

EXONYMS IN CARTOGRAPHY

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Introduction

There is some confusion in the UNGEGN about the terminology, but the definition still valid for exonyms is: "geographical names used in a certain language for geographical entities situated outside the area where that language has official status and differing in its form from the name used in the official language or languages of the area where the geographical entity is situated" (Second United Nations Conference on the Standardization of Geographical Names (London 1972), New York 1974). The other term, which is proposed to fit this definition, is 'conventional name'. We will not use it here, as it is not the official UN term

Exonyms are the reverse of endonyms; broadly speaking endonyms are the geographical names that belong to a language, and relate to objects within that language area, whilst exonyms are geographical names that belong to a language but refer to objects outside that language area, broadly speaking. In Indonesia the geographical name Indonesia is an endonym, whilst Negeri Belanda, is an Indonesian exonym for the Netherlands. The reverse is that Indonesië is the Dutch exonym for Indonesia, whilst for the Dutch Nederland is an endonym. So endonyms are local official names whereas exonyms seldom have official status.

The following are some examples of exonyms (table 1):

Wien (German)	Venezia (Italian)	Norge (Norwegian)
Vienna (Eng)	Venice (Eng)	Norway (Eng)
Vienne (Fr)	Venise (Fr)	Norvège (Fr)
Becs (Hung)	Velence (Hung)	Norvegia (Hung)
Viena (Span)	Venecia (Span)	Noruegia (Span)
Wenen (Dutch) (Dutch)	Venetië (Dutch)	Noorwegen
Wieden (Polish)	Venedig (German)	
	Norwegen(German)	

Names transcribed from one alphabet or writing system into another could be regarded as exonyms as well, because they no longer have their local form. However, if this conversion has been done according to a system officially recognized by UNGEGN they will not be regarded as exonyms here. So Cel'abinsk, transcribed from ЧЕЛЯБИНСК according to the officially accepted GOST 83 system is not regarded here as an exonym, whereas Chelyabinsk (Eng), Tcheliabinsk (Fr) and Tscheljabinsk (Ger) are. It is however more a subjective decision based on grounds of expediency than a consequent and well-argued one.

Another decision is necessary on behalf of renderings of geographical names where diacritical marks have not been applied because these were not current in the available typesetting equipment. A number of them, like the tilde, hacek and trema, might be available, but others like the polish slashed l or the Danish slashed o not. Geographical names without their proper diacritical marks are not considered as exonyms by the UNGEGN. In most reference atlases all diacritical marks are included, except for Vietnamese, which has so many diacritics, that the textual image of the map would suffer by including them: Hà Nôi --> Hanoi.

The omission or including of articles or case endings (Bolivia-->La Bolivie; Ar-Riad-->Riad; Malmberg-->Malmberget) is not considered as changing a name into an exonym either. The same goes for presenting the definite instead of the indefinite state. Names that are different because of the translation of their generic parts (cape, bay, sea, etc) are considered exonyms by most experts, but there is no common opinion here.

The number of exonyms in use in various languages forms only a small percentage of all the names used for foreign geographical objects. In most cases the "local names policy" is followed, that is the geographical names used correspond to those used in the respective countries themselves. So the Germans write Cherbourg, Stockholm, Buenos Aires; the British write Arnhem, Barcelona, Surabaya; the Dutch write Portsmouth, Newfoundland, München, etc, which conforms to the United Nations recommendation. But though it is only a small percentage of all the geographical names, the exonyms tend to designate the more important objects, and that is why they can be rather prominent on the face of small-scale maps.

As is expressed in the UNGEGN definition, an exonym differs from the name used in the official language or languages of the area in which the geographical object is located. This means that Strassburg is the German exonym for the French city of Strasbourg, as German is not the official language in France, even if the city used to be inhabited by German-speaking people. The capital of Belgium is officially bilingual, that is both Dutch and French have official status there. That means both Brussel (Dutch) and Bruxelles (French) are endonyms, while Brussels and Brüssel are respectively English and German exonyms for the same city. The differences between exonyms and endonyms may only be in one letter or in the addition of a generic, but they may also look completely different: the Finnish exonym for the Netherlands is Alankomaat !

