increase in brightness, suggests that this object almost certainly belongs to the low-mass X-ray binary (LMXB's) class of objects and in particular to the small sub-class of *X-ray Novae*. This sub-class includes such objects as: V 616 Mon 1975 (Mon X-1), V 2107 Oph 1977 (H1705-25), V822 Cen 1980 (Cen X-4) and V 404 Cyg 1989 (GS2023+338). Furthermore, the equivalent width of the He II (468.6 nm) (EW=2.5 Å) and H_β (EW=1.8 Å) emission lines are consistent with the values found for other LMXB's (e.g. van Paradijs and Verbunt, 1984, see their Fig. 1).

Some Current Views of X-Ray Novae

The energy source during the paroxysm of LMXB's, and cataclysmic variables (CV's), is generally believed to be provided by two mechanisms: (a) the thermonuclear energy released by nuclear runaway of the accreted matter onto the surface of the degenerate companion, and (b), the gravitational potential energy released by the accreting material from the disk onto the compact star. At minimum, the luminosity of both CV's and LMXB's is mainly provided by the mass transfer rate. The first mechanism is commonly believed to explain the Nova explosion and the X-ray bursts in some LMXB's while the second mechanism is believed to be responsible for the eruptions both of the dwarf novae and the X-ray novae. According to current understanding, mechanism *(b)* can be triggered by an accretion rate from the disk onto the white dwarf smaller than the mass transfer rate from the secondary to the disk (the so-called *disk-instability* model) and/or through sudden bursts of mass transfer rate from the secondary to the white dwarf (the so-called *mass transfer instability* model).

The main difference between the LMXB's and other CV's is the large amount of X-ray emission during the outburst. For the X-ray novae (including Nova Muscae 1991) the L_X/L_{opt} is generally $\geq$ 100 (at least) that of CV's. This difference is due to the dramatic difference between the physical nature of the compact companion. Whereas for the CV's the material is normally transferred from a main-sequence star to the white dwarf ($D \simeq 10^{-2}\ R_\odot$), for the X-ray novae, the material is transferred from the main-sequence star onto a neutron star ($D \simeq 10^{-5}\ R_\odot$) or possibly a black hole (McClintock and Remillard, 1986). The outburst in the UV and optical is caused by the reprocessing of the X-ray radiation (produced by the accretion onto the neutron star) which warms up the outer layers of the accretion disk.

Tentative Time-table of Council Sessions and Committee Meetings in 1991

April 3:	Finance Committee
May 6–7:	Users Committee
May 13–14:	Scientific Technical Committee
May 16–17:	Finance Committee
May 28–29:	Observing Programmes Committee
June 3–4:	Council
November 11–12:	Scientific Technical Committee
November 14–15:	Finance Committee
November 28–29:	Observing Programmes Committee
December: 2–3:	Council

References

Della Valle, M., Jarvis, B., West, R. 1991, IAU Circ. 5165.
Della Valle, M., Pakull, M. 1991, IAU Circ. 5167.
Lundt, N., Brandt, S. 1991, IAU Circ. 5161.
Makino, F., and the Ginga Team 1991, IAU Circ. 5161.
McClintock, J., Remillard, R. 1986, *Ap.J.* **308,** 110.
Payne-Gaposchkin, C. 1957, *The Galactic Novae*, chapter 10.
van Paradijs J., Verbunt, F. 1984, in *High Energy Transients in Astrophysics*, ed. S.E. Woosley, p. 49.

Schott Successfully Casts an 8-m Mirror Blank

A test run for the manufacture of mirror blanks in the 8-m class, for use in the world's largest optical telescope, the ESO 16-m equivalent Very Large Telescope (VLT), has been successfully performed at Schott in Mainz, Germany. The test blank had a diameter of 8.6 metres and a surface area of more than 55 m². This is the first time that it has been possible to cast such a large glass-ceramic blank in one piece. To accomplish this impressive feat, Schott has developed a number of new technological procedures.

During the next years, Schott will produce the four mirror blanks needed for the VLT. Each of them will have a final diameter of 8.2 metres and be unusually thin, only 177 mm, in order to be so flexible that their surface form can be easily controlled and maintained in optimal shape by means of an active optics system. This technique has already been successfully installed in the ESO 3.5-m New Technology Telescope for which the mirror blank was also produced by Schott. *The editor*

The first 8.6-m mirror blank at Schott, shortly after the molten glass was poured into the rotating form (Photo: Schott).

For the manufacture of the very large VLT mirror blanks, Schott uses the spin-casting technique. In the 2400 m² production hall on the bank of river Rhine which was specially constructed for the VLT Project, 45 tons of molten glass is poured into a rotating mould with curved bottom; it makes about six revolutions per minute. In this way the blank is given the desired, curved shape which is retained when the glass cools and solidifies.

This prototype blank will spend about three months in an oven while it is slowly cooled to room temperature. Then follows a mechanical correction of the shape and thereafter a renewed thermal treatment, the so-called ceramization process, by which the material achieves its zero-expansion properties, making it insensitive to temperature changes and suited for use in astronomical telescopes.

ESO has congratulated Schott on the successful casting of the first mirror blank of this size. Smaller blanks from Schott of the same material are used in other advanced astronomical instruments like the Keck telescope, ROSAT, Galileo and AXAF.

