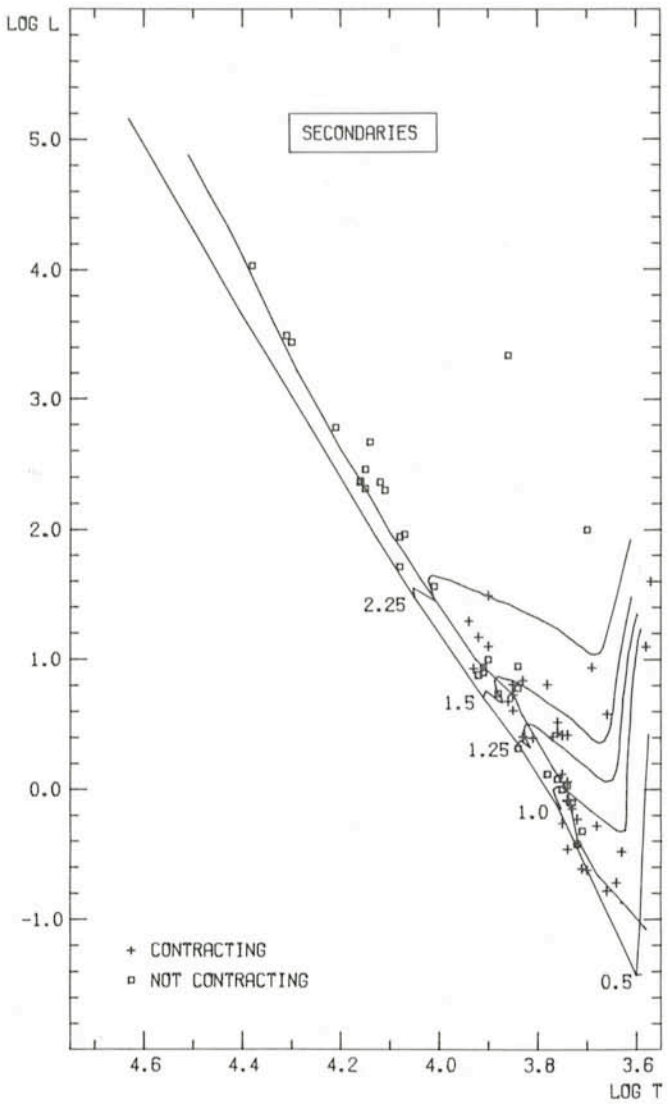

Fig. 7: *The positions of the physical secondaries in the HR diagram. The evolutionary tracks are calculated by Iben for models with masses of 0.5, 1, 1.25, 1.5 and 2.25 solar masses as indicated. The left ZAMS corresponds to Ibens models while the one more to the right is the observed one. The discrepancy between these cannot by itself explain the age discrepancy which is discussed in the text.*

phase of contraction. It can be seen in Fig. 7 that the theoretical and observed ZAMS do not agree perfectly. Moreover, if one shifts the isochrones by the corresponding difference in temperature the discrepancy still remains. As mentioned earlier, these pms star models are idealized, e.g. they do not take into account the effects of rotation while real pms stars are suspected to be fast rotators. It would be interesting to see if the isochrones from more elaborate models agree better with our results.

Peculiarities

Although many of the secondaries fall above the ZAMS they are closer to it and also older and more evolved than typical T-Tauri stars. None of them which have been spectroscopically investigated exhibit any strong T-Tauri characteristics and we conclude that the T-Tauri phase ends several million years before the stars settle on the ZAMS. This is also supported by the infrared results. Practically all of the contracting secondaries were measured in JHKL in order to detect any possible infrared excess emission which is common for T-Tauri stars. The presence of such excess emission is explained by a circumstellar dust cloud which is heated by the stellar radiation. Again, none of the investigated stars show any excess. Their JHKL magnitudes are those of normal stars of the same spectral type. The stars therefore seem to shed their circumstellar material at the end of the T-Tauri phase and they reach the ZAMS as quite normal stars.

Despite the fact that none of the secondaries show any strong pms characteristics, more than 25 % do exhibit some spectroscopic peculiarity. In particular emission lines of Hα and Ca H, K are frequent, and a strong absorption line of lithium at 6707 Å is present in the spectra of several contracting stars. A few stars also have very broad and diffuse spectral lines. All these features are common to pms stars and spectroscopically some of the secondaries resemble T-Tauri stars of the weakest emission class.