The study of exonyms is essentially something for atlas map editors and journalists, and not meant for topographers engaged in national mapping activities. Exonyms only begin playing a role when foreign parts are being represented on maps. As there can be rather important differences between exonyms and the official names, this might pose problems in communication, and therefore the United Nations Group of

Experts on Geographical Names recommends against the use of exonyms: they state that local names should be employed as much as possible.

Of course the United Nations can not interfere with the words and names in any particular language; any language community has the right to use its own linguistic resources in naming the world around it, a right that cannot be taken away or restricted by any outside authority¹. But on behalf of better communication between nations, the UN can offer guidelines, and show the advantages of a reduction of exonyms.

2. The origin of exonyms

Names are subject to change. Jayakarta became Jakarta, Amstelredam became Amsterdam, Londinium became London. There are only a few places that today bear exactly the same name as two thousand years ago; Rome in Italy is an example. During this process of continuous change nations come into contact with each other, because of trade or war, they learn the names of geographical objects in each other's country, they adapt them possibly to their own language structure, and codify these names. Meanwhile the process of name changing goes on in both countries, usually at a different pace and seldom in the same direction. Thus, even if originally the names for a specific geographical object may be similar in both countries, with the progress of time these name versions might drift from each other, unless very close links remain.

In the 12th century the name of the Dutch-speaking city which is the present capital of Belgium was Broeksele. This name was rendered by the French phonetically as Bruxelles. In the Dutch language community the name Broeksele gradually changed into Brussel, so the French version is closer now to the original version than the Dutch one. Similarly the French name versions of the cities in the French province of Alsace are

closer to the names for these cities in the local German dialects than to the official German versions, which applied when the province was still German territory.

Sometimes gradual changes occur in pronunciation of letters: the ending -in was at some moment in time pronounced as -ine (written in Dutch as -ijn). The French word "fin" was pronounced as "fine". This led for instance to the pronunciation in Dutch of Berlin as Berline (Berlijn), and later to an adaptation of the orthography to this new pronunciation.

The process of name changing might show sudden acceleration because of official spelling reforms or changes in the official transcription systems. In the 1970ies the People's Republic of China introduced the Pinyin transcription system for the transfer of Chinese characters into the Roman alphabet, whereby Peking was changed into Beijing, Canton into Guangzhou, etc. In order to homogenize the spelling of Bahasa Indonesia and Bahasa Malaysia, the "tj" in Indonesia was changed into "c": Atjeh became Aceh, Tjilatjap became Cilacap, Tjipanas became Cipanas. In Belgium spelling reforms in the Dutch language in the 1930ies were also applied to geographical names; in the Netherlands the same reforms up till now were only applied to minor geographical names like street names. Exonyms emerge when these name changes due to orthographic reforms are not followed by other countries. When a country would say that they had 400 years relations with Atjeh, it would be written Atjeh in their history books and in their language, it would be their right to keep the old name, I suppose, but this name version would turn into an exonym, as it is now spelled Aceh officially.

In most cases, however, exonyms originate due to a process of adaptation of the names to other languages. They emerge at some time during contacts, at some phase in the process of continuing change. As soon as they have been adopted into another language, they

follow the same development as all other words in this language, so endonym and exonym for the same object will each go their separate ways.

Only those geographical objects will have their names turned into exonyms that have some specific importance at some time. Those will either be important objects like capitals or large rivers or objects close to the border of other language areas.

