

Geopolymer Camp 2014

Can geopolymers be used in the
production of finished sculptures

Brian Day



Isabella head buff clay after firing – life size



Isabella before firing



Typical armature for a full size head



Charity on armature



Daisy in terracotta



Gaelin figure – no armature needed



Larger figure – needs an armature which can not be removed later



Figure armature

Three aspects to consider

- Artistic – allow the sculptor to develop his work with ease
- Technical – problems with materials and processes
- Aesthetic – aiming to please the viewer

Artistic goals

- Allow sufficient time to complete work
- Allow corrections adjustments and revisions
- Allow control of fine detail and overall form
- Not too soft nor too hard – correct plasticity

- Clay is very good at these

Technical constraints

- Soft clay is weak – it cannot support a heavy piece above a thin piece – head above neck
- Sometimes need an armature
- Clay needs firing to become permanent – ceramic
- Armature needs removing before firing – possible for head – but very difficult for a figure
- Needs firing at 1300 C for several hours
- Hard to find a large kiln for large pieces
- Sometimes necessary to take a mould and cast the final work – in plaster, resin or metal (bronze)
- May need surface treatment to become weatherproof
- Clay shrinks 8% on drying and another 8% on firing



Bronze foundry workers



The result before cleaning and reworking



Figure de pleureuse
18^e dynastie, 1550-1295 av. J.-C.
terre modelée, peinte, polie et cuite

Rare exemple de sculpture en terre. Ce pourrait être la déesse Isis pleurant Osiris, la main à la tête en signe de lamentation.

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Terracotta from ancient Egypt



Terracotta Rodin by Carrier Belleuse



**Terracotta scene from last years Christmas party
by Carrier Belleuse**

Aesthetic aspects

- Finished sculpture must be pleasing to the viewer – the paying customer
- People like bronze but that is very difficult and expensive
- 5000 euro for a head – artist 10% foundry 90%
- Colour, texture, shine
- Stone effects and metal effects are possible with waxes

Scope for geopolymer materials

- Creative process – perhaps clay is best
- Therefore need to make a mould from the clay master and then cast in GP
- This allows multiple copies of a work
- Possibilities for different colours, textures, stone effects or metallic effects
- May be best suited to compact forms rather than large thin forms – easier to make a mould

Goals

- Imitate the best classical media – bronze, stone, terracotta etc
- Or take advantage of new freedoms



Ahmenotep III in stone from British Museum



Portrait and model



Full body wax ! Bronze wax finish