

This DVD is based on the data collected by Alan-Gwenog Berr through the linguistics surveys he carried out in the ports of Lower Brittany in the 1960's.

Managing this huge volume of data without automatic processing was challenging, particularly to produce a linguistic atlas. Following the author's sudden death, the data therefore for long remained unused. Thirty years were to go by, as well as considerable improvement in data processing, and the initiative of several CRBC and IUEM researchers supported by Brittany's Regional Council, for this project to materialise.

It is first of all based on digitising the data of Alan-Gwenog Berr's thesis and integrating them into a database. The transcription of the original data into the base required adopting standard written form and phonetic spelling principles, as well as updating the taxonomy initially used by the author.

Mapping of the database was based on the development of specific software. It provides the mapping of data (in phonetic or Latin characters), and their linguistic interpretation, classifying them into families.

Bibliographical references are included at the end of this presentation.

Geolinguistics of Lower Brittany

The interest in vernacular speech appeared during the French revolution, with a survey by Father Grégoire - member of the National Assembly - "referring to patois and manners of country folk", which led to the famous report "On the need and the means of abolishing patois and universalising the use of the French language", presented to the National Convention on 16 prairial year II (6 June 1794). However, its scientific study actually really began at the end of the 19th century. A strong French tradition developed thanks to the achievements of linguist Jules Gilliéron, appointed at the School of Higher Studies in Paris in 1883, where he worked for 43 years. Being the son of a geologist, he had weighed with his father the significance of field surveys and map representations. Given his concern was not as much the study of "patois" as that of words, he decided to include raw

data in phonetic script on the maps of his Atlas Linguistique de la France (Gilliéron & Edmond, 1902 to 1912), instead of interpretations as were provided in Germany. Being an inured researcher himself, he entrusted the field surveys to Edmond Edmond, in charge of "noting all forms of patois equivalents from a questionnaire in a number of places roughly equidistant from each other." (Note p.4). These forms were then transferred onto the maps in phonetic script.

Following the ALF model (Atlas linguistique de la France), the surveys of celticist Pierre Le Roux, about to be appointed the Celtic chair in Rennes, led to the publication of the Atlas linguistique de la Basse-Bretagne (1924 to 1963). The network comprised 77 survey points out of approximately 600 municipalities present in Lower Brittany. Provided the *Nouvel Atlas linguistique de la Basse-Bretagne* (Le Dû, 2001) comprises 187 survey points, the density of the 129-point network considered by Alan-Gwenog Berr is remarkable.

There was no question of Pierre Le Roux recording his interviews. It was also impossible for Alan-Gwenog Berr, given how bulky audio equipment was at the time and given the surveying conditions, generally partly occurring in the most unexpected places (in the port, at a fisherman's home, in a café...).

Project context

This project's initiative goes to Jean Le Dû, professor emeritus at the CRBC, who on this occasion worked in partnership with Alan-Gwenog



Photo 1 – The author (with his white summer cap) and his informants during one of his field surveys



Photo 2 – The survey continues at the end of a bistro table...

Berr's grandson, Iwan Le Berre, currently lecturer in geography at the University of Western Brittany (UBO, Brest). With the support of Brittany's Regional Council, within the framework of a PRIR (regional-scale research project) granted in 2004, a team was set up for its implementation. The latter includes researchers and students of the CRBC (Breton and Celtic Research Centre - UMR 6536 CNRS), the Faculty of Letters and Social Sciences of the UBO, two IUEM labs (European Institute for Marine Studies) - Géomer UMR 6554 CNRS (Geography) and Lémar UMR 6539 CNRS (Marine biology) – as well as specialists from various organisations (Océanopolis, Bretagne-Vivante SEPNB), translators and illustrators (see list of project participants).

The aim of the project was thus the development of a database, its handling (particularly its mapping) and its publication as a linguistic atlas. It is important to note that no other region in France owns such a data collection, and that foreign academics are following this example.