3. Classification of exonyms

Exonyms may be subdivided into pronunciation-exonyms and orthographic exonyms. The first are visually similar to endonyms but would be pronounced differently, i.e. according to the pronunciation of the alphabet in the respective countries. Orthographic exonyms are spelled differently from endonyms. Though they look different, they may sound similar, when pronounced; their spelling in another language may be a phonetical rendering (Mouscroun - Moeskroen). As cartographers, dependant upon images, we will disregard this difference between pronunciation and orthographic exonyms - we will only concern ourselves with differences in spelling.

Exonyms may be subdivided also into contemporary, and historical or obsolete exonyms. Contemporary exonyms are used in everyday speech. Examples in Dutch are Parijs for Paris and Lissabon for Lisboa. Historical or obsolete exonyms are exonyms that are no longer used. They will have been superseded by other exonyms or by the official local names. The Dutch exonym for the Baltic used to be Oostzee. Nowadays it is being replaced by Baltische Zee; the local name would be Ostsee. Other examples for historical exonyms are Plijmuiden (17th century form for Plymouth), Ossenvoorde (for Oxford), Kales (for Calais).

Exonyms, both contemporary and historical, should be distinguished from historical names, as Batavia, Leningrad, Léopoldville (for Jakarta, St. Petersburg and Kinshasa), i.e. names which for a long time were locally used and valid and were accepted in many other languages. It will be clear that a contemporary toponym, due to political developments can deteriorate into a historical name, as happened to Lourenco Marques, Buitenzorg, Léopoldville, or may survive as an exonym, as happened with the German names of places in former German territories now in Poland, such as Breslau, Stettin now called Wrocław and Szczecin. An exonym can evolve into a historical or obsolete exonym. Endonyms may turn into contemporary exonyms and later into historical exonyms, as with the Dutch town of Kales which was called Calais by the French when they occupied it. Finally, historical names can be promoted to contemporary toponyms as happened in former colonies where, after emancipation, old historical names were restored: Ghana, Zimbabwe, Kalimantan, Jakarta.

When categorizing exonyms on the basis of their development, the following subdivision might be made:

a) Exonyms that result from transcription. Application of all non-official transcription systems would lead to the emergence of exonyms: this would be valid both for not adhering to the Roman Alphabet Rule (Constanta --> Konstantsa) and for not adhering to the official transcription or transliteration systems propagated by Donor countries. БЛАГОВЕЩЕНСК --> Blagoweschtschensk instead of Blagovescensk

b) Exonyms due to adaptation. This category groups those exonyms that are so different from their endonyms that they cannot be explained by a simple transcription. These could be more or less phonetical renderings; name parts that are not understood could be omitted, generics might be added, semantic

adjustment or phonetic rules might have been applied.

Examples:

Kobenhavn --> Kopenhagen

Sverige --> Zweden

France --> Frankrijk

Kaapstad --> Le Cap

Schweiz --> Switzerland

Ecuador --> L'Equateur

Aachen --> Aix-la-Chapelle

c) Exonyms due to separate development from a common origin. Examples here are the old German name Leudeke that was, independently, turned into the French Liège, the German Lüttich and the Dutch Luik. Similarly the Roman name Colonia was turned into the German Köln, the French Cologne and the Dutch Keulen. The Roman name Aquis Grani was turned into German Aachen, French Aix-la Chapelle, Italian Aquisgrana, Polish Akwizgran, etc.

d) Exonyms that emerge from origins different from that of the endonyms: The official name of Greece is Hellas; the Romans called it Greece, because the Greek area closest to Italy was inhabited by a Greek tribe called the Graeci, while to the east it is called Junani, because of the Ionians that lived on the shores of Asia Minor. Similar reasons caused the French name Allemagne for Germany (because the German tribe nearest to France were the Alemanni) and the Finnish name Saksa. The French name of the German city of Regensburg is Ratisbonne, derived from the original Roman name of Radaspona. The German name originated from the river Regen on which the town is situated.

e) Exonyms due to translations, in those cases that also the specific parts of geographical names can be translated. So the German mountain area Schwarzwald is Black Forest in English and Forêt Noire in French. The Bahr al Ahmar is Red Sea in English, Österreich ("Eastern Empire") is Oostenrijk in Dutch. When only generics are

translated (Cape Hatteras → Kap Hatteras) geographical names are not always considered exonyms.

