Edited for the British Pharmacological Society by

W. D. M. Paton (Chairman)

R. S. Stacey (Secretary)

P. A. Nasmyth (Press Editor)

Jennifer Maclagan (Assistant Press Editor)

N. Ambache D. B. Hope R. B. Barlow H. W. Kosterlitz J. M. Barnes J. Maddox J. W. Black J. F. Mitchell W. C. Bowman J. L. Mongar P. B. Bradlev M. W. Parkes S. Brenner (co-opted) Mary Pickford A. W. Cuthbert H. P. Rang C. T. Dollery H. O. Schild W. S. Feldberg D. F. Sharman L. G. Goodwin Hannah Steinberg D. F. Hawkins (co-opted) F. M. Sullivan F. Hobbiger J. R. Vane J. R. Hodges Marthe Vogt

Editorial assistance is provided by the staff of Nature

Papers will be considered for publication on all aspects of drug action, including chemotherapy.

Manuscripts (two copies) should be sent to Professor R. S. Stacey, St. Thomas's Hospital Medical School, London S.E.1. Authors should consult the suggestions inside the back cover.

Subscriptions. Three volumes of the journal are published annually, each volume containing four numbers. The annual subscription rate is £15 15s. in the United Kingdom and Republic of Ireland; \$48.50 U.S.A. and \$52.50 Canada (by air freight; second class postage paid at New York, N.Y.); £16 10s. all other overseas countries. Subscriptions should be sent to: Subscriptions Department, Macmillan (Journals) Ltd., Brunel Road, Basingstoke, Hampshire, England. Alternatively, the journal can be ordered through a subscription agent or bookseller.

Advertisements: Applications for advertising space and rates should be sent to: The Advertisement Department, *British Journal of Pharmacology*, T. G. Scott and Son Ltd., 1 Clement's Inn, London, WC2A 2ED, England. Tel: 01-242 6264; 01-405 4743. Grams: Textualist London W.C.2.

Copyright © 1970 by the *British Journal of Pharmacology*. All rights of reproduction are reserved in respect of all papers, articles, illustrations, etc., published in this journal in all countries of the world.

BRITISH JOURNAL OF PHARMACOLOGY

EDITED FOR

THE BRITISH PHARMACOLOGICAL SOCIETY

BY

W. D. M. Paton (Chairman) R. S. Stacey (Secretary)
P. A. Nasmyth (Press Editor)

Jennifer Maclagan (Assistant Press Editor)

N. Ambache D. B. Hope R. B. Barlow H. W. Kosterlitz J. M. Barnes J. Maddox J. W. Black J. F. Mitchell W. C. Bowman J. L. Mongar P. B. Bradlev M. W. Parkes S. Brenner (co-opted) Mary Pickford A. W. Cuthbert H. P. Rang C. T. Dollerv H. O. Schild W. S. Feldberg D. F. Sharman L. G. Goodwin Hannah Steinberg D. F. Hawkins (co-opted) F. M. Sullivan F. Hobbiger J. R. Vane J. R. Hodges Marthe Vogt

Editorial assistance is provided by the staff of Nature

VOLUME 40, 1970

LONDON
MACMILLAN (JOURNALS) LIMITED
4 LITTLE ESSEX STREET, W.C.2.

BRITISH JOURNAL OF PHARMACOLOGY

THE INTERNATIONAL SYSTEM OF UNITS (SI)

The British Journal of Pharmacology uses the symbols recommended in the SI (Système Internationale) (see Symbols, Signs and Abbreviations Recommended for British Scientific Publications (1969) (London: The Royal Society: price 7s.)). It is the policy of the Editorial Board to adopt SI units, although the use of certain non-SI units will for the time being be permitted. Full details of the changes involved will be published in a forthcoming "Instructions to Authors". The following is a list (a) of some of the commoner units with their recommended symbols, (b) of some non-SI units which may still be used, and (c) of units which will no longer be acceptable.