Database presentation

The original data were published in three volumes as a result of a (posthumous) thesis defence at the UBO in 1973. A fourth volume titled *Geriadur an anoïou loened-mor*, published by Brud Nevez, completed the collection in 1995. It comprises a Breton-French and French-Breton index of species listed by A.G. Berr (view the PDF files of this thesis).

The data used in this DVD are from the second volume of the thesis, Volume 2: Breton Ichthyonyms. The data are recorded on nearly 300 pages, species by species, and classified in taxonomic order: first the invertebrates, followed by fishes, then birds and, finally, marine mammals. Each species is allocated: a codification number (1 to 538), the division, the scientific name and French

and English name. The various local designations collected in the surveys are then recorded port by port.

It was very complex to concretely transfer raw data collected in field surveys onto maps, before any IT developments occurred. The attempts by Alan-Gwenog Berr based on four-coloured



Figure 1 – The three volumes of the original thesis published by the CRBC and the index published by Brud-Nevez

symbols show evidence of how extremely tedious the process was, and in fact the author was unable to fully complete it (fig. 3).

Over thirty years later, thanks to IT improvements, we were able to go back to this project, with a team of students from the Celtic department of the University of Western Brittany entering the data using a Unicode font, then by integrating them into a database.

It includes three tables:

- ▶ The table of ports: in the original document, ports are associated with a code comprising a letter – G for Gwened or Vannetais, K for Kerne or Cornouaille, L for Leon and T for Treger (Trégor) – followed by a digit. A table was designed to match this codification with the sites in which Alan-Gwenog Berr carried out his surveys. The geographic coordinates of each port are provided in Lambert II wide and WGS84.

- ▶ The taxonomic table provides a connection between the thesaurus, the current taxonomy and the internal identifier assigned to each DVD element (database records, descriptive factsheet