One should take care in translating generic parts that genitives or other case endings such as for the definite article are not retained. These may make it difficult to establish the basic form of the modified specific elements. We want the real name, not some derivative. For instance the Russian Aleksandra Arkhipelag means the Archipelago of Alexander, not an Archipelago named for Alexandra. In the Czech name Michiganske Jezero, Michiganske is an adjective, and its basic form is Michigan.

4. UN policy towards exonyms

One of the results of the 1972 London Conference on the Standardization of Geographical Names was the recommendation to U.N. member countries to limit the use of exonyms, a recommendation which was repeated in a clearer and more concise way during the Athens conference in 1977. However, the U.N. experts quickly discovered that exonyms form part of a delicate subject matter, encircled by obstacles, some of them political, which created the need for careful maneuvering. It was understood from the start that the final decision concerning the reduction of exonyms and the extent to which this should happen, should be left to the competence of each individual country. Seen from this angle the recommended limitation can only be treated as a long-term project.

It was also perceived at an early stage of the discussion that the exonym problem differs from country to country, and from language to language, according to the geographical, historical and linguistic situation. In a maritime country like the Netherlands, having always been engaged in international traffic and trade, where people have learned to live with foreign languages, the limitation of exonyms will cause fewer problems than in less internationally-oriented countries. But

this approach also stems from our present unimportant position in the World theatre: when we were a super power in the seventeenth century, we expected people to learn Dutch.

There is little difference of opinion amongst the UNGEGN experts on the desirability to remove the exonym problem from the tense field of international politics. Names to be avoided are those overtaken by historical events, the use of which in the current context can be conceived as propaganda for historical claims or neo-colonial ideas. Naturally the ways to achieve this differ from country to country. It was easier for a country like the German Democratic Republic to give up German names for geographical objects in Eastern Europe than for the Federal Republic of Germany.

5. Arguments used within the UNGEGN

Various approaches are adopted by the experts (linguists, historians, geographers and cartographers) who have been recently concentrating on the recommendations of the U.N. These can be categorized as follows:

- the nationalistic approach, which is in favor of maintaining all exonyms and which is opposed consequently to their limitation. An extreme version of this conviction is found amongst those diehards who desire the revival of historical exonyms that is of names that have become obsolete because of historical events.

-the internationalist or idealistic view, adherents of which are opposed to the use of exonyms, with the exception of a limited number of names such as Rome, Vienna, etc., which seem to be indestructible. The advocates of this view would like nothing better than to precisely carry out the recommendations of the U.N. and to completely substitute exonyms with the local names.

- the intermediary approach adopted by linguistic experts who hold the view that the vocabulary of a language is subject to changes and that these changes also entail a slow but steady modification in the use of exonyms. To them it is possible to speed up this natural process, as it is also conceivable that some exonyms could be retained together with the local names, by certain categories of users.

The above-mentioned views are reflected in the various ways in which foreign toponyms are handled in current atlases, in which the following variations are found:

1. Exonyms without additional local names (e.g. in current West-German school atlases: Neufundland, Oberersee, Elfenbeinküste (for Newfoundland, Lake Superior, Ivory Coast))
2. Exonyms with additional local names in brackets: Arnheim (Arnhem), Milan (Milano), Prague (Praha)
3. Local names with additional exonyms in brackets: Warszawa (Warschau), Wien (Vienna), Lisboa (Lisbon)
4. Local names without additional exonyms, a method, which is mainly, followed in large reference atlases for international use.

