

Books with text by Lillian R. Lieber  
and drawings by Hugh Gray Lieber

The Education of T. C. Mits  
(W. W. NORTON & COMPANY, INC.)

The Einstein Theory of Relativity  
(HOLT, RINEHART & WINSTON)

Take a Number  
(RONALD PRESS COMPANY)

Galois and the Theory of Groups  
(GALOIS INSTITUTE PRESS)

Non-Euclidean Geometry  
(GALOIS INSTITUTE PRESS)

Good-bye Mr. Man, Hello Mr. NEWman  
(GALOIS INSTITUTE PRESS)

Mits, Wits and Logic  
(W. W. NORTON & COMPANY, INC.)

Infinity  
(HOLT, RINEHART & WINSTON)

Comedie Internationale  
(GALOIS INSTITUTE PRESS)

Lattice Theory: The Atomic Age in Mathematics  
(GALOIS INSTITUTE PRESS)

Human Values and Science, Art and Mathematics  
(W. W. NORTON & COMPANY, INC.)

# THE EDUCATION OF T. C. MITS

*Drawings by*  
HUGH GRAY LIEBER  
  
*Words by*  
LILLIAN R. LIEBER



NEW YORK

W. W. Norton & Company, Inc.

Copyright 1942, 1944 by  
H. G. L. R. LIEBER  
Copyright renewed 1972 by Lillian R. Lieber  
REVISED AND ENLARGED EDITION

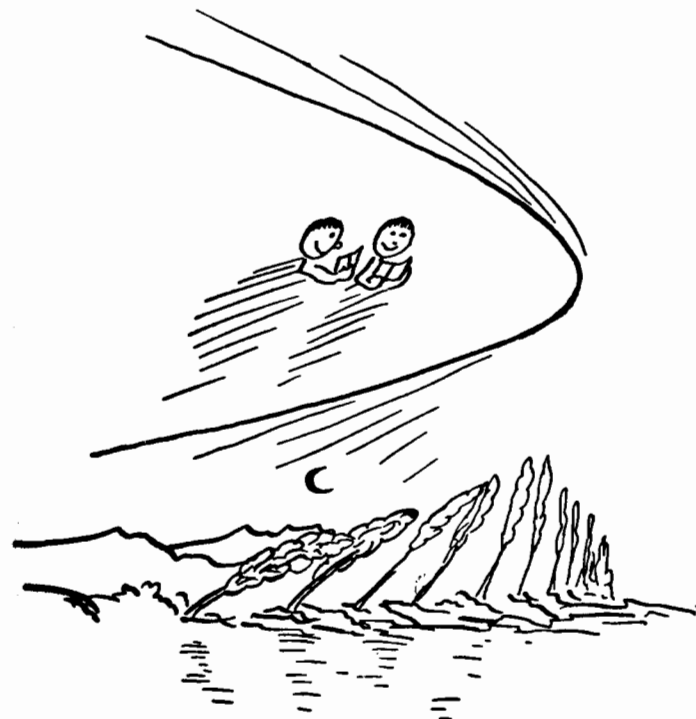
ISBN 0 393 06278 3

PRINTED IN THE UNITED STATES OF AMERICA

9

## PREFACE

This is not intended to be  
free verse.  
Writing each phrase on a separate line  
facilitates rapid reading,  
and everyone  
is in a hurry  
nowadays.



## CONTENTS

PREFACE	5
INTRODUCING THE HERO—T. C. MITS	9

### PART I—THE OLD

I. FIFTY MILLION PEOPLE CAN BE WRONG	17
II. DON'T HIT THE CEILING	22
III. TISSUE-PAPER THINKING	32
IV. GENERALIZATION	43
V. OUR TOTEM POLE	51
VI. THE TOTEM POLE (Cont.)	61
VII. ABSTRACTION	74
VIII. "DEFINE YOUR TERMS"	81
IX. A WEDDING	90
X. THE OFFSPRING	101
XI. A SUMMARY OF PART I	114

