History of Anaesthesia

An emergency pocket drug case of the 1940s

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Purpose: A description is given of an emergency box dating from about 1940. Its compact and portable nature, and certain of its contents, while throwing light on the working conditions of the times, raised a question as to its purpose and provenance.

Principle features: The main contents-the box and its contents are described, and the possible use of its constituents is considered. The drugs fall into five main groups: anaesthetic premedicants, medullary stimulants, vasoconstrictors, cardiac stimulants and drugs acting on the uterus. It is suggested that their primary purpose was for emergency obstetric use.

Conclusion: It is concluded that the most probable purpose was for use by the obstetric 'Flying squad.' A brief account of the constitution of such a squad, and its method of working, is given.

Objectif : Décrire une trousse d'urgence datant de 1940 environ. Compacte et portable, certains des éléments qu'elle contient, tout en nous éclairant sur les conditions de travail de l'époque, soulèvent la question de son utilisation et de son origine.

Caractéristiques principales : Il s'agit d'une description des principales caractéristiques de la trousse et de son contenu avec des considérations sur le contenu. Les produits pharmaceutiques sont répartis en cinq groupes principaux ; prémédication anesthésique, stimulant bulbaire, vasoconstricteur, stimulant cardiaque et ocytocique. Il semble que la trousse était destinée surtout à l'obstétrique.

Conclusion : Cette trousse devait servir à «l'équipe volante» obstétricale. Cet article décrit brièvement la composition de cette équipe et ses méthodes de travail.

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DURING re-cataloguing of the exhibits in the museum of the Department of Anaesthesia, Royal Victoria Infirmary, Newcastle upon Tyne, UK, the subject of this presentation was discovered. Although it does not appear in the catalogue prepared by our previous archivist, Dr J.A.G. Horton, he has told us that he remembers seeing it, and being struck by its extremely attractive appearance. The black and white photographs do not it justice. It is of considerable historical interest: its very existence throwing a light on conditions of practice half a century ago.

Features

It is a sturdy nickel-plated box, with a substantial hinge and catch. The lid bears the engraved inscription 'Hypoloid' Brand Hypodermic Pocket case No 65. It measures 14 × 9 × 2 cm (Figure 1). The interior is divided into two unequal compartments, the larger fitted with clips to hold ampoules, while the smaller, as originally found, contained only a metal drawing-up needle. We have added a syringe from our collection. Reference to the catalogue (Figure 4) shows that a 1 ml syringe in a spirit-proof container and a needle would have occupied this space, although this might have been replaced by a syringe and needle pre-sterilised and wrapped in gauze. The lid bears a small mobile rack to hold tubes of tablets, and a clip for an ampoule file (Figure 2). The ampoules and tablet tubes are the original and their arrangement is shown in Figure 3. The water and alcohol bottles were empty. They have glass stoppers protected by chamois leather and, presumably, were kept filled by the user.

An enquiry to the Wellcome Foundation brought a most useful and informative response. The 'Hypoloid' brand was a range of products developed for subcutaneous, intramuscular and intravenous injection. The No 65 'Hypoloid' hypodermic case first appeared in the Burroughs Wellcome & Co. price list of fine products in 1936, (Figure 4). The case made its last appearance in the 1945 price list. The price list describes the case as being sold complete with a selection of 'Hypoloid' products, which could be varied to meet the requirements of the purchaser, a photocopy of this list of 'Hypoloid' products from the 1946 price list is shown in Figure 5. As can be seen, they were not developed solely for anaesthetic use.¹

Discussion

Silas Burroughs and Henry Wellcome were American pharmacists. Burroughs had set up in London in 1878 as an agent for Wyeths, one of the major American

FIGURE 1 The top of the lid with engraving

FIGURE 2 The interior of the box with contents

manufacturing chemists, specialising in a new form of compressed medicinal preparation, the tablet. Wellcome, a most ingenious and innovative individual, joined him in 1880, became a full partner, and after a long and acrimonious dispute, was able to take control of the company following the death of Burroughs in 1895.^a Burroughs had been the salesman, extending the business from the general practitioner into the hospital field, but Wellcome was the innovator. His

^a Letter from Sarah Westwood, Assistant Company records manager, The Wellcome Foundation.