Often atlas editors treat foreign toponyms in their atlases in an unsystematic way, in the sense that examples of all four above variants can be found in one atlas, even on one and the same map sheet. On a map of Africa in an atlas recently published in the Netherlands the following chaotic combination of names can be found: Maputo (current local name for Lourenco Marques), Tripoli (Dutch exonym for the Lybian capital of Tarabulus), Alger/Algiers (respectively French and Dutch exonyms for Al Jezair, the capital of Algeria), and Khartoem/Khartoum (respectively Dutch and English exonyms for Khartoum, the capital of Sudan).

For the sake of good order, the arguments of the supporters and opponents of the use of exonyms will be mentioned. First the supporters:

-Exonyms form a part of the vocabulary of a language and thereby of the national culture. Many exonyms are deeply rooted in the lexicographic system of the language. This is mainly true for the names of larger geographical units: Balkan Peninsula, Finland, Greenland, etc. Abolition or reduction of exonyms would mean an impoverishment of the vocabulary.

-Exonyms bear witness to extensive economic and cultural contacts between nations. They are of great importance for the study of historical relationships.

- The replacement of exonyms with official local names would inevitably lead to spelling and pronunciation difficulties on the part of the language users.

- In some cases maintaining the exonyms can be advantageous for the users for other reasons. In civil aviation the use of English exonyms is the standard international practice because English is the official language in this field. By retaining French exonyms the Moroccan authorities do not have to choose between Arab and Berber versions of toponyms, and can prevent the ensuing difficulties.

The adherents of the U.N. recommendations to reduce the number of exonyms have the following motives:

- In a world in which international contacts (political, economical, cultural, scientific, touristic) are rapidly more intensifying, the use of exonyms instead of local names leads to confusion.

- The use of exonyms in popular and scientific literature, in tourist guides and on maps delays the identification of geographical objects and consequently leads to confusion. Why use "incorrect names" (exonyms) when "correct names" (=local names) are available?

- The maintenance of a large number of exonyms in the vocabulary of a language forms an unnecessary burden on the memory.

- The maintenance of exonyms, particularly of historical exonyms, is often interpreted as an attempt to advertise reactionary, neo-colonial ideas or of territorial claims on the

places or territories named by the exonym by the exonym-using group.

6. Need for flexibility

When studying the exonym problem closer, the supporters of reduction may be happy about the following trends:

- a) Recent changes of names resulting amongst others from the emancipation of former colonies (Gold Coast→Ghana; Ceylon→Sri Lanka, Congo →Zaire; Batavia→Jakarta) have found a surprisingly rapid acceptance by the general public.
- b) In various countries it can be observed that as a consequence of increasing international contacts through radio, television, sports, tourism etc the number of exonyms is decreasing by a natural, spontaneous process, as the linguists have predicted. The adherents of the U.N. policy to reduce the exonyms wish to guide and to encourage the natural process of replacement of exonyms by a well-prepared local names promotion whereby the media, railways, airlines, publishers and teachers cooperate.

Further discussion on the subject in the UNGEGN has indicated that proposals to reduce the number of exonyms should be more diversified, whereby more consideration should be given to the question as to which categories of users are envisaged. In general, it can be assumed that the spoken language allows for more exonyms than the written one; that the speaker who addresses a wider public can permit a greater use of exonyms than when he speaks to specialists; that exonyms are more acceptable in texts than on maps and tables; that exonyms are more appropriate on maps and wall charts for primary schools than in atlases for higher education. Local names should, in any case, be applied on maps for international use such as road maps, railway maps and airline route maps, whereby the user must be able to find the names which correspond to road signs. Supporters of a reduction of the use of exonyms should therefore aim not only at gradual but also at selective change, adapted

to the users. For the various categories listed above a varied policy is recommended with an adapted elimination speed.

7. Need for better insight

In order to decide on a strategy with this end in view, more insight is needed into the complexity of exonyms as a phenomenon. This realization has resulted in a recommendation by UNGEGN, which was requested to study this question by the U.N. conference in Athens (1977), to all member states to establish a national inventory and classification of the exonyms in general use. It is expected that on the basis of classification a policy will be more easily formulated to limit the use of exonyms.

