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**Impact Of Personality Of Knowledge Worker On His Work
With Knowledge**
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Abstract

This article develops a theoretical framework for the research on impact of personality of knowledge worker on his work with knowledge. Its objective is to expand our previous researches on knowledge workers, knowledge work and management of knowledge workers. Knowledge workers are major creators of value for their organisations. The major tool and source of their work is their knowledge. Knowledge workers work with both explicit and tacit dimensions of knowledge. One of important questions management of knowledge workers raises is what influences the way how knowledge workers work with their knowledge. Our hypothesis is that type of personality is important factor that influences how exactly knowledge worker chooses, uses, creates, shares and distributes knowledge. The main research question is: Does the type of personality of knowledge worker influence his style of work with knowledge? If yes, how? The methodology used for the review of the literature was as usual for this type of theoretical research. We collected, described and evaluated different approaches and different ideas on knowledge workers, knowledge and work with it and personality. The data used are secondary data collected from traditional and electronic media. The article pays attention to both historical approaches and the latest approaches in the field. Methods used for the review of the literature include typical methods of theoretical work, e.g., methods that allow interlinking separated pieces of knowledge like analysis and synthesis, comparison, induction, deduction, abstraction, generalisation and critical thinking.

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Keywords— Knowledge Worker, Knowledge, Knowledge Dimensions, Work with Knowledge, Personality.

Introduction

These days, tangible assets (especially in technically demanding sectors) are commonly available, and even may be a basic prerequisite of doing business. In such an environment knowledge is a critical asset and success factor. The importance of knowledge for our world has grown so much that our society can be called a knowledge or even creative society. In knowledge societies all spheres of human life depend on the ability of people to create, distribute, share and use knowledge. (Mládková, 2009, Mládková, 2012). People who work with knowledge are called knowledge workers. They are, generally said people whose major working tool and asset is knowledge. Knowledge workers are major creators of value for their organisations. Knowledge workers work with both explicit and tacit dimensions of knowledge. One of important questions management of knowledge workers raises is what influences the way how knowledge workers work with their knowledge.

Knowledge consists of two dimensions, explicit and tacit. Explicit dimension is encoded in organisational formal models, rules, documents, drawings, products, services, facilities, systems, and processes and is easily communicated externally (Vail, 1999, Al-Ghassani et al, 2006). Tacit knowledge is stored in peoples' brains as mental models, experiences, and skills and is difficult to communicate externally (Vail, 1999). The tacit dimension is related to practical activity; it is highly personal, partly or fully subconscious. It cannot be separated from its human owner. Due to tacit knowledge, knowledge as a whole is intangible (Mládková, 2012). The way how knowledge worker works with knowledge depends on many factors. The type of work (job) he is doing is probably the most important. Some jobs are more explicit, some more tacit knowledge demanding. Another important aspect is a culture. It is widely known that people in Europe, North America, and Australia understand knowledge as primarily explicit though people in Asia understand knowledge as primarily tacit. Also personality may influence the work with knowledge remarkably.

This paper develops a theoretical framework for researches on the link between the personality of knowledge worker and his style of work with knowledge. We will use this paper in our research as a theoretical and methodological background. Our main research questions are: does the personality of knowledge worker influence the way how he works with knowledge? If yes, what is the impact of personality on individual phases of work with knowledge (acquisition, creation, sharing)? The theoretical framework is based on the current knowledge from a literature review and authors' experiences and academic work. The article is about the state of the art of the link

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between knowledge worker's personality and his style of work. The article presents a general alignment of the definitions, concepts and approaches related with the topic.

The research on the relation between knowledge worker's personality and his style of work with knowledge is the continuation of our previous researches on knowledge, knowledge work and management of knowledge workers.

Review Of Literature

The topic Impact of Personality of Knowledge Worker on his Work with Knowledge is an interdisciplinary topic that requires review of literature in following fields: knowledge, knowledge workers, work with knowledge, personality, the link between the personality and work with knowledge.

