Dear Son,

Thank you for considering us with your letter.

We regret, however, that it does not suit our present needs. Sincerely, Mother

EVEN MY LETTERS HOME GET REJECTED!

Learn to live with rejection

Scientific Writing
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This is not Science Writing
Sir Francis Darwin

“In science, the credit goes to the man who convinces the world, not to whom the idea first occurs.”
Benjamin Franklin

“If you would not be forgotten as soon as you are dead, either write things worth reading or do things worth writing.”
Writing is communication

• It is preserved “forever”
• Journals are catalogued and searchable
• It can be found by others (now and many generations later)
Scientific Writing

• What makes good writing?

• What does it take to be a good writer?
Scientific Writing

• Good writing communicates an idea clearly and effectively.
  – this takes having something to say and it takes clear thinking

• Good writing is elegant and stylish
  – not flowery, obtuse, and verbose...
  – this takes time, many revisions, and a good editor.
How to improve

• Read, pay attention, and imitate.
• Let go of “academic” writing habits.
• Talk about your research before trying to write about it.
• Develop a thesaurus habit. Search for the right word rather than settling for any old word.
• Respect your audience—try not to bore them!
• Stop waiting for “inspiration.”
• Accept that writing is hard for everyone.
• Revise. Nobody gets it perfect on the first try.
• Learn how to cut ruthlessly. Never become too attached to your words.
• Find a good editor!
Writing is learned by writing

- Practice, practice, practice
- Choose good role models
- Study good examples
- But there are also techniques and rules to learn
Scientific Writing

• Before you start writing ask...
  “What do I want to say?”

• After you finish writing ask...
  “Have I said it?”
Scientific Writing

• Once you know what you’re trying to say, then pay attention to your words!

• Today’s lesson: Strip your sentences to just the words that tell.
The Elements of Style, William Strunk Jr.:

“Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason that a drawing should have no unnecessary lines and a machine no unnecessary parts. This requires not that the writer make all his sentences short, or that he avoid all detail and treat his subjects only in outline, but that every word tell.”
Example

• This was the first sentence of a recent scientific article in the *Journal of Clinical Oncology* (Introduction section):

  “Adoptive cell transfer (ACT) immunotherapy is based on the ex vivo selection of tumor-reactive lymphocytes, and their activation and numerical expression before reinfusion to the autologous tumor-bearing host.”

That sentence does not make me want to read on...
Today’s introduction to writing well:

Words:

1. Reduce dead weight words and phrases
2. Cut, cut, cut; learn to part with your words
3. Be specific
Words

1. Reduce dead weight words and phrases
   
   • Get rid of jargon and repetition

   “Verbose is not a synonym for literary.” — (Sin and Syntax)
Examples:

“I would like to assert that the author should be considered to be a buffoon.”

→ “The author is a buffoon.”
Examples:

“The expected prevalence of mental retardation, based on the assumption of a normal distribution of intelligence in the population, is stated to be theoretically about 2.5%.”
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Examples:

“The expected prevalence of mental retardation, based on the assumption of a normal distribution of intelligence in the population, is stated to be theoretically about 2.5%.”

→ “The expected prevalence of mental retardation, if intelligence is normally distributed, is 2.5%.”
Examples:

“To control infection with *Mycobacterium tuberculosis* (M. tb), a robust T-cell-mediated immune response is necessary, and deficiency in this response predisposes an individual towards active TB.”
Examples:

“To control infection with *Mycobacterium tuberculosis* (M. *tb*), a robust T-cell-mediated immune response is necessary, and deficiency in this response predisposes an individual towards active TB.”
Examples:

“To control infection with *Mycobacterium tuberculosis* (M. *tb*), a robust T-cell-mediated immune response is necessary, and deficiency in this response predisposes an individual towards active TB.”

→ “Deficiency in T-cell-mediated immune response predisposes an individual to active TB.”
Examples:

“This paper provides a review of the basic tenets of cancer biology study design, using as examples studies that illustrate the methodologic challenges or that demonstrate successful solutions to the difficulties inherent in biological research.”
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“This paper provides a review of the basic tenets of cancer biology study design, using as examples studies that illustrate the methodologic challenges or that demonstrate successful solutions to the difficulties inherent in biological research.”

