WNY engineer

ISSUE 3 | VOLUME 88 | NOVEMBER 2015

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NEWS

Junk Warriors Last Trip Down Colvin

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PRESIDENT'S MESSAGE

"...contribute efforts toward our communities, the environment around us, and to our young aspiring engineers…"

We all know how great of a month November is; and as the days cool, and the daylight continues to shorten, the season gives way to the wonderful holiday of Thanksgiving. And as we all have our family get-togethers, often times we reminisce about the good old days. Sometimes we find ourselves reflecting on our own past achievements, and yet other times we set our sights on goals we have yet to achieve. Sometimes the goals are very difficult.

I look back at myself as anyone else does, and as a 2013 graduate from the University at Buffalo, I feel so incredibly fortunate to have obtained an engineering degree. Equally gratifying to me is to belong to, and to represent The Engineering Society of Buffalo (ESB), who puts me amongst so many members who are professional engineers also known as a PE. These are highly motivated people and they deserve the highest respect that the professional engineer gets today.

These proven individuals have achieved a goal that I personally have a growing hunger for and am determined to achieve. They have all passed the grueling Fundamentals of Engineering exam; they all have a minimum four years of advanced experience under the supervision of a professional engineer; they all passed the more discipline specific professional engineer test. And in addition to all of that, to keep their current license valid, they are required to continue education through approved professional learning classes.

It is so amazing to look back at history sometimes, and more specifically the history behind the professional engineer, and how the licensing process evolved into the intensely challenging process that it is today. Over 100 years ago, anyone could claim to have engineering proficiency, without having any credentials to back up the privilege. That all changed when Wyoming started an engineering registration in the early 1900's, which later evolved to the current professional engineer, and the present licensing system.

As ESB continues through the current holiday season 100+ years later, we still continue to strive for more. But knowing about the history of the professional engineer makes it easy to see how we are so highly motivated and inspired to contribute efforts toward our communities, the environment around us, and to our young aspiring engineers still working their way up the ranks. I see great things in ESB's future for all of us.

I wish a great Thanksgiving to all!

Michael J Samol
ESB President
msamolacs@gmail.com

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CALENDAR OF EVENTS

11-06 to 11-08		Engineers Without Borders Regional Conference	Syracuse
11-09-15	6pm	Ways and Means Meeting	562 Genesee St, Buffalo (DNIPRO)
11-09-15	7pm	Directors Meeting	562 Genesee St, Buffalo (DNIPRO)
11-15-15		Deadline for newsletter content	
12-3 to 12-5		Construct Canada Exposition	Toronto
12-14-15	6pm	Ways and Means Meeting	
12-14-15	7pm	Directors Meeting	
04-12-16		ISA Tech Expo	Amherst
06-04-16		ESB Car Show	

TECH ARTICLE

Electro Scan & App Orchid Alliance

Water Industry Veteran Sees Bright Future Using Cognitive-based 'Internet of Things' Solution to Link Enterprise ERPs with Accurate Asset Condition Assessment Data.

Electro Scan Inc, a leading provider of leak detection instrumentation and cloud applications for the water, sewer, and gas pipeline industries, announced a Strategic Alliance with App Orchid Inc, makers of advanced cognitive-based solutions that capture, calibrate, and disseminate collective workforce wisdom across enterprises that can be presented in adaptive, intuitive, gamified applications.

Just like Google has evolved from being a keyword search engine to allowing users to ask simple yet powerful questions, App Orchid allows users across a business enterprise to ask questions and get answers about their operations and critical assets.

Electro Scan's partnership with App Orchid was announced in conjunction with the AWWA Annual Conference & Exposition, *Uniting the World of Water*, and the launch of Electro Scan's next generation low-voltage water leak detection and CriticalH_2O cloud application.

The alliance combines the next generation provider of leak detection solutions for water, sewer, and gas pipelines with the developer of the industry's first enterprise-wide wisdom management system, capable of amalgamating people, physical assets, and processes to create an industry-specific ontology of 'wisdom nuggets' spanning the Internet of Things (IoT).

Many water utilities continue to experience water losses of 20-30% due to leaking infrastructure, while sewer utilities can typically add 20-30% of flow during wet weather events that may cause sewer overflows, flooding, and back-ups. In response, Electro Scan and App Orchid can create innovative strategies by analyzing big data and social media to provide deep insight into a utility's existing business.

"Enterprise data is no longer confined to corporate databases," said Chuck Hansen, water industry entrepreneur and Chairman of Electro Scan Inc. "My experience with over a thousand water & sewer agencies tells me that 80% of knowledge is trapped in people's minds – sometimes written down in maintenance logs, emails, customer service calls, field inspections, presentations, social media, and other captive sources."

"The identification of critical resources can no longer rely on rigid hyper-optimized data models," explained Krishna Kumar, CEO and founder of App Orchid Inc. "Grass root tribal knowledge must be combined with traditional systems and ERP solutions using next generation heuristic tools to assess and address critical business resources. Big Data models and their analytics are only as strong as their weakest data source. That's why subject matter experts, like Chuck Hansen, and more accurate diagnostic tools, like Electro Scan, are an integral part of Smart Cities."

Prior to founding Electro Scan, Chuck Hansen was founder, Chairman and CEO of Hansen Information Technologies, a leading provider of asset management solutions for water and sewer utilities acquired by Infor Global in 2007.

Prior to founding App Orchid, Krishna Kumar was founder, CEO and CTO of Space-Time Insight, a leading provider of geospatial situational intelligence applications. His current venture, App Orchid, is gaining momentum. At a recent SAP Annual Sapphire conference App Orchid was selected as "SAP HANA Innovation Awards 2015" winner.

Electro Scan develops proprietary leak detection instrumentation and cloud applications that automatically locate, measure, and report defect flows in sewer, water, and gas pipelines, not typically found by acoustic or visual methods. Carissa Boudwin may be reached at info@electroscan.com or 916-779-0660.

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James Bond & Alcohol Tremors?

By Graham Johnson, Indra Neil Guha, and Patrick Davies

In the entertainment world, excess alcohol consumption is often portrayed in a positive, even glamorous, light. Of particular note are the drinking habits of James Bond, the quintessential British spy in the novels of Ian Fleming. He is renowned for enjoying cigarettes, alcohol, and women, with a catchphrase of "vodka martini - shaken, not stirred." Ideally vodka martinis should be stirred, not shaken. That Bond would make such an elementary mistake in his preferences seemed incongruous with his otherwise impeccable mastery of culinary etiquette.