There are many approaches and definitions of knowledge in literature. Tobin (1996) understands knowledge as information plus intuition and experience. Woolf (1990) sees knowledge as organised information used for problem solving. Turban (1992) writes that knowledge is information that is organised and analysed to become legible and usable for problem solution and decision making. Veber (2000) defines knowledge as a changing system with interactions among experience, skills, facts, relations, values, thinking processes and meanings. Kanter (1999) says knowledge is information with context that provides the basis for actions and decision making. Nonaka and Takeuchi (1995) define knowledge as justified true belief. Beckman (1997) writes that knowledge is information plus choice, experience, principles, limitations and learning. For Wiig (1993) knowledge is the body of understandings, generalisations, and abstractions that we carry with us on a permanent or semi-permanent basis and apply to interpret and manage the world around us. Van der Spek and Spijkervet (1997) understand knowledge as a set of insight, experiences and procedures that are considered correct and true and that therefore guide the thought, behaviour, and communication of people. Brinkley (2008) thinks knowledge empowers actors with the capacity for intellectual or physical activity. Knowledge is a matter of cognitive capability and enables actors to do and reflect (Mládková, 2012).

Knowledge can be classified into different groups. Nonaka and Takeuchi (1995) offer classification into three types of knowledge; explicit (transferable to data), implicit (hidden subconscious that can be transformed to data) and tacit (hidden in the heads of people, not transferable to data). They see knowledge as created and expanded through interaction between tacit and explicit knowledge. Spender (1995, 1996) offers a classification to an individual (owned by an individual) and a collective (owned by a group) knowledge. Spender (1995, 1996) also identifies different types of knowledge used in organisations: conscious knowledge (explicit knowledge held by the individual), objectified knowledge (explicit knowledge held by the organisation), automatic knowledge (preconscious individual knowledge), collective knowledge (context dependent knowledge visible in the practice of the organisation) (Mládková, 2012).

The classification to explicit and tacit dimensions of knowledge is simple but easy to use in models. It is also easy to explain to people in practical life. Explicit knowledge is encoded in organisational formal models, rules, documents, drawings, products, services, facilities, systems, and processes and is easily communicated externally (Vail, 1999, Al - Ghassani, et al., 2006). Tacit knowledge is stored in peoples' brains as mental models, experiences, and skills and is difficult to communicate externally (Vail, 1999). It is highly personal, often subconscious. It is the dimension responsible for practical activities.

As for knowledge workers, many different approaches and ideas can be found in the literature. 'Knowledge workers are often highly regarded by employers for their innovation and creativity, as these are both considered important elements in an organisation's ability to survive and prosper in an increasingly competitive and fast-changing environment. In private industry, innovation and creativity are needed to bring new or improved products and services to the market, while there is a greater need for public sector employees to be innovative and creative as the government seeks significant improvements and change in the delivery of public services' (Brinkley, Fauth, Mahdon,

Theodoropoulou, 2009). The literature review on knowledge workers offers three basic approaches to this term (Brinkley, Fauth, Mahdon, Theodoropoulou 2009); conceptual approaches, data (industry) driven approaches, and job content approaches. Conceptual approaches explain the term knowledge worker from the point of view of employees' importance for an organisation, and his style of work with knowledge. Authors who can be classified to conceptual approaches are P. Drucker (1954), J. Vinson (Vinson 2009), G.S. Lowe (2002), T. Davenport (2005), C. Reboul (2006).

Data driven approaches see knowledge workers as all those who work in particular organisations or in particular sectors or institutions. Representatives of this approach are for example K. E. Sveiby (1997), M. Alvesson (2002).

Job content approaches see knowledge workers as people who do a certain type of job. This approach can be identified in the works of A. Toffler (1990), R. Reich (1992), A. Kidd (1994), G. E. Nomikos (1989).

The work with knowledge consists of three basic phases; acquisition, creation and sharing (distribution). All phases of work with knowledge can happen on different levels; individual level, group level, level of organisation and inter-organisational level (Mládková, 2012). In our research we will stick to the individual level.

Knowledge acquisition is process of learning. There are many concepts of learning in the literature, for example single and double loop learning (Argyris and Schon, 1978), David

Kolb's experiential learning theory (Kolb, 1984), Neil Fleming's VAK/VARK model (Fleming and Baume, 2006). Acquisition of knowledge is also partly covered by Nonaka and Takeuchi's concept of SECI (Nonaka and Takeuchi, 1995).