“This paper reviews cancer biology study design, using examples that illustrate specific challenges and solutions.”
Remember...

• Hunt down and cast out all unneeded words that might slow your reader.

• **Very, really, quite, basically, generally**
  – These words seldom add anything useful. Try the sentence without them and see if it improves.

• **Watch out for the verb “to be”**
  – Often “there are” is extra weight.
  – Example: There are many students who like writing.
  – Many students like writing.
Dead Weight Phrases

• in the event that
• in the nature of
• it has been estimated that
• it seems that
• the point I am trying to make
• what I mean to say is
• it may be argued that
Dead Weight Phrases

• for the most part
• for the purpose of
• in a manner of speaking
• in a very real sense
• in my opinion
• in the case of
• in the final analysis
Clunky phrases

- A majority of most
- A number of many
- Are of the same opinion agree
- At the present moment now
- By means of by
- Less frequently occurring rare
Clunky phrases

• All three of the
• Fewer in number
• Give rise to
• In all cases
• In a position to
• In close proximity to
• In order to
Clunky words

- Assistance  help
- Utilize use
- Numerous many
- Facilitate ease
- Individual man or woman
- Remainder rest
- Initial first
- Implement do
- Sufficient enough
Replace

- Attempt
- Referred to as
- With the possible exception of
- Due to the fact that
- He totally lacked the ability to
- Until such time as
- For the purpose of

- try
- called
- except
- because
- he could not
- until
- for
Replace

- Investigate
- Optimum
- Indicate
- Initiate
- Currently
- Facilitate
- Endeavor
- Ascertian

- study
- best
- show
- start
- now
- help
- try
- find out
Wordy phrases

- 3 am in the morning
- absolutely spectacular
- a person who is honest
- a total of 14 birds
- biography of her life
- circle around
- close proximity
- completely unanimous
- consensus of opinion
- cooperate together
- each and every
- end result
- he is a man who
Wordy phrases

- in spite of the fact that although
- in the event that if
- new innovations innovations
- one and the same the same
- period of four days four days
- personally, I think/feel I think/feel
- personal opinion opinion
- refer back refer
- repeat again repeat
- revert back revert
- shorter/longer in length shorter/longer
- had been previously found had been found
Wordy phrases

- small/large in size
- square in shape
- surrounded on all sides
- surrounding circumstances
- the future to come
- there is no doubt but that
- usual/habitual custom
- unexpected surprise

small/large
square
surrounded
circumstances
the future
no doubt
custom
surprise
Suggestions

• Constantly be on the lookout for extraneous words that crop like weeds....

• Ask yourself, is this word or phrase necessary?
• What happens if I take it out?
• Most of the time, you’ll find you don’t need it!
Words

- 2. Cut, cut, cut; learn to part with your words
Words

• Don’t be afraid to cut
Example:

“Brain injury incidence shows two peak periods in almost all reports: rates are the highest in young people and the elderly.”
Example:

“Brain injury incidence shows two peak periods in almost all reports: rates are the highest in young people and the elderly.”

More punch→

“Brain injury incidence peaks in the young and the elderly.”
Words

• Be vigilant and ruthless

• After investing much effort to put words on a page, we often find it hard to part with them.

But fight their seductive pull...

• Try the sentence without the extra words and see how it’s better—conveys the same idea with more power
Words

• 3. Be specific
Strunk and White...

“Prefer the specific to the general, the definite to the vague, the concrete to the abstract.”
Examples

**Vague:** A period of unfavorable weather set in.

**Specific:** It rained every day for a week.

**Vague:** He showed satisfaction as he took possession of his well earned reward.

**Specific:** He grinned as he pocketed the coin.
Be specific

Use specific nouns and specific verbs and specific details....

Vague nouns:
Problem, situation, approach, method, reaction, component, technique, solution, challenge, difficulty
How well you communicate effects your career