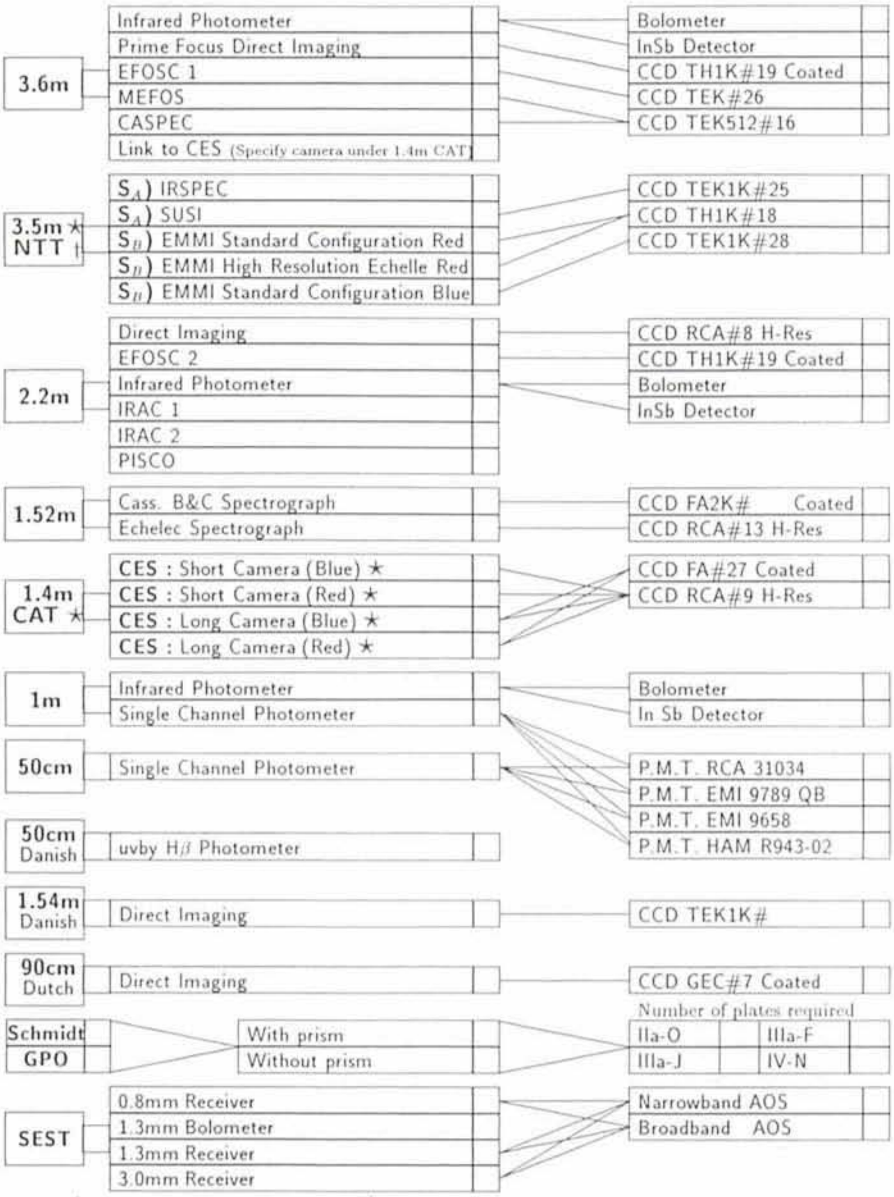
ESO Headquarter resources are now predominantly directed towards the design and construction of the VLT Observatory. Readers of the *Messenger* are well aware of the new observatory's scope and the multiplicity of its technological systems. They are unprecedented in the history of ground-based astronomy. They are also a daunting challenge for the whole of ESO and our partners, industrial and institutional. I have had no choice but to divert to the VLT all the resources that could in my view be possibly spared in the Science Division and on La Silla. We have now reached the stage where *users* have to be confronted with resource limits, where the present opportunities on La Silla will be curtailed for the sake of future opportunities on Paranal.

In the Scientific-Technical Committee a discussion is to take place on the options for containing the La Silla staff's workload. It is clear that quality and reliability cannot be compromised. Instead, the menu of what is offered in any one period must be simplified. Instrument changes, with the attendant alignment, stabilization and calibration tasks, are the prime source of technical workloads. I have asked the heads of the Technical Research Support and of the Astronomy Support Departments to prepare a paper for the November meeting of the STC. We astronomers are notoriously incapable of deciding what we do *not really* need; as a community we usually behave like the character in the popsong who asserts that "I want it all and I want it now". But ESO is "caught between a rock and a hard place" and if we do not make choices then the compromises that are the worst choice of all will arise by default. And so the squeeze on La Silla will be diverted, to a squeeze on the STC and subsequently on Council, the next Executive and ultimately on ESO's users. All for the sake of the exciting prospects created on Cerro Paranal. I am sure they are worth it!



Notes: (★) The combination of these telescopes, instruments and detectors can be used remotely from the ESO Headquarters in Garching.
(†) S_A/S_B Option available simultaneously.

