occurring while *in statu pupillari*, and the contribution of trauma—that is, road traffic accidents—to mortality in this age group is underlined. In some instances the student was dead on arrival at hospital, and these ought strictly, perhaps, to have been excluded from the total of hospital admissions, but the picture would have been incomplete without them. Two students were "found dead" in circumstances which aroused suspicion of suicide—a surprisingly small number bearing in mind the size of the population at risk over a three-year period and experience at other universities (Rook, 1959).

Conclusion

The report of the W.H.O. Expert Committee and a report of the Royal College of Physicians (1966) both recommended that university health services should provide their own accommodation, preferably centralized, for the treatment of certain categories of sickness among students. This is not the place for a description of how such accommodation might best be organized or of the undoubted advantages it confers. It will suffice to say that in common with a number of universities this service is now being developed at Newcastle upon Tyne, and some cases which might formerly have been admitted to hospital will in future be admitted to it.

This note should not, of course, be thought to reflect the scope and volume of clinical and preventive work in a comprehensive university health department the facilities of which are extended, in one form or another, to all members of the university community. It is clearly incomplete even as a prevalence study of morbidity among students. But if it does nothing else, at least it should dispose of the notion, still evidently held in some quarters, that—psychological disorders apart—a description of illness among students is adequately covered by "influenza, the occasional inflamed appendix, and athletic injuries" and that students are seldom really ill at all.

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NEW APPLIANCES

New Alarm for Treatment of Nocturnal Enuresis

Mr. H. J. TERRY, Department of Medical Electronics, St. Bartholomew's Hospital, London E.C.1, writes: Alarms for the treatment of nocturnal enuresis, as described by Gillison and Skinner (1958), are in widespread use. The first aim in designing a new one was to minimize the risk of "buzzer ulcers," which were investigated by Borrie and Fenton (1966). The opportunity was taken to make the unit not only safer but also more reliable and more easily used and maintained than types employing relays, bells, or buzzers. Since high-quality silicon transistors now cost only two or three shillings, the cost of construction is only slightly increased.

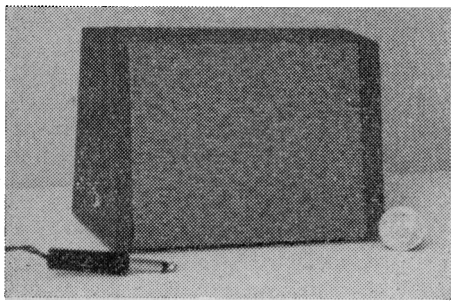

FIG. 1.—Enuresis alarm unit and a two-shilling piece.

Operation of the alarm has been made as simple as possible. As in earlier systems, a pad with two isolated electrodes is placed under the bottom sheet in the patient's bed and connected by a length of flex to a jack plug. Pushing the jack plug into its socket closes the switch, and the alarm is then ready for use. When the alarm is triggered by urine reaching the pad the loudspeaker wakes the patient with a steady note. This is switched off by simply unplugging the pad, and the alarm is again ready for use as soon as a dry pad is plugged in. The unit is powered by four pen-torch cells, which are sufficient for several months' use.

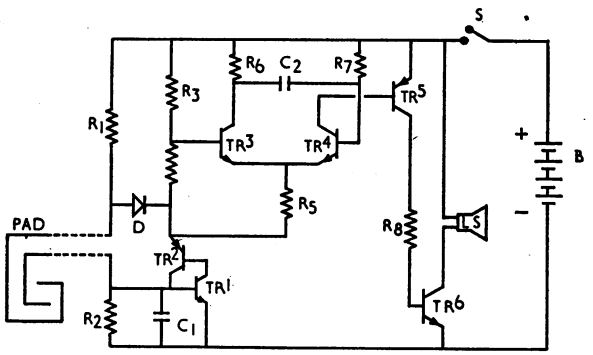

FIG. 2.—Enuresis alarm circuit. Components list: R 1, 5,600 ohms. R 2, 1,000 ohms. R 3 and 4, 4,700 ohms. R 5 and 6, 820 ohms. R 7, 470,000 ohms. R 8, 220 ohms. C 1 and 2, 0.01 microfarad. TR 1, 3, and 4, 2N 3710 (Texas Instruments). TR 2 and 5, 2N 3702 (Texas Instruments). TR 6, 2N 3706 (Texas Instruments). D, 1S940 (Texas Instruments). L S, loudspeaker 25–35 ohms. Battery, 4 cells, U 12/D 14.

In answer to a letter in the *British Medical Journal* (Terry, 1966) 16 inquiries were received from doctors interested in trying out the new alarm. Nineteen alarms were built and sent out, with forms on which the user was asked to record each day whether the bed had been wet in the night and if the alarm had functioned correctly. Records of 40 months' use of alarms have so far been received, and as a result of the favourable reports by doctors and patients the alarm is being produced commercially.*

The unit is shown in Fig. 1 and the circuit diagram in Fig. 2. For those interested in electronics, TR 1 and TR 2 act as a switch, which responds to a current through the pad of about 400 microamps. With TR 1 and 2 conducting, TR 3 and 4 act as an emitter-coupled astable multivibrator. TR 5 and 6 merely amplify the square wave so produced, and drive the loudspeaker. Two safety features are included. R 1 ensures that, even if a fault occurs elsewhere in the circuit, the current through the pad cannot exceed 1 milliamp. The diode, D, provides the further safeguard that once the alarm has been triggered the potential across the pad cannot exceed 1 volt. To avoid false alarms when switching on it may be necessary to add a capacitor, similar to C 1 and C 2, between the base and emitter of TR 2.

I wish to acknowledge the help given by members of the Department of Medical Electronics in making the alarms, and by the medical officers, general practitioners, and patients in testing them. I am also grateful to the Endowment Fund of the hospital for financial support.

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* By Astric Products Limited, 261 Queen's Park Road, Brighton 7.