

# VALLEY FORGE MASTERS



## Newton's Laws of Motion as They Apply to Swimming

by Big Wave Dave

Sir Isaac Newton may have missed his calling. I suspect he would have been a great swim coach. His pioneering observations on the laws of motion would have done any swim coach proud. Everything we do in the water can be attributed to at least one of his 3 laws of motion.



helpful with Newton's Third Law, see below). If we avoid all of these large objects, we can reasonably assume that we will maintain our speed longer. When it comes to keeping in uniform motion with all that pesky water about, it becomes more difficult. Keep your head down. Point those toes. Suck

the gut in. Clamp those hands together. Knees together. Experiment. When you do something wrong, your body will tell you immediately by slowing down, i.e., exiting that uniform state of motion.

### Newton's Second Law of Motion:

*II. The relationship between an object's mass  $m$ , its acceleration  $a$ , and the applied force  $F$  is  $F = ma$ . Acceleration and force are vectors; in this law the direction of the force vector is the same as the direction of the acceleration vector. This is the most powerful of Newton's three Laws, because it allows quantitative calculations of dynamics: how do velocities change when forces are applied.*

Let's say that there were no friction in the water. Oh, you just wish! But lets be dreamers just the same. That would be awesome. A simple dive off the block and we are at the turn with no fuss and no muss. But

(continued on back cover)

## Bill Crawford Memorial Meet Moves: To Villanova on March 25th

By Steph Walsh Beilman

As some of you may know, I have offered to run the VFM Winter Classic in 2001. It will be held for the first time at Villanova, the date is March 25th. We have moved it to that time because the weather is not so much of a threat as it is in February and it's a free date at Villanova. It also gives time after the Lower Bucks meet in early March and before the Zones on Long Island, April 20-22.

Sean Tedesco at Villanova is great to deal with, much better than the people at Swarthmore were! I hope this works out because it's a pool most of us are familiar with, we all like it and we should be able to get more swimmers and helpers for the meet. Everyone on the Valley Forge Masters team will be asked to help with the meet, since this will be in a new pool. All of your ideas are invited, welcome and appreciated.

Let's bring this meet back to prominence! We are hoping to get 200-250 entrants. The later date, the Villanova pool, a good order of

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### Newton's First Law of Motion:

*I. Every object in a state of uniform motion tends to remain in that state of motion unless an external force is applied to it. (This is recognized as essentially Galileo's concept of inertia, and this is often termed simply the "Law of Inertia".)*

### Newton's First Law as it Applies to Swimming:

Well, beginning with the obvious, if you are just floating there, you will remain floating. Duh. If you are traveling through the water at 2 yards per second, you will keep going at 2 yds/sec assuming there is nothing getting in your way. Unfortunately, in swimming there are lots of things to get in your way: walls, lane lines, other swimmers and of course, the ever present water itself. This conspiracy of elements is commonly known as friction. What can we do about it? Well the best thing to do is eliminate as much friction as we can. Other swimmers, lane lines and walls are the easy part (walls actually being

## Bios of Legendary Swimmers

Collected by B.W. Dave

### Esther Williams

Date of birth: August 8, 1922,  
Los Angeles, California, USA  
Date of death: Still alive.

Official site:  
[www.ester-williams.com](http://www.ester-williams.com)

Actress, swimmer; born in Los Angeles, California. A champion swimmer in high school, she was on the 1940 U.S. Olympic team headed for Tokyo when World War II intervened, canceling the games and her hopes for a gold medal and international swimming fame. Soon after, a photo of her in a newspaper caught the eyes of showman Billy Rose, who hired her to star in his San Francisco Aquacade review. With good looks to match her swimming abilities, it wasn't long before MGM offered her a movie contract. She made her film debut opposite Mickey Rooney in *Andy Hardy's Double Life* (1942), and in 1944 starred in *Bathing Beauty*, Hollywood's first water spectacular. Swimming movies proved a popular genre, and Esther Williams was the genre's biggest star. With only a handful of roles acted out on dry land, she appeared in twenty-six movies in the 1940s and 50s. During the peak of her career, she also gave birth to three children by second husband, Ben Gage, who she married in 1945. She still refers to each child by the movie she was making before they were born. "There I was, diving off platforms with Ben in *Neptune's Daughter*, going underwater in silver lame with Kim in *Pagan Love Song* and learning how to water ski with Susie in *Easy to Love* ... and somehow I stayed a size ten through it all." She married her third husband, Argentine actor Fernando Lamas, in 1969.