Bond's alcohol intake was calculated by the number of days on which action was described. We used pre-formed definitions of units, based on definitions provided by www.nhs.uk/alcohol. In the United Kingdom, a unit of alcohol is defined as 10 ml or 8g of pure ethanol. For cocktails, we obtained recipes from Wikipedia. Spirit volumes were taken from previous research into actual poured volumes. We considered the unit and quantities to be reasonable but relatively conservative estimates in the context of his overall drinking habits. Data were then analyzed by day. When days were not described or described in only brief detail, they were not taken in to account. Days when Bond was unable to drink (usually because of incarceration or injury) were logged.

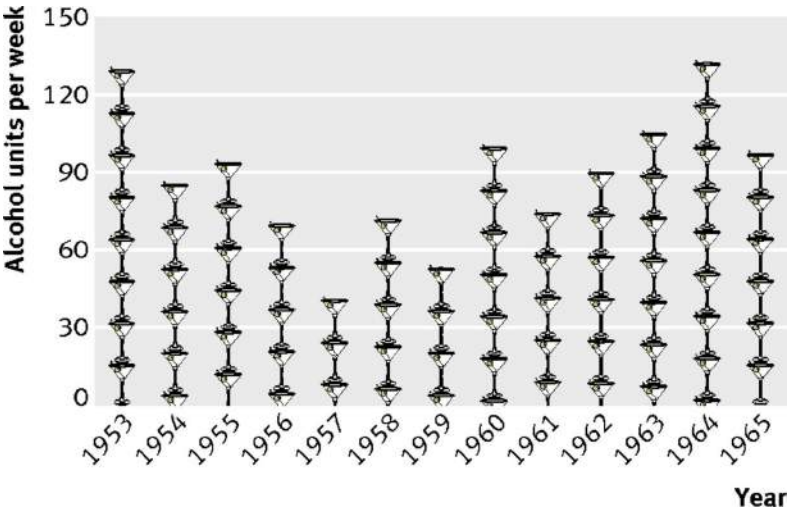
Across 12 of the 14 books, 123.5 days were described, though Bond was unable to consume alcohol for 36 days because of external pressures (admission to hospital, incarceration, rehabilitation). During this time he was documented as consuming 1150.15 units of alcohol. Taking into account days when he was unable to drink, his average alcohol consumption was 92 units a week (1150 units over 87.5 days). Inclusion of the days incarcerated brings his consumption down to 65.2 units a week. His maximum daily consumption was 49.8 units. He had 12.5 alcohol free days out of the 87.5 days on which he was able to drink.

Furthermore, when we plotted Bond's alcohol consumption over time, his intake dropped in the middle of his career but gradually increased towards the end. This consistent but variable lifetime drinking pattern has been reported in patients with alcoholic liver disease.

We have shown that James Bond's alcohol consumption, while on his various missions for Her Majesty's Secret Service is, on average, between 65 and 92 units a week. There is only one indication of his alcohol consumption while not on a mission. During a medical assessment in *Thunderball* he is documented as drinking half a bottle of spirits a day, equivalent to 105 units a week. There are also occasional references to hangovers during non-mission times in the books. We therefore conclude that his drinking during missions is roughly comparable with his "office days."

UK NHS recommendations for alcohol consumption state that an adult male should drink no more than 21 units a week, with no more than 4 units on any one day, and at least two alcohol free days a week. James Bond's drinking habits are well in excess of each of these three parameters. This level of consumption makes him a category 3 drinker (>60 g alcohol/day) and therefore in the highest risk group for malignancies, depression, hypertension, and cirrhosis. He is also at high risk of suffering from sexual dysfunction, which would considerably affect his womanizing.

Data on the average life expectancy of real world secret agents are, not surprisingly, difficult to find. Although some secret service deaths are high profile, there are limited data on a robust denominator for this population. In *Moonraker*, Bond reflects that he would probably be killed before the age of 45 (the age of mandatory retirement from the "00" section of MI6). Should he not be "killed in action," his risk of developing many serious pathologies is high.



Deaths from liver cirrhosis occur at a relatively young age in the UK; an average of 59 years, in stark contrast to the other major causes of mortality including respiratory and cardiovascular disease. Rehm and colleagues have shown a dose:response relation with alcohol and development of cirrhosis. Drinking between 65 and 92 units of alcohol a week equates to between 74g and 105g of alcohol a day, giving Bond a relative risk of developing liver cirrhosis of between 7 and 16 compared with a lifetime abstainer. Work by Hart and colleagues would suggest that his relative risk of all cause mortality is greater than 1.74 (95% confidence interval 1.47 to 2.06) and particularly from stroke (2.33, 1.31 to 4.14) and alcohol related causes (3.72, 98 to 7.00). Presuming survival despite the high risk nature of his profession, we anticipate that James Bond's life expectancy would be significantly reduced. In fact, the author Ian Fleming died aged 56 of heart disease after a life

Continued on page 16

NOVEMBER BIRTHDAYS

Bart Klettke PE

Dr Gary Young

Ronald J O'Mara PE

Steven F Dombrowski PE

Bill Myka

STUDENT INFO

Smarter Than 8th Grader from 1912?

Spelling

Exaggerate, incentive, conscious, pennyweight, chandelier, patient, potential, creature, participate, authentic, bequeath, diminish, genuine, vinegar, incident, monotony, hyphen, antecedent, autumn, hideous, relieve, conceive, control, symptom, rhinoceros, adjective, partial, musician, architect, exhaust, diagram, endeavor, scissors, associate, saucepan, benefit, masculine, synopsis, circulate, eccentric.

Arithmetic

1. Write in words the following:
   .5764; .000003; .123416; 653.0965; 43.37
2. Find cost at 12-1/2 cents per square yard of kalsomining the walls of a room 20ft long, 16ft wide and 9ft high deducting 1 door 8ft by 4ft 6in and 2 windows 5ft by 3ft 6in each.
3. A man sold a watch for $180 and lost 16-2/3%. What was the cost of the watch?
4. A school enrolled 120 pupils and the number of boys was two thirds of the number of girls. How many of each sex were enrolled?
5. How long a rope is required to reach from the top of a building 40ft high to the ground 30ft from the base of the building?
6. How many steps 2ft 4in each will a man take in walking 21.4 miles?
7. At $1.62 a cord, what will be the cost of a pile of wood 24ft long, 4ft wide, and 6ft 3in high?

Grammar

1. How many parts of speech are there? Define each
2. Define proper noun; common noun. Name the properties of a noun.
3. What is a personal pronoun? Define I.
4. What properties have verbs?
5. "William struck James." Change the voice of the verb.
6. Adjectives have how many degrees of comparison? Compare good; wise; beautiful.
7. Diagram the sentence:
   The Lord loveth a cheerful giver.
8. Parse all the words in the following sentences:
   John ran over the bridge. Helen's parents love her.