| 318 | | 319 | |
|---|---|----------------------------|---------------------------------|
| XII. PISCES | Scylliorhinus stellaris suite | XII. PISCES SÉLACIENS | Galeorhinus galeus (L.) HA |
| | R 232 eq. | | R 234 |
| K 47-B, 48 | tuf bruiS ms | TOUILL BRAZ | |
| L 1 | tuf bruiS ms | id | |
| L 3,12 | tuf - | TOUILL, -ED | |
| L 4,19 | bruiS bruiS - | KAZ BRAZ | |
| L 14,15,17,18,23,30,31 | tuf ru:S ms | TOUILL ROUZ, -ED R. | |
| L 20,22,24,25,26 | tuf dy - | TOUILL DU, -ED DU | |
| L 21 | tuf dy 'bruiS | TOUILL DU BRAZ | |
| L 27 | er haat ru:S fs | GISTI ROUZ | |
| L 28,28-B | er xais ru:S ms | KAZ ROUZ | |
| L 29 | tuf ru:S ms | TOUILL ROUZ, -ED R. | |
| L 32,33,34 | tuf-mor'doty ms | tufed-mor'doty p | |
| L 35 | er mor'doty ms | mor'doty p | |
| T 1,2,3,7 | -1d- | -1d- | |
| T 4,5,6,11-B | tuf-mor'doty ms | tufed-mor'doty p | |
| T 8,12,14 | tuf dy | TOUILL DU, -ED DU | |
| T 8 al | orme:ler ms | orme:ler p | |
| T 9 | tuf-or'me:ler | TOUILL-ORME:LER | |
| T 10,12 al | orme:ler ms | orme:ler p | |
| T 11 | tuf-bruiS ms | TOUILL-KAZ, -ED-K. | |
| T 13 | er pots-kn:S ms | POTTS-KAZ, POTTS-KAZ | |
| T 15 | tuf bruiS - | TOUILL BRAZ | |
| T 16 | er hais ru:S - | ke:iger ru:S p | |
| T 17,19,21 | er haat ru:S fs | GISTI ROUZ | |
| -1732 | BREIZ-VOR, TOUILL | -1426 | (Fleur de) LIS of Tome III,154 |
| -1732 | (DUT), crosse à jouer | -1910 | TOUL ROUZ |
| XII. PISCES SÉLACIENS | I.S. R 254, 256, 237 et 242 Chien de mer | | R 233 |
| Le protoélémentisme XI, p. CHAS, fr. CHIEN, s'appliquent aux Sélaciens, se retrouve aux Références et aux points suivants : | | | |
| R 228 G 7. | | | |
| R 229 G 10. K 30,34,35,39. L 30. | | | |
| R 234 G 2,9,10,11. K 25,28-B,32 | | | |
| R 236 K 3. | | | |
| R 240 G 10,13. | | | |
| R 242 G 8,9,10,14. K 4,5,6,7,9,13. L 30,35. T 3. | | | |
| Les dictionnaires recitent ces confusions : | | | |
| -1635 QUI-MOR, CHAGZ-VOR. -1732 MORGUI, MORCHAGZ. -1050-D QUIQUEHEP | | | |
| La désignation KI-MOR sera donc toujours insuffisante pour déterminer une espèce. | | | |
| G 2 | tuf-mor'ir rui-mor'ir ms | jea-mor'ir p | KEUI-MOR, CHAS-MOR |
| G 3 | moraj't'gruiS fs | moraj't'gruiS p | MORHAET GRIZ, MORHAET GRIZ-G. |
| G 4 | mil'haet fs | mil'haet p | MORHAET, MORHAETI |
| G 5,7. | tuf ms | | TOUILL |
| G 8 | morhaet'gruiS fs | morhaet'gruiS p | MORHAET GRIZ, MORHAETI G. |
| G 9 | tuf, tuf'et ms | | TOUILL-ED, |
| G 9 al,10 | dor-'gi ms | dor-'jae p | DOURGI, DOURCHAS |
| G 11 | t'irej-'mar, ir | hirej-'mar ms | jae-'mar |
| G 13 | un duf'ven fs | tuf'ven'et p | TOUILL-VEN, (TOUILLVENED) |
| G 15 | mor'haet fs | mor'haet p | MORHAET, -HISTY |
| K 1 | xaet'gruiS fs | ci:ti:ed'gruiS p | GAST GRIZ, GISTY GRIZ |
| K 2 | gru't'gruiS, er | xaet'gruiS p | GAST GRIZ, GISTY GRIZ |
| K 3 | er haat-mur fs | gi:ti-mur p | GAST-MOR, GISTY-MOR |
| K 4,10,13 & 19,22,26,27,28,30 | tuf ms | tuf'et p | TOUILL, -ED |
| K 8 | xais hia:S ms | | KAZ GLAZ |
| K 11 | er xaet-'vuir fs | gi:ti-mur p | GAST-MOR, GISTY-MOR |
| K 21 | tuf gup ms | tufed gup p | TOUILL GWEN, -ED G. |
| K 23,24,29,31,28 | 'mil'haet'gruiS fs | mil'histi g. | MORHAET GRIZ, MORHAETI G. |
| K 25,28-B | peak-'ki ms | peak-'jue p | PEAK-KI, PEAK-KI-CHAS |
| K 32 | ki-'mor ms | jea-'mor p | KI-MOR, CHAS-MOR |
| K 33,34,35 | 'morhaet'ru:S fs | morhasti'ru:S p | MORHAET ROUZ, MORHAETI ROUZ |
| K 37 | morhaet'gruiS | | MORHAET GRIZ |
| K 39 | 'mil'haet fs | mil'histi p | MORHAET, -HISTY |
| K 46,46-B | 'morhaet fs | morhasti p | MORHAET, -HISTY |
| L 1,3. | 'morhaet fs | morhasti p | MORHAET, MORHAETI |
| L 4,10,11,12,15,26,30,33,35 | 'morhaet'gruiS fs | morhasti p | MORHAET, MORHAETI |
| L 21 | morox bien ms | morox bien p | MOROX BIEN, -ED B. |
| L 23 | 'morhaet'gruiS fs | morhasti'gruiS p | MORHAET GRIZ, MORHAETI G. |
| L 25 | ! gro:ax ms | gro:haet p | GROHA, -ED |
| L 26,31 | er ha ms | haet p | HA, -ED |
| L 27 | er 'gro:ha ms | gro:haet p | GROHA, -ED |
| L 28-B | er gro:ha ms | gro:haet p | GROHA, -ED |
| L 29 | er pan-'ha ms | panno-haet p | PANNO-HA, PENNO-HAED |
| T 2,3. | 'morhaet'gruiS fs | morhasti'gruiS p | MORHAET GRIZ, MORHAETI G. |
| T 4 | tuf-'tre:S ms | | TOUILL-TREZ |
| T 5,6,7,13 | 'morhaet fs | morhasti p | MORHAET, MORHAETI |
| T 8 | 'morhaet fs | morhasti p | MORHAET, MORHAETI |
| T 9 | er haat fs | gi:ti p | GAST, GISTY |
| T 12,15,16 | er ha ms | haet p | HA, -ED |
| T 17 | 'an hui ms | haet p | HA, -ED |
| T 19,21 | er 'oal ms | oal'et p | AL, -ED |
| -gr. KYON | -1464 | (GAST putain, GMB chienne) | |
| -1732 | MOR-C'HAET | -1913 | HA |