### PART II—THE NEW

XII. A NEW EDUCATION	123
XIII. COMMON SENSE	129
XIV. FREEDOM AND LICENSE	138
XV. PRIDE AND PREJUDICE	153
XVI. TWICE TWO IS NOT FOUR!	168
XVII. ABSTRACTION—MODERN STYLE	183
XVIII. THE FOURTH DIMENSION	187
XIX. PREPAREDNESS	200
XX. THESE MODERNS	212

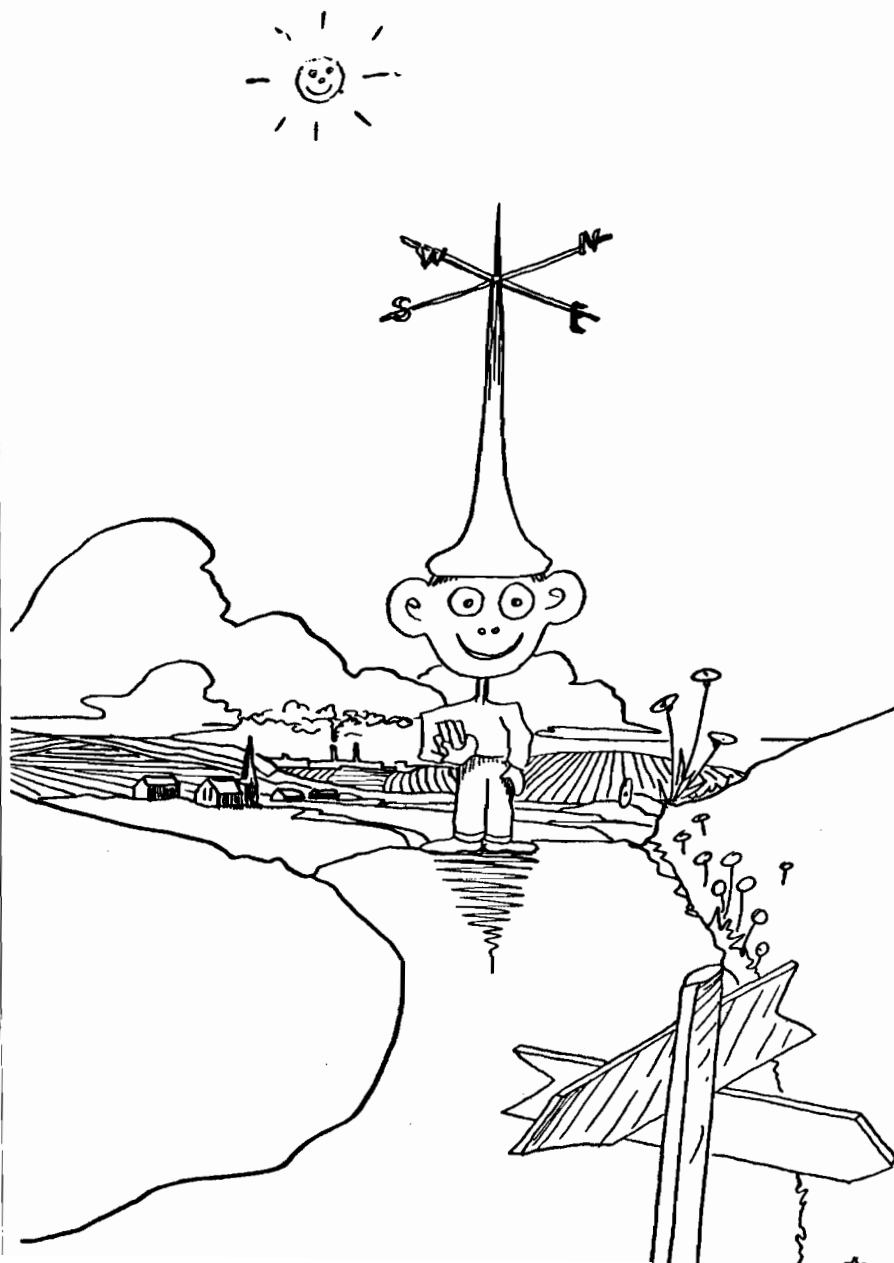
### THE MORAL

## INTRODUCING THE HERO—T. C. MITS

This introduces the Hero:

T.	C.	M	I	T	S
h	e	a	n	h	t
e	l	n		e	r
	e				e
	b				e
	r				t
	a				
	t				
	e				
	d				

T. C. is born and gets  
an education of some kind—  
perhaps college,  
perhaps “the school of hard knocks.”  
In any case  
he tries to figure out  
how best to “get along.”  
He picks up a lot of  
contradictory information:



"The past is antiquated,  
you must be progressive."

