shall be confronted: Peking/Beijing, Naking/Nánjing, Schanghai/Shanghai, Tientsin/Tianjin, Fukien/Fujian, Hoangho (Hwangho)/Huánghé.

x) J a p a n

The Japanese derive their script from Chinese but they have modified it considerably. Theirs is a syllabic script which in addition makes use of word signs or kanji. The syllabic script takes two forms depending on the stylistic level:

katakana and hiragana, the latter being the more popular form nowadays. According to a decision of the Ministry of Education of 1947 official documents may not use more than 1850 characters. There are tables for the conversion of the syllabic signs. A character representing a word can be transcribed only with the aid of a dictionary. A mechanical transference without knowledge of the Japanese language is impossible. According to the Geneva Conference Report UN, ECOSOC, E/CONF. 53/L. 10 of JULY 14, 1967, p. 2, the official conversion system in Japan is the kunrei system. Philologists prefer the HEPBURN system which gives a better idea of the pronunciation of Japanese. Since internationally available maps of Japna are usually of American origin, the Modified HEPBURN system as given in the Romanization Guide, p. 35-41, is of great interest to the cartographer. On January 14, 1969 the American Standards Association submitted a proposal for the romanization of Japanese according to the Modified HEPBURN system to the ISO members for consideration. The comments of Japan which is also a member of ISO will be of particular interest in this respect.

y) K o r e a

The Korean script is an indigenous syllabic script to which Chinese characters were added later on. These characters are now superseded by, or abandoned in favour of, the Korean script. The Korean syllabary is known as han'gŭl, formerly ōnmun. For romanizing han'gŭl the widely used McCune-Reischauer system is employed which is given in the Romanization Guide, p. 42-45, as "BGN/McCune-Reischauer system." For names written in Sino-Korean characters it is necessary to convert the characters to the han'gŭl with the aid of a Korean dictionary of Sino-Korean characters.

IV. Conclusion

Certainly the general trend is favourable: as cultural relations between the various language areas grow closer more and more countries not using the Latin script will introduce romanization keys and will apply them to a certain extent. These keys will be taken over by international cartography regardless of their linguistic qualities. Once the Latin script has acquired the status of an official secondary script it will be possible to apply the Roman alphabet rule in a somewhat wider sense. Moreover, it may certainly be regarded as a favourable development that within the Latin-script area international transliterations are gradually superseding the popular transcriptions. In the German-speaking countries, e.g., the philological transliteration of the Slavic languages (although not yet completely uniform) is constantly gaining ground and is even about to take root in fiction. Since the Soviet Union put an end to attempts at romanization, any hopes that the world might develop a uniform script have grown very dim indeed. However, it will certainly be possible to limit the great number of existing conversion systems to a reasonable selection.