Figure 2 – Example of presentation of data integrated into volume III of the thesis

of the species, drawing, maps). As the scientific names and classification of some species were altered since the work carried out by Alan-Gwenog Berr, the taxonomy was completely updated in order to ensure compliance with the rules currently in force. Moreover, among all the data collected by A.G. Berr, we chose to only keep those referring to marine species of Brittany's fauna, for the atlas. The terms describing anatomic parts (fins, crab pincers...) were left out. Names referring to exotic species or to freshwater or "terrestrial" species (birds) were also left out either due to the same name being mentioned everywhere (whale or sperm whale), or due to the designation being recorded in too few a number of sites to really be significant (spoonbill), or due to the lack of match with a clearly identifiable species (red shrimp). Based on these principles, 430 species were preserved in the 538 sections featuring in the original work.

► The thesaurus includes a little over 33,000 records described with 10 fields providing: the species' scientific name; the codification number assigned to each species by Alan-Gwenog Berr; the English name given to the species; the code for the data collection site; the phonetic transcription

of the local name in Breton; the term's gender; the local name in Latin characters; a literal translation of the Breton name in English (if relevant); potential comments featuring in the original document; a field specifying whether a species has several local names (alias)

Phonetic spelling

The signs used in IPA (International Phonetic Alphabet) are pronounced roughly as follows (some sounds have no equivalent in English or even in any familiar European language):

We decided to replace the archiphoneme used by Alan-Gwenog Berr, written in capital letters at the end of some words, with a single, voiceless or voiced consonant depending on the context. This concept of archiphoneme, very popular at the time the thesis was being written, is no longer useful and needlessly complicates the spelling.

In order to simplify the results we decided to only display the ' character before a stressed syllable when the accent is not on the penult: "whelk" will thus be read [melhweden vo:r] with the accent on the next to last syllable [hwɛ], but [berni'cɛ:n] "limpet" with an accent on the end