Knowledge creation is explained for example by SECI model by Nonaka and Takeuchi (2005), Ackoff's approach (1989), Boisot's I-Space Model (Boisot, 1998), conceptual framework of knowledge management processes by Bouthillier and Shearer (2002), the model of Wiig, de Hoog and van der Speck (1997).

Knowledge sharing is paid attention in Boisot's I-Space Model (Boisot, 1998), conceptual framework of Bouthillier and Shearer (2002), and in SECI model by Nonaka and Takeuchi (2005).

All three processes of work with knowledge and the creation of knowledge can happen simultaneously, or it appears so because the human brain can work very efficiently and quickly. That is why authors of models of knowledge acquisition and creation give the above processes different priorities and order (Mládková, 2012).

Personality is the dynamic and organized set of characteristics possessed by a person that uniquely influences his or her cognitions, motivations, and behaviours in various situations. It can also be thought of as a psychological construct - a complex abstraction that encompasses the person's unique genetic background (except in the case of identical twins) and learning history, and the ways in which these factors influence his or her responses to various environments or situations (Ryckman, 2008). By Sullivan (1953) personality is a pattern, repeating in interpersonal situations. By Drapela (1998) personality is a dynamic source of behavior, identity and uniqueness of every person. Behavior means thinking processes, emotions, decision making, physical activities, social interactions, etc. (Drapela, 1998). Personality is a pattern, repeating in interpersonal situations. Cattell (1950) things that personality is trait that helps to predict behavior of human. In Oxford dictionary (2014) personality is defined as the combination of characteristics or qualities that form an individual's distinctive character.

There are many different theories of personality available in the literature. From the Hippocrates humors theory (Hippocrates, 2014), later used by Galen (2014) for his 4 temperament theory, to theories of 19th and 20th Century. This article does not give space for detailed description of individual theories but let's list at least some of them. By Drapela (1998) the most important are the psycho-analytical theory (S. Freud), analytical theory (K. G. Jung), individual psychology (A. Adler), interpersonal theory (K. Horny, H. S. Sullivan), social-psychologic theories (E. From, E. Ericson), Dolard's and Miller's theory of learning, trait and factor theory (R. B. Cattell), field theory (K. Lewin), systemic eclectics (G.W. Allport), I theory (C. Rogers), holistic theory (K. Goldstein, A. Maslow), logotherapy (V. Frankl).

Many of upper theories were developed for and are used in psychology and clinical psychiatry. In business and management following classification are popular: Jung's classification to extrovert and introvert (Jung, 1971), Jung based Eysenck's (1947) classification to choleric, melancholic, sanguinic and phlegmatic types (Eysenck et al., 1976), very popular is Briggs - Myers Type Indicator (1980, 1995) and Big Five Inventory (John, Srivastava, 1999) that works with five dimensions; neuroticism (versus emotional stability), extraversion (versus introversion), openness to experience (versus closeness to experience), agreeableness (versus rudeness), and conscientiousness (versus non dependability).

Interesting options for management brings classification called Enneagram (Rohr and Ebert, 2001). Enneagram is a dynamic system that evaluates behaviour of individual based on 9 basic types, wings (relation between types that are neighbours to each other), stress and happiness lines (relations between types that reflect happiness and well-being of the person), levels of development and so called subtypes. Enneagram allow us to work with person based on his current situation (Enneagram Insitute, 2014).

The review of literature on the topic of link between the personality and work with knowledge brought limited results as only three works were identified. All three of them took into account only knowledge sharing phase of work with knowledge. Amayah (2014) makes the literature review on Knowledge Sharing, Personality Traits and Diversity. She mentions researches where knowledge sharing was analysed based on Big Five Inventory tool (John and Srivastava, 1999). As for diversity she focused on researches on relationship between culture and demographic

characteristics such as gender and knowledge sharing (Amayah, 2014). Morgeson et al. (2005) examines the relation between the personality and knowledge sharing also on Big Five Inventory tool (John, Srivastava, 1999). The third work is the master thesis from Copenhagen Business School. The thesis covers the problematic of knowledge sharing by different Enneagram types. The research is built on action research methodology and it does not cover all types offered by Enneagram classification (Raducanu, 2012). The review of literature shows great opportunities for the research in the chosen field.