The primordial lithium is destroyed by protons while the stars are contracting and therefore the presence of a strong lithium line is important since it demonstrates that the stars are young. Unfortunately only a limited number of secondaries have so far been investigated in the red part of spectrum and it is therefore likely that the number of stars with Hα emission and strong Li absorption is much higher. However, in the material we have, it is interesting to note that all the contracting stars which have a Li line also have Ca H,K emission. This suspected coupling will be further investigated in May 1982 with the ESO 3.6-m telescope.

The first results of this investigation have been published as a thesis (Lindroos, *Stockholm Observatory Report* No. 18, 1981). The whole investigation will be presented in a series of articles in *Astronomy and Astrophysics.*

Visiting Astronomers

(April 1 – October 1, 1982)

Observing time has now been allocated for period 29 (April 1 – October 1, 1982). The demand for telescope time was again much greater than the time actually available.

The following list gives the names of the visiting astronomers, by telescope and in chronological order. The complete list, with dates, equipment and programme titles, is available from ESO-Garching.

3.6-m Telescope

April:	Israel/de Graauw/van der Stadt, Eichendorf/Krautter, Eichendorf/Reipurth, Léna/Foy/Mariotti/Perrier, Krautter/Vogt/Beuermann/Ritter, Brahic, Kunth/Joubert, Audouze/Dennefeld, Lachieze-Rey/Vigroux.
May:	Lachieze-Rey/Vigroux, Campbell/Pritcher, Cayrel G.+R., de Bruyn/van Groningen, Lindros/Gahm, Weigelt, Motch/Ilovaisky/Chevalier, Jörgensen/Norgaard-N., Tarenghi, Pakull.
June:	Landini/Oliva/Salinari/Moorwood, Moorwood/Glass, Decanini/Fossat/Grec, Alcaíno, Fusi Pecci/Cacciari/Battistini/Buonanno/Corsi, Rosino/Ortolani, Seitter/Duerbeck, Häfner/Metz, Pedersen/Lewin/van Paradijs, Wargau/Drechsel, van der Hucht/Thé, Koornneef/Westerlund.
July:	Koornneef/Westerlund, Nguyen-Q-Rieu/Epchtein, Kreysa/Mezger/Sherwood, Steppe/Witzel/Biermann, Schultz/Sherwood/Biermann/Witzel, Sherwood/Gemünd, Schnur, Fricke/Kollatschny/Biermann/Witzel, Adam, Ardeberg/Nissen, Danks/Wamsteker.
August:	Danks/Wamsteker, Engels/Perrier, Chevalier/Ilovaisky/Motch/Hurley/Vedrenne, D'Odorico/Grosbøl/Rosa, Greenberg/Brosch/Grosbøl, Seggewiss/

	Breysacher/Azzopardi, Lindblad/Athanassoula/Grosbøl/Jörsäter, de Vegt.
Sept.:	Chen/Danziger, Danziger/de Ruiter/Kunth/Lub/Griffith, Arp/Gosset/Surdej/Swings, Azzopardi/Breysacher/Lequeux/Maeder/Westerlund, Cetty-Véron.

1.4-m CAT

April:	Habing/Brand/de Vries/de Graauw/Israel/van der Stadt.
May:	Dennefeld, Danks/Lambert, Ferlet/Dennefeld, Ferlet/York, van Dishoeck/Habing.
June:	van Dishoeck/Habing, Westerlund/Krelowski, Wöhl, Mauron/Querci, Gillet/Querci.
July:	Gillet/Querci, Baade, Baade/Pollok, Schnur, Häfner.
August:	Häfner, Schultz, Kozok, Schultz, Gerbaldi/Faraggiana/Floquet/van Santvoort.
Sept.:	Gerbaldi/Faraggiana/Floquet/van Santvoort, Schultz.