Geography

1. Define longitude and latitude
2. Tell what you know of the Gulf Stream.
3. Locate Erie Canal; what waters does it connect and why is it important?
4. Locate the following countries which border each other:
   Turkey, Greece, Servia, Montenegro, Romania.
5. Name and give the capitals of States touching the Ohio River.
6. Locate these cities:
   Mobile, Quebec, Buenos Aires, Liverpool, Honolulu.
7. Name in the order of their size three largest States in the United States.
8. Locate the following mountains:
   Blue Ridge, Himalaya, Andes, Alps, Wasatch.
9. Through what waters would a vessel pass in going from England through the Suez Canal to Manila?

Physiology

1. How does the liver compare in size with other glands in the human body? Where is it located? What does it secrete?
2. Name the organs of circulation.
3. Describe the heart.
4. Compare arteries and veins as to functions. Where is the blood carried to be purified?
5. Where is the chief nervous center of the body?
6. Define Cerebrum; Cerebellum.
7. What are the functions (or uses) of the spinal column?
8. Why should we study physiology?
9. Give at least five rules to be observed in maintaining good health.

Civil Government

1. Define the following forms of government:
   Democracy, Limited Monarchy, Absolute Monarchy, Republic. Give examples of each.
2. To what four governments are students in school subjected?
3. Name five county officers and the principal duties of each.
4. Name and define the three branches of government of the United States.
5. Give three duties of the President. What is meant by the veto power?
6. Name three rights given Congress by the Constitution and two rights denied Congress.
7. In the election of a President and Vice President, how many electoral votes is each State allowed?
8. What is copyright? Patent right?
9. Describe the manner in which the President and Vice President of the United States are elected.

History

1. Who first discovered the following places:
   Florida, Pacific Ocean, Mississippi River, St Lawrence River
2. Sketch briefly Sir Walter Rawleigh, Peter Stuyvesant.
3. By whom were the following settled:
   Georgia, Maryland, Massachusetts, Rhode Island, Florida.
4. During what wars were the following battles fought:
   Brandywine, Great Meadows, Lundy's Lane, Antietam, Buena Vista.
5. Describe the battle of Quebec
6. Give the cause of the War of 1812 and name an important battle fought during that war.
7. Name 2 Presidents who have died in office; three who were assassinated.
8. Name the last battle of the Civil War; War of 1812; French and Indian War and the commanders in each battle.
9. Who invented the following:
   Magnetic, telegraph, cotton gin, sewing machine, telephone, phonograph.

Local/Online PDH Opportunities

For additional information regarding these opportunities, contact our office at ESB1894@gmail.com or 716-873-4455. Discounts for some pricing are available for certain society members, small companies, etc. And if you have information regarding future PDH opportunities that may be of interest to our members, please forward them to our office for inclusion in the newsletter and on our website at www.tesb.org.

Date	Hours	Location	Information	Cost
All	2.0	Online	ASME Standards and Certification	Free
All	1.0	Online	Role of Mobile Water Treatment to Offset Emergency/Schedules Plant Shutdowns	Free
11/03/15	1.0	Webinar	Solve Your Industrial Networking Challenges with HMS's Anybus IP on Xilinx	Free
11/03/15	1.5	Webinar	Calculating/Applying Design Wind Loads on Buildings Using Envelope Procedure in ASCE 7	$275
11/03/15	1.5	Webinar	Introduction to 2012 International Existing Building Code	$349
11/04/15	1.5	Webinar	Signal Timing Manual, Second Edition	$89
11/05/15	1.0	Webinar	Simulating Graphene-Enhanced Devices	Free
11/10/15	1.5	Webinar	Designing for Wind Loads Using Directional Procedure in ASCE 7	$275
11/10/15	1.5	Webinar	Design of Masonry Anchors	$349
11/12/15	1.0	Webinar	Advanced PCB Rule Checking for Signal Integrity and EMC	Free
11/12/15	1.0	Webinar	Safety Integrity Management in AssetWise APM	Free
11/12/15	1.5	Webinar	Work Zone Speed Mangement	$89
11/13/15	1.5	Webinar	Construction Fasteners & Post-Installed Anchors	$349
11/17/15	1.5	Webinar	Effective Practices for the Protection of Transit Infrastructure from Cyber Incidents	Free
11/17/15	1.5	Webinar	Calculating Wind Loads for Components and Cladding	$275
11/18/15	1.0	Webinar	Approving or Selecting Building Products with Confidence	Free
11/18/15	1.5	Webinar	Evaluation and Modification of Open Web Steel Joists & Joist Girders Part 2	$75
11/18/15	2.0	Webinar	Current Practices to Set DBE Goal on Design Build & Other Alternative Delivery	$89
11/18/15	1.0	Webinar	Changes to Wind Load Provisions of ASCE 7-10 & Coord with 2015 IBC & IRC	$299
11/18/15	1.5	Webinar	Vibration of Reinforced Concrete Floor Systems Part 1	?
11/19/15	1.0	Webinar	Multipaction & Breakdown Analysis of RF Components	Free
11/19/15	1.5	Webinar	Applications of Adaptive Lighting in Roadways	$89
11/19/15	1.5	Webinar	Design Build for the Design Professional	$240
11/20/15	1.0	Webinar	Glued Laminated and Cross Laminated Timbers	$299
11/30/15	1.0	Webinar	Design Snow Loads for Solar Paneled Roofs	$299
12/01/15	1.5	Webinar	2015 International Building Code - Significant Structural Changes	$275
12/02/15	1.5	Webinar	Modeling, Design, 3-D Printing of Multiscale Materials and Structures	$349
12/03/15	1.5	Webinar	Non-Nuclear Methods for Compaction Control of Unbound Materials	$89
12/04/15	1.5	Webinar	Seismic Evaluation and Retrofit of Unreinforced Brick Masonry Buildings	$349

No PDH for these free webinars

11-04-15	Industrial Tray Cables: Which Are Right for Your Application?
11-04-15	Southern California's Shrinking Salton Sea: Mapping, Managing and Mitigating New PM10 Air Pollution Sources
11-05-15	Guidance for Understanding WiFi Disruptions & Cyber Security at Airports
11-05-15	Security for the IoT - Do You Know How to Secure Your Embedded System?
11-09-15	Introducing the New SPOT R210 and M210 Pyrometers
11-11-15	Heat Shrink Technology: A World of High-Performace Possibilities
11-12-15	Tools for Wireless Network Design
11-12-15	Crystal Clear Liquid Silicone Rubber - Are You on the Cutting Edge of the Lighting Industry?
11-12-15	Critical Power: Circuit Protection in Health Care Facilities
11-17-15	Automotive Megatrends Impacting Electronics
11-17-15	Don't Sweat Moisture Measurement: 10 Easy Solutions
11-18-15	Improving the Design Process For Selective Coordination Applications
12-1-15	Planning for Climate Change Adaptation at Airports
12-2-15	LED and Solid-State Lighting Opportunities for

