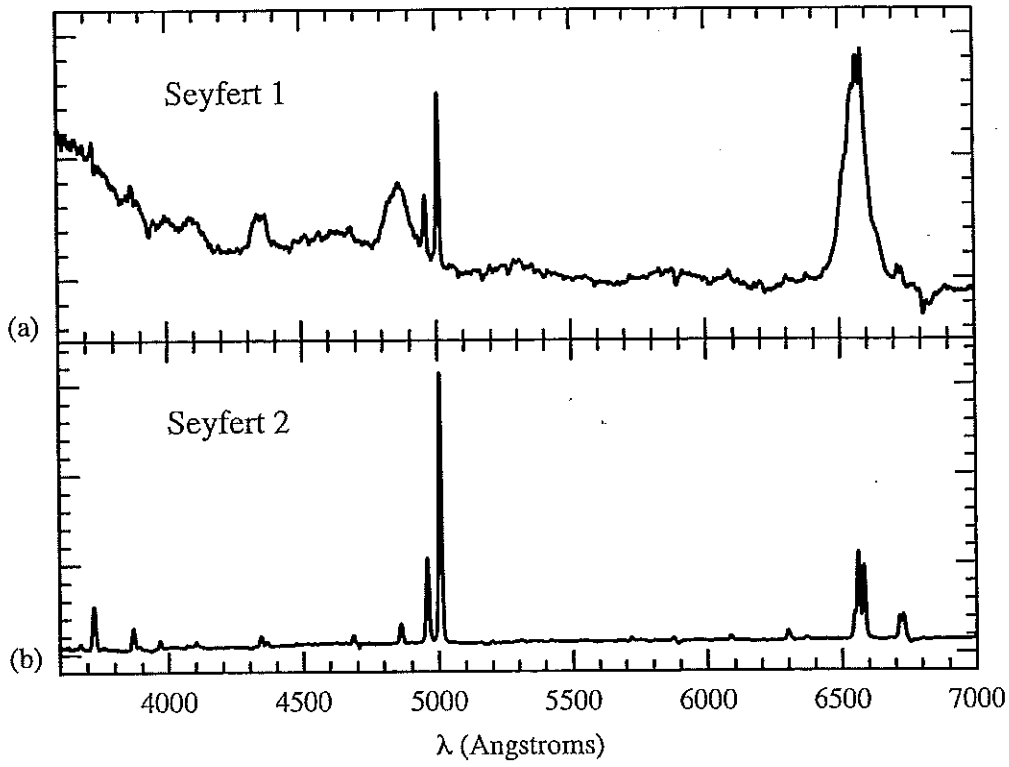


FIGURE 21.2 (a) Spectrum of a Seyfert 1 galaxy (both broad and narrow lines). (b) Spectrum of a Seyfert 2 galaxy (narrow lines only).