Next issue:  
*Red Skelton's Underwater Hijinks.*



## The Morning Crew

by B.W. Dave

Well, the attendance of the intrepid swimmers weekday mornings at UMLY ebbs and flows like the tides in the Bay of Fundy. Regulars include yours truly, Dave English, Steph Walsh Beilman, and Dot Munger. John McShane has been seen up and down the lanes as well. The trials of swimming before most of the free world wakes up are well documented, but the rewards can be great. You feel good all day long at work and your afternoons and evenings are free.



*Carbo loading in style. Crank up the holidays!  
(Not an authorized training method.)*

And there is no greater reward than the smell of a Western Omelet after a good 4k workout. This year's second annual Morning Crew Christmas Breakfast was held at Neapolitan Deli in Berwyn in spite of some incredibly crappy weather. Despite a low attendance, morale was strong and grease was plentiful. Dave English played secret Santa and I had my annual morning winter brew.

Do you have a regular practice group and want to tell about it? Let us know and we'll put it in the newsletter.

### 400 IM Blues

I feel not very well today,  
My heart is racing, I am not gay.  
They say I've spilled my brains,  
And to check my insurance.  
For I must ply the lanes, In a test of endurance.  
Woe is the man who's 100 fly  
Resembles a pelican about to die.  
Pity the woman swimming on her back  
For burning pain she does not lack,  
And lest we forget the leg of breast,  
When did it become a flexibility test?  
100 free seems to me a misnome',  
I'll only be free when I reach home.

— *Big Wave Dave*

# Big Wave Dave's Massively Unscientific Stroke Clinic



## Backstroke ... get back to where you once belonged.

I consider myself somewhat of an expert on the stroke of back, having been a summer club "threat" for the extended period from ages 6 to 8. In my ninth year of life, I was told that you had to actually go 50 yards in a race, down and back! It was then and there that I realized the backstroke was not for me. I had become increasingly dizzy doing it in practice and finally gave it up.

Why regale you with my short history with the stroke? Well, in the last few years I have been trying to pick it back (pun intended) up again. You see, the IM's a real bitch to swim if you can't really do one of the strokes. In my case it's the dreaded backstroke. In picking it up again, I have been seeking coaching help. What have the coaches told me, you may ask?

Well, the two essential elements for improving my (and hopefully, your) backstroke are, according to those esteemed coaches:

- an exaggerated roll of the upper torso, and
- the correct hand and arm position at the top of the stroke.



Figure 1: Check that body roll!  
Look at that head remain still!  
Pure aesthetic beauty, brings a tear to my eye.

### Let's break down each technique, shall we?

As pictured in *Figure 1*, the body should roll up to 90° so the lower arm can be positioned in such a way to be able to grab the water in a bent elbow position similar to the freestyle.

*Figure 2* shows the hand and arm position of someone doing it correctly. Excellent pinky placement! When palm faces out and pinky goes in first, all will be right with the world. The hand and arm will be ready for the pull.

Doing the backstroke allows you to work certain muscle groups while resting others. At times I find myself doing backstroke in warm-ups and warm-downs if the front muscles of my body have tightened up from too much freestyle. This is



Figure 2: Just look at that pinky!  
A most unnatural position, but the correct one nonetheless.

also a terrific opportunity to work on mechanics, when you are relaxed and going slowly.