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❑	December	8	$180	$325	$520	$920
❑	January	7	$175	$315	$500	$880
❑	February	6	$165	$300	$480	$840
❑	March	5	$150	$275	$450	$785
❑	April	4	$130	$240	$400	$695
❑	May	3	$105	$195	$330	$570
❑	June	2	$75	$140	$240	$410
❑	July	1	$40	$75	$130	$215
❑	One Time	1	$40	$75	$130	$215
❑	Color Back Half Page 11 months					$1,300
❑	Online Ad thru August 2016 (Add On Only)					$20

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White Pass & Yukon Route Railroad

The White Pass and Yukon Route is a narrow gauge railroad linking the port of Skagway, Alaska, with Whitehorse, the capital of Yukon. An isolated system, it has no direct connection to any other railroad.

With its completion in 1900, it became the primary route to the interior of the Yukon, supplanting the Chilkoot Trail and other routes. The route continued operation until 1982 and in 1988 was partially revived as a heritage railway.

The line was born of the Klondike Gold Rush of 1897. The most popular route taken by prospectors to the gold fields in Dawson City was a treacherous route from the port in Skagway or Dyea, Alaska, across the mountains to the Canadian border at the summit of the Chilkoot Pass or the White Pass. There, the prospectors were not allowed across by Canadian authorities unless they had one ton of supplies. This usually required several trips across the passes. There was a need for better transportation than pack horses used over the White Pass or human portage over the Chilkoot Pass. This need generated numerous railroad schemes. In 1897, the Canadian government received 32 proposals for Yukon railroads, and most were never realized.

In 1897, three separate companies were organized to build a rail link from Skagway to Fort Selkirk, Yukon, 325 miles away. Largely financed by British investors, a railroad was soon under construction. A 3 ft gauge was chosen by the railway contract builder Michael James Heney. The narrow roadbed required by narrow gauge greatly reduced costs when the roadbed was blasted in solid rock. Even so, 450 tons of explosives were used to reach White Pass summit. The narrow gauge also permitted tighter radii to be used on curves, making the task easier by allowing the railroad to follow the landscape more, rather than having to be blasted through it.

Construction started in May 1898, but they encountered roadblocks in dealing with the local city government and the town's crime boss, Soapy Smith. The President, Samuel H. Graves (1852–1911), was elected as chairman of the vigilante organization that was trying to expel Soapy and his gang of confidence men and rogues. On the evening of July 8, 1898, Soapy Smith was killed in the Shootout on Juneau Wharf with guards at one of the vigilante's meetings. Samuel Graves witnessed the shooting. The railroad helped block off the escape routes of the gang, aiding in their capture, and the remaining roadblocks in Skagway subsided.

On July 21, 1898, an excursion train hauled passengers for 4 miles out of Skagway, the first train to operate in Alaska. On July 30, 1898, the charter rights and concessions of the three companies were acquired by the White Pass & Yukon Railway Company Limited, a new company organized in London. Construction reached the 2,885-foot summit of White Pass, 20 miles away from Skagway, by mid-February 1899. The railway reached Bennett, British Columbia, on July 6, 1899. In the summer of 1899, construction started north from Carcross to Whitehorse, 110 miles north of Skagway. The construction crews working from Bennett along a difficult lakeshore reached Carcross the next year, and the last spike was driven on July 29, 1900, with service starting on August 1, 1900. By then much of the Gold Rush fever had died down.

Photo uploaded by Klanda at English Wikipedia

At the time, the gold spike was actually a regular iron spike. A gold spike was on hand, but the gold was too soft and instead of being driven, was just hammered out of shape.

Information taken from https://en.wikipedia.org/wiki/White_Pass_and_Yukon_Route

Insert Your Article Here

Your story, topic, inspiration, hobby, project, random thoughts, or ??? could be right here in our next issue. Please consider writing for your WNY Engineer newsletter. Don't worry, editing is included free of charge. We know that you are an engineer.

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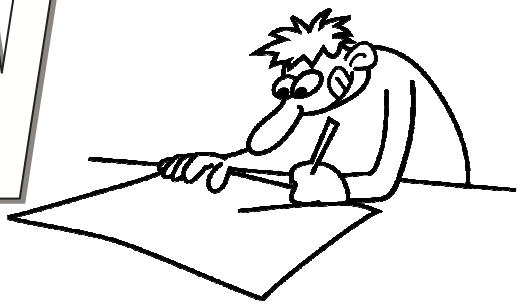


INSPIRE

Don't know what to write about? Send an email to ESB1894@gmail.com and Robin M Closs SE PE will send you a few topics to choose from and probably an article with some good information to get you started. Showcase some of your talents in an upcoming month.

MBA Opinions

One of our student members emailed ESB and wanted some thoughts and opinions from engineers on whether or not to pursue a Master of Business Administration degree prior to entering the labor force. He had heard that obtaining a MBA before gaining some work experience could be detrimental while others said that it would be beneficial to obtain the degree beforehand. He could earn a MBA with just one additional year of schooling. This question was posted to ESB's board and here are the responses that were received.

Mark Masse began with stating that it is a lot easier to do it now versus going back to school later. He believed that employers really don't ask when you received your MBA anyway. And that it makes more sense to do it now.

Steve SanFilippo stated that a company may pay for you to obtain the degree later and that would be a good reason to wait.

Emil Bandriwsky, who has a degree in Electrical Engineering, stated that it took him four years of night school to obtain his MBA. He said that once you start a family, buy a home, etc it is much harder and takes much longer to complete schooling. He said that obtaining the MBA didn't really help him as an engineer per say, but if it is something that interests you do it. You should do it because you like it and would enjoy it. When you are young, it is much easier to do.

Robin M Closs PE SE believes that if your goal is truly management, then go ahead and pursue the MBA. It is not going to hurt to have knowledge on the finance end of a business. It is possible, however, that during your first few employment opportunities that you will have to keep your knowledge to yourself so as not to overstep your place within the company. If you are just looking for another thing to add to your resume, then it's probably not worth the extra year of time to pursue the degree. If I were to hire for an entry level engineer's position, I would not give any weight to a candidate who had a MBA. To be fair however, I would probably also frown on a candidate who had a master's degree in structural engineering. Prior conversations with these types of individuals focused so much on the theoretical that I feel they would have a harder time transitioning to real world design problems where a simple W8x18 beam works and it doesn't matter if it deflects 0.108 inches or 0.1078 inches...yet they still want to discuss the difference.

