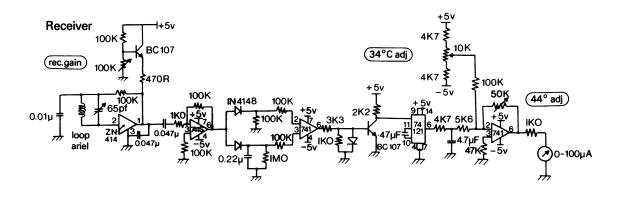
## An inexpensive method for transmitting and receiving core temperature changes in unrestrained animals

## B. COX, D. PERCIVAL, G. SHAIL & C. TOMKINS

Departments of Pharmacology, Materia Medica & Therapeutics and Medical Biophysics, Manchester University, Manchester M13 9PT

Most studies involving the measurement of core temperature in animals require that the animals are restrained either permanently (continuous recording) implanted under halothane anaesthesia into the abdominal cavity through a small dorsal incision and sutured to the dorsal musculature. After wound closure two to three post-operative recovery days are allowed. The transmitted signal is detected by a simple wire loop aerial and core temperature displayed on a pre-calibrated receiver (Figure 1). The variable potentiometers allow the receiver to be calibrated to accept signals from different transmitters so that recordings can be made from more than one animal. The transmitter is powered by a 1.35 v battery, has a transmitting range of 1 m and a minimum life of 60 davs.

Comparisons of temperature recordings from restrained and unrestrained animals will be presented.



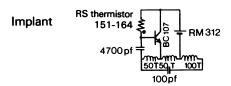


Figure 1 Circuit diagram for temperature measurement by telemetry. The coil in the implant was made of 38 AWG wire (50 + 50 + 100 turns) on a 9 mm former.

or intermittently (occasional recording). In each case the restraint can either affect core temperature itself or modify drug induced responses (Cox & Tha, 1975; Poole & Stephenson, 1977; Snow & Horita, 1975). Biotelemetry provides a means of measuring temperature without restraint, but commercially available systems are expensive.

An inexpensive method for transmitting core temperature in animals free from restraint will be demonstrated using a small  $(20 \times 10 \times 5 \text{ mm})$ implanted thermistor controlled transmitter (Figure 1). The transmitter, enclosed in a thin rubber sheath, is

## References

COX, B. & THA, S.J. (1975). The role of dopamine and noradrenaline in temperature control of normal and reserpine-pretreated mice. J. Pharm. Pharmac., 27, 242-247.

POOLE, S. & STEPHENSON, J.D. (1977). Effects of intrahypothalamic injections of noradrenaline and carbachol on core temperature of unrestrained rats. Br. J. Pharmac., 59, 482-483P.

SNOW, A. & HORITA, A. (1975). The stress dependent nature of apomorphine hyperthermia in the rabbit. Proc. West Pharmacol. Soc., 18, 43-45.