VIALS

A. "Water" (empty vial)

Strophanthium	6.	Procaine/Adrenaline
Caffeine	7.	Procaine/Adrenaline
Post. Pit. Ext.	8.	Digoxin
Adrenaline	9.	Digoxin
Ephedrine	10.	Scopolamine
	11.	Scopolamine

B "Ethyl Alcohol" (empty vial)

TABLOIDS

FIGURE 3 List of the contents

18	REMEMBER THE TRADE MARKS	PRICE LIST
Telegraphic Code	CHESTS AND CASES—continued	Prices in London Each
NOHOL	No. 46 'Wellcome' Insulin Pocket-Case— Measurements: 3½ x 1½ x 1 in. Contains a Three-piece 'AGLA' Insulin Syringe (i.e. graduated in 1/20ths), 5 c.c. phial (20 units per c.c.) of 'Wellcome' Insulin, 'Vaporole' Iodine Applicator (without metal tube), small glass stoppered bottle (containing in stopper a No. 203 'AGLA' Surgical Needle) for ethyl alcohol. Nickel-plated Metal	22/6
MUTAS	No. 63 'Hypoloid' Hypodermic Pocket-Case— Measurements: 5½ x 2½ x ½ in. Contains an 'AGLA' Aseptic Hypodermic Syringe (min. 20/1 c.c.), two needles, 10 'Hypoloid' products, two files and a list of 'Hypoloid' preparations. Weight about 9 oz. Nickel-plated Metal	approx. 27/6
NEFAY	The above Case can be supplied fitted with the 'AGLA' Three-piece Syringe in Spirit-tight Container (without its outer tubular metal case)	approx. 32/6
NOHUN	No. 65 'Hypoloid' Hypodermic Pocket-Case— Measurements: 5½ x 3½ x 1 in. Contains two glass stoppered bottles for alcohol and distilled water, an 'AGLA' Three-piece Syringe in Spirit-tight Container (min. 20/1 c.c.), one 'AGLA' needle, 11 'Hypoloid' products, two 'Hypoloid' ampoule files, and eight tubes of 'Tabloid' Hypodermic products. Nickel-plated Metal	approx. 39/0
(B) HYPODERMIC AND OPHTHALMIC POCKET-CASE 'TABLOID' BRAND		
NOHUN	No. 80 'Tabloid' Hypodermic and Ophthalmic Pocket-Case ("British Army Regulation")— Measurements: 3½ x 2½ x ½ in. Contains 13 tubes of 'Tabloid' Hypodermic products, 10 tubes of 'Tabloid' Ophthalmic products, two camel-hair brushes, forceps, etc. Aluminium	approx. 27/0
Prices depend upon the contents selected		
Cables, Telegrams and Radiotelegrams—"TABLOID, LONDON"		

FIGURE 4 Burroughs Wellcome price list of Fine products 1936-37

'Hypoloid'—Products

The products issued under the 'Hypoloid' brand are specially prepared for administration by subcutaneous, intramuscular or intravenous injection. They consist, in the main, of sterile solutions or suspensions, issued in sealed ampoules containing a single dose or in rubber-capped bottles from which successive doses may be withdrawn. The containers are made from specially tested neutral hard glass, free from deleterious action on the contents.

