Society of Manufacturing Engineers
Wabash Valley Chapter 275

January, 2007

In this issue:

Upcoming Dates

Jan. 11 Wabash meeting

Jan. 25 Motorsports Conference Indianapolis, IN

Feb. 8 Wabash meeting

Mar. 8 Wabash meeting

Mar. 26-29 WESTEC Los Angeles, CA

Apr. 12 Wabash meeting

May. 10 Wabash meeting

May 22-24 EASTEC W. Springfield, MA

Jun. TBD Wabash golf outing

SME Wabash Valley 275 Meeting Schedule

January 11, 2007, Thursday

6:00 PM tour of Aleris Blanking and Rim Products, 1140 Crawford Street, Terre Haute, IN 47803. Park on the West side of the plant, between the building and the pond, which are on the North side of Crawford Street. After the first tour, we will drive West on Crawford Street, turn North on 9 th Street and go 1 block to the Rim plant, for the second tour. Dinner will follow the tours.

7:30 PM Dinner at Moggers Brewery, 910 Poplar Street. We have reservations in the name of ASM Fenoglio. Order from the menu.

Reservations required by Monday, January 8, contact Roy Boissy arrangements@asqwabashvalley.org or (812) 237-8329.

Joint SME, ASM and ASQ meeting. Everyone welcome.

January 25 - 27, 2007

SME Motorsports Indianapolis Conference & Exposition, Indiana Convention Center, Indianapolis, IN. More information is on the SME web site.

February 8, 2007, Thursday

Location is Richards Farm Restaurant, in Illinois, I-70 Exit 129, then South on Hwy 49. Go 1 mile, then turn left (East) on US 40. Go about 1/2 mile, then turn left at the first road, and continue to the barn.
5:30 PM Illinois time Social and registration
6:00 PM Dinner BBQ Pork Loin or Roast Turkey and dressing
7:00 PM Dr. LeRoy Franklin talk on Statistics

Dinner cost is $10 each, students $6 each. Reservations required by Monday, February 5, indicate meal choice and contact Roy Boissy (812) 237-8329 or arrangements@asqwabashvalley.org
Joint SME, ASM and ASQ meeting. Everyone welcome.

March 8, 2007, Thursday

Novelis tour, 5901 North 13th Street, Terre Haute, IN 47805. Steel toed shoes required. Safety glasses and earplugs will be provided. This is the former Alcan facility. Times will be given later.

Reservations required by Monday, March 5, contact Roy Boissy (812) 237-8329 or arrangements@asqwabashvalley.org
Joint SME, ASM and ASQ meeting. Everyone welcome.

March 26 - 29, 2007

SME WESTEC, Los Angeles, CA. More information is on the SME web site.

April 12, 2007, Thursday

Student donation night. Times and location will be given later.
Reservations required by Monday, April 9, contact Roy Boissy (812) 237-8329 or arrangements@asqwabashvalley.org
Joint SME, ASM and ASQ meeting. Everyone welcome.

May 10, 2007, Thursday

Challenge X update, Rose-Hulman Institute of Technology
Times and location will be given later.

Reservations required by Monday, May 7, contact Roy Boissy (812) 237-8329 or arrangements@asqwabashvalley.org
Joint SME, ASM and ASQ meeting. Everyone welcome.

May 22 - 24, 2007

SME EASTEC, W. Springfield, MA. More information is on the SME web site.

June, 2007

Golf outing at the Country Club of Terre Haute, 57 Allendale Street, Terre Haute, IN 47802. Picnic to follow after the golf outing. Times will be given later.

For reservations, contact Roy Boissy (812) 237-8329 or arrangements@asqwabashvalley.org
Joint SME, ASM and ASQ meeting. Everyone welcome.

Certification Corner

If you are interested in participating in a study group for the CMfgE - Certified Manufacturing Engineer, please send an e-mail to smewabash@yahoo.com and provide your contact information. The tentative plans are to start up in January, 2007, and take the exam in April or May.

More information on all SME Certifications may be found at http://www.sme.org then click on Professional Development drop down menu Certification. More information on the SME Lean Certification may be found by then clicking on Lean Certification, from that page.

SME Wabash Valley 275 Membership

SME S089 Indiana State University Student Membership

Welcome new S089 member:

Uday Shankar Arunachalam

If you know of a SME member that is in the Terre Haute area, but is not a Wabash Valley member, please ask them to consider joining Chapter 275.

Notes from last month' meeting

16 people attended the December joint meeting of ASM, ASQ and SME Wabash Valley. The Indiana State University Music Department, Madrigal Singers put on the dinner show titled "The 59th Annual Yuletide Madrigal Feaste." The festivities were in a medieval setting with the singers wearing period costumes.