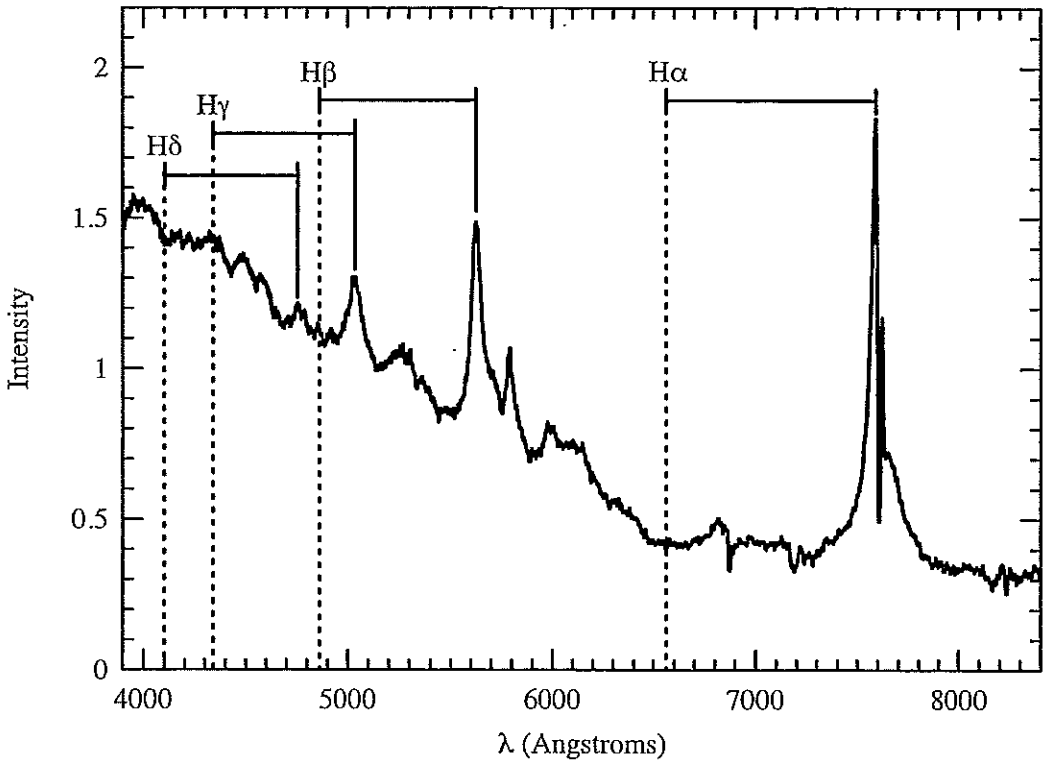
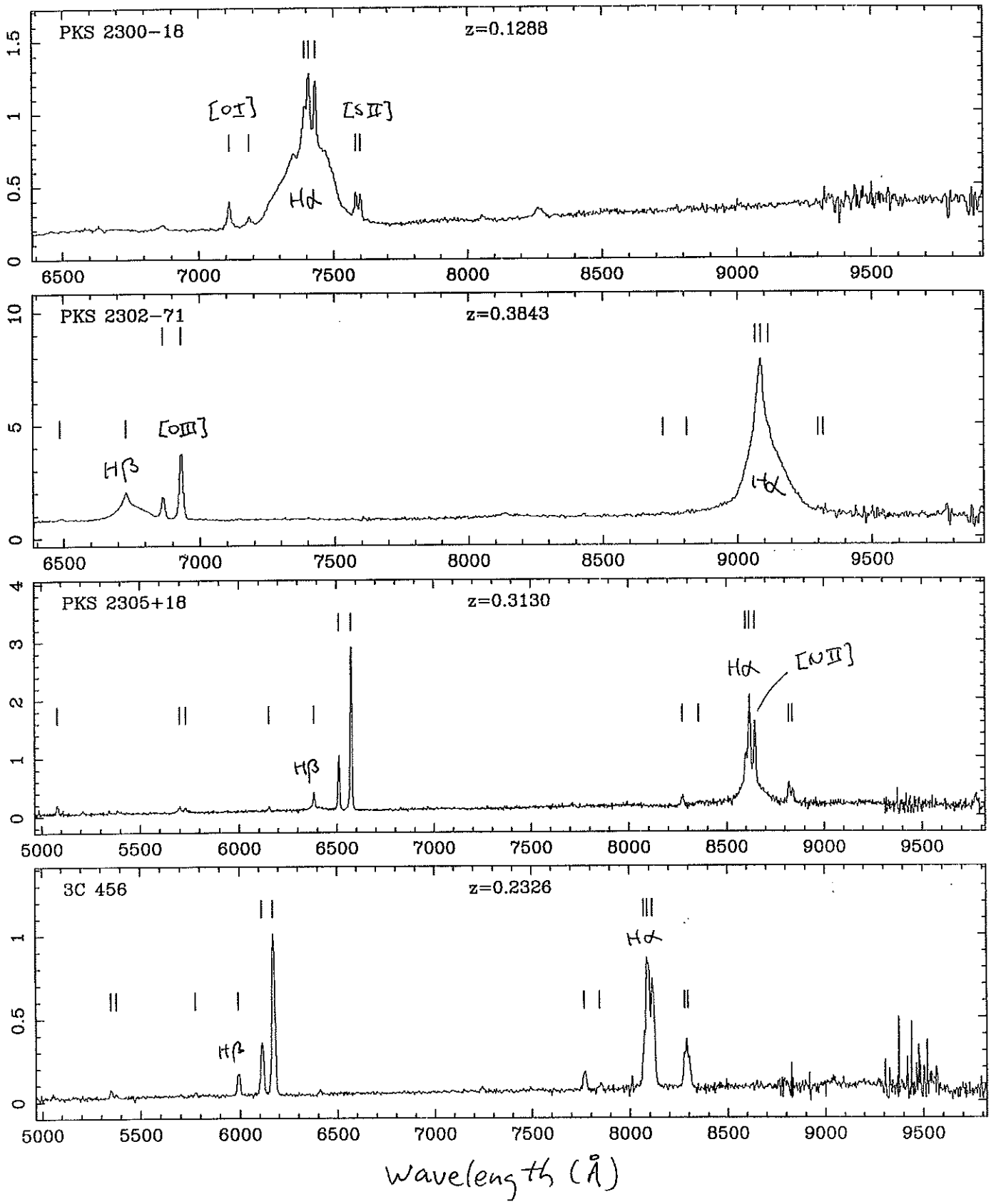


FIGURE 21.4 Spectrum of the quasar 3C 273, showing redshifted Balmer lines.