Precise dosage, exceptional purity and unvarying reliability are the outstanding features of all 'Hypoloid' brand products. They will be found listed alphabetically as under:

Acetylcholine Bromide, page 6	'Methedrine', page 60
Adrenaline, 1 : 1000, page 6	Morphine Hydrochloride, page 62
Aminophylline, page 8	Morphine Sulphate, page 63
Atropine Sulphate, page 11	Morphine Sulphate and Atropine Sulphate, page 64
Bismuth Metal, page 14	
Bismuth Oxichloride, page 15	'Nicamide', page 65
Caffeine Sodio-Benzosate, page 19	Nicotinamide, page 66
Calcium Gluconate, page 19	Nicotinic Acid, page 66
Calcium Lactate, page 20	Normal Saline, page 66
Carbachol, page 21	Octadecyl Monobenzoate, page 67
Carbachol (Veterinary), page 21	Pethidine Hydrochloride, page 69
Digitalin (Crystalline), page 31	'Piroparv' (Veterinary), page 73
Digoxin, page 32	Progesterone, page 75
Digoxin and Normal Saline Solution, page 32	Quinine and Urethane, page 78
Diodone, page 33	Quinine Dihydrochloride, page 79
Emetine Hydrochloride, page 34	Riboflavin, page 81
Ephedrine Hydrochloride, page 36	Scopolamine Hydrobromide, page 84
Ergometrine, page 37	Sodium Morrhuate, page 87
'Erunin', page 39	Stibophen, page 90
Hexobarbitone, Soluble, page 45	Sibophen (Veterinary), page 90
Hexoestrol, page 45	Stilbestrol, page 90
Histidine Hydrochloride, page 46	Stilbestrol Dipropionate, page 91
Hyoscine Hydrobromide, page 47	Stilbestrol Dipropionate (Veterinary), page 91
'Infundin' Pituitary (Posterior Lobe) Extract, page 52	Strophanthin, page 92
'Infundin' (Veterinary), page 52	Sulphanilamide L.S.F., page 95
Iodoxy, page 53	Sulphanilamide L.S.F. (Veterinary), page 95
Iron and Arsenic, page 54	'Thanamin', page 99
Menaphthone, page 58	Trypanamide, page 103
Mersalyl, page 60	Vitamin B ₁ Hydrochloride, page 106

Ichthyol

'Tabloid'—Ichthyol, gr. 2-1/2 (enteric coating) bottle of 25	Temporarily suspended	ILBIX
" " 100	Temporarily suspended	
" " 500	"	

Indigo-Carmine (Test Indicator)

Sodium indigotin-disulphonate. Used in sulphuric acid solution to detect nitrates, chlorates and other oxidizing agents.

'Soloid'—Indigo-Carmine (Test Indicator)	tube of 10	0 8	HUKER
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Indigo Test (for Urine Analysis)

For the detection of sugar in the urine.

'Soloid'—Indigo Test for Sugar (Sodium Nitrophenylpropionate), gr. 1/4	tube of 20	1 6	HUCBT
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'Tabloid' products are uncoated unless otherwise stated
'Tabloid' is a Burroughs Wellcome & Co. Trade Mark or Brand

FIGURE 5 Burroughs Wellcome price list of Fine products 1946

headquarters, in Snow Hill, Holborn, was one of the first to have the 'Edison Electric light' installed.

The great concern of Wellcome in the early days was to safeguard from copying by business rivals, his invention of a much improved form of compressed medicine. He invented a number of names which could be patented internationally. The most important and best known was 'Tabloid,' registered on 14 March 1884.² This became the registered trade-mark of the Burroughs and Wellcome compressed tablets, and Wellcome later successfully fought a major and expensive legal battle to secure his right to the exclusive use of this designation. He added a new word to the English language. Only much later did it come to be used to describe newspapers of a compressed format. Other Wellcome neologisms were 'Valoid,' 'Soloid,' and 'Hypoloid.'

