ONCE AGAIN ABOUT KAINOZOIC METEORITE STRUCTURES IN THE ROSS SEA, ANTARCTICA. L. P. Hrjanina, Institute of Physics of the Earth, Russian Academy of Sciences, b. Grusinskaja, 10, 123810, Moscow, Russia.

Two Kainozoic meteorite structures were discovered during the study of coastal seas of Antarctica. The first structure, the Ross Crater, is giant "saucer", a hollow in crystalline basement of Antarctic plate, more 600 km in diameter and some 4 km deep - Challenger basin [1]. We had found allogenous and autigenous breccias on core photos of DSDP, site 270 [2], and later founded signs of shock metamorphism in thin sections. The bottom of crater is covered in whole by allogenous breccia (seismic velocity 4,7 km/s, in specimen - 4,4 km/s, and velocity of underlying crystalline rocks - 5,2 km/s). The Ross Crater is surrounded by Joides arc graben, which is dead and buried, and actively developing coastal graben connected with one-sided horst of Transantarctic Mountaines, which had raised more than 4 km in 5 m.y. (fauna data [3]).

The Bowers Crater (diameter 100 km, visible depth 800 m) have spider net of faults and also is surrounded by horsts and grabens. The gravity anomalies over crater and grabens are –40–50 mgl, thickness of sediments 4 and 2 km accordingly, over the rim and horsts +20–40 mgl, and thickness of sediments about 0,5 km [2].

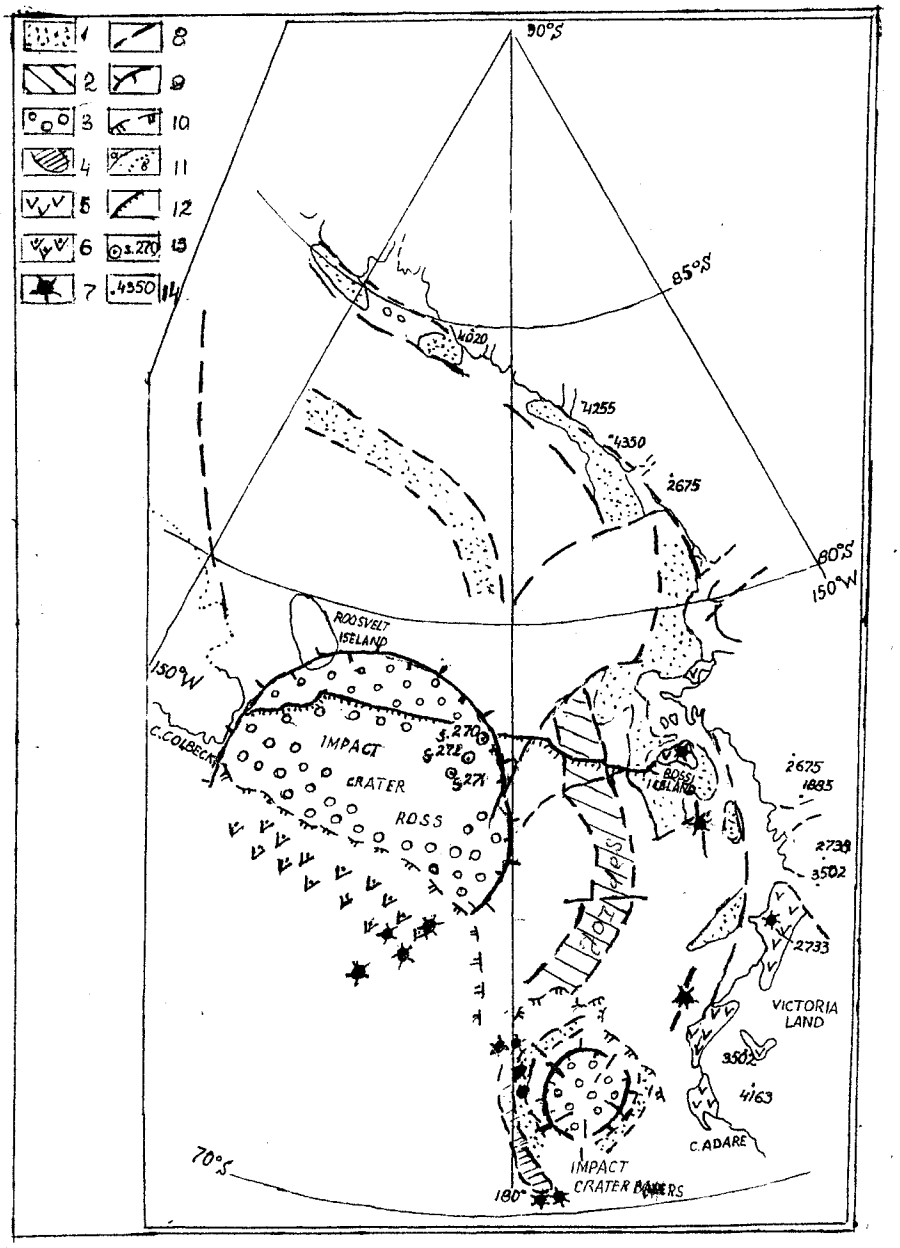
The formation of the Ross Crater (about 38 m.y. ago) was the cause of climatic threshhold, formation of Drake Passige fault and the Circumpolar Streem with later formation of continental ice cap. The boundary of siliceous fauna and later boundary of ice rafting move to North on 2–3 sm/y from 38 to 5 m.y. ago [5]. The formation of Bowers Crater had marked of many changes, which scientists of leg 28 DSDP [2] names "main sedimentary event". They are: panshelf hiatus, was away and later redeposition 800 m thick sediments (this material was deposited on the Bank Moris Ewing near Falkland Islands [6]).

