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CONTAINS INDEX

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tion, and thus has saved money. The apparatus could no doubt be used for the sterilization of many other articles, particularly glassware, but might require modifications to its final design; the position of the projectors, for example, might require resetting.

It is probable that the ultimate cost of such a machine would be no greater than that of the necessary hot air ovens. The simplicity of its operation would allow less skilled operators to work it, and still ensure sterility, which is not always obtained in a hot air oven.

Summary

A moving belt infra-red sterilizer for syringes has proved simple to operate; it reduces the "heating-up" time, and allows the syringes to be presealed in their containers before sterilization.

In practice a sterilizing temperature of more than 180° C. for 11 minutes ensures sterility, and a minimum sterilization temperature can be obtained in all the syringes submitted to the machine as measured by multipoint thermocouples.

To ensure that large and small syringes are heated to the same extent, the large syringes are put into matt black containers which heat up more rapidly, and the small syringes into dull

aluminium containers which heat up more slowly.

A rigid technique for bacteriological control by both aerobic and anaerobic culture is laid down. The importance of subculture on to solid media from apparently clear, sterile fluid is stressed.

The apparatus used in this investigation was provided from funds of the South-west Metropolitan Regional Hospital Board, and constructed by Messrs. George Vokes Limited, High Road, New Southgate, London, N.11. We are grateful to A. W. Chalkley, Esq., director of this firm, for his co-operation and assistance.

We also wish to thank the Trustees of the Nuffield Provincial Hospitals Trust for the loan of the thermocouples and temperature-measuring apparatus, and for the help given by Miss G. Sellars, who carried out some of the temperature recordings.

We also acknowledge with thanks the chance remark of A. C. Townson, Esq., who first suggested the use of infra-red as a heating medium to us.

We are grateful to Dr. B. Lacey, of the Westminster Hospital, for his supply of dried earth used in the bacteriological tests.

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The "Journal of Clinical Pathology" will in future be published six times a year. The first issue for 1958 will be published in January, and thereafter in alternate months.

TABLE
RESULTS OF BACTERIOLOGICAL TESTS OF PROTECTIVE CABINET

Cabinet No.	Test Organism		Dispersal					
			Outside Cabinet	In Cabinet with				
				No Ventilation No Ultra-violet	No Ventilation Ultra-violet On	Ventilation at 50-60 ft./min. No Ultra-violet	Ventilation at 100 ft./min. No Ultra-violet	Ventilation at 100 ft. min. Ultra-violet On
1	<i>B. subtilis</i> , dust 3 puffs	Mean and no. tests As % of "no ventilation "	—	2,900 (2)	459 (2) 15.8	36 (1) 1.2	8.4 (10) 0.3	11.5 (4) 0.4
2	<i>B. subtilis</i> , dust 2 puffs	Mean and no. tests As % of "outside cabinet "	1,350 (2)	440 (3) 32.6	89 (2) 6.6	—	9.7 (15) 0.7	—
		" " " "no ventilation "			20.2		2.2	
3	<i>B. subtilis</i> , dust 2 puffs	Mean and no. tests As % of "no ventilation "	—	5,100 (3)	—	27.6 (5) 0.5	3.5 (6) 0.07	—
3	<i>B. subtilis</i> , dust 1 puff	Mean and no. tests As % of "no ventilation "	—	764 (1)	—	5.5 (2) 0.7	9.7 (3) 1.3	—
2	<i>Chr. prodigiosus</i> , opening 25 bottles	Mean and no. tests As % of "outside cabinet "	29.5 (2)	31.5 (4) 107	2.5 (4) 8.5	1.5 (2) 5.1	0.7 (10) 2.4	—
		" " " "no ventilation "			7.9	4.8	2.2	
Mean of values of " % of outside cabinet "				(69.8)	7.6	(5.1)	1.6	(0.4)
" " " "no ventilation "				—	14.6	1.8	1.2	—

violet irradiation of the interior of the cabinet had a definite effect in reducing the number of colonies both of *B. subtilis* and *Chr. prodigiosus* liberated, but the effect was less than that obtained with ventilation. Of the two ventilation rates, that giving a linear velocity through the mouth of the cabinet of about 100 ft. per min. seemed slightly better than that giving 50 to 60 ft. per min., and it was generally possible to reduce the count on the plates to 2% or less of the number obtained with dispersal in an unventilated cabinet.

In about half the experiments a hand was waved to and fro in the cabinet for 15 to 20 sec. after dispersal of the bacteria. With cabinet 1 this seemed to have a definite effect in increasing the number of colonies on the plates, but no such effect could be discovered with cabinets 2 and 3; it was not possible to discover the reason for this difference, which did not seem to be due to the presence of the air outlets at the back of the cabinet in the latter two types of cabinet.

Discussion

It may be concluded from these experiments that a cabinet ventilated so as to give an air velocity through the entry of 100 ft. per min. can provide substantial protection against the risk of inhaling particles dispersed in the cabinet. At an air velocity of 50 to 60 ft. per min. the protection may be slightly less, and it seems best therefore to specify 100 ft. per min., which will provide a reasonable margin of safety.

It may be that the protection is actually better than indicated. The number of colonies on the plates after dispersal in the ventilated cabinets was usually less than 10, and it was not possible to be certain that these were not, in part at least, dispersed from the experimenter's clothing.

