

### Summary

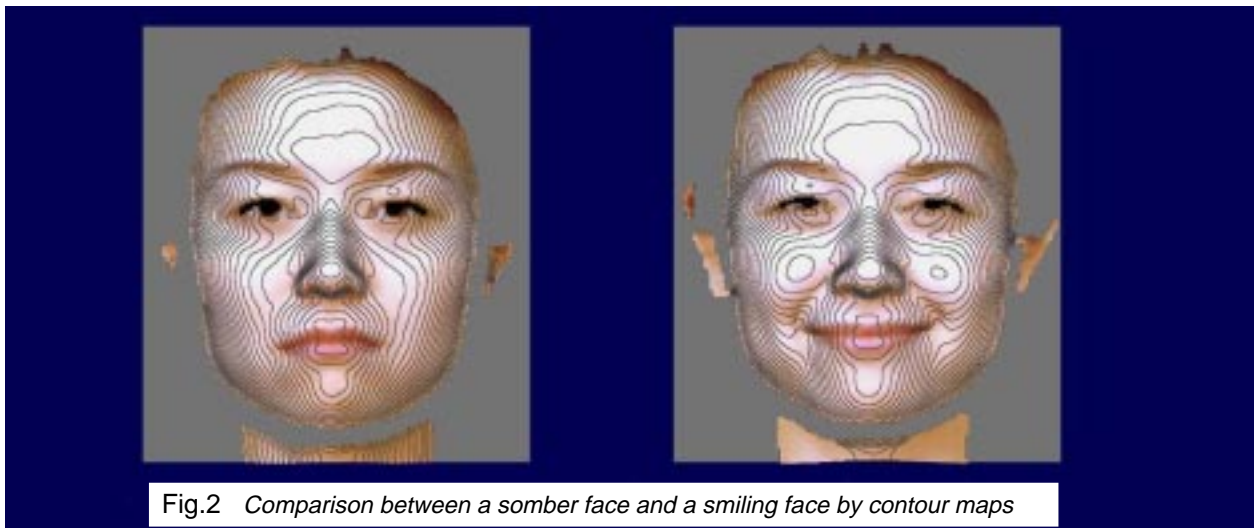
A cosmetics manufacturer, POLA (Kanagawa, Japan), is using Minolta's VIVID 700, non-contact 3D color digitizer, to research human facial expression. POLA's theory is that the smiling face is more captivating than other facial expressions. As a result, POLA is analyzing the shape of a smiling face to determine which type of make up best accentuates facial contours.

### Subject



#### 1) 3D shape measurement of human face using high speed VIVID 700

To substantiate its position, POLA uses the easy-to-operate VIVID 700 3D digitizer to capture both smiling and unsmiling faces. The VIVID 700 scans an object very quickly (0.6 seconds) with an eye-safe laser beam. A complete 360 ° image of the face can be viewed on a computer monitor as a color picture, in polygonal mesh, or gouraud shading.



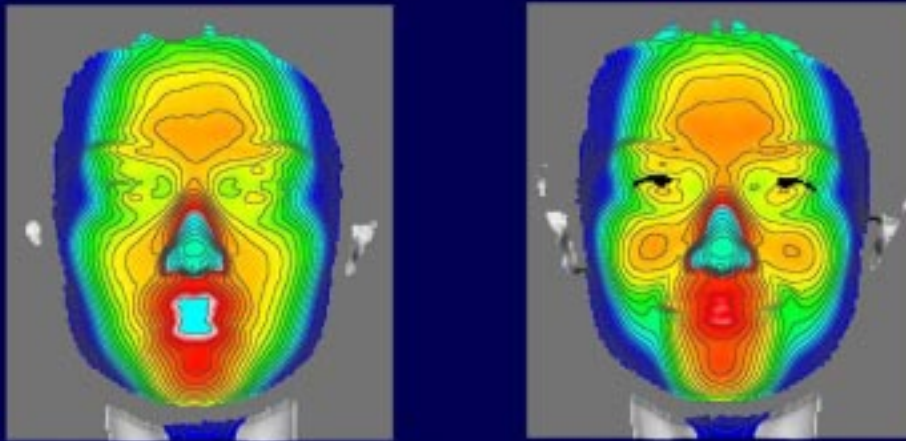


Fig.3 Colored contour maps of 3D image of normal face and smiling face

## 2) 3D Analysis

With the software that is built into the VIVID 700, POLA can easily modify, model, or scale the face, and then import the final image into a variety of off the shelf software packages. POLA uses “3D Rugle” to compare the 3D shapes of an unsmiling face to a smiling face (Fig 2, Fig 3). There are obvious differences between the shapes of each cheek; the cheeks of a smiling face are more projected than those of the unsmiling face by as much as 2 to 5mm. (Fig 4)

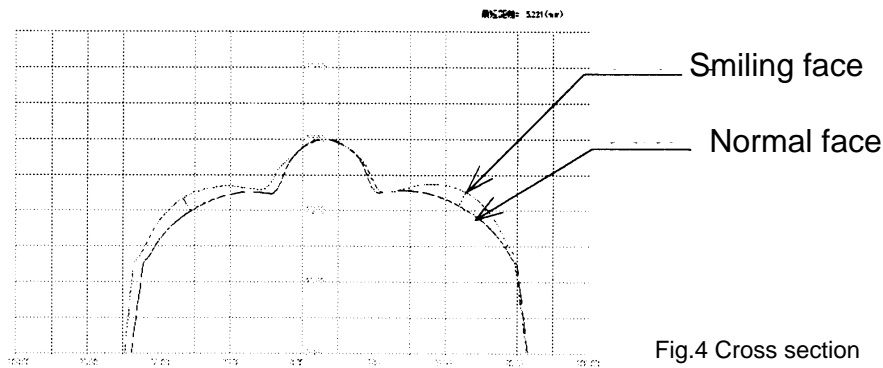


Fig.4 Cross section

## 3) Conclusion

POLA concludes that a smiling face’s cheeks are different from an unsmiling face, and the smiling face conveys more positive human qualities. Indeed over 90% of the people POLA interviewed agrees with these findings. This analysis is based on the assumption that the shapes of the mouth, nose, and cheeks were the same. As a result of these findings, POLA is researching make-up methods to create a product that will simulate the radiance of a smiling face.

The data in this reaflet were provided by POLA. Reference: The 4th Japan Academy of Facial Studies  
3-D Rugle is a trademark of Medic Engineering.

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VIVID 700 is sold with the name of VI-700 in Europe.