

Chambers Science and Technology Dictionary

General Editor:

Professor PETER M. B. WALKER, CBE, FRSE

Chambers

EDINBURGH NEW YORK

Published 1991 by W & R Chambers Limited
43-45 Annandale Street, Edinburgh EH7 4AZ
95 Madison Avenue, New York N.Y. 10016

This book published under
Chambers Cambridge imprint 1988
(ISBN 0-85296-151-1 Pbk)
(ISBN 0-85296-150-3 HB)

© W & R Chambers Ltd 1991
First published (as *Chambers's Technical Dictionary*) 1940
Reprinted 1992 (twice)

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright holders.

British Library Cataloguing in Publication Data

Chambers science and technology dictionary.—New ed.
1. Science. Encyclopaedias—Bibliographies
2. Technology. Encyclopaedias
I. Walker, Peter II. Dictionary of science and technology
503'.21
ISBN 0-550-13239-2 Paperback
ISBN 0-550-13238-4 Hardback

Typeset by H. Charlesworth Ltd, Huddersfield

Printed in England by Clays Ltd, St Ives plc

arsenious acid (*Chem.*). Solution of arsenious oxide. See white arsenic.

arsenites (*Chem.*). Arsenates (III). Salts of arsenious acid.

arseniuretted hydrogen (*Chem.*). See arsine.

arsenolite (*Min.*). Arsenic oxide, a decomposition product of arsenical ores; occurring commonly as a white incrustation, rarely as octahedral crystals.

arsenopyrite (*Min.*). Sulphide of iron and arsenic; the chief ore of arsenic. Also known as *mispickel*.

arsine (*Chem.*). AsH_3 . Arsenic (III) hydride. Produced by the action of nascent hydrogen upon solutions of the element, or by the action of dilute sulphuric acid upon sodium or zinc arsenide. Very poisonous. Also called *arseniuretted hydrogen*. Arsines are organic derivatives of AsH_3 in which one or more hydrogen atoms is replaced by an alkyl radical; other hydrogen atoms may also be replaced by halogen, etc.

Art Deco (*Arch.*). A style of design which took its name from the Exposition des Arts Decoratif, an international trade fair held in Paris in 1925. In the 1920s the style was characterized by curvilinear shapes and by stylized human and animal forms, but by the 1930s a commitment to industrial technology dictated shapes which tended to lend themselves to methods of mass production; hence the sleek, angular, linear forms in stainless steel, aluminium, chromed metals and colourful glazed tiles and plastics. Architects saw Art Deco as an alternative to the unadorned glass, concrete and steel structures of contemporary architectural design, and motifs, often reminiscent of Egyptian art forms, were employed structurally and as surface decoration.

artefact (*Zool.*). Any apparent structure which does not represent part of the actual specimen, but is due to faulty preparation.

artefact, artifact (*Genl.*). A simple man-made stone, wood or metal implement.

arterial drainage (*Build.*). A system of drainage in which the flow from a number of branch drains is led into one main channel.

arterial system (*Zool.*). That part of the vascular system which carries the blood from the heart to the body.

arteriography (*Radiol.*). The radiological examination of arteries following direct injection of a contrast medium, e.g. coronary arteriography, renal arteriography, carotid arteriography.

arteriole (*Zool.*). A small artery.

arteriosclerosis (*Med.*). Hardening or stiffening of the arteries due to thickening and loss of elasticity of arterial walls. Commonly but incorrectly used to imply atherosclerosis.

arteritis (*Med.*). Inflammation of an artery.

artery (*Zool.*). One of the vessels of the vascular system, that conveys the blood from the heart to the body. *adj.* *arterial*.

Artesian well (*Civ.Eng.*). A well sunk into a permeable stratum which has impervious strata above and below it, and which outcrops at places higher than the place where the well is sunk, so that the hydrostatic pressure of the water in the permeable stratum is alone sufficient to force the water up out of the well. Named from Artois (France).

arthralgia (*Med.*). Pain in a joint.

arthrectomy (*Med.*). Excision of a joint.

arthritic (*Zool.*). Pertaining to the joints: situated near a joint.

arthritis (*Med.*). Inflammation of a joint.

arthrodesis (*Med.*). The surgical immobilization of a joint by fusion of the joint surfaces.

arthrodia (*Zool.*). A joint.

arthrodial membranes (*Zool.*). In Arthropoda, flexible membranes connecting adjacent body sclerites and adjacent limb joints, and occurring also at the articulation of the appendages.

arthrography (*Radiol.*). The radiological examination of a joint cavity after direct injection of air or other contrast media.