Events included Wassail and Royal Toasts, Procession of the Boar's head, The Dinner, Fools Fall in Love skit, followed by The Concert. The Concert consisted of eleven songs. The Madrigal Singer were very good, and the two and a half hour event was very entertaining. Photos from the meeting are on page 5.

Question of the Month

The December meeting was a Madrigal dinner. What does Madrigal mean relative to music?

If you think you know the answer, send an e-mail to smewabash@yahoo.com The first person with the correct answer will have their name listed in next month's newsletter.

The answer will be given next month.

Answer for December's Question

What are the requirements to become a SME Senior Member and a SME Life Member?

Go to http://www.sme.org then click on Members. Scroll to the bottom and click on member grades. The SME member grades are: Student, Associate, Regular, Senior, Life, Fellow, and Honorary.

Student Member

Should be enrolled in a technology-related program in a two-year junior college/technical institute, four-year college, a graduate program in engineering or science, or an established company program with coursework equivalent to manufacturing technology as taught at the technical institute level, and carry at least six credit hours per term.

Associate Member

Should be engaged in manufacturing, or engaged in related activities serving manufacturing, and should be employed in a responsible position. Graduating student members can upgrade to an Associate Membership.

Regular Member

Should have a minimum of four years experience in one or a combination of the following categories:

Planning and selecting economic methods for manufacturing or processing. Designing tools, dies, gages, machines or other equipment used in manufacturing or processing. Designing products for feasible and economical manufacture. Research and development leading to the creation of new or improved manufacturing equipment or processes. Other creative activities related to manufacturing in one of the following fields: a) administration, b) education or c) government.

Education from an accredited technical, science or engineering school is acceptable in place of experience on a year-for-year basis.

Senior Member

Should be a Certified Manufacturing Engineer (CMfgE), a registered Professional Engineer (PE), or have a bachelor's degree in science or engineering from an accredited school, should have at least six years of experience in one or any combination of the following categories:

Planning and selecting economic methods for manufacturing or processing. Designing tools, dies, gauges, machines or other equipment used in manufacturing or processing. Designing products for feasible and economical manufacture. Research and development leading to the creation of new or improved manufacturing equipment or processes. Other creative activities related to manufacturing in one of the following fields: a) administration, b) education or c) government.

Without the CMfgE, the PE or a bachelor's degree, the applicant should have 10 years experience in the categories above.

Life Member

Should have completed a term of office as the SME President. Age (in years) plus years of SME membership should total at least 100.

Life members receive the same privileges as senior members and annual dues are waived for life.

Fellow Member

Should be nominated for this grade of membership. To be nominated for fellow membership, the candidate must:

Be a member of the Society in good standing. Possess a minimum of a bachelor's degree or equivalent engineering experience. Have 20 years of professional experience in a manufacturing-related area. Have made outstanding contributions to the manufacturing profession.

Nominations must be approved by the Fellows Selection Committee. Fellow members

receive all the privileges of senior membership and their annual dues are waived for life.

Honorary Member

Should have recognizable ability and stature. Should have contributed substantially to attaining the goals of the Society.

Any group of five or more voting members of the Society may nominate a candidate for honorary membership by presenting, in writing, the reasons for such nomination to the president of the Society.

A two-thirds majority vote of the board of directors, by secret ballot, is necessary to elect a candidate to honorary membership. Honorary members receive all the privileges of senior membership and an honorary member's annual dues are waived for life.

If you believe you are qualified for an upgrade or have questions about these member grades, contact the Customer Service Center at (800) 733-4763 or send a message to service@sme.org.

SME Wabash Valley Officers for 2007

Michael Hayden, Chair
Hank Leonhardt, Chair Elect
Bill Wortman, Secretary
Wes Richardson, Treasurer

You may send an e-mail to any of the above individuals by sending to smewabash@yahoo.com and including the name of the person you wish to contact. Place SME Wabash Valley in the Subject line. Your e-mail will be forwarded to the indicated person.

James K. McNeely, Membership Consultant
Natalie Lowell, Member Relations Manager
Ronald P. Harrelson, Member Council Representative

SME S089 ISU Student Chapter Officers for 2006 - 2007

Rakesh Yarlagadda, Chair
Ryan Kunkler, Chair Elect
Sajid Syed, Secretary
Kartheek Theeda, Treasurer
Surendranath Antharam, Program Committee Chair

Internet Web Sites

SME Wabash Valley, Chapter 275
http://chapters.sme.org/275/

SME Indiana State University, Chapter S089
http://chapters.sme.org/s089/

SME International
http://www.sme.org

ASQ Wabash Valley, Section 0919
http://www.asqwabashvalley.org/

ASQ International
http://www.asq.org

ASM Wabash Valley
http://chapters.sme.org/275/asm.htm

ASM International
http://www.asminternatinal.org

The SME Wabash Valley Newsletter newsletter is a publication of SME Wabash Valley, Chapter 275, located in Terre Haute, Indiana.