Flexible Scheduling at the NTT, a New Approach to Astronomical Observations

J. BREYSACHER, M. TARENGHI, ESO

The Recent NTT Experience

Already at the time of first light of the NTT on March 23, 1989 (see *The Messenger* No. 56, June 1989), there was the confirmation that the La Silla sky was able to give stellar images of dimension two or three times better than the normal experience. An observation resulting in stellar images with a diameter of 0.33 arcsec contains such a large quantity of information that not all instruments are capable to benefit, unless they are designed for such conditions.

Other characteristics of the NTT have transformed or stopped old traditions of optical astronomers. For example, because the pointing of the NTT is better than 1.3 arcsec rms, in the direct imaging mode there is no need of checking the field before starting the exposure. It is obvious that it will become essential to arrive at the telescope with precise coordinates if the observer wants to make an efficient use of precious telescope time.

The extensive campaign of site testing organized by M. Sarazin was not only beneficial for the exploration of the best site for the VLT observatory, but it resulted also in an undertaking that has given important and new results about the atmospheric properties and their influence on astronomical observations.

We are now confident about the frequency of excellent seeing and we start to understand its time behaviour. The next step is to forecast the expected seeing. We are considering the possibility to install a number of seeing

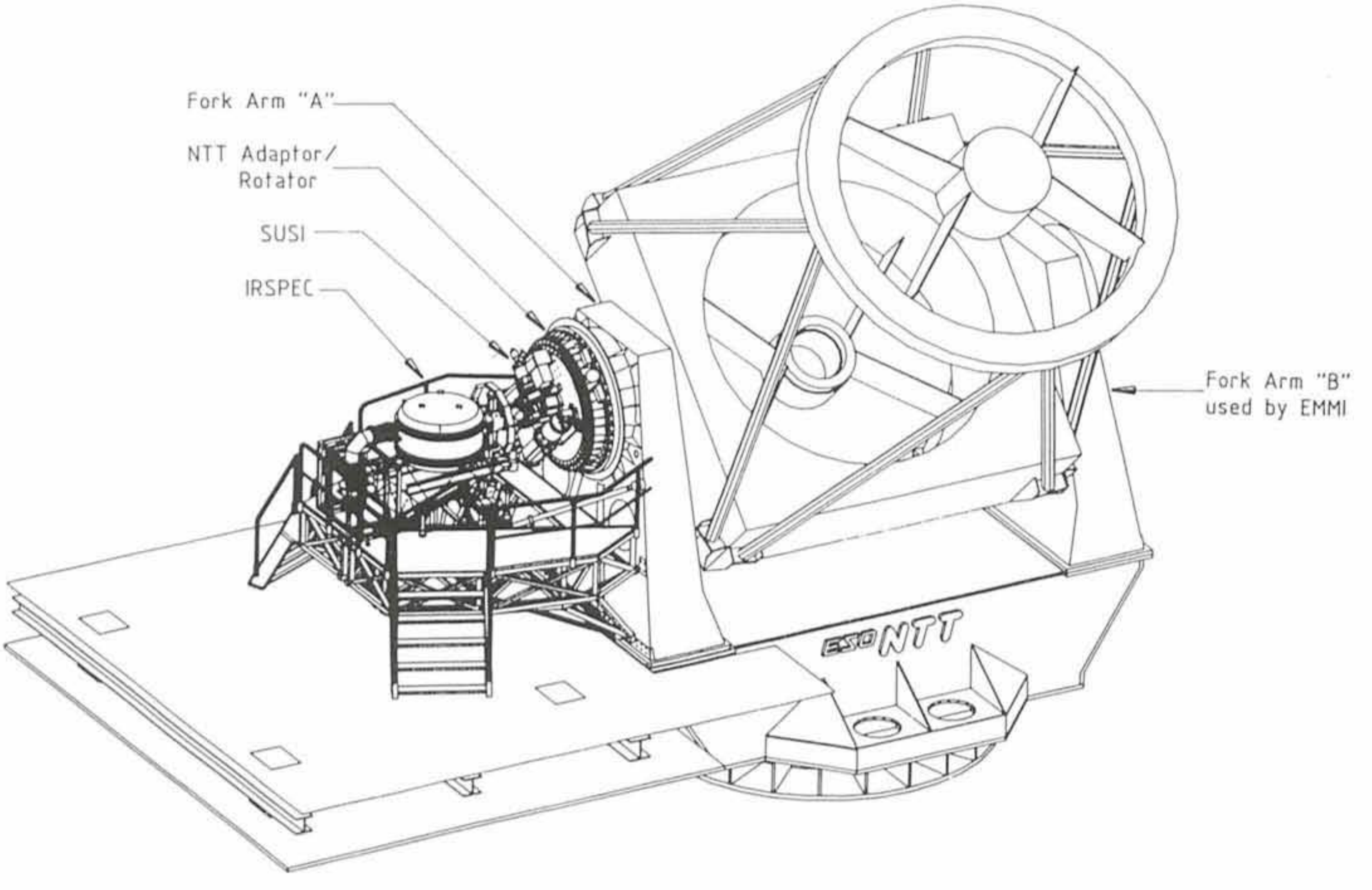

Figure 1: *Schematic layout of the NTT showing the location on Fork Arm "A" of SUSI and IRSPEC.*