Arthropophyta (*Bot.*). Division of the plant kingdom, the

horsetails and allies, here treated as the class Sphenopsida.

Arthropoda (*Zool.*). A phylum of metameric animals having jointed appendages (some of which are specialized for mastication) and a well-developed head; there is usually a hard chitinous exoskeleton; the coelom is restricted, the perivisceral cavity being haemocoelic. Centipedes, Millipedes, Insects, Crabs, Lobsters, Shrimps, Spiders, Scorpions, Mites, Ticks, etc.

arthrospore (*Bot.*). Spore resulting from hyphal fragmentation.

arthrotomy (*Med.*). Surgical incision into a joint.

Arthus reaction (*Immun.*). A type III allergic reaction named after the person who first described it.

articular(e) (*Zool.*). Pertaining to, or situated at, or near, a joint. In Vertebrates, a small cartilage at the angle of the mandible; derived from the Meckelian, and articulating with the quadrate forming the lower half of the jaw hinge. *pl.* *articularia*.

articulated (*Bot.*). Jointed or segmented; divided into portions that may easily be separated.

articulated blade (*Aero.*). A rotorcraft blade which is mounted on one or more hinges to permit flapping and movement about the drag axis.

articulation (*Arch.*). The means by which an architect gives definition to the individual elements of a building.

articulation (*Eng.*). The connection of 2 parts in such a way (usually by a pin joint) as to permit relative movement.

articulation (*Telecomm.*). Percentage of specified speech components (usually *logatons*) received over a communication system; may be (a) *word*: percentage of words correctly received; (b) *syllable*: percentage number of meaningless syllables correctly recognized; (c) *round*: percentage number of fundamental speech-sounds (consonant, vowel, initial or final consonant) correctly recognized.

articulation (*Zool.*). The movable or immovable connection between 2 or more bones.

artifact (*Biol., Radiol.*). An error in an image which has no counterpart in reality.

artificial ageing (*Eng.*). See *temper-hardening*.

artificial antenna (*Telecomm.*). Combination of resistances, capacitances, and inductances with the same characteristics as an antenna except that it does not radiate energy. It is used in place of the normal antenna for purposes such as repair and checking of a transmitter, or for re-tuning of the transmitter onto a different frequency. Also *dummy antenna*, *phantom antenna*.

artificial classification (*Bot., Zool.*). A classification based on one or a few arbitrarily chosen characters, and giving no attention to the natural relationships of the organisms; the old grouping of plants into trees, shrubs, and herbs was an artificial classification.

artificial community (*Bot.*). A plant community kept in existence by artificial means; e.g., a garden habitat or a cloche.

artificial daylight (*Phys.*). Artificial light having approximately the same spectral distribution curve as daylight, i.e., having a colour temperature of about 4000 K.

artificial disintegration (*Phys.*). The transmutation of non-radioactive substances brought about by the bombardment of the nuclei of their atoms by high-velocity particles, such as α -particles, protons, or neutrons.

artificial ear (*Acous.*). Device for testing earphones which presents an acoustic impedance similar to the human ear and includes facilities for measuring the sound pressure produced at the ear.

artificial earth (*Telecomm.*). See *counterpoise*.

artificial feel (*Aero.*). In an aircraft flying control system, especially with *automatic control of flying surfaces*, in which the pilot's control actions are modified to provide forces moving the flying controls, a natural feel, opposing the pilot's actions, is fed back from the controls. Since these forces vary mostly with dynamic air pressure ($q = \frac{1}{2} \rho v^2$) artificial feel is sometimes known as "*q*-feel."

artificial flags (*Build.*). See *concrete paving slabs*.

artificial horizon (*Aero.*). See *gyro horizon*.