Phonetic spelling

| | |
|---|--------------------------------------|
| a : fr. pas | ɲ : dans fr. agneau |
| ɑ : angl. car | ŋ : dans parking |
| ã : grand | o : o fermé (chaud) |
| c : k mouillé, fr. pop. du c ^y arton | ɔ : o ouvert (porte) |
| e : é de fée | õ : rond |
| ẽ : é nasal | œ : œuf |
| ɛ : ê de même | ø : feu |
| ẽ : train | p : poisson |
| ə : fr. dehors | r : paroi (prononciations variables) |
| dʒ : j de jazz | rr : r fort (voy. préc. brève) |
| g : toujours dur (gare) | s : toujours sourd (bosse) |
| ɟ : g mouillé (r. pop. g ^y euler) | f : chou |
| h : anglais hat | t : tout |
| ĩ : i nasal | u : tout |
| j : y de yacht | v : vite |
| k : cour | w : ouate |
| l : l faible (précédé voy. longue) | x : ach-Laut all. de Nacht. |
| ʎ : it. meglio, esp. lluvia | y : u de cure |
| ll : l fort (précédé voy. brève) | ÿ : u nasal |
| m : mer | ɥ : huit |
| n : n faible (précédé voy. longue) | z : toujours sonore (zoo) |
| nn : n fort (précédé voy. brève) | : voy. préc. longue |

and [pa'lurmædɛn] “clam” on the antepenult. This character is never displayed before a monosyllable, where it is redundant.

Alan-Gwenog Berr based his work on the IPA (International Phonetic Alphabet) for which he had to invent the [v̥] character representing a sound specific to northern Breton and lacking in this alphabet. It is a labiodental fricative, strongly breathed, voiced – as opposed to [f] -, and following a long accented vowel. This sound is found as a result of the fricative mutation of p-, for example in ma ‘fenn “my head”. In KLT, KLTG or interdialectal written forms, this consonant is mistaken for a simple f. Only the 1954 Emgleo Breiz spelling, at least at the beginning, marked it as ‘f for a word’s initial, as in the aforementioned example, and as v for an intervocalic, as in ivern “hell”. In traditional transcription of places and people’s names this sound is often written as

–ff-, as in the surname Quéffélec or the town name Squiffiec.

Spelling in standard written forms

In order to assist our readers unfamiliar with phonetic transcription in reading entry points in the database, we chose to display the words in a simple, non standard written form, allowing for easier reading of local pronunciation. We abide by the rules common to the various written forms of Breton, for which the main characteristics are the following:

- ▶ a, b, d, e, eu, f, i, j, k, m, o, ou, p, t, u, v, w are more or less read as in French;
- ▶ aou is generally pronounced aw or ow;
- ▶ c’h transcribes a sound similar to the German Ach-Laut in Nacht or to the Spanish jota in mejor. It is more often pronounced as the breathed h- in the English word hat;
- ▶ g always has the g sound as in the French words

gare or guerre, never as in givre;

- ▶ h is pronounced as a breathed h in English or German;

- ▶ ill represents the palatised l similar in hearing to the li group in the French word escalier. It corresponds more accurately to the Italian gli in moglie or the Spanish ll in llano;

- ▶ In other cases, ll is a stressed l following a short accented vowel, whereas a single l follows a long vowel under the same conditions: tal “forehead” (long a) and dall “blind” (short a) are thus in contrast. The contrast is similar for n/nn and, to a lesser extent, r/rr;

- ▶ m, nn, ll, rr follow a short vowel.

- ▶ ñ (tilde) following a vowel is not pronounced, but indicates the latter is nasalised: añ is thus pronounced as the French an in grand;

- ▶ The s is always pronounced as in assez, whereas the z represents the s sound in the French word oiseau;

- ▶ u and ou are pronounced as in French.

- ▶ The vowels followed by n or m are generally nasalised (not so much in the south, particularly in Vannetais).

These written forms are close to the actual pronunciation without of course equalling the accuracy of phonetic transcription.

Taxonomy

The reference system used to classify living organisms is that of the European Register of Marine Species (<http://erms.biol.soton.ac.uk>). The ERMS is a list including about 30,000 valid species established by a committee of 170 scientists within the framework of a European MAST project. This project provided a list of all marine species in European seas, from the Arctic Ocean and Iceland to the Canaries, the Mediterranean and the Baltic Sea. This catalogue now provides a standardisation and reference tool for scientists and managers involved in European marine biodiversity research, training and management.