Attendees:	Officers:	Closs, Samol, SanFilippo
	Board Members:	Bandriwsky, Colucci, Masse, Mooney, Plizga
	Excused:	Kuberka, Papaj
	Absent:	Cartwright, Wach

Call to Order: President Michael J Samol called the meeting to order at 6:05pm

Minutes: The minutes of the September meeting were reviewed and approved

Committee Reports

Advertising: Ron Papaj is continuing to contact past advertisers. Will report more next month.

Audit: No report

Bowling: Going well. Turkey shoot coming up Nov 18. They bowl at Tonawanda Bowling Center on Young St.

Bylaws: No report

Education: No report

Endowment: Funds are down a bit but don't have to touch them for this year's scholarships. A broker manages the funds. Gene Colucci would like investments checked for a balanced portfolio. Mike Samol will talk with Don McMahon.

Events: Junk Warriors will clean up Colvin Ave on Oct 17. This will be our last Adopt A Highway cleanup. Hoping for more dinner reservations for the past president dinner.

Fundraising: Car show is going well and will be listed in clutch magazine. Gene Colucci is working on door prizes and is expecting 100+ cars from Canada. The goal is 500 cars total. There will be a car show committee meeting at some point. Sell raffle tickets please. The car show will be at Outer Harbor State Park, 111 Fuhrmann Blvd.

Golf: No report

Historian: No report

Media: No report

Newsletter: No report

Nominating: No report

Scholarship: No report

Scholarship Run: No report

Sunshine: No report

Y Membership: Mike Samol will be meeting with UB on 10-30 to try to get ESB involved with UB Alumni groups. Gene Colucci would like to involve UB students in the car show to give an award. Matt Plizga thinks we should contact professors at UB.

Adjournment: The meeting adjourned at 6:44pm

Next Meeting: Monday November 9, 2015 Ukrainian Cultural Center DNIPRO 562 Genesee St, Buffalo NY

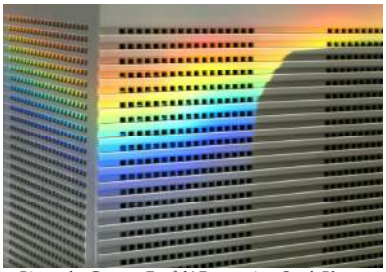
Possible Future ESB Events

Please send us a quick email if you have even the slightest interest in any of the following potential events. Otherwise, we might delete, modify, or change the event. And, if you have any other ideas for future events, please send them to ESB1894@gmail.com!

November 2015	Covanta Energy Tour
December 2015	Holiday Interactive Networking Event
January 2016	Dinner and Speaker on Brownfield Cleanup
February 2016	Engineers Week Activities at the Buffalo Museum of Science Hamburg Brewery Networking Event
March 2016	Instrumentation PDH
April 2016	??? Tour
May 2016	ESB Election UB Solar Panel Tour
June 2016	Boat Ride Car Show
July 2016	Explore Buffalo Event Scholarship Run
August 2016	Golf Tournament

Picture by Dan Wallace | Dreamstime Stock Photos

Picture by Phil Date | Dreamstime Stock Photos



Picture by Guenter Zoufal | Dreamstime Stock Photos

Picture by Yiannos1 | Dreamstime Stock

"Buffalo skyline 2014" by Peter Stergion @pete716 - http://i.imgur.com/BA6Jdxj.jpg. Licensed under CC BY-SA 4.0 via Commons - https://commons.wikimedia.org/wiki/File:Buffalo_skyline_2014.jpg#/media/File:Buffalo_skyline_2014.jpg

Pioneering Women In STEM

Esther Lederberg is a bacterial genetics pioneer. She bucked expectations of Hunter College faculty to study biochemistry but was so poor, she later said, she had to take home the legs of the frogs she dissected to eat. She is known for discovering the lambda bacteriophage in 1951, the first recognized organism that can invade bacteria and live in its DNA. The breakthrough was important for studying similar viruses in animals. She was part of a research team that discovered that bacteria can mate and exchange genes, and came up with a technique that greatly simplified lab work in microbiology, allowing scientists to "copy" bacteria colonies. Doreen Ware, a computational biologist with the U.S. Department of Agriculture's Agricultural Research Service, is a leader in modern genetics. She researches how staple crops evolve, which can help improve modern agriculture practices.

Barbara McClintock discovered something amazing about genes: they jump. Her research on South American maize uncovered "transposable elements," pieces of DNA that can move within a genome, controlling gene expression and resulting in mutations. She was so far ahead of her time a skeptical, even hostile scientific community rejected her theories. Concluding that other scientists would not accept her ideas, she continued her work--without publishing detailed papers--for decades. Her findings were validated within her lifetime, however, and in 1983 she won the Nobel Prize in Physiology or Medicine. Sue Wessler's work connects directly to McClintock's. The University of California, Riverside, biologist has spent decades trying to understand the contributions that transposable elements make to genome evolution. Her research program has developed software to identify and characterize transposable elements.

In 1946 a group of government scientists publicly revealed a breakthrough: the ENIAC, the first general-purpose computer, a 150-foot-long, 30-ton behemoth. ENIAC's software consisted of six women, employed as human "computers" calculating ballistics trajectory calculations during World War II. They were charged with developing most of the machine's programming, and harnessed ENIAC's power to perform ballistics calculations in seconds--thousands of times faster than any prior method. Betty Snyder Holberton, Jean Jennings Bartik, Kathleen McNulty Mauchly Antonelli, Maryln Wescoff Meltzer, Ruth Lichterman Teitelbaum and Frances Bilas Spence didn't receive due credit at the time--their names were left off official announcements and weren't identified in newspaper photographs. Today they have been recognized for their contributions to modern computing, and are inductees in the Women in Technology International Hall of Fame. Latanya Sweeney works to help make today's computing world safer. The head of the Data Privacy Lab at Harvard University, Sweeney has created tools to protect computer users' privacy, and developed the theory of "k-anonymity," which holds that "quasi-identifiers" such as birth date, postal code and gender can reveal the specific identities of most US residents.

Author Jessica Arriens can be reached at jarriens@nsf.gov and Robert J Margetta can be contacted at rmargett@nsf.gov. This article can be found in its entirety at http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=134386&org=NSF

Don't Try To Teach Pigs To Fly

By Brian Jeffrey

There's one sure thing about trying to teach pigs to fly: it annoys the pigs and frustrates the teacher. As a former sales trainer, I shared many of the same frustrations. I was often asked to use my "wizardry" to turn water into wine; to train the untrainable; and it just doesn't work.