"The past is wonderful,  
the new-fangled fads are  
a sign of decadence."

"Science will save us from  
Superstition and Fraud."

"Science is the greatest menace  
yet invented by man."

"Fifty million people can't be wrong."

"Some races are always wrong."

"Be practical, learn a vocation,  
don't waste your time on  
Mathematics and Art."

"Why be a narrow, practical farmer  
all your life,  
get out and learn some theory,  
and find out how  
to do things in a better way."

And so on and so on.

He is naturally confused by all this,  
and very much hemmed in.  
He becomes not only  
Mits in name,

but has mits on his fingers  
and mits on his toes,  
and is generally "mitsified"  
in the brain.

This book is an attempt  
to get a bird's-eye view  
of T. C.'s predicament,  
and to look for  
a possible egress.

To do this  
VIVIDLY,  
we use pictures whenever possible.  
And  
to do it  
CLEARLY,  
we use the clearest language  
man has invented:  
Mathematics.

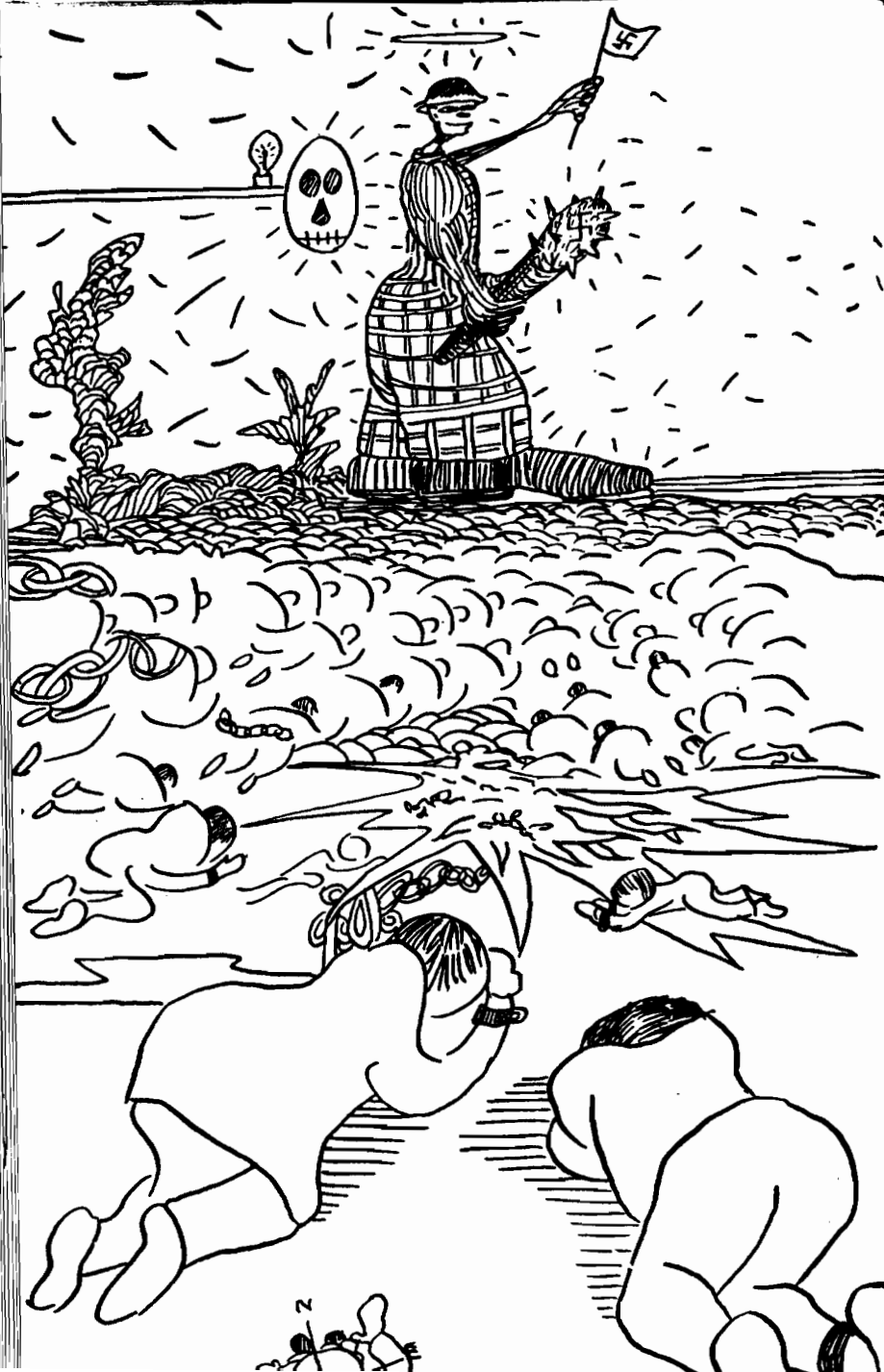
Oh, we know you do not like  
Mathematics,  
but  
we promise not to  
use it as an instrument of torture,  
but to show  
what bearing it may have  
on the contradictory advice  
mentioned above,  
as well as on such things as:

Democracy  
Freedom and License  
Pride and Prejudice  
Success  
Isolationism  
Preparedness  
Tradition  
Progress  
Idealism  
Common Sense  
Human Nature  
War  
Self-reliance  
Humility  
Tolerance  
Provincialism  
Anarchy  
Loyalty  
Abstract Art  
and so on.

Now and then we shall point out  
a "Moral."  
But please do not think  
we are being didactic  
and preaching to the reader:

the fact is that we are really  
talking to ourselves,  
for we, along with millions of others,  
are T. C. himself.

PART I  
THE OLD



## I. FIFTY MILLION PEOPLE CAN BE WRONG

Let us begin with  
a very simple question:  
suppose you had the choice of  
the following two jobs:

Job 1: Starting with an  
annual salary of \$1000,  
and a \$200 increase every year.

Job 2: Starting with a  
semiannual salary of \$500,  
and an increase of  
\$50 every 6 months.

In all other respects,  
the two jobs are exactly alike.

Which is the better offer  
(after the first year)?  
Think carefully and  
decide on your answer  
**BEFORE TURNING THIS PAGE.**

Did you say Job 1 is better?  
 And did you reason as follows?  
 Since Job 2 has an increase  
 of \$50 every 6 months,  
 it must have an annual increase of \$100  
 and therefore it is not as good  
 as Job 1 which has  
 an annual increase of \$200.

Well, you are wrong!  
 For, examine carefully  
 the earnings written out below:

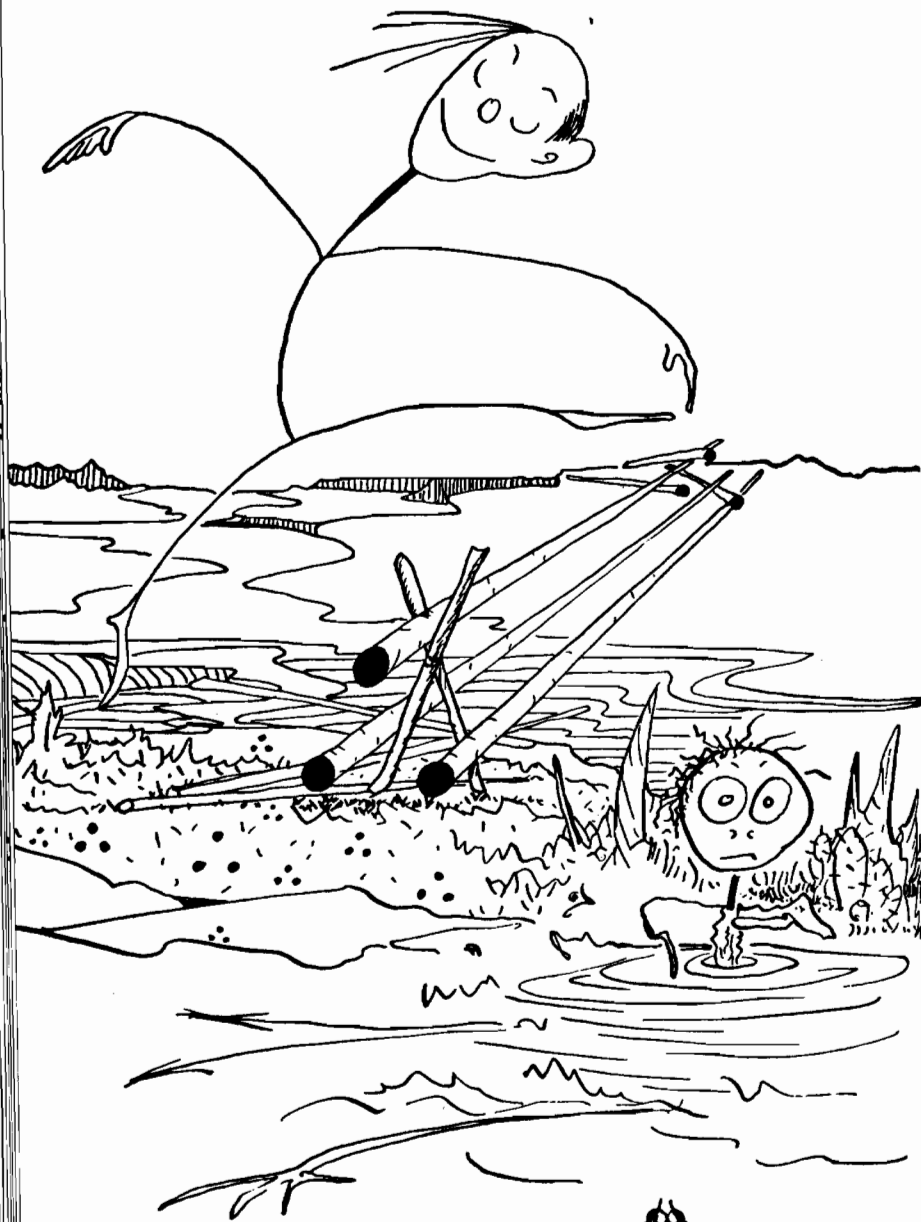
		1st half of year	2nd half of year	total for the year
1st year	{ Job 1	\$500	\$500	\$1000
	{ Job 2	500	550	1050
2nd year	{ Job 1	600	600	1200
	{ Job 2	600	650	1250
3rd year	{ Job 1	700	700	1400
	{ Job 2	700	750	1450
4th year	{ Job 1	800	800	1600
	{ Job 2	800	850	1650
etc., etc., etc.				

Note that:

- (1) Job 1 pays \$200 more each year  
 than it did the previous year.
- (2) Job 2 pays \$50 more every  
 half-year than it did during  
 the previous half-year.

All this is in accordance with  
 the promises originally made,  
 and yet  
 Job 2 brings in \$50 more every year  
 than Job 1 does.  
 And you can easily see that  
 this will continue to be true  
 no matter what number of years  
 is considered.

You are probably surprised.  
 But don't be discouraged,  
 for you are in plenty of  
 good company.  
 Try it on your friends,  
 and you will find that,  
 unless they have heard it before,  
 they will probably make  
 the same mistake that you made.  
 Fifty million people CAN be wrong!  
 And this is entirely normal.  
 But please do not come to  
 the conclusion that  
 Democracy is no good!  
 For fifty million people  
 do not HAVE to be wrong!  
 They may be wrong when  
 they are too hasty and  
 jump at conclusions,  
 as you saw in the problem above.



So do not make a similar mistake  
again  
by coming to hasty conclusions about  
Democracy.  
We are coming back to Democracy  
later.

In the meantime, please remember that  
you can fool  
“ALL of the people SOME of the time  
but NOT ALL the people ALL the time.”

And since you are one of the people  
yourself,  
and don't want to be fooled  
if you can help it,  
you must be prepared to think straight.  
And, incidentally,  
don't fool yourself either  
by thinking that this can be done  
without any effort at all on your part.  
Perhaps this little book will help  
to smooth the road for you.

The Moral: Don't be a  
Conclusion-Jumper.