Sedimentary rocks under the wash plane in the Ross Sea were condensed, folded to the depth of 50 m and were subjected to dismagnetisation on two orders [2]. The boundary of ice rafting and siliceous fauna in South Ocean jumps away to North on 300 km [2] J. P. Kennet had marked the cooling and biota extinction in this time.

It is possible, recent subduction take place under Transantarctic Mountaines, and it is result of two meteorite falls - 38 and 5 m.y. ago.

Thus, 600 km crater forming was cause epochs boundary, 100 km crater of more detailed subdivision. Crater much more than 1000 km must to form evidently on boundary Mz/Knz (65 m.y. ago), and obvious in ocean. We must to repeat that falls of great asteroids are the danger for biota, including the civilization as a whole. Therefore the most pressing and very important for scientific and practical activity is organization of sky shadowing and computer simulation of scenarios for destruction or deviation of threatening asteroids.

1. Davey F. Journ. Roj. Soc. of New Zeal v. 11, No 4,465-479,1981.
2. Init. rep. of DSDP, Leg 28.
3.Мягков С.М. История рельефа и оледенения Антарктиды Докт.. дисс. 1982г.
4.Vanney J.et al., Mar. Geol., V. 41 ,No 1/2, 71-103, 1981.
5. Kenett J., J.G.R. V.82, No 27,3843-3861,1977.
6. Ciesielski P. F. et al., Mar. Geol., V.46, No 1, 1-51,1982.



Morphostructure sheme of the Ross Sea, Antarctica.

1- Morphostructure depressions, 2-Morphostructure depressions burried, 3- Bottoms of meteoritecraters, 4- Gorst of Bowers crater, 5- Effusive fields (N_1-N_2), 6- Effusive fields (Pg_3), 7-Volcanoes, 8 - Faults, 9- Rims of meteorite craters, 10- Shelf brow, 11- Coast line open (a) and underice (b), 12- Boundary of ice shelf, 13- Sites of DSDP, 14- Altitudes.