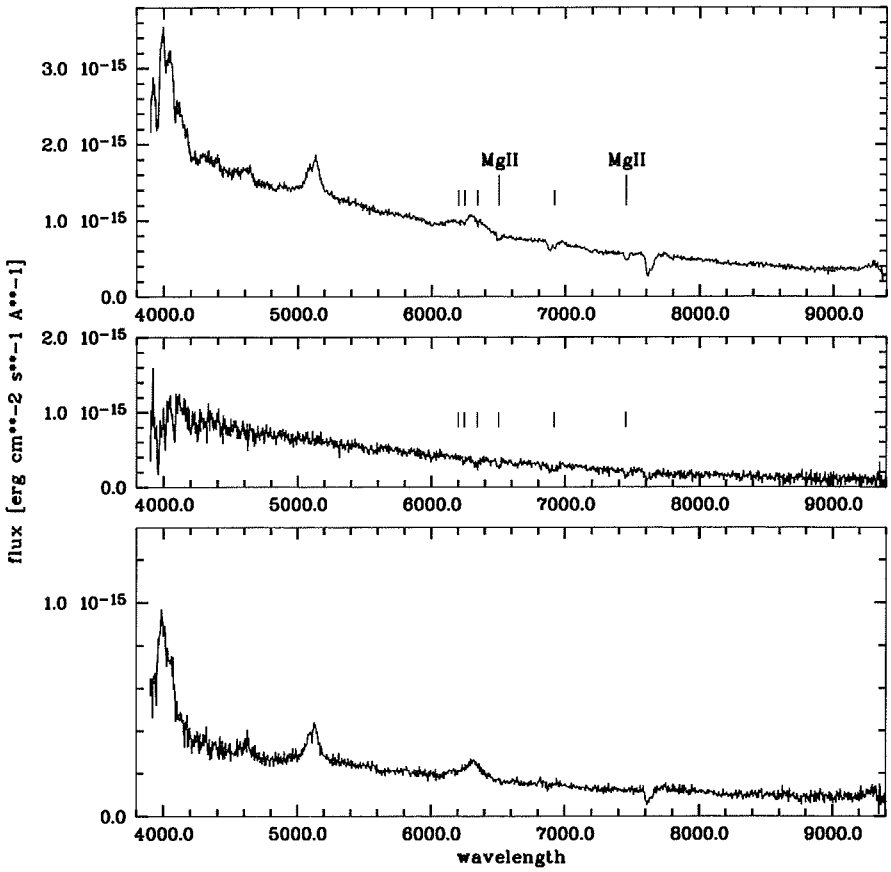

Figure 2: *Spectra of HE 1104-1805 A (upper) and B (lower) taken with NTT and EMMI (red arm, 246 Å/mm grism, 5″ slit width). Exposure time was 600 sec. Resolution is FWHM ≈ 18 Å. The middle "spectrum" is* f_{ML} *= fλ(A) – 2.8 fλ(B), the hypothetical component in A due to microlensing. Strong absorption features seen only in A are marked.*

B as observed in May 1993 should have disappeared on a time scale of at most years if due to microlensing. If not, HE 1104-1805 A–B is a genuine QSO pair and not two images of the same object.

If it should turn out to be a gravitational lens object, HE 1104-1805 is particularly promising for monitoring of the time delay between the two images which provides a completely independent means to determine the distance scale of the universe or the Hubble constant H_0. This technique had been proposed in 1964 by Sjur Refsdal, 15 years before the first double-image QSO was discovered. The new double, if a lensed object, and if variable, has a predicted "time delay" between the light curves of the two images of several months only, so that the time delay could be measured within one season. However, the first deep images taken with EMMI in the red do not yet show a lens galaxy.

Absorbing Clouds in the Far Universe Along the Line of Sight

There is another distinct difference between the spectra of the two components which has never be seen before in quasar pairs. Component A has a strong absorption line system due to an intervening cloud at redshift z = 1.66 seen in the MgII doublet, five strong FeII UV resonance lines, CIV and, as seen in the UV with IUE, a Lyman edge in the UV at 2450 Å as well as damped Lyα and Lyβ at 3230 Å and 2730 Å respectively. The MgII and FeII absorption is not present in component B, while the CIV doublet is present in B too. Since the observed separation of 3 arcsec projected to z = 1.66 corresponds to a length of about 20 kiloparsecs, this gives the first clear size estimate for a damped Lyα system. The redshift z = 1.66 system might be related to the lens galaxy, since the type of absorption line system seen only in component A is typically produced by disks of galaxies, while the CIV absorption is related to galactic halos.