**Next issue: Freestyle. It's not your parents Australian Crawl.**

## Nightswimming

Music & Lyrics by Michael Stipe & R.E.M.

Nightswimming deserves a quiet night.  
The photograph on the dashboard, taken years ago,  
turned around backwards so the windshield shows.  
Every streetlight reveals the picture in reverse.  
Still, it's so much clearer. I forgot my shirt at the water's edge.  
The moon is low tonight.

Nightswimming deserves a quiet night.  
I'm not sure all these people understand.  
It's not like years ago,  
The fear of getting caught, of recklessness and water.  
They cannot see me naked.  
These things, they go away, replaced by everyday.

Nightswimming. Remembering that night.  
September's coming soon. I'm pining for the moon.  
And what if there were two side by side in orbit  
around the fairest sun?  
That bright, tight forever drum could not describe nightswimming.

You, I thought I knew you. You, I cannot judge.  
You, I thought you knew me.  
This one laughing quietly underneath my breath.  
Nightswimming.

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*(continued from cover)*

events, the entry forms out early and good preparation should make that happen. I hope we will get some participation from a few of the teams outside our area, from outlying Masters teams and by Villanova alums who swim Masters. Here are some highlights:

- Eligibility: Must be USMS registered for 2001 (contact Art Mayer at 302-368-5176 or amayer@bellatlantic.net)
- Events: All from 50's to 400 IM and 500 free; no 1000 or 1650. No deck entries.
- Awards: Thru 6th in each event; high point in each age group and sex
- Entry fee: \$4.00 per event plus \$5.00 surcharge per swimmer
- Entry due date: Wednesday, March 14, 2001
- We will use the main athletic entrance; water temp. will be 80 degrees
- We will use 8 lanes; 2 warm-up lanes throughout the meet
- Villanova will supply a lifeguard, and best of all, they have found

qualified people to run the Colorado timing system and to run Meet Manager from beginning to end.

Each VFM member will be asked to participate in at least one of the following ways:

- \$20 of advertising or sponsorships (contact Dave English at denglish@fidelityleasing.com or use the enclosed sponsorship form to send your desired adver-



tising for inclusion in the program)

- Sign up to work the morning or afternoon session as a timer, at the registration desk, giving out awards, etc. (contact stephswim1@aol.com)
- Make a few healthy food items for swimmers to eat throughout the meet (contact Brenda Bartlett at: brendab@pobox.com)
- Of course we hope that all of you will enter the meet.

I thank you all in advance for your help. I'll need every one of you because this large meet cannot be run alone. I'm trying to get an early start so we can be assured of a successful event where both VFM and Villanova make some money and good swimming times are achieved by all.

Get ready for a great meet!

Best, Steph  
stephswim1@aol.com

An entry form is at the end of this newsletter, or can be printed from the website:  
[www.bee.net/dcastell/billcrawfordmemorialwinterclassicmeet.html](http://www.bee.net/dcastell/billcrawfordmemorialwinterclassicmeet.html)



VALLEY FORGE MASTERS

2001 Bill Crawford Memorial Meet

March 25, 2001

## ADVERTISEMENT/SPONSORSHIP FORM

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

Special Instructions \_\_\_\_\_

\_\_\_\_\_ 1/8 Page Advertisement \$ 20.00  
\_\_\_\_\_ (1.25" by 4.25" Great for business cards)

\_\_\_\_\_ 1/4 Page Advertisement \$ 35.00  
\_\_\_\_\_ (2.75" by 4.25")

\_\_\_\_\_ 1/2 Page Advertisement \$ 60.00  
\_\_\_\_\_ (5.25" by 8.5" or 4.25" by 11")

\_\_\_\_\_ Full Page Advertisement \$100.00  
\_\_\_\_\_ (8.5" by 11")

\_\_\_\_\_ Event Sponsor \$ 20.00

Amount Enclosed \$ \_\_\_\_\_

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DEADLINE FOR ARTWORK OR COPY SUBMISSION: March 10, 2001