Research Hypothesis And Methods

Our main research questions are: does the personality of knowledge worker influence the way how he works with knowledge? If yes, what is the impact of personality on individual phases of work with knowledge (acquisition, creation, sharing)? The hypotheses of research are following:

H1: The personality of knowledge worker influences the way how he works with knowledge.

H2: Different types of personality have different strengths and weaknesses for individual phases of work with knowledge.

The research is divided into two phases, theoretical review of literature and empirical research. The review of literature covers topics of knowledge, knowledge workers, work with knowledge, personality, the link between the personality and work with knowledge. Due to the fact that the research is an interdisciplinary research the review of literature is not as deep as it would be if only one of given topics were explored. The methodology used for the review of the literature was as usual for this type of theoretical research. We collected described and evaluated different approaches and different ideas on chosen topics. The data used are secondary data collected from traditional and electronic media. The review pays attention to both historical approaches and the latest approaches in the field. Methods used for the review of the literature include typical methods of theoretical work, e.g., methods that allow interlinking separated pieces of knowledge like analysis and synthesis, comparison, induction, deduction, abstraction, generalisation and critical thinking.

From the review of literature (theoretical part of the research) we chose following approaches and concepts as a background for our further research. Knowledge is understood as defined by Veber (2000). We will use basic classification to two dimensions of knowledge (explicit and tacit) by Nonaka and Takeuchi (2005). It is the simple concept with big practical impact and helps to explain the phase of knowledge creation (SECI model). As for knowledge workers the conceptual approach serves the best the purpose of our research.

The personality of respondents of the research will be evaluated by Enneagram classification of types. The basic description of types will be used (the attention will not be paid to other tools of the Enneagram system). We decided for Enneagram because its typology is detailed and sophisticated and enables to capture important differences between knowledge workers and their behaviour. The second reason why Enneagram was chosen is our long very good experience with this tool.

The first phase of the work with knowledge, knowledge acquisition will be based on Neil Fleming's VAK/VARK model (Fleming and Baume, 2006). For both the personality type and the type of learning, respondents will be asked to test themselves.

The part of knowledge creation and knowledge sharing will be based on Nonaka and Takeuchi's concept of SECI (Nonaka and Takeuchi, 2005). We will examine which processes of SECI respondents prefer when creating knowledge (processes based on explicit knowledge, tacit knowledge or combination of both). As for knowledge sharing we will examine how respondents prefer to share knowledge, if in tacit or explicit dimension and by which tools.

Empirical research will be based on a questionnaire. Questions will be constructed as closed questions. Some of the closed questions will offer the option of commentary. Respondents will complete the questionnaire without the supervision of researchers. Questions are constructed so that they did not indicate what may be a "correct answer".

Discussion And Conclusion

This paper is a theoretical background for the research on the relation between the personality of knowledge worker and the way how he works with knowledge. This research is continuation of our previous researches on knowledge, knowledge work and management of knowledge workers. The paper allowed us to make the review of literature in important topics that are the foundation of this interdisciplinary research; knowledge, knowledge workers, work with knowledge, personality, the link between the personality and work with knowledge. It gave us

chance to clarify research objectives and hypotheses and decide on which approaches and concepts we will use for the empiric research.

We hope that the research will disclose the differences in work with knowledge between types of personalities. It will have both theoretical and practical contribution. As for the theory it will describe the field with high potential for research. There are not many works on this topic in the literature. As for practical contribution the research may give us new ideas on how to choose right people for different knowledge jobs, new ideas on how to manage and develop knowledge workers, new ideas on how to create teams.

The main objective of the whole research is to improve our knowledge on important group of employees, knowledge workers.