As may be seen from the 1946 price list, 'hypoloid' products were contained in single-dose ampoules, or

multidose rubber-capped vials. However, commercially produced ampoules were expensive and, in large hospitals, it was usual practice for the pharmacist to prepare and sterilise ampoules of the more commonly used drugs, and also solutions for intravenous infusion. In general practice it was more usual to use the 'Tabloid' form of hypodermic preparation. This consisted of a very small tablet, usually not more than 3 mm diameter. The solution was intended to be prepared by heating sterile water, from the bottle provided, over spirit lamp, and dissolving the 'Tabloid' in it. However, it was not unknown for tap water to be used, being boiled in the spoon to sterilize it.^b

The contents of the case raise some interesting questions about its provenance. Dr Horton suggested that it may have been acquired by Professor, E.A. Pask, celebrated for his work with Professor, later Sir Robert, Macintosh, on life jackets, at Oxford during the Second World War. Professor Pask had a continuing interest in life boats and resuscitation from drowning. However, the last date of manufacture, and for other reasons to be discussed, make this unlikely. Another proposal was that it belonged to one of the general practitioner assistant anaesthetists who helped staff the department in the early days. It is not generally appreciated that before the institution of the National Health Service in 1948, the majority of anaesthetics were given by general practitioners.³ The most probable provenance may be derived from a consideration of the contents.

The case is compact and portable, and was obviously designed to be used outside hospital. The drugs it contains can be divided broadly into five groups; atropine, hyoscine and morphine, that was used for pre-anaesthetic medication; caffeine and picrotoxin, regarded as of value as medullary stimulants;⁴ the vasoconstrictors, adrenaline and ephedrine; digoxin and strophanthin, which acted on the heart; and those with specific action on the uterus, ergometrine and posterior pituitary extract. The presence of these last, which have no other purpose, makes it most likely that the box was intended for use in domestic obstetric emergencies. The presence of digitalin, digoxin, and strophanthin might suggest otherwise, but these drugs were used occasionally in single doses *iv* to control tachycardia, or as a 'cardiac tonic'.⁵

During the 1930s, the Maternity Hospital associated with the University of Durham Medical School instituted an emergency service, known as The Flying Squad, to provide back-up for general practitioners

engaged in domestic midwifery practice. The squad consisted of an obstetrician, an anaesthetist, and a midwife, together with whatever other help could be spared, such as an orderly. Generally, the type of emergency that the squad would be called out for would be either maternal haemorrhage or obstructed labour with foetal distress. In either case the foetus would be in extremis, and usually the mother also.

The organisation of such flying squads became a standard commitment of anaesthetic departments between the years 1930 and 1960. By the middle of that decade almost all deliveries were taking place in hospital. The anaesthetic equipment was initially very basic, a Schimmelbusch mask, and domiciliary midwifery was one area in which chloroform maintained a foothold. The alternative was the ethyl chloride-ether sequence. Later, more sophisticated apparatus was obtained, and *iv* sets and infusion fluids would be taken along, together with group O blood in an insulated box. At first, the policy was to resuscitate the mother and attempt to deliver the child at home but, later, it was just to resuscitate and get the mother into hospital as quickly as possible, because many of the cases were failed forceps deliveries, and required emergency caesarean section. Because of the direness of the conditions to which the flying squads were called, the whole system was disliked by all, and many obstetricians and anaesthetists breathed a sigh of relief when the policy of aiming for 100% of hospital deliveries was adopted nationally. Thus, consideration of the contents of the emergency case we describe suggests that it was assembled during the late 1930s or early 1940s, and its primary purpose was for emergency use by the obstetric flying squad.

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References

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- 2 James RR. *Op.cit.*, 112.
- 3 Zuck D. From Buxton to Lee: British anaesthesia as seen through its text books. In: Barr AM, Boulton TB, Wilkinson DJ (Eds.). *Essays on the History of Anaesthesia*. London: Royal Society of Medicine Press, 1996: 218-23.
- 4 Dilling WJ. *The Pharmacology and Therapeutics of the Materia Medica*, 18th ed. London: Cassel, 1994.
- 5 *The Extra Pharmacopoeia* – Martindale, 22nd ed. London: The Pharmaceutical Press, 1941: Vol 1, 927.

b Zuck D. Personal communication. He has also pointed out the hypodermic 'Tabloids' were small enough to be used sublingual, and that absorption was rapid.