Square Pegs in Round Holes

It's not that the individuals are necessarily untrainable. It's that they are not suited for the role of a salesperson and no amount of training will make them into one. Ever try to pound a square peg fit into a round hole? You usually end up damaging both the peg and the hole. If you're going to do any pounding, at least use an oval peg. Less damage and less frustrating. There are a lot of frustrated sales managers out there who are at their wit's end with some of their people because, despite all the training, coaching, and assistance, they just don't measure up. Could it be that they're trying to teach pigs to fly?

Universal Problem

This phenomenon is not limited to individuals. Here are a couple of company-wide examples:

One of our clients, a major consulting company, felt it was losing business because its consultants in the field didn't recognize or capitalize on opportunities within the organizations they were working with. It was decided to train all the consultants to sell. Before undertaking the project, I insisted on evaluating the consultants to see who were suitable for the sales role and who were less, or not, suited. We used an instrument called the Sales Temperament Assessment or STA. Over the years, we've identified 18 different sales temperaments, two of which shouldn't be in sales at all and the others are likely to be successful to varying degrees, depending upon what they are selling. In this case, it turned out that about half the consultants had the basic temperament to succeed in sales and the remainder fell into the two categories of people who are not likely to be successful. The training went ahead as planned with the result that about half the consultants became more aware of potential opportunities and the other half continued to do what they did best: consult. The result was a minor increase in sales and a major increase in anxiety among the consultants.

The second example is a major international corporation that provides professional consulting and other services to a broad range of organizations around the world. One of its major strengths is that the company hires only the most qualified people. Some time ago, an edict came down from on high informing the professional staff that if they expected to move up the internal career ladder, they must generate business (sell) on their own. This was tantamount to gathering all the farm animals into a corral and informing them that, from this day forward, in addition to their primary functions as cows, chickens, pigs, sheep, etc, they were also to act as horses. Now, the horses aren't going to have any problem with the edict, but the other animals are going to get a bit stressed out.

To be fair, another of my clients, an engineering firm, provided sales training to all their senior engineers and ended up with a 20 percent increase in billable hours. Sales training can work.

You're Not Immune

While these examples just happen to be about consulting firms, I see this phenomena occurring in many different organizations. I suppose they think that selling is so easy that anyone can do it: a popular misconception.

When will companies and managers learn that they can't take Fred from accounting or June from production and put them into sales. Yet that's what happens too often, especially when companies are faced with reducing staff. Rather than laying off Fred or June, they put them into sales where they flop around like fish out of water until they finally die. Then everyone stands around saying how sad it was that Fred and June couldn't make a go of it, but at least they were given a chance. Without making sure that Fred and June at least had a chance at success, all the company has done was to give them a chance to fail and destroy their self-confidence. You can't take Fred from accounting and move him into sales anymore than you can take Susan from sales and put her into accounting and expect anything other than chaos and poor performance.

Making the Right Fit

Smart companies and good managers know that part of their job is to put the best person in the right position and then support the individual. It doesn't matter if that person comes from within the organization or is a new hire.

I'm not implying that engineers, consultants, or even accountants can't sell. To be sure, there are engineers, consultants, and accountants who can sell just as there are salespeople who can engineer and consult. For the most part, engineers engineer, consultants' consult, etc, and rarely do the two skills cross. Frankly, after some of the expense accounts I've monitored over the years, I wouldn't let a salesperson near the accounting area unless I was interested in some very creative accounting!

So, as sales managers and sales-oriented companies, make sure you fit the person to the job, not the job to the person. There are tools out there to help you make those decisions. We can help.

Don't get stuck trying to teach pigs to fly.

Article appears at http://www.articlecity.com/articles/self_improvement_and_motivation/article_6602.shtml

Brian Jeffrey is President of Salesforce Assessments Ltd. His company works with sales managers who want to make the right hiring decision and build strong sales teams. Get more articles and your free copy of "The 8 Biggest Hiring Mistakes Sales Managers Make" at http://www.SalesforceAssessments.com

Check out www.tesb.org for current events. It is updated regularly!

716 Food & Sport

By James Cavanaugh

After Terry & Kim Pegula announced plans for the $200 million HarborCenter project in 2013, they contracted with an out of town architectural firm and construction company to design and build the project.

However, one key element of the project was to develop a world class, sports themed bar and restaurant to anchor the retail portion of the building. For this, they sought out local talent to design and build something truly unique in Buffalo.

BHNT Architects was selected for the design of 716 Food & Sport. They had demonstrated their skills at creating memorable restaurant and dining spaces at Buffalo State College, The Finger Lakes and Fairgrounds Casinos and with local boutique restaurants like Oshun.

BHNT's team worked closely with Kim Pegula and her team at Pegula Sports and Entertainment, the Sabres Organization, and (716) to create this one-of-a-kind sports themed bar and restaurant.

Mader Construction of Elma was selected as the general contractor for this signature project. Mader has built many of the regions iconic new projects including the Federal Court Building, Gates Vascular Institute and the restoration of the Darwin Martin House.

Important dramatic architectural design elements incorporated in the project by BHNT were provided by ASI Signage of Grand Island and Rigidized Metals of Buffalo.

The centerpiece of the 13,000 square foot restaurant is a 38 foot wide projection TV system over the main bar featuring two eremotion picture grade digital video projectors. This is the largest such screen in a hospitality facility in the United States. There are 55 additional large screen TV's throughout the restaurant. Each can be controlled by software on iPads carried by restaurant staff.

The multi-level restaurant features two large satellite bars that provide their own space within a space. The main and satellite bars featured a trans-illuminated bar top that has the texture of an ice rink surface. The color of each bar can be changed to fit a specific mood or event!

HarborCenter and the attached Marriot Hotel have played a vital role in the redevelopment of the CanalSide area of downtown Buffalo. While the project was designed to boost sports tourism, 716 Food & Sport has been the part of the project most visited by tens of thousands of WNY residents.

Additional photographs of the project may be found on the back cover and at http://www.cavphoto.com/Gallery/Featured%20Project/716/index.htm

Continued from page 4

notable for alcohol and tobacco excess. We suspect that Bond's life expectancy would be similar.

It is well recognized that alcohol increases the risk of driving related incidents, and this risk increases from blood alcohol level of 0.04%. The UK sets its limit at 0.08%, which is the same as the US, but higher than that of much of Europe and Australia. No such limits existed in the 1950s and throughout the books Bond is noted to have several drinks, enough to put him well over this limit and then drive. In *Goldfinger*, for example, he drinks 18 units while having drinks and dinner with Auric Goldfinger before then driving home. In Casino Royale he drinks over 39 units before engaging in a high speed car chase, losing control, and spending 14 days in hospital. We hope that this was a salutatory lesson. Such behavior is typical of Bond. Despite his alcohol consumption, he is still described as being able to carry out highly complicated tasks and function at an extraordinarily high level. This is likely to be pure fiction.