The classification in Alan-Gwenog Berr’s thesis was Linnaean, whereas the classification used in this piece of work refers to phylogenetics. This new classification tends to replace the “traditional” classification by referring to multiple features: biological, phenotypic (anatomic) and physiologic (physicochemical phenomena, nutrition). Phylogenetic classification thus presents relationships between living organisms, showing who is close to whom, rather than who is descended

from whom. One of the characteristics of the phylogenetic approach is that this classification disrupts binomial nomenclatures such as those, more “fixist”, developed by Carl von Linnaeus (1707-1778). As for phylogenetic classification, it better represents evolution and relationship principles of species.

Mapped representation

Based on a first version designed for our project by François Legras, researcher at the ENSTB (Higher National School of Telecommunications of Brittany – Brest), the mapping software was developed and completed by UBO student in computer science Guillaume Salou, also in charge of developing the CR-rom. Its graphical presentation and mapping were accomplished by Gilles Couix, Mapping Engineer at the UBO.

The mapping software uses the compiled database to produce linguistic maps in Breton, in phonetic notation and in standard written form. It also provides the development of circle or pin maps that can be used as a reference for linguistic and spatial interpretation of terms. To this end, each phonetic expression needs to be assigned a colour, in order to classify terms. This programme lets the user choose between the development of maps in the singular or in the plural, as it is gender-sensitive. “Handles” are available to alter the arrangement of terms in order to enhance clarity in the map to be edited (the handles disappear when the PDF file is produced).

The mapping software was written in Java script with IntelliJ Idea 6.0 (<http://www.jetbrains.com/idea/>). It uses two tables in the database – the table of ports and the thesaurus table in Excel format – as well as a base map in “.gen” format, first created with GIS software (gvSIG freeware - <http://www.gvsig.gva.es/> - was used in this project). The software also refers to free libraries including Itext that produces Acrobat Reader files (.PDF) and Openmap that generates maps with georeferencing in the WGS84 international system particularly. The phonetic characters are displayed in Gentium font (genR102 specifically) embedded in the software. Finally, the software can save user preferences in XML, for instance with the key’s location or word organisation on the maps.

Map interpretation

Professor Falc’hun was a pioneer in atlas map interpretation in his thesis Linguistic geography and

the history of Breton language (1951), republished by PUF in 1963 and, eventually, in a much longer version, *New perspectives on the history of Breton language* (1981).

Alan-Gwenog Berr's ambition was to interpret the data he had collected by drawing maps. He left a number of drafts, for which a few examples are provided to the readers (fig. 3 and 4), and an appendix in the third volume of his thesis shows the mapping for bib (*Gadus luscus*, fig. 5). The software we now have will allow continuing along those lines in the second phase of our work.

Two types of data presentations

The first-generation maps the reader will find on this DVD present data according to their actual distribution in the field. We produced two versions.

The first one, in IPA (International Phonetic Alphabet), is the closest to actual pronunciation, or at least to that which the researcher grasped through his own sensitivity. Indeed, no transcription is completely neutral. All linguists are influenced by their own linguistic past. Alan-Gwenog thus sometimes recorded sounds heard in Plougrescant, the survey point Jean Le Du is most

familiar with, with his Audierne Breton speaker's ear: "gorgonian", for instance, was recorded as /spærn mo:r/ where Jean would have heard /spærn mo:r/ (literally meaning "sea spines"). These are unavoidable, and generally trivial, details yet which should be acknowledged.

The second version follows the principles of standard written forms in Breton. To be precise, the idea is not to display standardised forms on the map, some of which could be found in dictionaries, since our project is actually to bring out both the unity and variance in language. It comes down to the lexicographer to then provide lemmatised forms, i.e. a series of variances under one same written form. But this is a completely different story... Our efforts aimed at identifying actual achievements as accurately as possible. Maps in standard written form are interesting in so far as they allow most of our readers, unfamiliar with phonetics, to easily read the data.