(a) SI units with recommended symbols

Unit Correct symbol kilogramme kg second, millisecond s ms mole, millimole, micromole, mol mmol μmol nanomole, picomole nmol pmol metre, centimetre, millimetre, m cm mm micrometre μm Hz Hertz

(b) Some permitted non-Si units

 $A(=10^{-10}m=0.1 \text{ nm})$ ångström gramme minute min h hour M

molarity (mol/litre) calorie

cal (4.184 J) (Conversion factor to be given as a footnote at first

citation or in Methods)

mmHg (1.333 mbar) (Conversion millimetre of mercury factor to be given as a footnote at

first citation or in Methods) mbar

millibar P poise Ci curie

1. (where there is danger of confusion litre

between the numeral '1' and the letter 'l', 'litre' should be written in full, and always at the end of a

sentence)

millilitre, microlitre $ml \mu l$ °C degree Celsius

(c) Units no longer acceptable

inch, foot, pound, pound per square inch, °F.

Expressions such as cycles per second (c/s) will no longer be accepted. Frequencies should be expressed in the appropriate approved symbols: thus a stimulation frequency should be given in Hz (irregular or occasional events should be given per unit time, e.g. s-1, h-1. When there is more than one solidus in an expression, parentheses should be used to eliminate ambiguity, e.g. (mg/kg)/day.

BRITISH JOURNAL OF PHARMACOLOGY

THE INTERNATIONAL SYSTEM OF UNITS (SI)

From February 1970 the British Journal of Pharmacology will use the **symbols** recommended in the SI (Système Internationale) (see *Symbols*, *Signs and Abbreviations Recommended for British Scientific Publications* (1969) (London: The Royal Society: price 7s.)). It is the policy of the Editorial Board to adopt SI **units**, although the use of certain non-SI units will for the time being be permitted. Full details of the changes involved will be published in a forthcoming "Instructions to Authors". The following is a list (a) of some of the commoner units with their recommended symbols, (b) of some non-SI units which may still be used, and (c) of units which will no longer be acceptable.

(a) SI units with recommended symbols

Unit Correct symbol

kilogramme kg second, millisecond s ms

mole, millimole, micromole, mol mmol μ mol nanomole, picomole nmol pmol

metre, centimetre, millimetre, m cm mm

 $\begin{array}{ll} \text{micrometre} & \mu \text{m} \\ \text{Hertz} & \text{Hz} \end{array}$

(b) Some permitted non-SI units

ångström $Å(=10^{-10}m=0.1 \text{ nm})$

 gramme
 g

 minute
 min

 hour
 h

 molarity (mol/litre)
 M

calorie cal (4·184 J) (Conversion factor to

be given as a footnote at first

citation or in Methods)

millimetre of mercury mmHg (1.333 mbar) (Conversion factor to be given as a footnote at

first citation or in Methods)

millibar mbar poise P Ci

litre 1. (where there is danger of confusion

between the numeral '1' and the letter 'l', 'litre' should be written in full, and always at the end of a

sentence)

millilitre, microlitre ml μ l degree Celsius °C

(c) Units no longer acceptable

inch, foot, pound, pound per square inch, °F.

Expressions such as cycles per second (c/s) will no longer be accepted. Frequencies should be expressed in the appropriate approved symbols: thus a stimulation frequency should be given in Hz (irregular or occasional events should be given per unit time, e.g. s⁻¹, h⁻¹; when appropriate, expressions such as (mg/kg)/day).

Instructions to Authors

- 1. Manuscripts (2 copies) should be typed in double spacing on one side of paper not larger than foolscap $(33 \times 20.5 \text{ cm})$. There should be a separate title page giving the names and addresses of the authors in alphabetical order.
- 2. A short summary of results and conclusions (arranged in numbered paragraphs), tables and legends to figures should be typed on separate sheets of paper.
- 3. References should be collected at the end of the paper. They should include the author's names, year of publication, title of article, title of publication (abbreviated in accordance with the fourth edition of the World List of Scientific Periodicals), volume number and first and last page numbers. References to books should, in addition, include the names of editors, the edition number, where appropriate, and the town of origin and name of publisher.
- 4. Figures should NOT BE LARGER THAN FOOLSCAP (33×20.5 cm) and may be in the form of original drawings, recorded tracings or high quality photographic prints made from them. Negative prints of kymograph tracings (black on white) should be provided and both ordinates and abscissae should be calibrated.
- 5. Lettering on figures should be inserted in PENCIL. Symbols which are to appear in figures or legends should be chosen from the following:



- 6. **Photographs and photomicrographs** should be printed on glossy paper and should be larger than the size required for reproduction.
- 7. **Tables** ideally should not have more than 84 characters to a line (counting spaces between columns as 4 characters) and certainly not more than 130 characters to a line, unless absolutely unavoidable.
- 8. An abstract of about 100 words suitable for inclusion in *International Abstracts* of Biological Sciences should be typed on a separate sheet.