Please submit all artwork or copy to Dave English or Steph Walsh Beilman (one of them is usually at Sunday practices) along with your check payable to VALLEY FORGE MASTERS SWIM TEAM. If mailing, please send to :

Dave English  
43 Pinetree Drive  
Audubon, PA 19403

(610) 666-5147 (H)  
(610) 719-4504 (W)

## Newton's Laws

(continued from front cover)

wait! The guy in lane 5 is at the wall at exactly the same time. So is the guy in lane 1 for that matter. Now, I'm not as happy as I thought I would be. There must be something I can do about this perpetual tie. Gimme that friction back! That'll slow those other guys down. But I need an advantage. Ah, yes my trusty arms and legs. Those powerful applicators of force. Let's get them into the act.

According to old Newton, to change the speed I'm going (velocity) I must apply a force to my mass. Well, let's give it a try. As I pull my hand back my body goes forward. As I pull my hand back harder, my body goes forward faster (accelerates). And look, I'm ahead of the guy in lane 5. This applied force thing is addictive.

The force is with me, how can I get more? How about increasing my mass. A good idea for the equation, but a bad idea for the waistline. How about if I decrease my mass and keep my force steady. The only alternative is that my acceleration will increase. *That's the result I want!* We've done it. By applying as much force as possible with our limbs, our bodies accelerate in the opposite direction which leads to:

### Newton's Third Law of Motion:

*III. For every action there is an equal and opposite reaction.*

This goes hand in hand with Newton's Second Law. Say we step off a boat onto the bank of a lake: as we move in the direction of the shore, the boat tends to move in the opposite direction. Now, let's get back to our wall at the end of the pool. An enemy of our heads, the wall is a friend of our feet. As we push our feet into the wall, something must go the other way. Well, the wall isn't going anywhere, so our bodies must go in the opposite direction. And if our feet are planted squarely, our bodies head straight back down the lane.

This law also applies to feet on starting blocks and to a lesser extent, arms in the water. The most efficient swimmers know how to maximize their actions in one direction (pull, kick, swim) so their bodies go in the other desired direction. Streamlining is key. Once you've given yourself a good push, why ruin it with a sloppy body position.

### Finally, the Conclusion

While Newton's efforts were primarily concerned with forces of gravity and larger masses like, uh say Jupiter, I'm sure he would have enjoyed the application of his laws while watching a good swim meet.

The act of swimming is the result of forces both external and from within, and if you can harness those forces to your advantage, then you will reap the rewards, a faster and more efficient time in the water.



### Submissions needed:

- Favorite fish. Favorite goggle.
- Events, milestones ....
- Photos! Photos! PHOTOS! We have scanners, we can put your head on Dara Torres' body.

### Next issue:

#### Spring/Summer, 2001

- Meet results and photos, find yourself and win a keychain!
- Don't read that Cosmo on the beach, flash this pub and make those french fries next to you jealous!

### Remember:

*If there's no news, it's just a letter.*



### Editorial Staff:

"Big Wave" Dave Burt - Editor in Chief, Commander in Chief, Dances with Beef  
Steph Walsh Beilman - Meet Planner, Volunteer of the Month, Mom

## On the Net

### [www.DVMasters.org](http://www.DVMasters.org)

The DelVal page with listings of places, meets, directions. My cup runneth over.

### [www.swimnews.com](http://www.swimnews.com)

More than you could ever possibly want to know about swimming.

### [www.swiminfo.com](http://www.swiminfo.com)

When you're not in the water, why not chat about it!

### [www.usms.org](http://www.usms.org)

Are you a card carrying member? Then this is your place.

### <http://www.bee.net/dcastell/ValleyForgeMasters.htm>

Dan's page for VFM.

### <http://www.bee.net/dcastell/billcrawfordmemorialwinterclassicmeet.html>

Da meet. And all you need.

### [www.swim2000.com](http://www.swim2000.com)

From Dan's site, everything you need for swimming without getting wet.