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References

- Ackoff, R. L. (1989). From Data to Wisdom. *Journal of Applied Systems Analysis*, 16, 3-9.
- Al-Ghasani et al. (2006), Prototype System for Knowledge Problem Definition. *Journal of Construction Engineering & Management*. 132(5), 516-524.
- Amayah A.T(2014).. Knowledge Sharing, Personality Traits and Diversity: A Literature Review. Available: <http://www.lindenwood.edu/mwr2p/docs/Amayah.pdf>
- Alvesson, M. (2002). *Management of Knowledge Intensive Companies.. De Gruyter*.
- Argyris, C., Schon, D. (1978). *Organizational Learning: A Theory of Action Perspective*. Reading, Mass: Addison Wesley.
- Beckman, T. A. (1997), *Methodology for Knowledge Management*, In: Proc. IASTED AI and Software Computing Conference, ACTA Press, Banff, pp. 29-32.
- Boisot, M. (1999). "The I-Space: a framework for analyzing the evolution of social computing". *Technovation* 19 (9): 525–536. ISSN 0166-4972.
- Bouthillier, F., Shearer, K. (2002). Understanding knowledge management and information management: the need for an empirical perspective. *Information Research*, Vol. 8 No. 1, October 2002. Available: <http://informationr.net/ir/8-1/paper141.html>. (June 21, 2011).
- Briggs Myers, I., Myers B. P. (1980, 1995). *Gifts Differing: Understanding Personality Type*. Mountain View, CA: Davies-Black Publishing. ISBN 978- 0-89106-074-1.
- Brinkley, I. (2008). *The knowledge economy: How knowledge is reshaping the economic life of nations*. London: The Work Foundation. Available: <http://www.theworkfoundation.com/research/publications/publicationdetail.aspx?oItemId=41&parentPageID=102&PubType=.2008>. (June, 11.2011).
- Brinkley, I., Fauth, R., Mahdon, M., Theodoropoulou S. (2009): *Knowledge Workers and Knowledge Work. A Knowledge Economy Programme Report*. Available: <http://www.theworkfoundation.com/Assets/Docs/Knowledge%20Workers- March%202009.pdf>, 20.3.2009. (June, 11. 2011).
- Cattell, R., B. (1950). *Personality: A systematic theoretical and factual study* (McGraw-Hill publications in psychology). New York, NY: McGraw-Hill
- Davenport, T. (2005). *Thinking for Living*. HVB School Publishing. ISBN 1-59139-423-6.
- Drucker, P. F. (1954). *Landmarks of Tomorrow. A Report on the New 'Post-Modern' World*. Transaction Publisher London. ISBN 1-56000-622-6.
- Enneagram Institute (2014). Available: <http://www.enneagraminstitute.com/intro.asp#.UvpDHfuYSaQ> (February 11, 2014)
- Eysenck, H. J. (1947). *Dimensions of personality*. London: Routledge & Kegan Paul. Eysenck, Hans J.; et. al. (1976). *Know your own personality*. Harmondsworth, Eng. Baltimore etc: Penguin Books. ISBN 9780140219623.
- Drapela, V. J. (1998) *Prehled teorií osobností*. Portál.sro. ISBN 978-80-262-0040-6 McCrae, R. & John, O., 1992. An introduction to the Five-Factor Model and its Applications. *Journal of Personality*, 60(2), pp. 175-215.
- Galen (2014) Available: http://www.princeton.edu/~achaney/tmve/wiki100k/docs/Four_Temperaments.html (February 11, 2014). Hippocrates (2014) Available: http://www.princeton.edu/~achaney/tmve/wiki100k/docs/Four_Temperaments.html (February 11, 2014)