It will be exciting to observe the new double quasar with the Hubble Space Telescope in the UV and at high spectral resolution in the optical. With HST, absorption lines of the elements C, N and O from the extreme ultraviolet (EUV) are shifted into the satellite UV above 120 nm and enable quantitative abundance studies in absorbing gas clouds around still young galaxies.

Observations with the IUE satellite (International Ultraviolet Explorer), scheduled immediately after discovery on April 29 as a target of opportunity, have confirmed that the object is UV-bright, as had been hoped, and make it an excellent target for the HST.

The new double quasar has also been found to be X-ray loud in the ROSAT All Sky Survey, and it would be important to decide whether the X rays are from the quasar itself or due to an intervening cluster that may be in part responsible for the gravitational lense effect. Target-of-opportunity time to observe the object with the ROSAT PSPC has already been granted.

What Is This?

One of the most important, but perhaps least visible features of the production of a photographic sky atlas is the *quality control.* It ensures that the photographic copies, as far as technically and humanly possible, contain the same information as the original plates. In practical terms, this implies careful sensitometry at the copying and processing machines, and also a thorough visual control of the resulting copy films and plates.

Sky Atlasses have been produced at ESO during the past 20 years and a lot of experience has been gained in the meantime, also what concerns the quality control. The photographers involved know that while it is impossible to achieve a complete transfer of information from the original plate to the copy, for instance of the highest densities, it is very important that the copying process does not "add" artificial "objects" which may be mistaken as real astronomical objects.

It is therefore part of the quality control to check for "plate faults" on the copies which may look like real objects, but which are absent on the originals and are therefore artifacts. Fortunately, modern emulsions are rather clean, and normally few such cases occur.

It was during such a visual control of the Palomar Schmidt infrared plate of northern field 232 for the Palomar/ESO Atlas of the Northern Sky that ESO photographer Gisela Strigl noticed two unusual objects. Both looked like large black spots and seemed strange indeed. However, when she checked with

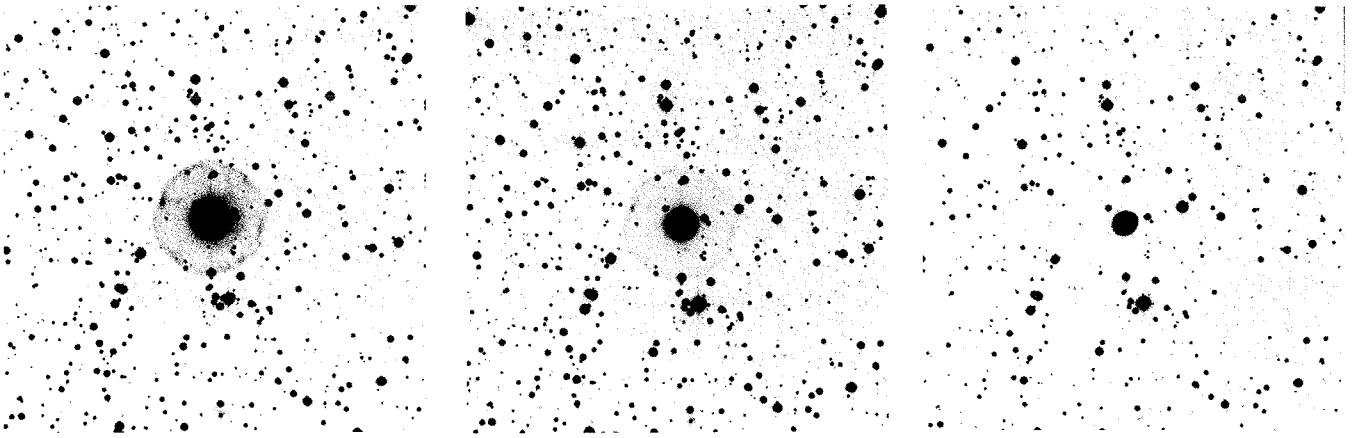

Figure 1: *(a) Blue image (IIIa-J emulsion) on the Palomar/ESO Atlas of planetary nebula NGC 6826 (PK 083+12.1). (b) Corresponding red image (IIIa-F). (c) Infrared image (IV-N).*

