

better electrical contact between the lead and the switch-post as well as rendering it more rigid.

3. Two finger-loops—one on the upper surface of the barrel of the punch, which protects the electrical connexion, and one on the under surface. A Swinney thumb-loop controlling the flow of irrigating fluid allows the punch to be used with one hand (Fig. 1).

4. A pilot light is inserted at the battery end of the lead, to obviate the necessity of removing the punch to see if the bulb of the punch has burnt out (Fig. 4).

5. The air-bubble-release mechanism on the eyepiece was shown to become frequently blocked by debris and blood-clot. If one of the two standard eyepieces supplied with the punch has the air-bubble-release mechanism replaced by a simple direct outlet through the upper part of the side of the eyepiece, to which a piece of rubber tubing of suitable calibre can be fixed, delays through obscured visibility will be much reduced (Fig. 1).

I would like to acknowledge the skill and co-operation of the Endoscopic Instrument Company in carrying out these modifications.

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JAMES DOUGLAS OF THE POUCH, 1675 1742*

The name of James Douglas is commonly in use by the anatomist and the gynaecologist, yet little is known about a man who spent a lifetime in the service of these subjects, who was a fine botanist and zoologist, whose collection of the works of Horace was unparalleled, and who, besides, taught and inspired the great William Hunter, filling him with an admiration which lasted to the end of his life. When Hunter died in 1783 he bequeathed all his treasured collections to Glasgow University, where they formed the basis of the splendid Hunterian Library and Museum. Among the documents are some 63 manuscript pamphlets, on subjects ranging from lithotomy to lexicons, from knee-joints to chocolate, all written by James Douglas, and almost all unpublished. In addition, there are 29 large bundles of manuscripts, uncatalogued and unpublished, the majority from Douglas's own pen, forming an important and interesting source of information on medical practice in the 1700's, and containing case-notes, clinical descriptions and prescriptions, anatomical studies, investigations into natural history, and such curiosities as the verbatim confession of Mary Tofts, the "rabbit-producing" woman of Godalming, with whose exposure Douglas was closely concerned in 1726.

These documents are in course of more detailed study, and a catalogue is in preparation.

In addition to many papers read to the Royal Society, to which he was elected in 1706, Douglas published three anatomical books, two on botanical subjects,† and a catalogue of his Horatian library.

Douglas was very early in the field of private lecturers of anatomy in London, for in 1707 he was advertising *An Account of what Dr. Douglas obliges himself to perform in a Course of Human and Comparative Anatomy*; this comprehensive course was given three or four times yearly, at a charge of three and a half guineas. In this year also, he published his anatomical textbook, *Myographiæ Comparatæ Specimen, or a Comparative Description of all the Muscles in a Man and in a Quadruped* (12mo). This is an attractive, well-ordered, and accurate little book; the quadruped of the title is the dog, which has an honourable history in anatomical investigation, and which he chose, Douglas says, because of its ready availability to young students. In this book Douglas lays claim to no fewer

than thirteen muscles as his own in priority of description, but it is curious that none of these has achieved eponymic recognition, which has been reserved for structures described only meagrely by him, if at all. Of these, two, the "semilunar fold"‡ and the "line of Douglas,"§ have not been found anywhere described. The other eponymic features are the "pouch of Douglas" and its associated "ligaments of Douglas," the peritoneal folds which limit it laterally. This was mentioned in Douglas's best-known book, the *Description of the Peritonæum*, 1730 (4to). The manuscript is in the Hunterian Library (Young's cat. No. 543); on the flyleaf are the words "already printed," in the handwriting of William Hunter. On page 37 of the printed version appears the passage from which the eponym is derived: "Where the peritonæum leaves the foreside of the rectum, it makes an angle, and changes its course upwards and forwards over the Bladder: and a little above this angle, there is a remarkable transverse stricture or semioval fold of the Peritonæum, which I have constantly observed for many years past, especially in women." It cannot be claimed that this is a highly detailed, or even accurate, description, and the origin of the phrase "pouch of Douglas" is very obscure, as it does not begin to appear in the textbooks for over a century.