1.5-m Spectrographic Telescope

April:	de Loore/Burger/v.d. Heuvel/v. Paradijs, Spaenhauer, Boisson, Wampler, Kunth/Joubert.
May:	Kunth/Joubert, Lindblad/Lodén, K., Infante, Jankovics/Appenzeller, Tarenghi, Melnick/Quintana, West/Kumsiachvili.
June:	West/Kumsiachvili, Gieseking, Stenholm, Lundström, Perinotto/Purgathofer, Thé/Westerlund, Rahe/Drechsel, Drechsel/Rahe, Wargau/Drechsel, Houziaux.
July:	Rahe/Drechsel, Drechsel/Rahe, Wargau/Drechsel, Houziaux, Voigt/Schneider, Voigt, Fricke/Kollatschny/Schallwich/Yorke, Kollatschny/Fricke/Yorke, Quintana, Kohoutek/Pauls, Liseau, Sahade.
August:	Schade, von Dessel, Gustafsson/Vieira, Kozok, Lortet/Testor/Heydari-Malayeri, Koornneef/Maurice/Prévot.
Sept.:	Alloin/Pelat, Nottale/Pelat, Véron, Koester/Weidemann.

1-m Photometric Telescope

April:	Gammelgaard/Kristensen, Eichendorf, Krautter, Léna/Foy/Mariotti/Perrier, Krautter, Krautter/Vogt/Beuermann/Ritter, Brahic, Wielebinski/Beck/Schnur, Sterken/de Loore.
May:	Sterken/de Loore, Hahn/Lagerkvist/Rickmann, de Jong/Willems, Alcaíno, Liller, Schneider/Maitzen/Catalano.
June:	Schneider/Maitzen/Catalano, Lundström, Westerlund/Thé/de Jong, Leandersson, Thé/Westerlund, van der Hucht/Thé, Epchtein/Gomez/Lortet/Pitault.
July:	Epchtein/Gomez/Lortet/Pitault, Nguyen-Q-Rieu/Epchtein, Bergeat/Lunel, Chini, Adam, Battistini/Cacciari/Fusi Pecci, Engels/Perrier.
August:	Engels/Perrier, Leitherer/Wolf, Mattila/Schnur/Fricke/Schallwich, Bues/Rupprecht, Lauberts.
Sept.:	Lauberts, Moreno, Chen/Danziger, Koester/Weidemann, Arp/Gosset/Surdej/Swings.

50-cm ESO Photometric Telescope

April:	Divan/Zorec, Moreno/Carrasco, Wielebinski/Beck/Schnur, Hahn/Lagerkvist/Rickmann.
May:	Hahn/Lagerkvist/Rickmann, Engber, Westerlund/Thé/de Jong.
June:	Westerlund/Thé/de Jong, Leandersson, Thé/Westerlund, Leandersson.
July:	Kohoutek/Pauls, Moreno/Carrasco.
August:	Mattila/Schallwich/Fricke/Schnur.
Sept.:	Debehogne, Moreno/Carrasco.

GPO 40-cm Astrograph

April:	Azzopardi/H.-Delplace/Jaschek M.+C.
May:	Dettmar/Gieseking.
August:	Lagerkvist.
Sept.:	Debehogne/Caldeira.

1.5-m Danish Telescope

May:	Veillet, Terzan, Motch/Ilovaisky/Chevalier, Blecha/Grenon/Jörgensen, Crane/West/Kruszewski, Jaffe/Kruszewski/Valentijn/West, Jörgensen/N.-Nielsen, Ardeberg.
July:	Ardeberg/Nissen, Chevalier/Ilovaisky/Motch/Hurley/Vedrenne, Liseau, Sol, Baade/Eichendorf/Sol/Valentijn.
Sept.:	Tarenghi/Cetty-Véron/Véron/Pedersen, Bergeron/Kunth, Danziger/Pedersen, Steppe/Pedersen/Gopal-Krishna, Maurice (CORAVEL Group), Ardeberg.

50-cm Danish Telescope

April:	Schober, Vogt/Maitzen.
May:	Sterken/van der Linden.

90-cm Dutch Telescope

April:	Gathier/Pottasch.
May:	Pakull, Thé/Westerlund.
June:	Thé/Westerlund.
July:	Weiss/Hensberge/Schneider.
Sept.:	Schober.

61-cm Bochum Telescope

April:	Barbier.
May:	Barbier, Terzan.
June:	Schneider/Maitzen/Catalano, Barbier.
July:	Barbier, Thomsen.
August:	Kozok.
Sept.:	Kozok.

Applications for Observing Time at La Silla

Period 30

(October 1, 1982 – April 1, 1983)

Please do not forget that your proposals should reach the Section Visiting Astronomers **before April 15, 1982.**