A commonly used screening tool to identify alcohol dependence is the "CAGE" questionnaire, where two yes responses should prompt further investigation:

- Have you ever felt you needed to **C**ut down on your drinking?
- Have people **A**nnoyed you by criticizing your drinking?
- Have you ever felt **G**uilty about drinking?
- Have you ever felt you needed a drink first thing in the morning (**E**ye opener) to steady your nerves or to get rid of a hangover?

Applying these to Bond, the authors would score him 3 out of 4. In "Thunderball" he recognizes his high alcohol intake and that he feels better drinking less. He also admits to having an eye opener on some mornings (the "Prairie Oyster"). Also in *Thunderball*, together with the *Living Daylights*, he becomes annoyed when challenged about his drinking by his boss "M". It is likely that an international spy and assassin cannot spend too much time worrying about remorse, so we are not surprised that there are no documented instances of alcohol associated guilt.

The most common cause of tremor is essential tremor. This is typically postural and will most commonly affect the upper limbs, although lower limb involvement is recognized. The role of alcohol is somewhat uncertain, with some evidence that in lower doses it can be beneficial in essential tremor, while others propose that those with high alcohol consumption are four times more likely to suffer with essential tremor.

Cerebellar lesions are well known to cause an intention tremor and cerebellar tremor is considered a distinct clinical entity. While strokes are a more common cause of cerebellar lesions (of which Bond is at increased risk), chronic exposure to toxins, such as alcohol, that cause more generalized damage to the cerebellum can also cause a cerebellar tremor. We have shown that Bond's alcohol intake is of sufficiently high frequency and duration to cause such cerebellar damage.

On several occasions estimates of consumption have had to be used as Mr Fleming was not precise with his writing. The authors have taken reasonable measures to ensure that, when necessary, conservative estimates have been made. Of the total 1150 units drunk, only 190 units (16.5%) were accounted for by these terms, therefore if the estimations were inaccurate this would make a minimal change to the total. Similarly, when it was mentioned that drinks were shared, we thought it appropriate to assume an equal share of the drinks, regardless of who he was sharing with.

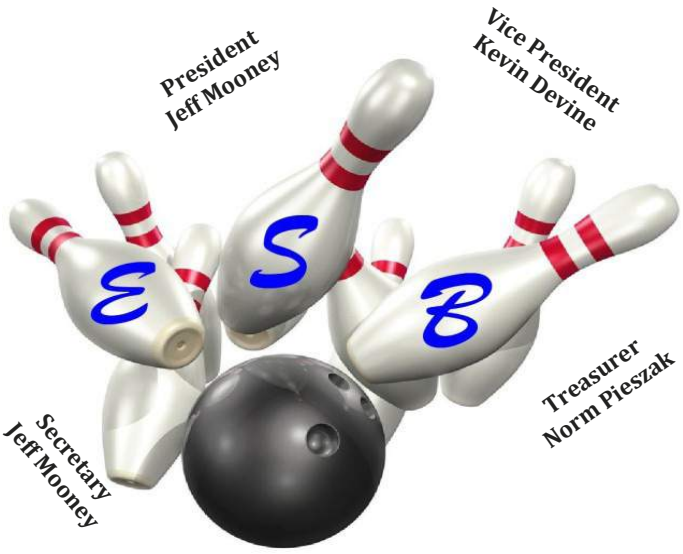
Conclusions

James Bond's weekly alcohol intake is over four times the advisable maximum alcohol consumption for an adult male. He is at considerable risk of developing alcoholic liver disease, cirrhosis, impotence, and other alcohol related health problems, together with being at serious risk of injury or death because of his drinking. Although we appreciate the societal pressures to consume alcohol when working with international terrorists and high stakes gamblers, we would advise Bond be referred for further assessment of his alcohol intake and reduce his intake to safe levels.

We conclude that James Bond was unlikely to be able to stir his drinks, even if he would have wanted to, because of likely alcohol induced tremor.

See http://www.bmj.com/content/347/bmj.f7255 for entire article.

HAPPY THANKSGIVING! DON'T DRINK TOO MUCH!



Team Standings Week 4	Won	Lost
1. SABER	34	2
2. ODIES	30	6
3. TRANSMITTERS	28	8
4. AVERAGE JOE'S	22	14
5. DEAD LOADS	21	15
6. MESSY HOSE	20	16
7. THE KEGGLERS	18	18
8. JUNKYARD DOG'S	16	20
9. PROTRACTORS	16	20
10. THE FOUR HORSEMEN	16	20
11. OUTCASTS	15	21
12. CAD/CAMS	15	21
13. SPLIT HAPPENS	9	27
14. AZZ CLOWNS	8	28

Scratch Game		Handicap Game	
Tom Mann	266	Pete Chenier	297
Scott Hummel	266	Ian Sutherland	280

Scratch Series		Handicap Series	
Jay Lorich	680	Gina Cook	792
Tom Mann	674	Ed Kilgore	772

Cross Alley w/Handicap	
Norm Pieszak	274

Application

Date: _____

I hereby make application to the Engineering Society of Buffalo, Inc. and I agree to abide by the Constitution and By-Laws governing this Society.

Name: _____

Street Address: _____

City: _____

State: _____ Zip: _____

Residence Phone: _____

Where Employed: _____

Firm Address: _____

City: _____

State: Zip:

Phone: Fax:

Email: _____

Position in Firm: _____

Nature of Business: _____

_____

Send mail to:

Residence ***Business***

_____

Signature of Applicant

_____

Sponsored by

Biography

The Engineering Society of Buffalo contemplates publishing biographical sketches of members in the monthly newsletter "The Western New York Engineer". For this purpose we would like the following information:

Date of Birth: _____ Married Y N

Member of what other clubs/societies:

_____

Education:

_____

In what engineering field(s) are you interested in?

_____

Resume attached? Yes No

Sports & Hobbies:

_____

_____

Name of Spouse and Children:

Spouse: _____

Children: _____

_____

Name as it should appear on ESB Membership Card:

Activities

Activities in which you would like to participate

- ❑ Advertising
- ❑ Scholarship
- ❑ Bowling League
- ❑ Newsletter/Roster
- ❑ Golf Outing
- ❑ Education
- ❑ Program Committee
- ❑ Scholarship Run
- ❑ Business & Community Affairs

Elected by the Board of Directors

_____ *Month* _____ *Day* _____ *Year*

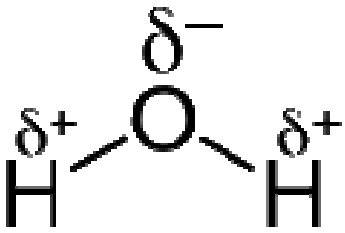
*Am*ount Received:

Initiation Fee	$15.00
Dues	$ _____
Total	$ _____

Dues
$80 Individual
$35 Non-Resident
$30 Retired
$20 Student

Practical Properties of Water (1849)

By Thomas Kelt



By analysis it is ascertained, that water is composed of the gases oxygen and hydrogen in a state of chemical union; its distinguishing properties, like that of other liquids, being nearly incompressible gravity, capability of flowing, and constant tendency to press outwards in every direction; also that of being easily changed by the absorption of caloric to an aeriform state of any required density or degree of elastic force: hence the principle of the hydraulic press, water-wheel, steam engine, etc.