- Fleming, N., Baume, D. (2006). Learning Styles Again: VARKing up the right tree! Educational Developments. SEDA Ltd. Issue 7.4. Nov.4-7.
- Friedman, M.; Rosenman, R. (1959). "Association of specific overt behaviour pattern with blood and cardiovascular findings". Journal of the American Medical Association (169): 1286–1296.
- John, O. P., & Srivastava, S. (1999). *The Big-Five trait taxonomy: History, measurement, and theoretical perspectives*. In L. A. Pervin & O. P. John (Eds.), *Handbook of Personality: Theory and research* (Vol. 2, pp. 102–138). New York: Guilford Press
- Jung, C.G. (1971). Psychological types. In Drapela, V. J. (1998) Přehled teorií osobností. Portál.sro. ISBN 978-80-262-0040-6.
- Kanter, J. (1999). Knowledge management: Practically speaking” Inf. Syst. Management.16 (4). p. 7–15.
- Kidd, A. (1994). The Marks are on the Knowledge Worker. Human Factors in Computing Systems, CHI94. Boston.
- Kolb, D.A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Prentice-Hall. Englewood Cliffs. N.J. 1984.
- Lowe, G.S. (2002). Leveraging the skills of Knowledge Workers. Isuma, Spring. Mládková L. (2012). *Management of Knowledge Workers*, Iura Edition, SR, ISBN 978-80-8078-463-8.
- Mládková, L (2009). Management of Knowledge Workers. Tallinn 14.06.2009 – 16.06.2009. In: *Economies of Central and Eastern Europe*. Tallinn : Universita, 2009 ISBN 978-9949-430-28-4.
- Morgeson, F. P. et al. (2005). Selecting individuals in team settings: the importance of social skills, personality characteristics and teamwork knowledge *Personnel Psychology* 2005, 58, 583–611. Available: https://www.msu.edu/~morgeson/morgeson_reider_campion_2005.pdf (February 10,2014).
- Nomikos G.E. (1989) Managing Knowledge Workers for Productivity. *National Productivity Review*, 8(2). 1989.
- Nonaka I., Takeuchi, H. (1995). *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press. UK. 1995. ISBN 0-19-509269.
- Oxford dictionary (2014). Personality. Available: <http://www.oxforddictionaries.com/definition/english/personality>. (February 11,2014)
- Raducanu R. R. (2012) Assessment of employees’ attitudes and intentions to share knowledge based on their individual characteristics. Available: http://studenttheses.cbs.dk/bitstream/handle/10417/3905/raluca_roxana_raducanu.pdf?sequence=1 (February 10,2014)
- Reboul, C. et al. (2006). *Managing Knowledge Workers: The KWP Matrix*. Conference Proceedings MOMAN 06, Prague 2.2.2006. ISBN 80-86596-74-5.
- Reich, R. B. (1992). *The Work of Nations*. New York: Vintage Books.
- Rohr, R., Ebert, A.: *Enneagram*. Synergie Praha. 2001. ISBN 80-86099-89-X.
- Ryckman, R. M. (2008). *Theories of Personality*, Thomson Wadsworth, ISBN-10: 0-495-09908-2.
- Sveiby, K. E. (1997). *The New Organisational Wealth: Managing and Measuring Knowledge-Based Assets*. Berrett-Koehler.
- Spender, J.C. (1995): Organizations are activity systems, not merely systems of thought. In P. Shrivastava and C. Stubbart, *Advances in Strategic Management* 11 JAI Press. Greenwich. CT. 1995. p. 153-174.
- Spender, J.C. (1996): Organizational knowledge, learning and memory: Three concepts in search of a theory“. *Journal of Organizational Management*. 9, 63-78.
- Sullivan, H.S. (1953). *The interpersonal theory of psychiatry*. New York. Norton
- Tobin, D. (1996). *Transformational Learning – Renewing Your Company Through Knowledge and Skills*. John Wiley & Sons, NY.
- Toffler, A. (1990). *Powershift: Knowledge, Wealth and Violence at the Edge of the 21st Century*. 1990. Bantam Books. ISBN 0-553-29215-3.
- Turban, E. (1992). *Expert Systems and Applied Artificial Intelligence*, Maxwell Macmillan, New York, 1992.
- Vail, E. F. (1999) Knowledge mapping: Getting started with knowledge management, *Inf. Syst. Management*, 16(4), p. 16–23
- Van der Spek, R., Spijkervet, A. (1997): *Knowledge Management: Dealing Intelligently With Knowledge*. Knowledge Management and Its Integrative Elements. CRC Press. Boca Raton.
- Veber, J. (2000). *Management, Basics, Prosperity, Globalization*, Management Press. Praha. ISBN 80-7261-029-5.
- Vinson, J. (2009) www.vinson.com. Available: (May, 5. 2009)
- Wiig, K. (1993). *Knowledge Management Foundation*. Schema Press.
- Wiig, K., De Hoog, R., Van Der Speck, R. (1997). *Supporting Knowledge Management: A Selection of Methods and Techniques, Expert Systems with Applications*. Pg. 15-27.
- Wolf, H. (1990). *Webster’s New World Dictionary of the American Language*. G. and C. Merriam.