Douglas's unpublished works at Glasgow cover a huge field, and his gift for true observation and clear expression is well exemplified by his descriptions of pathological anatomy, a few only of which were published in the *Philosophical Transactions*, of the many which he showed to the Royal Society.

A notable case was seen at St. Bartholomew's Hospital, where he performed a necropsy on a young man with aortic and mitral stenosis and incompetence. Douglas had both felt the "thrill" and heard the murmur by the bedside (*Phil. Trans.*, 1716, No. 345). Yet this was 1716, a century before Laennec.

Douglas wrote his case-notes at the bedside, some as early as 1704. Many diseases are noted, such as chlorosis, abortion, inflammation of the tonsil, cancer and prolapse of the uterus, and many cases of smallpox. Physical examination was performed in many instances, "touching" that is, per vaginam—being apparently a routine in appropriate cases.

His treatment was of the contemporary orthodox style, Galenic and humoral, consisting mainly of purging and vomiting, venesection being rarely performed. Drugs were very freely prescribed, but his only useful ones were opium, mercury, and drastic purgatives. A commonly used phrase was "these wrought both up and down."

Of his personal life little is known. Douglas was born at Baads, near Edinburgh, in March, 1675, the second son of a landowning family.‡ A younger brother was John (died 1743), who reintroduced the operation for suprapubic lithotomy in 1719.

James graduated M.D. Rheims, and came to London in about 1700. He married Martha Wilkes, aunt to the reformer John Wilkes, and they lived in Covent Garden and Red Lion Square. Their daughter, Martha Jane, became engaged to William Hunter, but she died in 1744, aged 28. Their son, William George, was in part responsible for the introduction of William Hunter into the household; for Hunter, arriving in London in 1741, at first stayed with William Smellie, and in August became Douglas's assistant and tutor to his son. The death of Douglas in April, 1742, placed Hunter in a difficult position, but he determined to remain in London, and stayed on in the house of Mrs. Douglas till 1749, being joined there by his younger brother, John, in 1748.

William Hunter gives a poignant picture of the death of James Douglas, writing to his mother: "Early on the

† The curved lower free border of the posterior sheath of the rectus abdominis muscle.

‡ The lower edge of the internal oblique muscle, merging into the conjoint tendon.

§ The present representative of the family is Viscount Chilton, who still owns part of the estate of Baads.

* Condensed from a paper read to the Section of the History of Medicine at the Joint Annual Meeting of the British Medical Association and Canadian Medical Association, Edinburgh, 1959.

morning of Dr. Douglas's death, I was called at his desire: he snatched at my hand and spoke a few words: he would not let me go out of the room: I sat on his bed till after noon when he expired with his hand locked in mine. . . ."

This modest letter indicates the impression made by this pupil on his teacher after seven months' acquaintance. Can it be doubted that the impression made by the teacher on the pupil was any less?

James Douglas's most important claim on posterity is his influence on William Hunter and on his subsequent work and investigations.

Hunter has, in part, repaid his debt to Douglas by the careful preservation of his writings, now in Glasgow.

I am grateful to Mr. R. O. McKenna, Librarian of the Hunterian Library, for much help, and to the Trustees of the Wellcome Trust for a grant to cover expenses.

K. BRYN THOMAS.

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THE STEPS OF NATURE

Professor Singer took his degree in the Final Honours School of Zoology at Oxford before proceeding to the study of medicine, and from time to time he has returned "with a recollected love" to illuminate the history of biology. This is the third edition of his well-known book on the subject which first appeared in 1931.* It has been revised throughout and altered without impairing the simple language of the original presentation. It ends like its predecessors with the nineteenth century, but mentions a number of existing unsolved and possibly insoluble biological problems.

The book is encyclopaedic in its range and masterly in its study of evolution. Although in speaking of William Harvey attention is chiefly devoted to his discovery of the circulation of the blood, Professor Singer does not forget his contribution to embryological thought. On p. 474 he mentions Harvey writing that Nature, "by steps similar in all animals, goes through the forms of egg, worm, embryo, gradually acquiring perfection at each step" (1628). Finally, the author observes, "Competing with and interwoven with the problems of heredity and reproduction are the problems of the chemistry of living matter and the origin of life itself." These questions are the chief study of many biologists to-day.