An ambitious project: Interpreted maps

Some 70 volumes of the *Atlas linguistiques de la France par Régions*, and the *Atlas Linguistique de la France* (at large) they follow, as well as

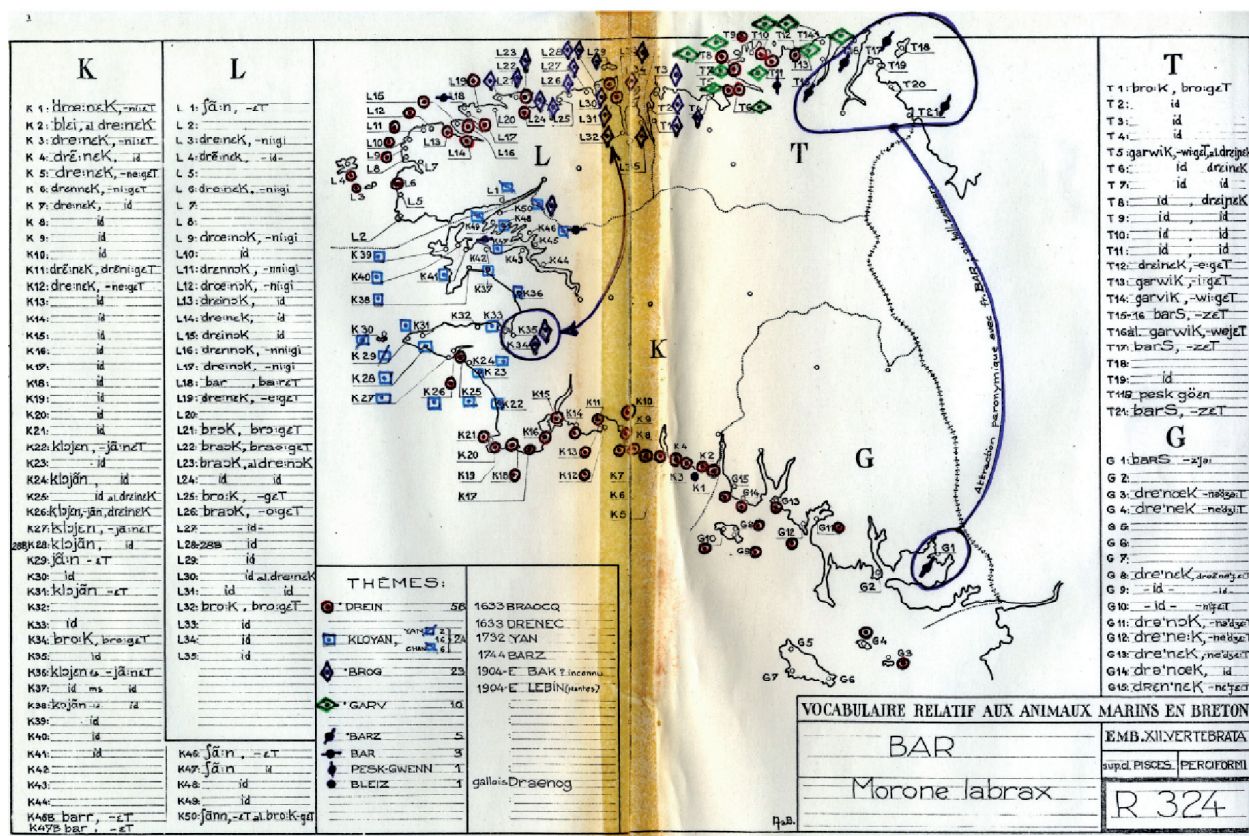


Figure 3 – Mapping of seabass, interpreted by Alan-Gwenog Berr.