A quick survey of the situation reveals that exonyms are used for a variety of foreign geographical phenomena, both physical and human. The following categories can be broadly differentiated:

1. Names of independent countries (state names): Norway (Eng) for Norge, Griechenland (German) for Hellas. In Europe, with a few exceptions, all languages have exonyms for the country names in other language areas. This is because of the fact that these names have a long history and have been incorporated into other languages in an earlier age. Endonyms are never added to the exonyms of country names (in brackets).
2. Names of administrative units: Lower Saxony (Eng) for Niedersachsen; Apulien (German) for Puglia; Karinthië (Dutch) for Kärnten. Endonyms are never added here.
3. Names for historical and geographical regions: Pomerania (Eng) for Pommern; Souabe (French) for Schwaben; Normandia (Spanish) for Normandie
4. Names of hydrographic features, such as seas, bays, straits, rivers, lakes: Golf von Genua (German) for Golfo di Genova; Lac Supérieur (French) for Lake Superior; Taag (Dutch) for Tajo (Port) or Tejo (Spanish).

Hydrographic features are generally designated by exonyms only.

5. Names of other physical features such as mountain ranges, islands, and peninsulas: Peloponnesus (Dutch) for Peloponnesos; Montagnes Rocheuses (French) for Rocky Mountains, Korsika (German) for Corse, Jutland (Eng., Dutch) for Jylland. No endonyms are added in brackets.

6. Names of settlements, especially capital cities, ports and other important centers. In Europe we hardly find any exonyms for cities that recently became important, like Glasgow, Dortmund, Düsseldorf. Endonyms are generally added to the exonyms.

According to the definition of exonyms, names for objects outside someone's jurisdiction, if belonging to the 'high seas' (Pacific Ocean, Arctic Ocean), cannot be considered exonyms. But also for objects within someone's jurisdiction, as for instance objects that fall under the sovereignty of more than one country (Danube, Lake Constance, Himalayas, Alps, etc.), it is not possible to find an obvious local name to replace the exonym. The Danube, for example, changes its name with the language of the eight countries through which it flows.

On the basis of this rough division one could suggest the gradual reduction of exonyms beginning with settlements and then moving to larger topographic units such as regions and administrative areas. It goes without saying that some long-established country names such as Greece and Germany will prove to be indestructible. For the reason stated above it will not be possible to "de-exonymise" the names of physical features which are beyond the boundaries of a single sovereignty.

8 Reactions from UN Member countries

Various countries have responded to the request of the UNGEGN to analyse their

corpus of exonyms more closely. Among them is France, whose Commission de Toponymie of the Institut Géographique National (IGN) has prepared an elaborate classification of French exonyms on the basis of origin, evolution, structure and composition.ⁱⁱ

The German Democratic Republic has published a list of the exonyms it wishes to maintain, from which it is understood that the majority of German name versions for eastern European cities could be abolished, according to the GDR. Names like Breslau, Dantzig, Stettin are, according to the GDR, overtaken by history. The Federal Republic of Germany has made less dramatic proposals but will nevertheless relinquish some exonyms. On examining their list, which includes Stettin, Königsberg, and Brunn, one cannot really announce a breakthrough.

Rumania has decided to maintain some frequently used exonyms alongside the local names e.g. Varcovie (Warszawa), Moscovi (Moskva), Viena (Wien). The Rumanians are, however, prepared to give up forms such as Colonia, Dresda, Hanovre, Brema in favour of the local names.

The Board of Geographical Names in the United States is also preparing a standardisation programme of its exonyms, and it has stated that many of those will be maintained. In its report the BGN notes that there are no legal instruments to control private publishers in the field of spelling. The Soviet Union, finally, prepared a classification of exonyms and has critically examined them. It was expected that this would lead to a reduction in number, which is acceptable, but all this work is now overtaken by the recent turmoil in the Commonwealth of Independent states (GOS), and the emerging nationalism will probably lead to an - at least temporary - increase in exonyms. Well, this will ensure cartographers keep their jobs!

