left ventricular pressure (dP/dt) was recorded, and the maximum value was utilized as an index of myocardial contractility. ECG (lead(II)) was recorded conventionally with needle electrodes. Temperature of the blood was maintained at 37 °C and adequately oxygenated.

Control values were established for left ventricular end diastolic pressure, left ventricular dP/dt max, central venous pressure, circuit pressure, circuit flow, heart rate, and filling pressure. Drugs were injected via the left venous inflow catheter, and haemodynamic parameters were remeasured. Force/rate selectivity is expressed graphically (Figure 2) by plotting percentage increases in dP/dt max against absolute increases in heart rate. All compounds were tested in two to four dogs, and dose ranges employed were **3**, **4** (100–800 μg), **26** (50–400 μg), **27** (5–640 μg), and isoprenaline (50–500 ng). Figure 2 is derived by drawing the best line through the accumulated data points for increases in force and rate. All data points lie within 7% from the line for either dependent variable.

(b) Conscious Dogs.[23,24] Adult beagle dogs (Pfizer colony) were prepared, under aseptic recovery surgery, with a carotid artery loop and two subcutaneous titanium studs, designed to act as permanent ECG electrodes and placed, one each, in the dorsal neck and rump areas. Following adequate time for recovery and full wound healing, each dog was placed in a canvas support within the laboratory. A strain gauge was placed around the carotid loop, and recording leads were attached to the two electrodes. Recordings of both the arterial pulse and the ECG were made via appropriate interfacing onto a Grass polygraph. Measurements of QA interval (the time in milliseconds between the R wave of the ECG signal and the up-stroke of the arterial pressure pulse) were made by digital computer. To assess the activity of a test substance, recordings of QA interval were made every 0.16 h from 0.5 h before, to up to 4 h after, the oral administration, by gavage, of a solution of the test substance. Each value of QA interval, at a given time point, represents the mean of six consecutive sets of values, each set being the mean of the values recorded in an 8-s period. Results are expressed as the change in QA interval from the mean control (predose) value. In control animals (n = 8), changes in QA interval of 1.5 ± 2 and 0.5 ± 1.5 ms were observed at 1 and 3 h, respectively, after saline administration. Decreases in QA interval of 10, 15, and 20 ms correspond approximately to increases in dP/dt max of 20, 45, and 70% respectively. A decrease in QA interval of 20 ms approaches the maximum change possible.

Acknowledgment. We gratefully thank D. J. Greenan for pK_a data and D. E. Balderson, J. Butler, S. I. Davis, T. L. Kidd, and A. G. Pomeroy for valuable technical assistance.

