The Alligator who would go to College
By Homer B. Tilton

Norman was a math whiz with an interest in medicine. He had just graduated from high school. Norman had plans to go to college to study medicine. For his summer internship he helped out at a pharmacy where he learned to perform alligations. Norman thought: "Does this make me an alligator?" Certainly it does, he decided. He looked up "alligation" in several dictionaries but found it in only one: Worthen's Dictionary of Pharmacy.

Anyway a new (2010) textbook from Quick-Draw McGraw Publishers by medical authors PB&J on pharmacy math had just arrived. One of the first things Norman did upon seeing it was turn to "alligations" in the index. That pointed him to pages 269 & 270.

There he found tic-tac-toe-like diagrams for calculating dilutions and mixtures. One diagram on page 270 looked like this:

--- continues on page 2 ---
The Alligator who would go to College, continued -

10  3 <-- This is just |5-2|, the diagonal difference

2  5 <-- and this is |5-10|, the other DD.

The question that went with the diagram was, "How would you prepare 100 mL of 5 percent iodine from 10 percent and 2 percent iodine solutions?"

Norman knew how to solve that kind of problem but the diagram he used had two more squares filled in. It looked like this:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 8  | 5  | 100 mL | (note the pattern)
| 2  | 5  |   |   |

This is 10-2;
it is also 3+5 --> Now the amount of 10% iodine is given as 3/8*100 = _____ mL
and not by coincidence.

Norman didn't need a calculator to tell him that 3/8 of 100 is 37.5 and 5/8 of 100 is 62.5 and he filled in those two final answers. He checked to be sure they added up to 100.

Norman looked at what he had written, then he looked at PB&J's treatment. In addition to a tic-tac-toe diagram, PB&J's treatment took half a page more of math! PB&J's treatment seemed obscure and unnecessarily difficult to Norman but it is standard he found. What that half page of math was, was steps 2-5 of a proof - a proof that said Norman's approach was right! Norman thought, "Why go through that same proof, only using different numbers, each time you want to solve this kind of problem (as PB&J obviously would do) when you don't have to?"!

Smugly Norman thought: "Should I tell PB&J that there is an easier way to solve this kind of problem simply by filling in two more squares in the diagram? "Naah," he thought; "Maybe I'll write my own book" and later he did.

In a daydream Norman contacted PB&J and B answered, "Thank you Mr. Norman, for your suggestion but we are happy with our way and we don't want to introduce ripples into the traditional ways of teaching this subject in medicine." But that was only a daydream.

Norman looked up "mass" in the index of PB&J, did not find it but "weight" was there. Didn't PB&J know that a "100 pound" object weighs only 16 pounds on the Moon and nothing on the ISS; so when a dosage of so many mg/kg of body weight is specified, what would that mean for a patient on the Moon? This is rapidly becoming important because we are presently planning to establish a base at Shackelton Crater at the south pole of the Moon by 2024 and the ISS is already in operation.

Norman calls his book "Pharmacy Math in the Space Age." It considers medicine on the International Space Station (ISS), the Moon and Mars as well as on Earth. Norman's book explains the distinction between mass and weight, his "augmented" tic-tac-toe method of alligation, a super-easy way to work with percents, bar-over number notation, easy conversion of metric prefixes, the super-easy way to solve for the missing value in a proportion, the chain method of dimensional analysis (called just "dimensional analysis" in medicine) and his use of the symbol @weight to mean simultaneously Earth weight and mass, and other important things. The chain method is so easy to use that once it is introduced (in chapter 4) it is the only method used or needed in the remainder of the book.
The day Einstein changed his mind
By Homer B. Tilton

Before rockets in space became commonplace
It was said they wouldn't fly;
For "There is no air to push against there."
But now they do work we find.

And before superlighstspeed would become a fait accompli'd
It was said we needn't try;
For Einstein declared lightspeed is barrier'd
'Though later he changed his mind.

Yes, Einstein we find did change his mind
In a '21 lecture obscure.
Mendel Sachs pointed out Einstein's mention of doubt;
His words in English we find.

In a talk quite amazing, he said (paraphrasing):
"The barrier's no longer for sure.
"Photons move along at the reciprocal root of mu epsilon,
"But rockets are not so confined."

And so we give pause just as to the cause
Of the gamma-ray bursts in the sky -
One a day, like vitamin A,
Per'haps from ships going at superlighstspeed?

...Breaking the light barrier, like a Harrier
Jump jet breaking the sound barrier on high
As it once again confounds the speed of sound?
Then that would be scary indeed.

From Science News, Feb 28'09, "Cosmic mystery," pp.17ff:
"There's an air of excitement in the astrophysics community created by a
surplus of particles from space invading Earth's atmosphere....A mysterious
nearby source...Astrophysicists believe that a variety of processes, such as
shock waves from supernovas, can generate the high-energy rays."

The presence of shock waves implies the existence of superluminary
processes. ...An interesting - perhaps landmark - discovery.