General remarks. A recent issue of the journal is a good guide to style. Papers are accepted only if accompanied by a statement that they have not and will not be published in whole or in part in any other Journal.

Two page proofs will be supplied, one of which may be retained by the authors. The other should be corrected immediately and returned to the Press Editor. Corrections should be kept to a minimum.

Fifty reprints will be supplied to the authors free of charge. Additional reprints can be purchased. A reprint order form, which should be returned promptly, will be sent out with the proofs.

SCP 29 1070 BRITISH JOURNAL OF PHARMACOLOGY September 19700000 WEINFIE 40 Number 1

page

Systematic Pharmacology

CALLINGHAM, B. A. and SHARMAN, D. F. The concentration of catecholamines in the brain of the domestic fowl (Gallus domesticus). (SP2, M)

6 BANERJEE, U., FELDBERG, W. and GEORGIEV, V. P. Microinjections of tubocurarine, leptazol, strychnine and picrotoxin into the cerebral cortex of anaesthetized cats. (SP2, DM2)

Feldberg, W. and Georgiev, V. P. Central effects of picrotoxin when acting from the liquor spaces in anaesthetized cats. (SP2)
 Ashford, A. and Bunn, D. R. G. The effect of Arvin on reticulo-endothelial activity in rabbits. (SP3)

Autopharmacology

45 Brimblecombe, R. W. and Everett, Sally D. Actions of some cholinergic antagonists on fast-twitch and slow-twitch skeletal muscle of the cat. (API, SP3)

BRIMBLECOMBE, R. W. and EVERETT, SALLY D. Actions of sarin on fast-twitch and slowtwitch skeletal muscles of the cat and protective action by anticholinergic drugs. SP3)

A comparison between the blocking actions of 2-(4-phenylpiperidino) 68 Marshall, I. G. cyclohexanol (AH 5183) and its N-methyl quaternary analogue (AH 5954). (API, SP3, DM1)

78 BERTACCINI, G., CARO, G. DE and MELCHIORRI, P. The effects of caerulein on insulin secretion in anaesthetized dogs. (AP3)

Pharmacokinetics

86 SHARKAWI, M. Effects of morphine and pentobarbitone on acetylcholine synthesis by rat cerebral cortex. (PK2, SP2, AP1)

Drug Mechanisms

- 92 IRESON, J. D. A comparison of the antinociceptive actions of cholinomimetic and morphinelike drugs. (DM2, SP2)

 Watson, P. J. Drug receptor sites in the rabbit saphenous nerve. (DM2, SP3)

Psychopharmacology

113 SHILLITO, ELIZABETH E. A method for investigating the effects of drugs on the exploratory behaviour of mice. (PP)

Toxicology

- 124 NATOFF, I. L. and REIFF, B. Quantitative studies of the effect of antagonists on the acute toxicity of organophosphates in rats. (CP, DM2)
- PROCEEDINGS OF THE BRITISH PHARMACOLOGICAL SOCIETY, DUBLIN, 8–10 July, 1970. (See pp. i, iii and v for contents)

Systematic Pharmacology

Cardiovascular system SP1 Central nervous system SP2 Other physiological systems SP3

Pharmacokinetics

Storage, distribution, fate PK1 Synthesis, metabolism PK2 Uptake, release PK3

Clinical Pharmacology, Experimental Therapy CP Chemotherapy

Miscellaneous M

Autopharmacology

Adrenergic, cholinergic transmission API Histamine, kinins, prostaglandins, etc. AP2 Hormones AP3

Drug Mechanisms

Molecular, cellular, biochemical, biophysical DM1 Receptors, antagonism, potentiation, tolerance DM2

Pharmacometrics PM Psychopharmacology PP Toxicology TX