Spectra of Active Galactic Nuclei

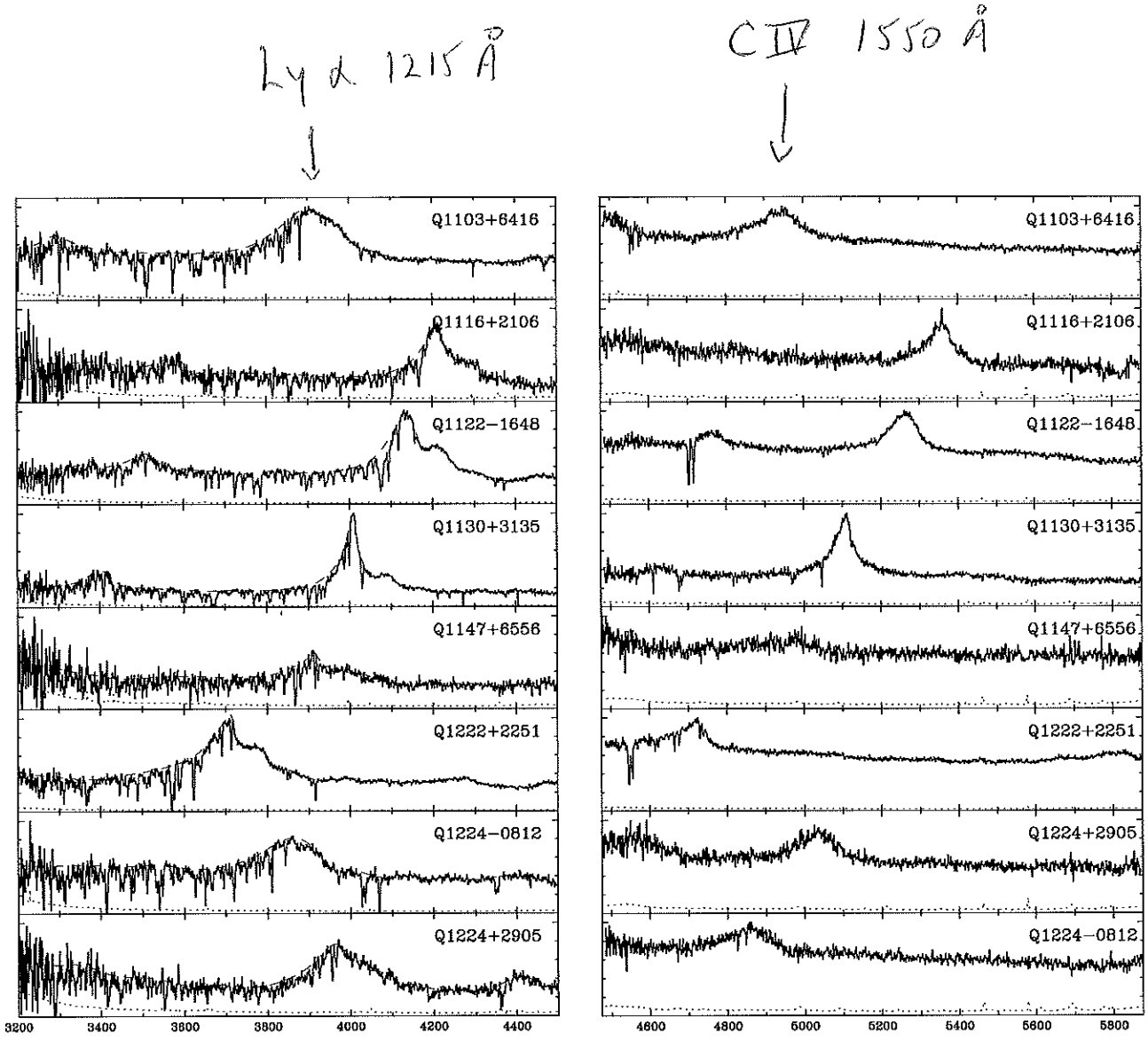


FIG. 2.—*Continued*

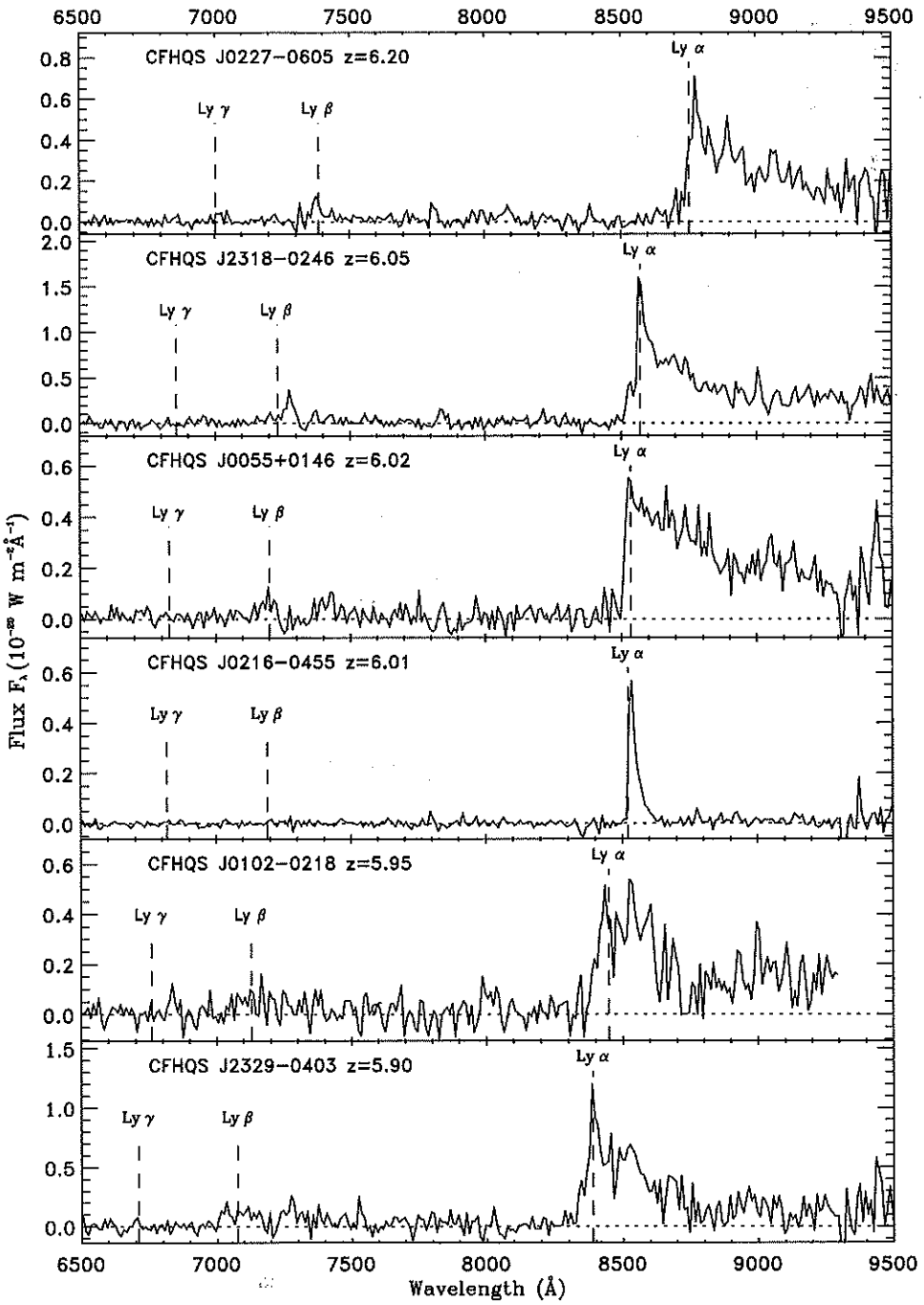


Figure 3. Optical spectra of the six newly discovered quasars. The expected locations of Ly α, Ly β, and Ly γ are marked with dashed lines. All spectra are binned in 10 Å pixels.

to determine whether this region does have a high optical depth.

CFHQS J0227−0605 has the reddest $z' - J$ color of the CFHQS quasars discovered so far with $z' - J = 1.25$. Partially, this is due to its high redshift. The simulations of quasar colors as a function of redshift from Willott et al. (2005) show that $z' - J$ typically starts increasing at $z > 6.1$ due to the dark, IGM-absorbed region of the spectrum entering the z' filter bandpass. But CFHQS J0227−0605 is 0.5 mag redder than the typical quasar at its redshift. This could be an indication that the quasar continuum is reddened by dust like several other very high redshift quasars (Maiolino et al. 2004; McGreer et al. 2006; Venemans et al. 2007; W07). Future near-IR spectroscopy will test for this. As shown in Figure 1, quasars much redder than CFHQS J0227−0605 could fall outside our selection box. Most such quasars would still be identified by the CFBDS which obtains near-IR spectra for most T dwarfs (L. Albert et al. 2009, in preparation).

3.2. CFHQS J2318−0246

This quasar was not detected at i' band and has a color limit of $i' - z' > 2.74$. The spectrum shows a typical high-redshift quasar at $z = 6.05$ with asymmetric Ly α line and large continuum break across the Ly α line.