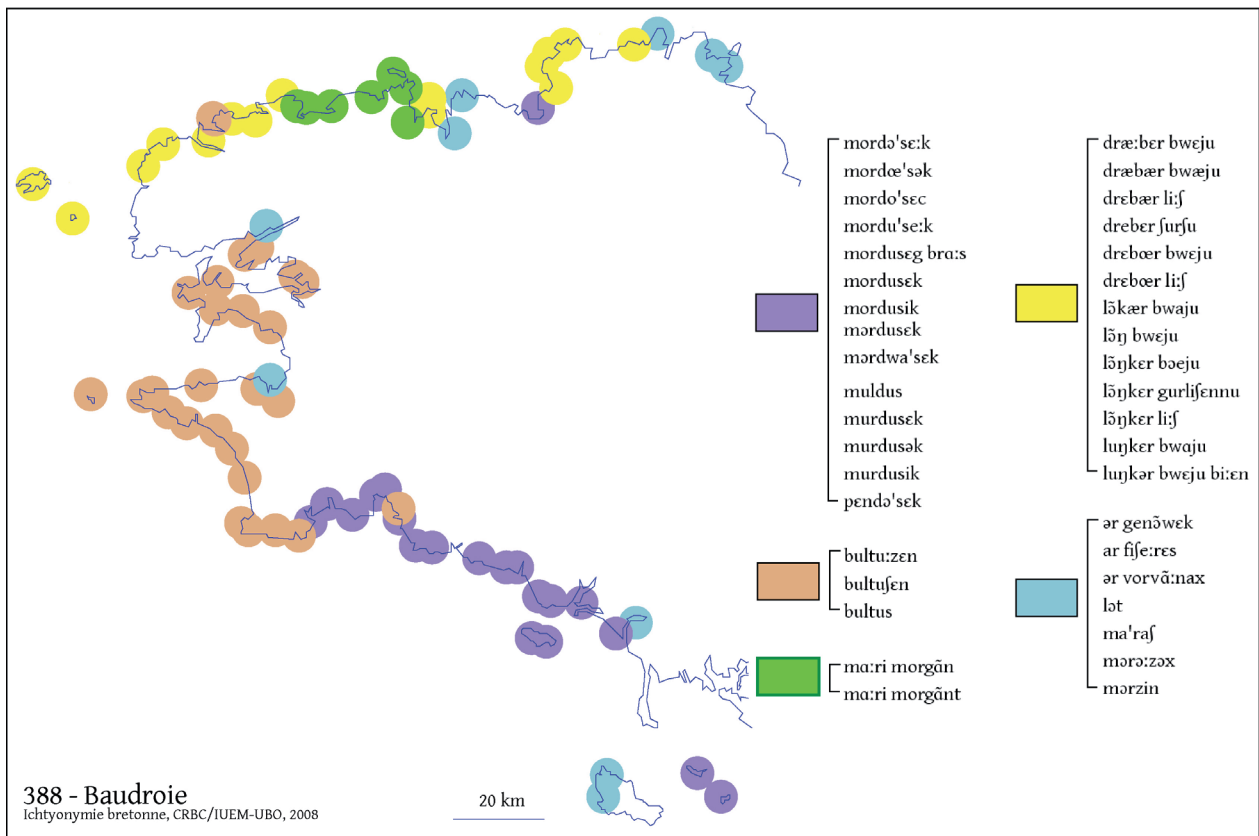


Figure 8 – An example of interpreted map : the names for angler (*Lophius sp.*) in Breton

Celtic countries should of course be consulted, particularly of Cornwall, but also of Wales, and why not, Gaelic words of Ireland and Scotland. A comparison with designations used in other linguistic fields of France should also be established, starting with Upper Brittany. Unfortunately the Atlas of the Atlantic Coasts initiated some twenty years back was never achieved.

Our work towards a DVD production, far from being an end in itself, thus provides the first steps to further undertakings.

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