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DISTINGUISHING THE SCIENCES: FOR NURSING

Nursing is a practice discipline as are politics and morality. Further, each participates in significant systematic inquiry into the nature, meaning and execution of its activities. However, a question arises about the nature of these investigations. Are they truly scientific inquiries? Does their scope of inquiry encompass a truly universal realm? If they are not sciences, in what way can the knowledge generated be understood to be generalizable and thus useful in a variety of situations? If they are sciences, in what is found the ground or source of the universality and certainty of their findings? This article will explore this problem and suggest that, in fact, there are several kinds of nursing science. Following the lead of Jacques Maritain and Yves R. Simon, I will begin with an account of the distinguishing characteristics of theoretical knowledge, to which the term "science" has historically been applied, and distinguish it from practical knowledge or prudence. This discussion offers a guide for our investigation. Next I will review Maritain and Simon's discussion of two intermediate levels of inquiry that share some characteristics of both science and practical knowledge. Finally, using the writings of several nurse theorists whose seminal ideas in this area have established a basis for nurse theorist's discussion of these issues, I will distinguish four kinds of nursing inquiry which range from the very theoretical to the very practical. It is hoped that this discussion will lay the groundwork for a more nuanced account of the science and methods necessary to answer the varied kinds of questions that arise in nursing theory and practice. It also suggests a philosophical foundation for these accounts.

Yves R. Simon spent much of his career investigating the meaning and kinds of scientific and practical inquiry and applying the results of this

research to his examinations of a number of contemporary social problems as seen in his books *Philosophy of Democratic Government*, *A General Theory of Authority*, and *Work Society, and Culture*.[1] In most of these writings Simon followed the lead of his teacher, mentor and friend, Jacques Maritain who had argued for two levels of practical sciences analogous to theoretical science itself. Maritain called these "speculatively practical" and "practically practical" sciences.[2] However, just prior to his death in 1961 Simon carried on a correspondence with Maritain in which he questioned and ultimately rejected Maritain's account of a practically-practical science.[3] A review of Simon's account of the sciences with attention to this debate is helpful in clarifying the various kinds of inquiry carried out by those participating in practice disciplines such as nursing. Simon examines the various kinds of inquiry in terms of their goal, their processes, their quest for certainty and their quest for truth. This discussion will follow a similar format.

I will begin by reviewing Maritain and Simon's account of theoretical science, identifying and explaining the hallmarks and methods and distinguishing it from purely practical inquiry known as prudence. Here Simon and Maritain are in complete agreement. This will provide the limiting poles within which we can situate our investigations.

Speculative knowledge or Science as Such

The Goal

In order to develop a standard by which to evaluate other kinds of knowledge, Simon distinguishes the simply theoretical from the simply practical realm, that is, science from prudence.[4] Theoretical knowledge answers questions about the natures of things, their principles and causes, simply for the sake of understanding. An important characteristic of theoretical knowledge is that it is sought simply for its own sake and not for

[1] Yves R. Simon, *Philosophy of Democratic government*, vol. 324, Charles R. Walgreen Foundation Lectures (Chicago, IL: The University of Chicago Press, 1951); *A General Theory of Authority* (Notre Dame, IN: University of Notre Dame Press, 1962); *Work, Society, and Culture* (New York, NY: Fordham University Press, 1971).

[2] Jacques Maritain, *The Degrees of Knowledge*, trans. Gerald B. Phelan, *The Collected Works of Jacuqes Maritain*, vol. 7, ed. Ralph McInerny, Frederick Crossen and Bernard Doering (Notre Dame, Indiana: University of Notre Dame Press, 1934/1995), 330–338.

[3] Published as Chapter 3 of Yves R. Simon, *Practical Knowledge*, ed. Robert J. Mulvaney (New York: Fordham University Press, 1991).

[4] Id., 41–87.

a product that might arise from it.[5] For example, when we wonder why the sky is blue or how the universe began we are looking for an answer that might satisfy our wonder but will not be useful to solve any particular problem of daily life. In another context Simon reminds us that the kind of activity that is characteristically understood to be unique to human persons is the ability to use our rationality (to the extent possible) to seek explanations and understanding.[6] According to Simon, no activity carried out by human persons really quite qualifies as human activity unless it is directed at some level by a rational understanding of its meaning and role in human life. The search for understanding simply for its own sake then, is an essential aspect of our human nature. While these questions are not directed to some further use or product, the knowledge may certainly, as a by-product, prove useful later on. In modern terms theoretical science is best exemplified by a field such as theoretical physics or by "bench" research where the investigators pursue questions that interest them without specific thought to the practicality of any answers they might discover. As it happens in our contemporary cost-cutting culture there is less and less funding for this kind of truly theoretical research and more emphasis on research for the sake of some useful or marketable product.