Notes:

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- i. J.Breu - Exonyms in Cartography. pp 274-279 in: W.Ritchie, J.C.Stone, A.S.Mather (Eds), Essays for Professor R.E.H.Mellor. Aberdeen, University of Aberdeen 1986.
 - ii. Essai de classification des exonymes. Bulletin du Comité Français de Cartographie no 77, pp 96-100, 1978.

NAME PLACEMENT ON MAPS

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Introduction

The notation system developed for our Roman alphabet developed from pictograms, in which each sign stood for an object, regardless of its pronunciation. Later on, these pictograms developed into phonograms, that is (combinations of) sounds, regardless of their meaning. When these signs were stylized, it developed into the logographic script, and the Egyptian hieroglyphs are a good example of this script. In Chinese the various signs still refer to specific objects, and that is why the Chinese script is a vehicle for understanding for the speakers of completely different languages, like Mandarin, Hakka, Cantonese or Japanese: it is the concepts that are exchanged and not the sounds.

But our alphabet communicates sounds, and the first figure shows the development of our Roman script from the hieroglyphs. The Roman script had capital or upper case letters, but the subsequent development went in the direction of scripts that were easier to write by hand, and so, from the classical Roman script the "Roman" and "Italic" letter types developed, the "Roman" being a precursor of our lower case letter.

Fonts development

From 1450 onwards, these letters could be printed as well, as each text could be set in movable type and combined into larger, page-size units. Important of typesetting was the size or height of the letters, their "corps". This was expressed on continental Europe in Points or pointes Didot (0,376 mm each) and in Anglo-Saxon countries, which never had the benefit of being occupied by Napoleon, and therefore lacked standardization, in Pica, that is in units of 0.351 mm each. This lettersize, expressed in points or pica, indicates the maximum overall vertical space the various letters of a particular font would need.

In the development of printing, a number of different fonts were designed. Some of these were Bodoni, Times, Nobel. Recently, more modern-looking fonts were designed, and these lacked the serifs that distinguished the older fonts. Though they look more streamlined, and few cartographers can resist them because they look modern, their legibility is decidedly less than that of the serif fonts. So not all fonts are suitable for use on maps. Some take too much space, some are just not easy to read, some dominate too much in combination with others, or this combination might just look unbalanced. Some might monopolize the map user's attention and distract from the rest of the map contents. Cartographic applications set specific requirements to scripts, and the next image advertizes those requirements already: only small variations in fonts are permitted, no loud or fancy fonts, and the letters should not be too bold.

Font characteristics

Printed letters have a number of characteristics that allow them to present extra information. They may vary in boldness (bold/medium/light), in grey-value, in colour, in size, in shaping and in shape. In texts all these differences have a function, and it is important to check whether these functions also apply to maps. Apart from readability, maps require us to differentiate qualitatively and quantitatively. Moreover we would like the names on the maps to have a pleasant aspect, so they ought to have aesthetic qualities as well.

If we start with legibility, contrast is better in texts than in maps, as maps not always have a white background. Contrast is also less as letters on maps are not always black, but can also be blue (for rivers) or red (for roads). The direction of letters in names in texts is always horizontal, whereas in maps they can have all kinds of directions. The different words in texts are all parallel to each other; those in maps are not, and may have various different curvatures as well. In texts, the letters appear all at the same, short distance of each other, but in maps these distances can vary for different names, and in one name can be fairly large. The letter-combinations in texts, that is the words of a language, will generally look familiar to the reader. The geographical names he is presented with, from Greenland or Kazakhstan or wherever, will not. Letter sizes in texts are all the same while in maps they will be variable. The conclusion must be, that maps will be more difficult to read than texts. Especially so as the words on maps will tend to be combined with other graphic symbols.

