A LABORATORY STUDY OF HOUSEHOLD CHEMISTRY

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649454112

A Laboratory Study of Household Chemistry by Mary Ethel Jones

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd. Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

MARY ETHEL JONES

A LABORATORY STUDY OF HOUSEHOLD CHEMISTRY



A LABORATORY STUDY

OF

HOUSEHOLD CHEMISTRY

BY

MARY ETHEL JONES

FORMER TEACHER OF CHEMISTRY IN THE LOS ANGELES HIGH SCHOOL

ALLYN AND BACON

BOSTON

NEW YORK

CHICAGO

ATLANTA

SAN FRANCISCO

Educt 239,21,468

HARVARD COTTERS LIBRAA!
GIFT OF
GINN 4 CO
MAY 23 1941

COPYRIGHT, 1921, BY MARY E. JONES

Normood Stress
J. S. Cushing Co. — Berwick & Smith Co
Norwood, Mass., U.S.A.

PREFACE

These experiments in Household Chemistry are arranged to meet the demand for work in chemistry for girls. They form a practical course in the chemistry of the household and of common things, and are helpful both to pupils who do not go to college and to those who do.

Above all, the course is practical. While the fundamental principles of chemistry are as thoroughly emphasized in the first half year of this course as they are in any course in general chemistry, the experiments that illustrate them are made as practical as possible.

The last half of the course is largely organic chemistry made as simple as possible and used so far as possible in the study of fuels and illuminants, food principles, food substitutes, textiles, soaps, laundering, bleaching, blucing, dyeing, and leavening agents.

All of the experiments and the wording of the directions have been tried for five years by different teachers with classes of girls. Additions and changes have been made each term until the manual satisfies all the requirements of the course.

Many teachers have assisted in the preparation of this work. The author wishes particularly to express her indebtedness to Miss J. Maud Blanchard, her first teacher in chemistry, to Miss May Kimble and Mr. J. H. Hanna, both of the Los Angeles High School, and to Mr. C. W. Sandifur, of the Hollywood High School.

MARY ETHEL JONES

Los Angeles, California April, 1921

≋ ⊗ 3

CONTENTS

Part I. First Term's Work

I	Preliminary Experin	nents	PAGE					
	Experiment 1		2					
	\$100 PER DOLD STORES THE	The Units of Length, Volume, and						
	Weight Used in Chemistry							
	Experiment 3	그 그 그 그러워 한 글을 맞으면 하면 되었는데 그 없는데 그 그 없는데 그 그 사이를 하는데						
	Glass Tubir		6					
	Experiment 4	Physical and Chemical Changes . ,	8					
	Experiment 5		9					
п	Oxygen and Hydrogen							
	Experiment 6	. Ways of Freeing and Collecting Oxygen	12					
	Experiment 7	Preparation and Properties of Oxygen	14					
	Experiment 8	. What Takes Place When a Substance						
	Burns		17					
	Experiment. 9	. Preparation and Properties of Hy-						
	drogen		19					
	Experiment 10	O. Two Other Methods of Preparing Hy-						
	drogen		22					
Ш	Water							
	Experiment I	1. The Synthesis of Water	24					
	Experiment 1	2. How to Test Hydrogen and Water .	25					
	Experiment 1		28					
	Experiment 1	4. Boiling Point and Freezing Point of						
	Water		30					
	Experiment 1	5. How to Purify Water	32					
	Experiment 1	6. Properties of Hydrogen Peroxide .	34					
IV	Nitrogen and the	Mr.						
	Experiment 1	Preparation and Properties of Nitro-						
	gen .		35					
	Experiment 1	8. The Composition of the Air	37					
	Experiment 1	9. Ammonia, NH ₂	40					