When a man says a thing can't be done
it only means he doesn't know how to do it. ...Anon.

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Community College.
Crunch time is here; time to provide simple instructions so you can make your own SuperCalculator. There are but three steps:
(1) Set up your desktop or laptop computer and have it operating. It may be any Windows computer but Windows 98 & 95 prove to have the most versatility. Get the command prompt. That will bring up a DOS screen. It is best to arrange to have the DOS screen occupy the entire screen area.

(2) Type echo Math processor not found.>ok.bat at the command prompt and [Enter] it. That will install a dummy math processor. You will install the real math processor on the third step to be revealed in the next issue. Between now and then you can practice commands and begin writing programs. The programs you write now and save to disk will be available for use after the real math processor has been installed.

Type and [Enter] the math command Echo ?2+2 ;ok. With only the dummy math processor present, the return will be "Math processor not found"; but after you have installed the real math processor in step 3, the return will show instead the answer to whatever calculation you have indicated following the question mark. The question mark tells SuperCalculator to display the answer.

Next, you can write simple SuperC programs like the following pair to calculate patient body-surface area (BSA) from mass and height measurements. Mass (Earth weight) can be specified in pounds (lb) or kilograms (kg) with patient height being correspondingly specified in inches (in.) or centimeters (cm). Begin by using this command: EDIT BSA.BAT. That will get you into the Windows editor. Following the on-screen instructions with keyboard or mouse, type this file:

::This is BSA.BAT. It uses the DuBois & DuBois formula.
@Echo off
If "%1" == "" goto help
Echo ?(exp(log(%1*.4535904)*.425+log(%2*2.54)*.725))*.007184"m²BSA";ok
:Help
Echo Use the command BSA 1b in.or use the command BSAmetric kg cm.
Echo Example: BSA 170 65 for 170 pounds, 65 inches tall

Make the upper 2 (2) with Alt 253 (hold an Alt key down while keying-in 254 in the numeric keypad). Save and exit. Now go back in with EDIT BSAMETRIC.BAT and type this file:

::This is BSAMETRIC.BAT. It uses the DuBois & DuBois formula.
@Echo off
If "%1" == "" goto help
Echo ?(exp(log(%1*.425+log(%2*.725))* .007184"m²BSA";ok
:Help
Echo Use the command BSA 1b in.or use the command BSAMETRIC kg cm.
Echo Example: BSAMETRIC 100 160 for 100 kg, 160 cm tall

Again, save and exit.

Now if you [Enter] just BSA or BSAMETRIC you will see a help screen. Your efforts to get a numerical answer to say, BSA 100 100, will as of now return only the error message "Math processor not found" but a real numerical answer will be returned after you have installed the real math processor. So even without the real math processor installed you can write real programs and have them on disk, ready to go as soon as your SuperCalculator installation has been completed.

Next you can write a calendar program. - Continued next issue -
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**The Math+Science Journal (TM+SJ) has been published monthly under this or its former name, MATH POWER ISSN 1087-2035, since 1995. It is published and edited by Homer B. Tilton. Editorial Advisors: Sue Tilton and Jo Taylor.**
Mail Matters

Your missive goes here.

SuperCalculator Revealed, continued -

Begin by using this command: EDIT CALENDAR.BAT and type this file:

:: This is Calendar.BAT. It is good for all Gregorian years.
@Echo off
If "%3" == "" goto help
Echo M=%1;Y=%2;L=%3;R=LOG(M-2):For j=1to L:d=(y+y\4-y\100+y\400+2.6*m+1.2)
mod 7+j:Locate d\7+8,3*(d mod 7)+9:?j:next:ok
:: Do not wrap the above two lines; let them form a single line.
Echo Su Mo Tu We Th Fr Sa
Echo .
:Help
Echo Example 1: Use command CALENDAR 7 1776 31 for July 1776.
Echo Use month numbers 3 thru 12 for March thru December.
Echo Use month number 13 or 14 with the previous year for Jan or Feb.
Echo Use of 1 or 2 for month number will only give an error message.

All SuperC program names will have the BAT extension.

- To be continued with the next Installment -

As a student you can request a free copy of SuperCalculator Notebook; others
can get one for $29.95 + $3.50 S&H. Contact Homer Tilton/Echo Electronic
Press/8401 E.Desert Steppes Dr./Tucson,AZ 85710-4207. A three-ring binder is
included. To order SuperCalculator Notebook without the binder, send only
$19.95 + $2.50 S&H. SuperCalculator Notebook is a complete instruction manual.
SuperCalculator™ is proprietary to Homer B.Tilton.

SuperCalculator is a recent breakthrough
that relies on new techniques not on new software.
...Exquisitely simple yet highly versatile...

Don't look to Microsoft® for information on Super-
Calculator. SuperC techniques are not yet acknowledged by
Microsoft; in fact, Microsoft has said they won't work.
[See The MS-DOS Encyclopedia (Foreword by Bill Gates) note
appearing on page 759.] Boy, were they wrong!