Ultra-violet irradiation without ventilation evidently gives some protection. For most purposes, however, irradiation probably would be less satisfactory than ventilation, partly because of its lower efficiency and partly because without good ventilation of the cabinet it is not practicable to use a bunsen burner inside it.

The cabinet described here has now been in use in a number of public health laboratories for several months and has proved reasonably convenient.

Summary

Clouds of *B. subtilis* and *Chr. prodigiosus* were dispersed in a bench cabinet designed for handling infective cultures. When the air velocity through the inlet was 100 ft. per min. the number of test bacteria collected from the air in front of the cabinet was less than 2% of the number collected when the cabinet was not ventilated. Ultra-violet irradiation of the interior of the cabinet was rather less effective than ventilation.

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 Tomlinson, A. J. H. (1957). *Brit. med. J.*, **2**, 15.

Seventh International Cancer Congress, London, 1958

Those planning to attend the 7th International Cancer Congress, which will take place at the Royal Festival Hall, London, from July 6 to 12, 1958, are reminded that enrolment forms must be received at the Congress Office, (45 Lincoln's Inn Fields, London, W.C.2) by January 1, 1958, if a late fee is not to be incurred. Registration forms may be obtained from the Secretary-General at that address.

index of the amount of absorptive surface available in subarachnoid space.

In hydrocephalus, clear-cut excretion patterns are obtained according to the anatomical anomalies. The ventricular dye result is of limited value except in establishing the presence or absence of an intraventricular block, as it is largely a reflection of ventricular dilatation and cerebrospinal fluid stasis only. The result after intrathecal injection, on the other hand, gives very valuable information. In cases with a basal cistern block, the percentage of dye excreted gives an indication of the degree of block within the cisterns. In those with an intraventricular block, a distinction can be made between the cores with a normal subarachnoid space and those which have, in addition, a basal cistern block. In hydrocephalus with spina bifida cystica, there is a close correlation between the excretion rate and the subsequent development of hydrocephalus; those with low excretion values seem to be doomed to hydrocephalus.

This test, apart from being a useful ancillary investigation, may therefore well become an important prognostic test.

Routine Ward Urine Testing

J. HARKNESS (Taunton) said that the testing of urine by nurses in the ward side-room was usually the responsibility of the clinician-in-charge and not of the pathologist. Inspection of equipment and techniques by a laboratory-trained person might find scope for criticism under four main headings: (1) the care of reagents; (2) the use of non-standard apparatus; (3) satisfactory techniques being spoiled by the introduction of unauthorized modifications; (4) insufficient time allowed for the tests to be performed carefully and repeated as necessary.

The author described his own attempts to introduce modifications and his dealings with many interested parties; these included the clinicians, matron, sister-tutor, ward sisters and nurses, pharmacist, supplies officer, and finance officer.

As a result of pilot trials, a small compact tray was developed which has the apparatus for five tests to be carried out in parallel and which holds reagents sufficient for about a hundred of each of the commonly required tests.

POSTGRADUATE COURSES IN PATHOLOGY ARRANGED BY THE ASSOCIATION OF CLINICAL PATHOLOGISTS, 1957-58

Date	Subject	Institution	For further particulars apply to:—
1957 Nov. 29 & 30	Pathology of Diseases of the Rectum and Colon	St. Mark's Hospital	Dr. Basil Morson, St. Mark's Hospital, City Road, London, E.C.1.
Dec. 6	Diseases of the Eye	Institute of Ophthalmology	Dr. Norman Ashton, Institute of Ophthalmology, Judd Street, W.C.1.
Dec. 7	Diseases of the Heart	Institute of Cardiology	Dr. R. E. B. Hudson, National Heart Hospital, Westmoreland Street, W.1.
1958 Jan. 10 & 11	Pathology of Diseases of Children	Institute of Child Health and Hospital for Sick Children	Dr. Martin Bodian, The Hospital for Sick Children, Great Ormond Street, London, W.C.1.
Jan. 24 & 25	Pathology of Diseases of Bones and Joints	Institute of Orthopaedics and Royal National Orthopaedic Hospital	The Dean, Institute of Orthopaedics, Royal National Orthopaedic Hospital, 234 Great Portland Street, W.1.
Feb. 7 & 8	Pathology of Diseases of the Skin	Institute of Dermatology and St. John's Hospital for Diseases of the Skin	Dr. John Oliver, St. John's Hospital for Diseases of the Skin, Lisle Street, Leicester Square, London, W.C.2.
Feb. 21 & 22	Pathology of Diseases of the Ear, Nose, and Throat	Institute of Laryngology and Otology	The Dean, Institute of Laryngology and Otology, 330/332 Gray's Inn Road, London, W.C.1.
Mar. 7 & 8	Pathology of Diseases of the Nervous System	Institute of Neurology in association with the National Hospital, Queen Square, and the Maida Vale Hospital	Dr. John Cumings, The National Hospital for Nervous Diseases, Queen Square, London, W.C.1.

Note: These "week-end" courses in pathology are intended primarily for trained pathologists of consultant or S.H.M.O. status. In exceptional circumstances pathologists of senior registrar grade or other doctors may be accepted but only if there are vacancies. Since accommodation is limited early application is desirable. A small fee will be charged for the Course at the Institute of Laryngology, but at all other courses ten shillings only will be charged to cover expenses. This will be payable on registration.

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