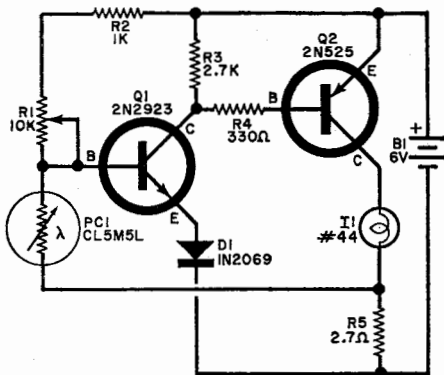


Manufacturer's Circuit. One of over a half-dozen designs featuring photocell applications, the automatic barrier lamp circuit shown in Fig. 2 was abstracted from the *Application Notes* published by Clairex Electronics, Inc. (1239 Broadway, New York, N. Y. 10001). In operation, the lamp (*I1*) goes on at dusk, off at dawn, with the daylight current drain less than one percent of the night drain. The basic circuit can be used in a variety of useful projects—in an automatic signal light for a driveway or boat dock, for example, or even for a “night light” on camping trips.

Referring to Fig. 2, *Q1* and *Q2* form a complementary direct-coupled amplifier.

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ble-checked for errors before *B1* is connected. Sensitivity control *R1* is adjusted for optimum performance after installation in the selected location.

Fig. 2. Photocell circuit is used to turn a lamp on at dusk, off at dawn with low current drain.

Base bias of *Q1* is established by a voltage-divider made up of sensitivity control *R1*, current limiting resistor *R2*, and photoconductive cell *PC1*. Transistor *Q1*, in turn, acts to control *Q2*'s collector load. The photocell, *PC1*, has a relatively low resistance when illuminated, a high resistance when dark.

During daylight hours, *PC1*'s low resistance effectively shorts *Q1*'s bias, holding this device in a high resistance state and preventing the application of base bias to *Q2*. Neither *Q1* nor *Q2* can conduct and the lamp remains dark. When dusk arrives, *PC1*'s resistance increases, permitting the application of base bias to *Q1* through *R1* and *R2*. As *Q1* shifts to a conducting state, base bias is applied to *Q2*, permitting a flow of collector current and lighting *I1*. The situation reverses, going back to the initial conditions, when *PC1* is once again illuminated.

With neither parts placement nor wiring arrangement critical, the project can be assembled using any method of construction. Naturally, the completed circuit should be housed in a weatherproof cabinet or case if the unit is used outdoors. Once the wiring is completed, all connections should be dou-