Effects produced by Water in its natural State

Because of liquids possessing the properties of gravity and capability of flowing freely in every direction, sides of vessels, flood-gates, sluices, etc sustain a pressure equal to the product of the area multiplied by half the depth of the fluid, and by its gravity in equal term of unity.

But when a sluice or opening through which a liquid may issue is under any given continued head, the pressure is equal the product of the area multiplied into the height from the center of the opening to the surface of the fluid.

The weight of water or other fluid is as the quantity, but the pressure exerted is as the vertical height. Hence, as fluids press equally in every direction, any vessel containing a fluid sustains a pressure equal to as many times the weight of the column of greatest height of that fluid, as the area of the vessel is to the sectional area of the column.

To find the velocity of water issuing a circular orifice at any given depth from the surface.

Rule. - Multiply the square root of the height or depth to the center of the orifice by 8.1; and the product is the velocity of the issuing fluid in feet per second.

In the discharge of water by a rectangular aperture in the side of a reservoir, and extending to the surface, the velocity varies nearly as the square root of the height, and the quantity discharged per second equal 2/3 of the velocity due to the mean height, allowing for the contraction of the fluid according to the form of the opening, which renders the coefficient in this case equal to 5.1; whence the following general rules.

1. When the aperture extends to the surface of the fluid. Multiply the area of the opening in feet by the square root of its depth also in feet, and that product by 5.1; then will 2/3 of the last product equal the quantity discharged, in cubic feet per second.
2. When the aperture is under a given head. Multiply the area of the aperture, in feet, by the square root of the depth, also in feet, and by 5.1; the product is the quantity discharged, in cubic feet per second.

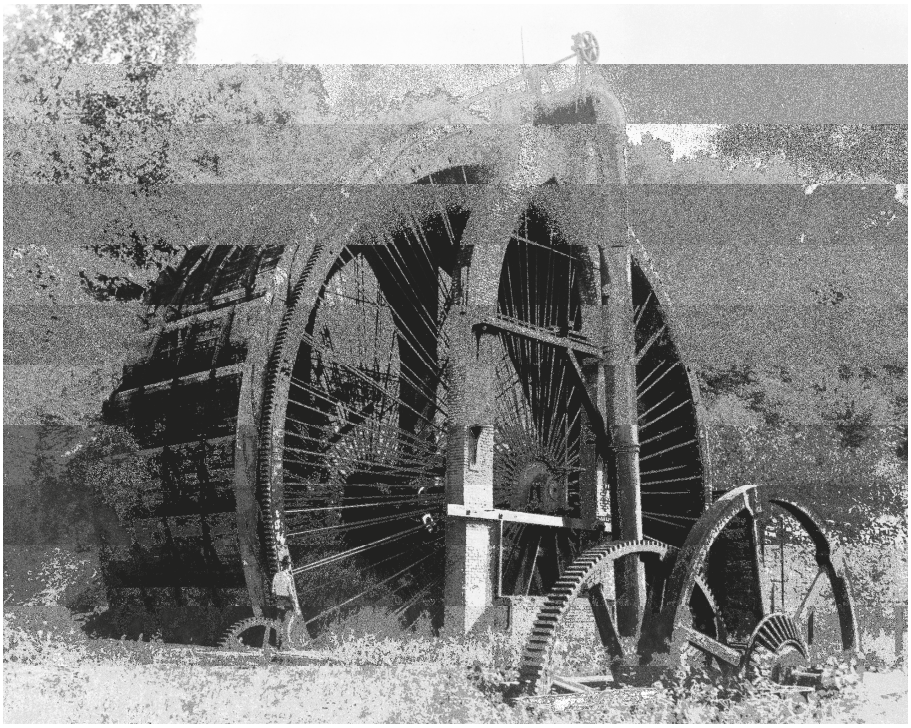
The combined properties of gravity and fluidity which water possesses, renders it so available as a source of motive power; gravity being the property by which the power is produced, and fluidity that by which it is so commodiously qualified to the various modifications in which it is employed.

Water, it is ascertained, is subject to the same laws of gravity as those of solid bodies, and thereby accumulates velocity or effect in an equal ratio when falling through an equal space, or descending from an equal height. Hence, the velocity attained is as the square root of the height of its fall; and it is now quite satisfactorily decided, that, because of the non-elastic property of water, its greatest is obtained when acting by gravity throughout its whole height, whether it be applied on a water-wheel, turbine, or other machine through which circular motion is to be the immediate result.

In regard to water-wheels, and other machines through which motion is produced by the effort of water, much discrepancy of opinion has, until lately existed, both as to form and velocity, besides other essential points requisite in gaining a maximum of effect with the least possible strain. Hence have been deduced the following demonstrative conclusions:

1. That, to gain a maximum of effect by a horizontal water-wheel, the water must be laid upon the wheel on the stream side, and the diameter of the wheel so proportioned to the height of the fall, that the water may be laid on about 52-3/4 degrees distant from the summit of the wheel, or the height of the fall, being the height or diameter of the wheel equal 1.108.
2. That the periphery of a water-wheel ought to move at a velocity equal to about twice the square root of the fall of the water in feet per second, and the number of buckets equal 2.1 times the wheel's diameter in feet; also, that precautionary means be adopted for the escape of the air out of the buckets, either by making the stream of water a few inches narrower than the wheel, or otherwise.
3. That, because of water producing a less efficient power by impulse than gravity, turbines, or machines through which the motion is obtained by reaction, are greatly preferable to undershot, or low-breast wheels.
4. That a head of water is required sufficient to cause the velocity of its flowing to be as 3 to 2 of the wheel; 1/9 of the wheel's diameter being an approximate height, near enough for practical purposes.
5. That the effective power of a wheel constructed according to these restrictions, is equal to the product of the number of cubic feet and velocity in feet per minute, multiplied into 0.001325.

Information from Kelt, Thomas. *Mechanic's Text-Book and Engineer's Pocket Guide*. Boston: Phillips, Sampson and Company, 1849. Google books. Web. 16 Oct 2015. http://books.google.com



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716 Food & Sport

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