Field guide to static palatography

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Preface

This field guide introduces you to some of the basics of doing static palatography in the field. As a field guide, it is not meant to replace a course in phonetics or in palatography, it does not cover interpreting palatographic records and it does not cover how to take casts of the palate. Rather, it is meant to jog your memory and guide you through the main steps in taking palatographic records in the field.
**Static palatography kit**

This kit contains

- five intra-oral mirrors
- five brushes
- charcoal powder capsules
- oil bottle
- antiseptic spray
- field guide
- bag

You still need

- digital photo or video camera and tripod
- possibly an extra source of light
- vegetable oil
- pineapple, fruit juice, juice drink or similar
- tissues and cloths for cleaning up
- cloths and towels for covering the clothes
- detergent for washing the equipment
Basics

Palatography allows you to investigate the place of articulation of consonants that are produced with a part of the tongue and the manner of articulation for consonants whose pronunciations involves contact of the tongue with the teeth or the roof of the mouth.

For linguograms, the roof of the mouth is painted so that the paint rubs off onto parts of the tongue. For palatograms, the tongue itself is painted so that the paint is transferred to the top of the mouth.

Records of linguograms can be taken just by poking the tongue out. To take photos of palatograms, a small mirror is inserted into the mouth and a photo of the reflection in the mirror is taken.
Deciding what words to use

A good word list is fairly short. A good test word

- has the consonant you want to investigate
- has only labial and glottal consonants and vowels as other sounds
- has similar other sounds for words that you want to compare, ideally they are minimal pairs
- does not include high vowels, i.e. [i] and [u]
- is a common word that the speakers are familiar with

Good words for looking at alveolars for a non-rhotic speaker of English would be better, borrow, hollow, saw, buzzer. Words that would not be so good are peel because of the contact of the sides of the tongue that you would expect or last because the [t] would print over the [s].
Making palatograms and linguograms

Preparations

• get your equipment together and set up
  o word list, mirrors, paste, brushes, tissues, cloths and towels, water, pineapple
  o camera on the tripod
  o a chair for the speaker

• prepare the paint
  o in separate pots for each speaker
  o charcoal powder and oil roughly 1:1
  o it shouldn’t drip but it shouldn’t have lumps anymore either
  o an “eye” for the right consistency develops with time
• practise putting in the mirror to take records of the palate
  o head tilted back, wide open mouth
  o mirrors at the edge behind the upper teeth
  o 45° angle to the plane of the upper teeth so that all teeth from the front teeth to the last molars can be seen very well
  o as little breathing through the mouth as possible to avoid fogging the mirror
• practise taking records the tongue
  o let tongue rest on the lower lip for a while
  o move it right, left and up to show sides and underneath of the tongue
• shoot test films and test photos without the paint
• take a photo of the palate of each participant for reference
**Recording tips**

It’s best to start with linguograms, i.e. with painting the palate to look at the part of the tongue that is involved in the pronunciation. That’s because it may be that after a few palatograms the tongue doesn’t get very clean anymore and there simply isn’t enough contrast for you to see anything.

If you are recording with a video camera, it is best to just start recording and let the camera run, that way you don’t miss any words and don’t have to wait or worry. If you take photos with a still camera, be ready to take photos the moment the speaker finished pronouncing the word and get a number of shots from all angles of the tongue.

If you can, let one person do the recording and note keeping and one person do the instructing, painting and cleaning.

For each photo you take, write down the test word and the speaker.
**Linguograms**

- let the speaker tilt their head back and rest it somewhere
- paint the roof of the mouth quickly, as far back as necessary
- be careful, some speakers have very ticklish palates
- let the speaker pronounce the test word once
- the speaker must not swallow or do anything else with their tongue
- let the speaker rest tongue rest on the lower lip and take photos, then let the speaker move the tongue around and raise it to show the sides and underneath and take photos
- write down the word you recorded, the speaker and the file name
- let the speaker clean up by eating a chunk of pineapple
**Palatograms**

- pad the tongue dry with kitchen towel or a cloth
- apply the paste quickly, as far back as necessary including the sides and underneath the tip of the tongue for some sounds such as retroflexes
- let the speaker pronounce the test word once
- the speaker must not swallow or do anything else with their tongue
- let the speaker insert the mirror at the edge behind the upper teeth at a 45° angle
- the speaker must avoid breathing through the mouth so as not to fog the mirror
- take photos of the reflection in the mirror, using additional lighting if necessary
- write down the word you recorded, the speaker and the file name
- let the speaker clean up by eating a chunk of pineapple
**Potential problems**

- Speaking with your mouth painted is very strange and the first few palatograms are likely to go wrong. The consultant can practise saying the word in isolation until he or she feels comfortable and then have the tongue painted to say the word. Another way is to think of what the word means and then say it rather than being overly worried about the pronunciation.

- The inside of the mouth is dark. A flashlight may give enough light but especially if you are recording with a video camera you may need an extra source of light.

- Getting the angle of the mirror right and opening the mouth far enough to get a full view of the palate until the last molars may take some practice. In Figure 1, the mouth is not open far enough and the angle is wrong so that we cannot tell if the sound produced here is [l].
or [ t ] because we cannot see if there is contact at the last molars. In Figure 2, the angle is wrong so that we cannot see the front teeth.

- Also, the consultants may be covering the mirror with their hands. For example in Figure 2, the fingers cover part of the imprint on the palate.
Cleaning up

- consultants:
  - chew pineapple, rinse with water, mop up with cloths

- mirror
  - wash with hot soapy water
  - spray with disinfectant spray and let it sit until dry
  - rinse off the disinfectant with hot water and let dry

- brushes
  - wash with hot soapy water until no more charcoal comes out
  - pour disinfectant spray into a cup and soak the brushes in there, let sit
  - rinse off the disinfectant with hot water and let dry completely
  - OR give away and use a new brush for each individual
Ethical considerations and involving consultants

- wait until you have established a good working relationship with the consultants
- don’t put anyone under pressure
- observe, learn and take culture-specific cues from how people
  - prepare food and deal with and react to body liquids such as saliva
  - touch each other, in particular around the head and in the face
  - use their left and right hand, especially if you are left-handed
  - if you are not sure, use a new brush for each participant
- explain what you are doing, show on yourself and let people try for themselves
- let people paint their own tongues and insert the mirrors themselves
- show the results, i.e. the photos, to the speakers immediately
- appeal to people’s sense of fun: handprints, face painting, …
Selected reading