Table 2. *Available Telescopes and Auxiliary Equipment (Period 51, 1 April–1 October 1993).*

New ESO Scientific Preprints

(June – August 1992)

844. P. Ruiz-Lapuente and L. B. Lucy: Nebular Spectra of Type Ia SNe as Probes for Extragalactic Distances, Reddening and Nucleosynthesis. *The Astrophysical Journal.*
845. M. A. Prieto, J. Walsh and Robert Fosbury: IPCS Observations of Extended Gas in Radio Galaxies. *Gemini.*
846. J. Einasto and M. Gramann: Transition Scale to a Homogeneous Universe. *Astronomy and Astrophysics.*
847. F. Murtagh, M. Sarazin and H.-M. Adorf: Statistical Prediction of Astronomical Seeing and of Telescope Thermal Environment. ESO Conference on "Progress in Telescope and Instrumentation Technologies".
848. G. A. Tammann: The Cosmic Expansion and Deviations from It. Crafoord-Symp. "Extragalactic Astronomy including Observations Cosmology".
849. L. Wang and E. J. Wampler: The Supernova SN 1987A: the Nebular Loops and "Napoleon's Hat". *Astronomy and Astrophysics.*
850. T. Richtler, E. K. Grebel, H. Domgörgen, M. Hilker and M. Kissler: The Globular Cluster System of NGC 1404. *Astronomy and Astrophysics.*
851. R. F. Peletier: The Stellar Content of Elliptical Galaxies: Optical and Infrared Colour Profiles of M 32 and NGC 205. *Astronomy and Astrophysics.*
852. R. Siebenmorgen, E. Krügel and J. S. Mathis: Radiative Transfer for Transiently Heated Particles. *Astronomy and Astrophysics.*
853. M. Della Valle and N. Panagia: Type Ia Supernovae in Late Type Galaxies: Reddening Correction, Scale Height and Absolute Maximum Magnitude. *The Astronomical Journal.*
854. L. Pasquini: The Ca II K Line in Solar Type Stars. *Astronomy and Astrophysics.*
855. Bo Reipurth and B. Pettersson: Star Formation in Bok Globules and Low-Mass Clouds. V. Hα Emission Stars Near SA 101, CG 13 and CG 22. *Astronomy and Astrophysics.*

856. P. Dubath, G. Meylan and M. Mayor: Core Velocity Dispersions and Metallicities of Three Globular Clusters Belonging to the Fornax Dwarf Spheroidal Galaxy. *The Astrophysical Journal.*
857. R. P. Saglia et al.: Stellar Dynamical Evidence for Dark Halos in Elliptical Galaxies: The Case of NGC 4472, IC 4296 and NGC 7144. *The Astrophysical Journal.*
858. P. A. Mazzali et al.: Models for the Early Time Spectral Evolution of the 'Standard' Type Ia Supernova 1990N. *Astronomy and Astrophysics.*
859. S. Heathcote and Bo Reipurth: Kinematics and Evolution of the HH 34 Complex. *The Astronomical Journal.*
860. M.-H. Ulrich: Multiwavelength Observations of the Quasar Q1821+643 During the ROSAT All Sky Survey. *Astronomy and Astrophysics.*

PROFILE OF A KEY PROGRAMME:

CCD and Conventional Photometry of Components of Visual Binaries

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1. Introduction

The study of double stars, apart from long being recognized as a basic key to the understanding of star formation and evolution, actually deserves particular attention for many additional reasons:

(1) the ratio of known double to single stars is continuously upgraded and the rate of detection is steadily increasing, both from ground-based and space observations;

(2) space observations (Hipparcos, HST) significantly improve the quality and the importance of stellar samples. They permit to better take into account some of the former selection effects as they reveal a lot of new double stars, especially among the close visual pairs;

(3) the high-quality astrometric (and partly photometric) data that will be made available for a large number of double stars by the space results should be matched accordingly with accurate and homogeneous complementary astrophysical information such as colour indices and spectral types.

(4) Such accurate ground-based information for each of the components of close visual double stars (angular separations less than some ten arcseconds) is almost nonexistent on a large scale – e.g. the astrometric "Catalogue des Composantes d'Etoiles Doubles et Multiples" (CCDM; Dommanget, 1989) contains over 65,000 systems but fewer than 10 % have accurate and reliable photometry –, but is recently made possible with the breakthrough of CCD detectors in spectroscopic and photometric techniques.

The importance of studies of visual double stars lies not only in the traditional determination of stellar masses in orbital pairs – however fundamental these may be – but also in the determination of the characteristics and the frequency of double stars in different stellar populations and evolutionary stages. The distributions of the characteristics typical of double stars such as periods, eccentricities, mass ratios, relative ratios of double and multiple star systems are actually not sufficiently well known to provide valuable constraints on the different star formation scenarios.

In order to acquire this knowledge, the astrophysical information available from magnitudes, colours, spectral types and velocities is fundamentally needed. The usefulness of photometry of visual binaries is especially obvious in applications concerning, for example, luminosity calibrations, the mass-luminosity relationship, mass-ratio determination from differential magnitudes, age and evolution determination. But the type and the accuracy of the photometric information depend very strongly on the separation of the binary components:

– Wide visual double stars (with separations larger than 12") present no difficulty to conventional photoelectric photometry. Individual data are easily secured, even though a more careful procedure (choice of sky, centring) than in the case of single stars may be desirable to obtain high-quality data.

– To the extreme other end of the range in separation, the interest for the very close binary systems (visually non-separable) arose during the last decade because of the physically interesting underlying mass transfer problem. In these cases, global photometry is performed.

– The technical difficulties of observing two images in close proximity to one another are especially pronounced in carrying out conventional photoelectric photometry for the remaining class of double stars with separations in the intermediate range. This class of objects has therefore largely been neglected in past photometric programmes. When available, global photometry in combination with visual or photographic estimates of the magnitude differences are not sufficiently precise to match the actual requirements and the accuracy achieved in other techniques.

With the introduction of CCD detectors on photometric telescopes, it now also appears feasible to obtain accurate photometric data for each of the components of close visual double stars with angular separations between 1 and 12".

2. The Scientific Justification

A comprehensive catalogue of physical pairs – from the very close to the