Articles, comments or other feedback may be sent to:

Wesley Richardson, Newsletter Editor
10037 E. Flesher Avenue
Terre Haute, IN 47803-9638
smewabash@yahoo.com

Deadline for submitting information for the February newsletter is January 26, 2007.

Indiana State University Madrigal Singers

Indiana State University Madrigal Singers

Groupthink: A situation in which critical information is withheld from the team because individual members censor or restrain themselves, either because they believe their concerns are not worth discussing or because they are afraid of confrontation.

H

Hawthorne effect: The concept that every change results (initially, at least) in increased productivity.

Hazard analysis and critical control point (HACCP): A quality management system for effectively and efficiently ensuring farm to table food safety in the United States. HACCP regulations for various sectors are established by the United States Department of Agriculture and the Food and Drug Administration.

Heijunka: The act of leveling the variety or volume of items produced at a process over a period of time. Used to avoid excessive batching of product types and volume fluctuations, especially at a pacemaker process.

Highly accelerated life test (HALT): A process developed to uncover design defects and weaknesses in electronic and mechanical assemblies using a vibration system combined with rapid high and low temperature changes. The purpose of HALT is to optimize product reliability by identifying the functional and destructive limits of a product. HALT addresses reliability issues at an early stage in product development.

Highly accelerated stress audits (HASA): A technique in which a sample of parts (as opposed to 100% of the production as in HASS, below) is taken and subjected to stresses similar to the levels and duration for HALT. In monitoring the production process, the intent of HASA is to detect slight shifts in the attributes of the product so corrective actions can be taken and implemented before the performance of outgoing product approaches the specifications.

Highly accelerated stress screening (HASS): A technique for production screening that rapidly exposes process or production flaws in products. Its purpose is to expose a product to optimized production screens without affecting product reliability. Unlike HALT, HASS uses nondestructive stresses of extreme temperatures and temperature change rates with vibration.

Histogram: A graphic summary of variation in a set of data. The pictorial nature of the histogram lets people see patterns that are difficult to detect in a simple table of numbers. The histogram is one of the "seven tools of quality."

Hoshin planning: Breakthrough planning. A Japanese strategic planning process in which a company develops up to four vision statements that indicate where the company should be in the next five years. Company goals and work plans are developed based on the vision statements. Periodic audits are then conducted to monitor progress.

House of quality: A product planning matrix, somewhat resembling a house, that is developed during quality function deployment and shows the relationship of customer requirements to the means of achieving these requirements.

Hunter, J. Stuart: An Honorary Member of ASQ, Hunter is a professor emeritus at Princeton University. His work as an educator and author helped enhance quantitative understanding. He wrote or co-wrote many papers, books and technical reports and is a founding editor of *Technometrics*.

I

Imagineering: Developing in the mind's eye a process without waste.

Imperfection: A quality characteristic's departure from its intended level or state without any association to conformance to specification requirements or to the usability of a product or service (see also "blemish," "defect" and "nonconformity").

Improvement: The positive effect of a process change effort.

In-control process: A process in which the statistical measure being evaluated is in a state of statistical control; in other words, the variations among the observed sampling results can be attributed to a constant system of chance causes (see also "out-of-control process").

Incremental improvement: Improvements that

are implemented on a continual basis.

Indicators: Established measures used to determine how well an organization is meeting its customers' needs as well as other operational and financial performance expectations.

Inputs: The products, services, material and so forth obtained from suppliers and used to produce the outputs delivered to customers.

Inspection: Measuring, examining, testing and gauging one or more characteristics of a product or service and comparing the results with specified requirements to determine whether conformity is achieved for each characteristic.

Inspection cost: The cost associated with inspecting a product to ensure it meets the internal or external customer's needs and requirements; an appraisal cost.

Inspection, curtailed: Sampling inspection in which inspection of the sample is stopped as soon as a decision is certain. Thus, as soon as the rejection number for defectives is reached, the decision is certain and no further inspection is necessary. In single sampling, however, the whole sample is usually inspected in order to have an unbiased record of quality history. This same practice usually is followed for the first sample in double or multiple sampling.

Inspection lot: A collection of similar units or a specific quantity of similar material offered for inspection and acceptance at one time.

Inspection, normal: Inspection in accordance with a sampling plan that is used under ordinary circumstances.

Inspection, 100%: Inspection of all the units in the lot or batch.

Inspection, reduced: Inspection in accordance with a sampling plan requiring smaller sample sizes than those used in normal inspection. Reduced inspection is used in some inspection systems as an economy measure when the level of submitted quality is sufficiently good and other stated conditions apply. Note: The criteria for determining when quality is "sufficiently good" must be defined in objective terms for any given inspection system.

