Figure 2: *The Multichannel Photometer mounted at the 0.8-m DFM telescope.*

ing of low inertia to be used, which makes possible a slew speed of 4 degrees/sec. Computer control provides corrections for precession, aberration, nutation, refraction, azimuth and elevation misalignment, mechanical and optical non-perpendicularities and flexure. These corrections typically allow a pointing accuracy of better than 10 arcsec RMS to be achieved. Back-up instrumentation weighing up to 100 kg can be mounted at the instrument rotator. (Highly sensitive detectors which may be influenced by radio noise can be protected by means of a shielding box for RF radiation.) The telescope is operated from a separate control room. Two terminals respectively allow one to command the telescope motion via a menu and to display all relevant status parameters. An automatic dome drive and an autoguider that follows stars brighter than 15 mag provide an almost automatic observation mode.

The first astronomical instrument mounted (Fig. 2) was the High Speed Multichannel Photometer MCCP (cf. *The Messenger* No. 48, p. 29) developed at the USM which allows simultaneous UBVRI measurements of object, comparison and sky, thus compensating for changing atmospheric transparency. (This instrument has already been successfully operated at the ESO 1-m, 2.2-m and 3.6-m telescopes.) High-speed light curves of the dwarf nova U Gem were the first astronomical data recorded on Wendelstein. Application of the remotely controlled spectrograph with a Reticon detector and the CCD camera for narrow band imaging are planned in the near future.

In principle the new telescope should serve the following specific purposes:
– Thorough training of students and observers as preparation for observing runs at large telescopes.
– Performance of test runs in the course of instrument and detector developments.
– Execution of observing programmes which are so time-consuming that observing time at other sites will not be given to visiting astronomers – or programmes which concern singular events like nova and supernova eruptions or the appearance of comets. All of these tasks are favoured by the easy access to our observatory, as well as by the existence of a proper infrastructure.

In addition, astronomical observations simultaneous with those on satellite-borne telescopes, and cooperations with international observing campaigns are planned. Finally, a certain amount of telescope time will be granted to visiting astronomers to allow them to take a look through the blue Bavarian sky.

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Spatial Resolution Imaging of the Radio Source 3C 255

The optical identifications of the 3CR sources are now nearly complete (Spinrad et al. 1988), and only 7 are lacking redshifts.

The radio source 3C 255 is one of these remaining sources, and the deep image presented here was taken to search for a possible underlying distant cluster. Three CCD exposures in V and R were taken with the 2.2-m ESO-MPI telescope on La Silla under moderately good seeing conditions (1.2 to 1.5 arcsec). Adding these images gives a total exposure time of 2 h. The visible counterpart of the radio source is the central object of the frame. There are three other objects, W, E, and S, located at about 7 arcsec from it.

Spinrad et al. noticed that the central object is elongated, as most distant 3CR sources are. On this CCD frame we resolve the elongated region of the source into at least three components (possibly five), the average distance between the components being about 2 arcsec.

The source itself may have four unresolved components (on 1 arcsec scale) or extensions, namely the central object, two extensions in the northern direction and one towards the south.

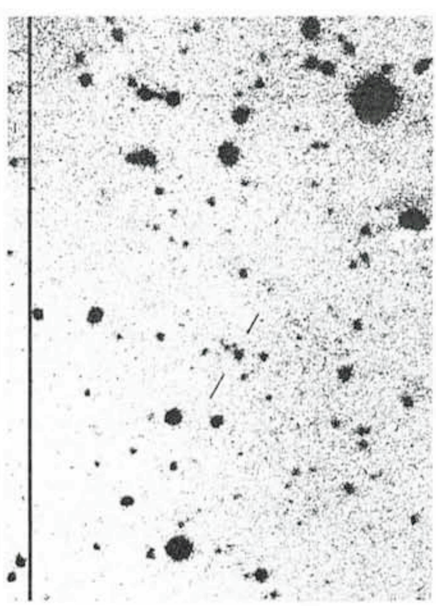

Figure 1: *A 90-minute CCD frame (V) obtained with the 2.2-m telescope at La Silla, showing the distant cluster of galaxies around the radio source 3C 255. The magnitude of the optical image of the source is ~23. The foreground cluster in the upper part of the frame is at redshift z ~ 0.2. North is up and East is to the right.*

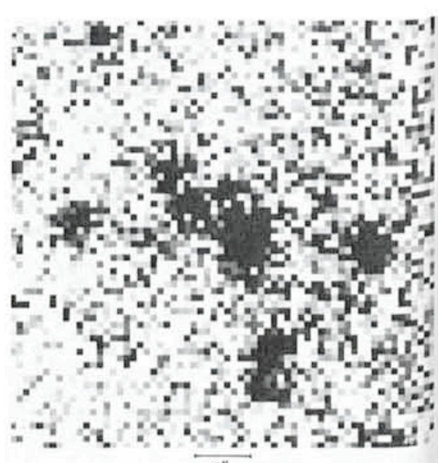

Figure 2: *A spatially resolved image of the elongated radio source 3C 255 obtained with the 2.2-m telescope on La Silla. Exposure time: 3600 s + 1800 s in V (seeing 1.2 arcsec) + 1800 s in R (seeing 1.5 arcsec). The optically identified source is resolved into a bright object and at least 3 fainter components. North is up and East is to the right.*

The simplest explanation is that we have found a distant aggregate of galaxies, the radio source being the first ranked object. Its magnitude suggests a redshift of $z \geq 0.6$.

Clusters of galaxies have been found up to $z = 0.92$ (Gunn et al. 1986) and it has been suggested that some of the most distant 3CR galaxies, near $z \approx 1.8$ might be cluster cores in the process of formation (e.g. 3C 326.1, Mac Carthy et al. 1987; 3C 294, Spinrad et al. 1988).