Registry No. **2**, 99470-75-4; **3**, 99470-74-3; **3**·HCl, 99455-04-6; **4**, 99470-76-5; **4**·HCl, 115514-65-3; **5**, 99471-02-0; **6**, 99470-99-2; **7**, 99470-82-3; **8**, 99470-79-8; **9**, 99470-83-4; **10**, 99470-81-2; **11**, 99470-84-5; **12**, 99470-84-5; **13**, 99470-93-6; **14**, 99470-77-6; **15**, 99470-92-5; **16**, 99470-91-4; **17**, 99454-94-1; **18**, 99471-32-6; **19**, 99471-41-7; **20**, 99471-49-5; **21**, 99470-85-6; **22**, 99455-03-5; **23**, 99471-44-0; **24**, 99471-35-9; **25**, 99471-04-2; **26**, 99470-89-0; **27**, 99470-97-0; **28**, 99471-38-2; **29**, 99471-39-3; **30**, 99454-99-6; **31**, 99471-59-7; **32**, 99471-40-6; **33**, 99471-63-3; **34**, 99471-47-3; **35**, 99455-43-3; **36**, 99455-20-6; **37**, 99455-44-4; **38**, 99455-31-9; **39**, 99455-34-2; **40**, 99455-48-8; **41**, 113656-42-1; **42**, 99455-47-7; **43**, 99465-02-8; **44**, 99465-01-7; **45**, 113656-43-2; **46**, 99455-24-0; **47**, 99455-46-6; **48**, 99455-23-9; **49**, 99455-21-7; **50**, 99455-26-2; **51**, 99455-37-5; **52**, 99454-91-8; **53**, 99455-28-4; **54**, 99455-51-3; **56**, 99465-20-0; **57**, 99465-18-6; **58**, 99465-19-7; **59**, 99465-17-5; **60**, 99465-21-1; **61**, 99465-22-2; **62**, 99465-23-3; **63**, 99455-01-3; **64**, 1810-66-8; **65**, 99465-09-5; **66**, 99465-10-8; **67**, 3279-90-1; **68**, 75793-88-3; **69**, 99465-12-0; **70**, 99465-11-9; **71**, 99465-08-4; **72**, 99465-13-1; **73**, 99465-14-2; **74**, 99465-15-3; **75**, 99465-03-9; **76**, 113659-91-9; **77**, 1810-71-5; **78**, 99455-13-7; **79**, 99455-15-9; **80**, 99455-16-0; **81**, 99455-14-8; **82**, 99465-04-0; **83**, 99455-05-7; **84**, 99455-06-8; **85**, 99455-08-0; **86**, 99455-09-1; **87**, 99471-77-9; **88**, 99455-49-9; **91**, 99471-71-3; I-*p*-$C_6H_4NH_2$, 540-37-4; Br-*m*-$C_6H_4NH_2$, 591-19-5; 5-bromo-2-methoxypyridine, 13472-85-0; 8-bromo-3,4-dihydro-6-(2,6-dimethylpyridin-3-yl)-2(1*H*)-quinolinone, 99471-56-4; *trans*-3-ethoxy-2-propenoyl chloride, 99471-66-6; 4-bromo-2-methylaniline, 583-75-5; 4-bromo-3-methylaniline, 6933-10-4; 4-iodo-2-ethylaniline, 99471-67-7; 4-iodo-2-prop-2-ylaniline, 76842-13-2; 4-bromo-2-methoxyaniline, 59557-91-4; 3-cyano-2(1*H*)-quinolinone, 36926-82-6; methyl 2-amino-5-iodobenzoate, 77317-55-6; 2-amino-5-iodobenzyl alcohol, 53279-83-7; 2-prop-2-ylaniline, 643-28-7; 2-ethylaniline, 578-54-1; 4-bromopyridazine, 115514-66-4.

Supplementary Material Available: 300-MHz NMR spectra in DMSO are available to **3**, **20**, **27**, and **30** (4 pages). Ordering information is given on any current masthead page.

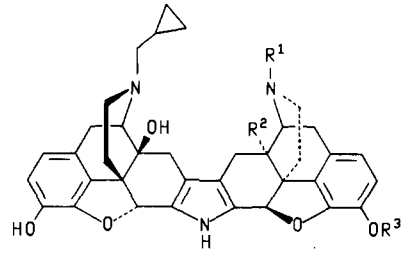
(23) Alabaster, C. T.; Henderson, C. G. *Br. J. Pharmacol.* **1982**, *76* (Proc. Suppl.), 251.
(24) Cambridge, D.; Whiting, M. V. *Cardiovasc. Res.* **1986**, *20*, 444.
(25) Linda, P.; Marino, G. *Ric. Sci., Parte 2: Sez A*, **1964**, 309; *Chem. Abstr.* **1965**, *63*, 5602c.
(26) Uyeda, H. *J. Chem. Soc. Jpn.* **1943**, *64*, 61.
(27) Khalil, A. M.; Abd El-Sawad, I. I.; Ali, M. I.; Girges, M. I. *Ind. J. Chem.* **1979**, *17B*, 627.

Additions and Corrections

1988, Volume 31

P. S. Portoghese,* H. Nagase, A. W. Lipkowski, D. L. Larson, and A. E. Takemori: Binaltorphimine-Related Bivalent Ligands and Their κ Opioid Receptor Antagonist Selectivity.

Page 837. The correct structure for compounds **10** and **11** is



10: $R^1 = CH_2CH(CH_2)_2$; R^2 = OH; R^3 = Me
11: $R^1 = CH_3$; $R^2 = R^3$ = H