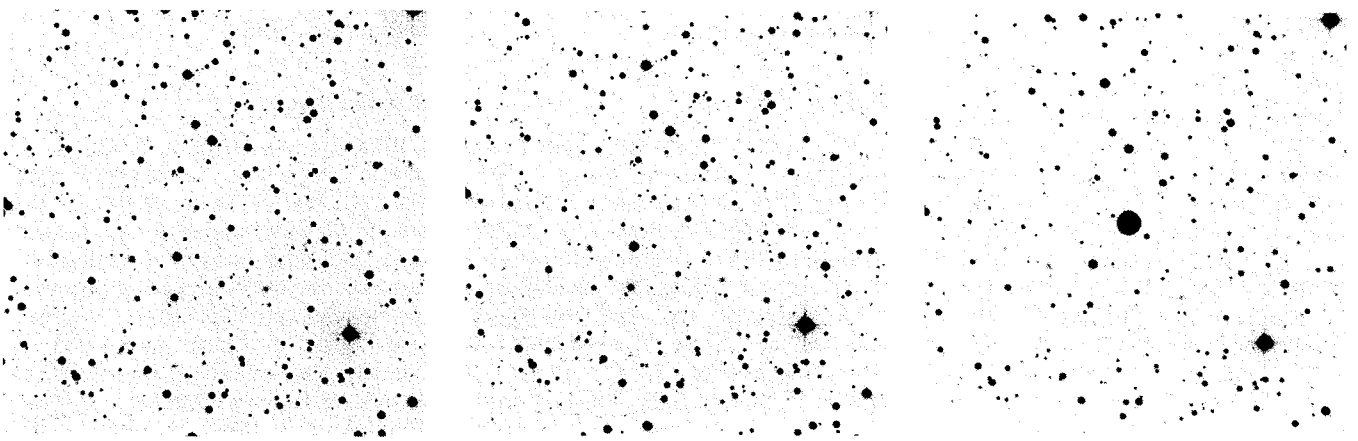

Figure 2: *As Figure 1, now showing mysterious object near R.A. = 19 13; Decl. = 49 20 (2000.0) in blue (a), red (b) and infrared (c) light.*

the original plate, both were there, so they were at least not due to the copying process. Just to be sure, she then had a quick look at the corresponding blue and red Atlas plates and quickly discovered that one of them belonged to a planetary nebula. A check in the available catalogues identified this object as NGC 6826 (PK 083+12.1). While the outer, filamentary nebula is well visible of the blue and red plates (Figs. 1a and 1b), only the central part can be seen on the infrared plate (Fig. 1c).

But what about the other object? Although it looks very similar to NGC 6826 (albeit somewhat fainter) on the infrared plate (Fig. 2c), at this position there is only a faint star on the two other plates (Figs. 2a and 2b)! How can such a faint object be so bright in the infrared? Here it should be remembered, that the photographic IR waveband covers the 7000–9000 Å interval, i.e. it is quite close to the red band.

A check in the computer catalogues at ESO did not provide any identification with a known object. In particular, there is no IRAS source listed in this direction.

So what is it? A plate fault on the infrared plate or a real object with a very strange spectrum? Or did it experience a most unusual outburst when the infrared plate was obtained? We do not know.

Just in case one of the *Messenger* readers would like to have another look to solve this riddle, here is the approximate position: R.A. = 19 13 01; Decl. = +49 19.5 (2000.0). *R.M. WEST, ESO*

STAFF MOVEMENTS

Arrivals

Europe

HESS, Matthias (D), Mechanical Engineer
JANSEN, Ronald (NL), Accounting Assistant
OCH, Susanne (D), Student
PELLEGRINI, Silvia (I), Fellow
THEODORE, Bertrand (F), Coopérant
VAN DER WERF, Paul, Fellow

Chile

CAPPELLARO, Enrico (I), Associate
LEHMANN, Thomas (D), Student
SWINNEN, Eric (B), Senior Technical Engineer

Departures

Europe

JØRGENSEN, Bruno (DK), Clerk (General Services)
YOUNG, Andrew (USA), Guest Professor

Chile

DE JONGE, Peter (NL), Construction Site Manager
EKMAN, Sture (S), Electro-Mechanical Engineer
VAN WINCKEL, Hans (B), Student

Transfers

From Europe to Chile

FAUCHERRE, Michel (F), Optical Engineer