was used to control supraventricular (atrial) dysrhythmias, though it was less desirable in the treatment of dysrhythmias arising in the ventricles. The anti-arrhythmic and beta-blocking actions of propranolol appeared to be independent of one another, the laevo isomer being principally a beta-blocker, while the dextro form was active against arrhythmia. The new beta-blocking agent ICI 50172 slowed tachycardia, yet it was not a local anaesthetic and had no quinidine-like effect. Concluding, Dr. Sowton said that the anti-arrhythmic drugs at present available were clinically useful, but that their action could not be firmly tied to beta blockade, quinidine-like activity, or myocardial depression.

Describing the results of a trial of another new beta-blocking agent, H. 5628 (Aptin), Dr. EINO LINKO (Tampere, Finland) said that 57 patients with acute arrhythmias had received the racemic form of the drug. Between 4 and 20 mg. had been given at a rate of 2 mg. per minute; heart rate began to fall within one to ten minutes, finally being reduced by a quarter or more. In a few patients blood pressure also fell but soon returned to normal levels. The dextro isomer of H. 5628, like that of propranolol, lacked beta-blocking activity, but—unlike propranolol—had no anti-arrhythmic action either.

The final speaker was Dr. Jane Summer-ville (National Heart Hospital), who

described dysrhythmias in childhood. Many of these were associated with congenital defects, such as atrial or atrioventricular septal defect, corrected transposition, or Ebstein's anomaly. Dysrhythmia often made the congenital lesion more serious and sometimes necessitated early operation, though this seldom restored normal rhythm. Other childhood dysrhythmias were independent of congenital heart defects, the most common being supraventricular tachycardia, which was often very resistant to therapy.

Following the symposium, Professor Peter Harris delivered the Haile Sellassie Lecture for 1968, in which he traced the history of the concept of oxygen debt.

NEW APPLIANCES

Stapling Forceps

Sir THOMAS HOLMES SELLORS (Consulting Surgeon, Middlesex Hospital) writes: The use of mechanical devices to replace ligatures or sutures has not been widely developed in surgery. The clips used by neurosurgeons have not been extensively used outside that field and staples used in gastric surgery (e.g., the de Petz clamp) have similarly had a restricted application. The Russian stapling machines and the later North American modifications are magnificent examples of

technical design, but they are comparatively massive and not easy to use in a restricted space.

There would appear to be a place for a small and comparatively light instrument that could apply a fine wire staple either instead of a ligature or to use a suture. For a number of years I have endeavoured to design a magazine-loaded stapler, but so far have failed to produce an instrument of sufficient delicacy and refinement. The self-loading or

magazine principle was therefore abandoned and design was concentrated on an instrument that would apply a single staple or clip.

If it was necessary to use several staples in quick succession, as with an anastomosis, more than one instrument would be required, but the expense of two or three single staplers is considerably less than that of existing magazine types—apart from being easier to handle.

The object of the design was to produce a staple with no greater, and preferably less, bulk than a conventional ligature. It was found that stainless steel wire of 0.3 mm. diameter was a suitable material, and the staples have been made with a 2 mm. and a 3 mm. base. The side limbs can be varied from 2 mm. to 4 or 5 mm., according to the thickness of tissue to be enclosed. A convenient size for most purposes is 3 mm., but with a blood vessel anastomosis 4 or 5 mm. might be needed.

The forceps for applying the staples are 8 in. (20 cm.) long and in the illustration are contrasted with a fine 8 in. haemostat. The head is necessarily somewhat more bulky than a haemostat end as it consists of a clip holder which is brought against the anvil as the forceps are closed with whatever pressure is felt necessary. The clip is held by a small tooth of metal which slides forward and prevents it from falling out, and an oblique stud pushes this tooth away as the forceps is closed.

Two forms of the instrument are made, one which applies the staple transversely to the tip of the forceps and the other which applies the staple parallel to it.

A little practice is required in order to become accustomed to the exact siting of the staple, which is concealed by its 0.5 mm.-thick holder, and the loading of the minute staples requires keen eyesight. We have found it useful to push the staples feet first into a block of plastic foam, from which they can be picked out with a fine pair of forceps.

The advantages of a small staple for securing bleeding points are theoretically considerable. One action replaces several—application of a haemostat, procuring a ligature, tying it, and finally cutting it. The size of the staples contrasts favourably with 3 × 0 silk ligatures, as is shown in the illustration. Similarly, in any form of anastomosis which permits of non-absorbable material one staple takes the place of a suture.

The instruments are made by H. E. Mallett, of Mallett Surgical Instruments, with the help and advice of L. F. Oxford, of the Scientific and Technical Branch of the Ministry of Health.