Inspection, tightened: Inspection in accordance with a sampling plan that has stricter acceptance criteria than those used in normal inspection. Tightened inspection is used in some inspection systems as a protective measure when the level of submitted quality is sufficiently poor. It is expected the higher rate of rejections will lead suppliers to improve the quality of submitted product. Note: The criteria for determining when quality is "sufficiently poor" must be defined in objective terms for any given inspection system.

Instant pudding: A term used to illustrate an obstacle to achieving quality or the supposition that quality and productivity improvement are achieved quickly through an affirmation of faith rather than through sufficient effort and education. W. Edwards Deming used this term, which was initially coined by James Bakken of Ford Motor Co., in his book *Out of the Crisis*.

Intermediate customers: Organizations or individuals who operate as distributors, brokers or dealers between the supplier and the consumer/end user.

Internal customer: The recipient (person or department) within an organization of another person's or department's output (product, service or information) (see also "external customer").

Internal failure: A product failure that occurs before the product is delivered to external customers.

International Aerospace Quality Group: A cooperative organization of the global aerospace industry that is mainly involved in quality, cost reduction and process improvement efforts.

International Organization for Standardization, known as ISO: A network of national standards institutes from 140 countries working in partnership with international organizations, governments, industry, business and consumer representatives to develop and publish international standards. Acts as a bridge between public and private sectors.

Interrelationship digraph: A management tool that depicts the relationship among factors in a complex situation. Also called a "relations diagram."

Intervention: The action of a team facilitator when interrupting a discussion to state observations about group dynamics or the team process.

Ishikawa diagram: See "cause and effect diagram."

Ishikawa, Kaoru (deceased): A pioneer in

quality control activities in Japan. In 1943, he developed the cause and effect diagram. Ishikawa, an ASQ Honorary Member, published many works, including *What Is Total Quality Control?*, *The Japanese Way*, *Quality Control Circles at Work* and *Guide to Quality Control*. He was a member of the quality control research group of the Union of Japanese Scientists and Engineers while also working as an assistant professor at the University of Tokyo.

ISO 14000: An environmental management standard related to what organizations do that affects their physical surroundings. In the process of being made compatible with ISO 9000.

ISO 9000 series standards: A set of international standards on quality management and quality assurance developed to help companies effectively document the quality system elements to be implemented to maintain an efficient quality system. The standards, initially published in 1987, are not specific to any particular industry, product or service. The standards were developed by the International Organization for Standardization, known as ISO, a specialized international agency for standardization composed of the national standards bodies of 91 countries. The standards underwent major revision in 2000 and now include ISO 9000:2000 (definitions), ISO 9001:2000 (requirements) and ISO 9004:2000 (continuous improvement).

ISO/TS 16949: The International Organization for Standardization, known as ISO, international technical specification for quality management systems, with particular requirements for the application of ISO 9001:2000 for automotive production and relevant service part organization. Now in its second edition.

J

JIS Q 9100: An international quality management standard for the aerospace industry (see AS 9100).

Joint Committee for the Accreditation of Healthcare Organizations (JCAHO): JCAHO sets standards for, evaluates and accredits nearly 18,000 healthcare organizations and programs in the United States.

Juran, Joseph M.: The chairman emeritus of the Juran Institute and an ASQ Honorary Member. Since 1924, Juran has pursued a varied career in management as an engineer, executive, government administrator, university professor, labor arbitrator, corporate director and consultant. Specializing in managing for quality, he has authored hundreds of papers and 12 books, including *Juran's Quality Control Handbook*, *Quality Planning and Analysis* (with F. M. Gryna) and *Juran on Leadership for Quality*.

Juran trilogy: Three managerial processes identified by J.M. Juran for use in managing for quality: quality planning, quality control and quality improvement.

Just-in-time (JIT) manufacturing: An optimal material requirement planning system for a manufacturing process in which there is little or no manufacturing material inventory on hand at the manufacturing site and little or no incoming inspection.

Just-in-time training: The provision of training only when it is needed to all but eliminate the loss of knowledge and skill caused by a lag between training and use.

K

Kaizen: A Japanese term that means gradual unending improvement by doing little things better and setting and achieving increasingly higher standards. Masaaki Imai made the term famous in his book, *Kaizen: The Key to Japan's Competitive Success*.

Kanban: A Japanese term for one of the primary tools of a just-in-time system. It maintains an orderly and efficient flow of materials throughout the entire manufacturing process. It is usually a printed card that contains specific information such as part name, description and quantity.

Key performance indicator (KPI): A statistical measure of how well an organization is doing. A KPI may measure a company's financial performance or how it is holding up against customer requirements.

Key process: A major system level process that supports the mission and satisfies major consumer requirements.

Key results area: A major category of customer requirements that is critical for the organization's success.