

Antarctic Meteorite

NEWSLETTER

SPECIAL EDITION
ANNOUNCING . . .

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A periodical issued by
the Meteorite Working
Group to inform
scientists of the basic
characteristics
of specimens
recovered in the
Antarctic.

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**The Availability of a New
Lunar Meteorite!**

SAMPLE REQUEST DEADLINE:
September 16, 1994

MWG MEETS October 7-8, 1994

New Lunar Meteorite!

What better way is there to celebrate the 25th anniversary of Apollo 11 than with the discovery of a new lunar sample! This special edition of the newsletter announces the availability of a new lunar meteorite. Anorthositic breccia QUE93069 was collected in the Queen Alexandra Range by the 1993 ANSMET field team. It is a glassy matrix breccia with abundant feldspathic clasts. Although this little gem weighs only 21 g and the clasts are tiny and difficult to

extract, it is sure to provide important new insights on lunar science. To get in on the action, submit your request, in writing, to the MWG Secretary at the address below. Because of the small size of the sample, collaborative requests that conserve sample are encouraged. Don't expect your sample to arrive in the return mail, however, because all requests will be held until October for review by the full MWG committee.

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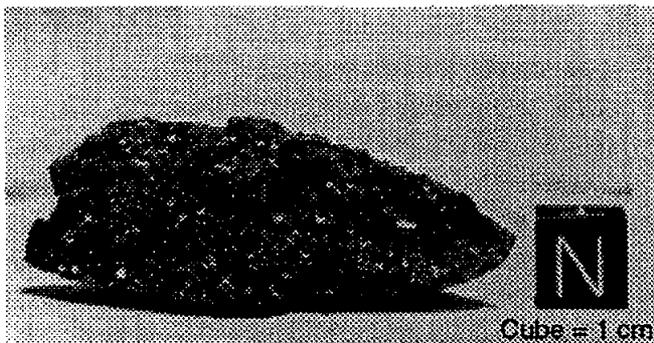
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PETROGRAPHIC DESCRIPTIONS

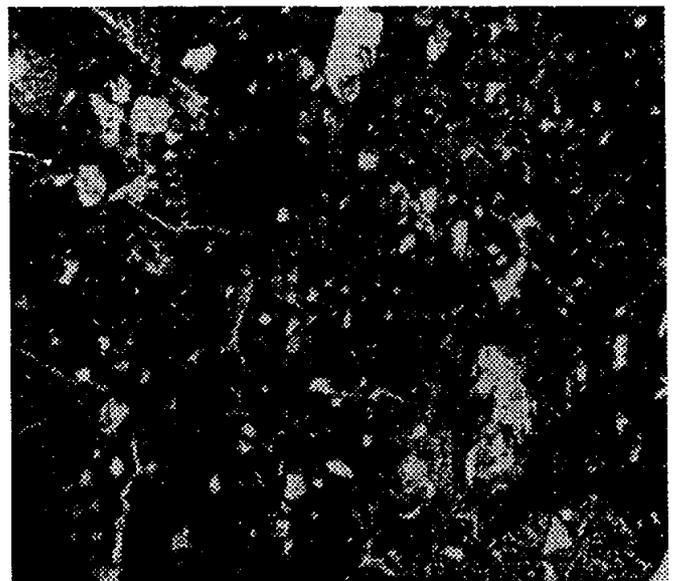
Sample No.: QUE93069
Location: Queen Alexandra Range
Dimensions (cm): 5.0 x 2.2 x 2.3
Weight (g): 21.4
Weathering: A/B
Fracturing: B
Meteorite Type: Lunar-anorth. breccia

Macroscopic Description: Cecilia Satterwhite and Marilyn Lindstrom

The overall shape of this lunar meteorite is approximately one third of a flat ovoid. Thick gray-green frothy fusion crust covers the top while thin granular medium olive green-brown fusion crust covers the bottom. The north face is a fractured surface with exposed interior matrix and abundant fractures. This surface consists of black matrix with abundant millimeter sized white/gray clasts. Some clasts have weathered to a yellowish color. One gray clast is visible in a fracture. Cleaving this meteorite revealed a lighter gray matrix with small clasts of various sizes. One white, friable clast (3 x 2 mm) is directly below the fusion crust. An area 2 x 2 mm near this clast has a uniform, dusty-gray appearance with an indistinguishable border. All of the clasts present are small and friable and unfortunately may not be extractable.



Thin Section (.5) Description: Brian Mason
The section shows a microbreccia of small plagioclase grains and granular clasts, up to 0.6 mm across, in a translucent to semi-opaque brown glassy matrix; colorless vesicular fusion crust is present on one edge. There is one large clast, 2.4 x 3.6 mm, of pale brown partly devitrified glass. Traces of metallic iron, as irregular grains up to 40 microns, are present. Microprobe analyses show that the plagioclase is almost pure anorthite (Na_2O 0.3-0.4%, K_2O less than 0.1%). The composition of the fusion crust, probably a reasonable approximation for the bulk meteorite, is (weight percent): SiO_2 44, Al_2O_3 27, FeO 4.4, MgO 4.5, CaO 16, Na_2O 0.32, K_2O less than 0.1%, TiO_2 0.24, MnO 0.10. The $\text{FeO} : \text{MnO}$ ratio is high, 44-75, characteristic of lunar material. The meteorite is an anorthositic microbreccia, presumably of lunar origin. In thin section, it is very similar to MAC 88105 (Antarctic Meteorite Newsletter 12(2), 1989).



Plane polarized light, field of view is 3 mm x 4 mm

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