ARTHUR S. MACNAULTY.

* *A History of Biology to about the Year 1900: A General Introduction to the Study of Living Things*. By Charles Singer. Third (revised) edition. (Pp. 580+xxxvi; illustrated. 50s.) London and New York: Abelard-Schuman, 1959.

(Continued from next column)

The proportion of patients who become "secondary failures" varies from about 5% to 20% each year according to the type of patient treated and the standard of diabetic control accepted as being satisfactory.

Side-effects.—The remarkable freedom of tolbutamide from toxic effects renders it almost unique among drugs of therapeutic importance. Allergic skin reactions, usually mild, occur in about 5% of patients; a similar number experience some dyspepsia and occasionally diarrhoea. A few patients treated with tolbutamide become very susceptible to the intoxicating effects of alcohol. Hypoglycaemic reactions seldom occur unless insulin is also being administered. Hepatic and renal functions are unaffected, and very few serious blood dyscrasias have been reported.

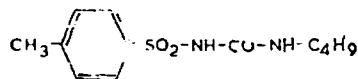
N.H.S. Basic Price.—100 0.5-g. tabs., 22s.

To-day's Drugs

Tolbutamide

"Rastinon" (Hoechst).

Chemistry.—This is N-(*p*-toluenesulphonyl)-N'-(*n*-butyl)urea:



Pharmacology.—Tolbutamide is one of several sulphonylureas which, when given orally, reduce the concentration of glucose in the blood of experimental animals and human subjects capable of secreting some endogenous insulin. The immediate fall in glycaemia is almost entirely due to reduced release of glucose from the liver. Two main hypotheses have been devised to account for the drug's action; the first holds that the hypoglycaemic effect is due to the action on the liver and peripheral tissues, of the additional insulin liberated after taking tolbutamide. This hypothesis assumes that insulin directly inhibits hepatic release of glucose; but there is little evidence for this, and much against it. The second attributes the fall in glycaemia to the direct action of the sulphonylurea on hepatic metabolism in the "permissive" presence of enough endogenous insulin. The explanation of how the sulphonylureas act is thus unknown, but it should probably embrace elements of both the above hypotheses.

Therapy.—Tolbutamide has no hypoglycaemic effect in diabetes of the juvenile insulin-dependent type, but reduces the glucose concentration in the blood of most mild insulin-independent diabetics. However, fully half of the latter class and should be controlled by dietetic restriction alone. In general, therefore, only those who developed diabetes who are aged more than 35 years, whose symptoms were not severe and relatively mild and slow in progression, and who are neither overweight nor much underweight are suitable for attempted treatment with tolbutamide. Such newly diagnosed diabetics should be given a trial period of dietetic treatment, at least only if this fails is tolbutamide given; about three-quarters of them will then respond satisfactorily to it. The same clinical criteria apply to the selection for trial of tolbutamide treatment of patients already being treated for established diabetes. The attempt to substitute tolbutamide for insulin must be conducted with considerable care, and those patients taking more than 40 units daily should usually be admitted to hospital. When the insulin is discontinued, the patient must test urine specimens daily for glucose and acetone during the next fortnight. A few, in spite of having been previously well controlled with as little as 24 units of insulin will quickly show ketonuria and considerable glycosuria, and must immediately revert to insulin treatment; about a tenth to a fifth of them will remain aglycosuric on diet alone, the remainder sooner or later show glycosuria, and about two-thirds of them will respond satisfactorily when treated with tolbutamide.

Tolbutamide is taken twice daily, with breakfast and evening meal, or occasionally thrice daily. The dose required varies from 1 to 3 g. each day, and no one dose should exceed 1.5 g. Tolbutamide treatment does not alter the post-prandial rises or daily pattern of glycaemia, but that the blood glucose increases during the day and falls at night from low fasting levels to very high values in the evening; for this reason tests not only of overnight specimens of urine but also of those passed in the evening after supper or before going to bed—are required to assess control of the disease properly. Diabetics treated with tolbutamide must test these urine specimens on one occasion every week, since some of them become resistant to its hypoglycaemic action and the disease becomes uncontrolled.

(Continued at foot of previous column)