In order to get good legibility, the names on maps should be readable without a magnifying glass. That means that the upper-case or lower-case letters should at least be 1.5 mm high. For good recognition the central part of the letters (stem or trunk) should have 70% of the overall height, and the outgoing elements should be relatively short therefore. If serifs are used, they should be clear, and because of magnification and reduction, the differences between thick and thin parts of the letters should be minimal.

In order to be useful on maps, fonts should especially provide a clear distinction between: c
and e

u and v
a and u
3, 5 and 8
1 and 7

Cartographic requirements

As we should be able to differentiate between categories of geographical objects (that is, indicate nominal or qualitative differences) on maps, a variety of fonts can be used, but never more than 3. Each single category of names should have its own, single font type.

Quantitative differences can be expressed :

- a) by variation between lower and upper case (upper case names would be more important)
- b) by a variation in boldness (bold-medium-light)
- c) by variations in spacing between different names
- d) by variations in size (but size differences would only be noticeable if each subsequent type would at least be 20% larger than the previous one)
- e) variations in grey value.

Map lettering proper

When applying names to the map, one should differentiate between point-, line- and area-objects. Point objects would be phenomena on the map indicated by a point symbol. Examples are small settlements or mountain tops. There is a specific order of preference of the location of the name relative to the named point symbol: the favourite position is to its upper right, the location beneath the symbol is considered decidedly less effective, and a location of the name on the same line as the symbol, either to its right or to its left, is considered anathema!

Line objects that are to be named, such as rivers, roads or railway lines, should have the names follow the object, and be parallel to it as much as possible. Rather than have the letters spaced out too much, the name should be repeated.

Names of areas, such as forests, administrative areas, seas, should as much as possible convey an idea to the map reader of the size or extension of the named object. The direction of the name should as much as possible follow the major axis of the area, if there is one. Names of point locations in an area should as much as possible fall into that area, otherwise the reader might attribute them to neighbouring areas.

For linear objects or areas with a non-horizontal extension, there are some guidelines whether the names should be tilted upwards or downwards. These guidelines should be applied flexibly, however.

All the above considerations apply to geographical names. Not all names on the map face consist of geographical names, however. A number of them would consist of designations (like "factory", "cemetery", etc) or abbreviations (Sch. for school or Res. for reservoir) or letter symbols (like T for Telephone or P for Pub or Public House). Preferably, these non-geographical names on the map should be indicated in a distinctly separate font.

Final production aspects

Names nowadays are typeset in an (electronic) phototypesetter on special thin clear film, called stripping film, which is then pasted on to a supporting film with wax. A negative is made from this positive, in order to remove all the dust that has adhered to the film because of the wax.

In order to set of names against their background and improve the contrast, a sort of vignetting technique is used, by which the immediate background of the letters is cleared of other symbols or lines, so that contrast is improved.

ⁱⁱ F.J. Ormeling Sr. – Terms used in geographical names standardization. In: T.R. Tichelaar (ed.), Proceedings of the Workshop on Toponymy held in Cipanas, Indonesia 16-18 October 1989. Cibinong, Bakosurtanal 1990.

ⁱⁱ B.F. Grimes (ed.) - Ethnologue: Languages of the World, Fourteenth Edition. Dallas, SIL (Summer Institute of Linguistics), 2002. Web-version: <http://www.ethnologue.com/>

ⁱⁱ M. Kolga, I. Tonurist et al. - The Red Book of the Peoples of the Russian Empire. Tallinn, 1993. Internet: <http://www.eki.ee/books/redbook/>

ⁱⁱ S.A. Wurm, S. Hattori (ed.) - Language Atlas of the Pacific Area. Canberra, Australian Academy of the Humanities, 1983.

ⁱⁱ A. Room - Dictionary of Place-names in the British Isles. London, Bloomsbury 1988.

ⁱⁱ D. Crystal - The Cambridge Encyclopedia of Language. Cambridge, Cambridge University Press, 1987.