The dynamical time of galaxy clusters is of the order of the Hubble time. It follows that clusters should be dynamically young and may have had different properties at $z \geq 1$. It is also by no way obvious that the universe contains many clusters at high redshift. Thus it would be important to have a spectrum of this object.

Several distant 3CR elongated galaxies have been found to have a complex, probably multiple structure (Le Fevre and Hammer, 1988). These authors have proposed that some of the 3CR distant galaxies might be affected by gravitational amplification or lensing by foreground galaxies, an hypothesis that may also apply to this new case.

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References

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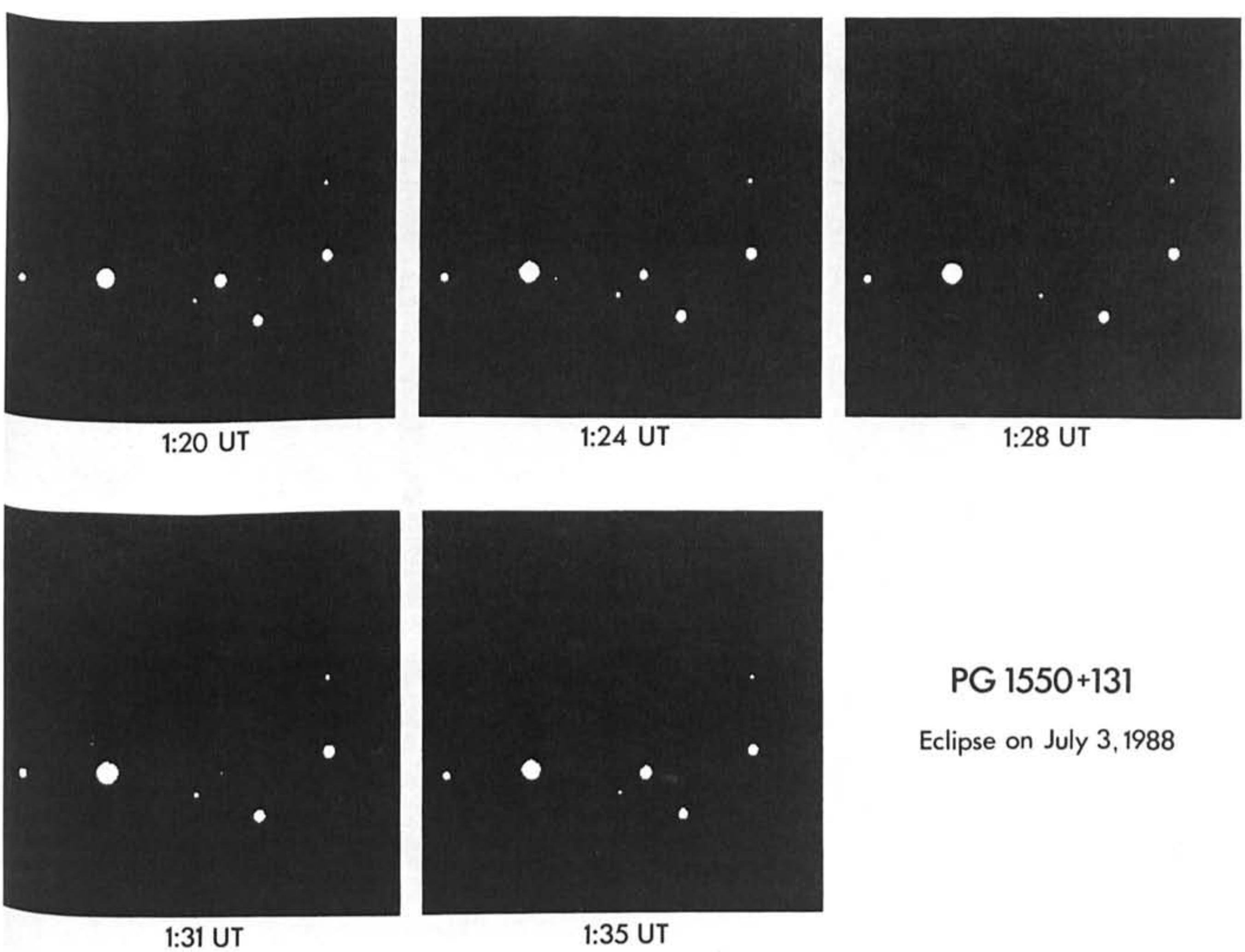
The Spectacular Binary System PG 1550+131

PG 1550+131 was known as a faint, very blue object (V = 16.8, U-B = −1.2) in the constellation Ophiuchus. Its optical spectrum showed the Balmer lines and the Balmer jump in emission. Scarce photometric data indicated large amplitude variations. So it seemed to be a relatively uninteresting member of the cataclysmic variables, not deserving further detailed observational attention. Nevertheless, it was included in a programme to search for eclipsing, faint cataclysmic variables and aiming at the determination of primary masses in such systems. The observations were performed using the CCD camera at the Danish 1.5-m telescope at La Silla. PG 1550+131 turned then out to be the most spectacular eclipsing system found during this survey.

On 1988 July 2 at about UT 0 : 28, after monitoring this object for approximately one hour, it suddenly disappeared almost completely from the frame and reappeared after some seven minutes, indicating the occurrence of a short, very deep eclipse. On-line reductions revealed a regular, sinusoidal variation of the brightness, quite different from that of common cataclysmic variables and it soon became clear that the next occultation would occur about three hours later. In fact, this following eclipse and another one during the next night could be observed at the expected time.

The photo shows a sequence of five CCD images covering the third eclipse monitored on 1988 July 3. At UT 1 : 20



PG 1550+131

Eclipse on July 3, 1988