CONTENTS

V	Acids, Bases, and Sal	ta						PA
	Experiment 20.		Proj	erties	of .	Acids,	Bas	
	and Salts .						•	
	Experiment 21.	Methods	of	Form	ing	Acid	s, F	Iy-
	droxides, and S			•3		0		
	Experiment 22.	Solution	s The	at Con	duct	the !	Elect	ric
	Current .	(4)	-	207		1.		
VI	The Halogens and Hy	drochlori	c Aci	đ				
	Experiment 23.	Chlorine	, Bro	mine,	and l	lodine	. 83	
	Experiment 24.	Preparat	ion a	nd Pro	pert	ies of	Hyd	ro-
	chloric Acid, H	CI .	29	*3	٦.	(1) 1		
VII	Sulfur and Compoun	ds of Sulf	ur					
	Experiment 25.	Sulfur ar	ad Co	трош	ads c	f Sulf	ur	32
	Experiment 26.	Sulfuric	Acid	and H	ydro	gen S	ulfide	
vn	I Carbon. Carbon D	iovida I	Mame	P				
•	Experiment 27.		Laine	8				12
	Experiment 28.		Dinvi	da CO	2			10
	Experiment 29.					mate	310	
	Experiment 30.	Flames			J#1 0	CHARCE	300	
		231_231	23	100	8	ं	80	82
	Part II.	Second	d Te	rm's '	Wor	k		
IX	Common Organic Con	npounds						
	Experiment 31.	Tests for	Org	anie C	ompo	nınds	•6	Se.
	Experiment 32.	Hydroca	rbone					
	Experiment 33.	Some Co	mmo	n Alco	hols	10	. 8	
	Experiment 34.	Properti	es an	d Uses	of S	ome C	omn	ion
	Organie Acids			UD#1		11.0	•	
	Experiment 35.	Fuels an	d Illt	uminan	ts		•	*
x	Chemistry of Foods							
	Experiment 36.	Water in	Foo	da .		124	• /	: w.
	Experiment 37.	Inorgani	c Sa	lte in	Foo	ods (Mine	ral
	Matter or Ash	a production in	14	meqile.			584500 #3	
	Experiment 38.	Starch a	nd D	extrin		19	•	(4)
	Experiment 39.	Cellulose		10.00		134	*00	œ.
	Experiment 40.	Gums ar	d Pe	etin		177		
	Experiment 41.	Sugars			-	30		- 10
	Experiment 42	Fata and	Oils	200	0		200	U

		CON	TEN:	rs					vii
	Florent 49	West Life.			1000	600			PAGE
	Experiment 43.						100		99
	Experiment 44.	The Glob	omine	and A	ubur	ninoid	18	•	101
XI	Digestion of Food								
	Experiment 45.	Digestion	a of Bi	tarch	(30)	96	26		103
	Experiment 46.	Digestion	of P	rotein	A.			7	105
XII	Food Analysis								
	Experiment 47.	Analysis	of Mi	lk		w:		2	108
	Experiment 48.	Babeock			utter	Fat .	in M	ilk	111
	Experiment 49.	Beverage							113
XIII	Food Adulterants								
Non-re-	Experiment 50.	Adultera	nts in	Milk	e-sam.				116
	Experiment 51.	Tests for				Butte	r.		118
	Experiment 52.	Adultera	nts in	Jellie	and	Can	lies		120
XIV	Food Values								
	Experiment 53.	Menu M	aking	- 21	(1 2 0)	4			122
XV	Leavening Agents								
	Experiment 54.	Products	of Ye	ast F	erme	ntatio	n		123
	Experiment 55.	Baking 8							125
XVI	Tertiles								
	Experiment 56.	Cotton,	Linen.	Wool	, and	d Silk	i.	1100	128
	Experiment 57.	Textile I			•	*			130
	Experiment 58.	·Removin	g Spo	te and	Sta	ins			132
	Experiment 59.	Bleachin					92		135
	Experiment 60.	Scaps, C	leansi	ng Po	wder	я.	38		138
Appe	endix								
S-1-38-11	The Metric Syst	em .	\$8						141
	Temperatures		20	36	100	90	3.4		142
	List of the Com	mon Elem	enta,	Their	Sym	bols,	Ator	nic	
	Weights and \				•				143
	The Weight in	Grams of	One !	Liter	of V	arious	Ga.	368	143
	Food Chemistry		*6	38	9.	*	9€		144
	Digestion of Foo	da .	20	0.5	(1±0)	**	2.5		157
	Action of Digest		0.0	ii	(7.5k)	27	92		158
	Tables Showing		s Req	uired	Dail	у.			159
	Tables of 100 Fo	The second second	*	39		•	•		161
	Special Solutions		50			•	•		169

8.

X

85