The Methods

Simon also tells us that the search for theoretical knowledge occurs in an analytic process. That is to say, it looks for explanations in terms of causes and principles, primarily tracing effects to their causes and consequences to their principles.[7] The term "analytic" here has two related and slightly different meanings.[8] The first is the search for first principles and causes. For example, the laws of nature would constitute first principles while the force of gravity would be understood as a cause of the moon's orbit around the earth. The second and more common meaning of analysis in contemporary thought is to divide a thing into its various parts. For example, in grammar school we learned to analyze sentences into their parts of subject, verb, object etc. This second meaning is only necessarily an aspect of analysis where the object of study is not a unitary whole, but is composed of parts. In that case analysis, to search for causes and princi-

[5] Id., 56.
[6] *The Definition of Moral Virtue*, ed. Vukan Kuic (New York: Fordham University Press, 1986), 33.
[7] Simon, *Practical Knowledge*, 52–53.
[8] Id., 5–7.

ples, also entails decomposition into parts.[9] Since most things are composed of parts, most analysis includes both aspects. Questions of the kind, "What is the nature of nursing or of caring?" might seem to be examples of such theoretical inquiry. Theoretical inquiry not only examines the thing in terms of its parts in order to understand the whole, but it more importantly examines the relations of cause and effect or consequence to principle.[10] Thus, theoretical knowledge looks for primary causes, principles and concepts.

The Quest for Certainty

Another characteristic of theoretical science is its quest for certainty. Here the investigator abstracts away from the particular situations and contingencies of daily life and the motion associated with physical beings. For example, the law of the conservation of matter and energy, that neither matter nor energy are created or destroyed but rather merely change form, probably began with observations of reality, perhaps the burning of wood or coal. The theorist, then, abstracted from the particular instances of the situation to posit a theory that has been supported by subsequent experience. What we mean by contingency is the situation where chance occurrences or the intervention of an action arising from a person's exercise of free will can alter an otherwise predictable action that is directed to achieve a particular goal. Further, motion causes problems in science because things in motion are changing place, situation and the like. Thus, what is studied at one point is not exactly the same even a few seconds later. This makes absolute knowledge of it impossible. Heraclitus, the 5th century BC philosopher, saw this problem in his famous aphorism, "You cannot step twice into the same river."[11] He suggested, then, that no true knowledge is possible. He was right to a certain extent. That is, certainty is only possible if we can abstract away from motion and contingency. Theoretical inquiry thus carries out such abstraction in order to investigate the characteristics of individual things or actions that are stable over time and across diverse circumstances. What is sought is universal understanding that applies in all cases and results from the analysis of the issue into its most basic and self-evident principles.

[9] Id., 7, 52–53.
[10] Id., 6.
[11] Heraclitus, Fr. 10.65 in Richard D. McKirahan Jr., *Philosophy Before Socrates* (Indianapolis, IN: Hackett Publishing Company, 1994), 122.

The Quest for Truth

The goal of theoretical inquiry is truth, that is, an account of reality that conforms to a factual state of affairs. For example, the account of the nature of black holes developed by theoretical physicists, that they exist, that they attract objects into them and so on is understood to be an accurate account of reality supported by various scientific discoveries. This understanding holds not usually or often, but in all cases. The thing is understood in its essence or nature. Such an understanding will be accurate while not giving a complete account of any particular thing that exists in the world. An example of such an account would be the Pythagorean Theorem which explicates the nature of the angles of a square or the account of a perfect circle. Since perfect squares and circles only exist in theory, abstracted away from the reality of real boxes or circles, the principles would apply universally. Particular squares and circles, however, are more or less square or round depending on the situation. Thus, their precise measurements will be slightly different. So, theoretical sciences give us a very accurate and dependable but also rather limited account of reality.

In review, the distinguishing characteristics of theoretical knowledge are: (1) its goal is simply the knowledge itself; (2) its analytic method searches for principles and causes, often, but not necessarily, entailing decomposition of the subject; (3) its search is for certainty regardless of contingent circumstances; (4) its truth is consonant with fact or is an accurate account of reality.

Practical Knowledge or Prudence

The Goal

Practical knowledge on the other hand seeks an understanding of things in order to have some effect on those things, to create, to control, to alter and perhaps to destroy. The goal of practical knowledge is *always* for the sake of its use. In contrast to theoretical knowledge which is sought to satisfy our wonder, practical knowledge is sought to help us know how to act. For example, scientists are vigorously searching for an understanding of the virus that causes Ebola in order to both formulate a vaccine to prevent the disease and to formulate medicines that would be effective in treating it. Or in nursing, a male nurse assigned to care for a Muslim woman requiring a bladder catheterization would need to know about aseptic technique, maintenance of privacy and the like along with particular cultural and religious practices of this woman to decide whether he should

carry out the procedure or request a female colleague to do it, even though he is completely competent and sensitive to her situation. Prudence must make its own rule in each situation. Because such situations are marked by unique characteristics the nurse cannot expect rules to give exact direction.

The Methods

In this sense because practical knowledge brings together knowledge and use it can be understood as synthetic rather than analytic.[12] Simon calls this the synthesis of realization where knowledge is wedded to an act to be carried out. Knowledge gives the form or nature to the action itself. This synthesis of knowledge and action is actually the beginning of action itself and is the only synthesis that belongs exclusively to prudence.[13] Maritain tells us that practical judgments entail a very different way of proceeding. Rather than abstracting away from particular changing circumstances, practical judgments seek to determine the best action in this concrete and specific circumstance.[14] Because in a practical judgment the question is, "What should I do in this particular situation," the investigation must yield knowledge that will determine the nature of the action. For example, the nurse practitioner gathers knowledge of pathophysiology, pharmacology, chemistry and the like into a judgment that identifies a particular change in a patient's situation as an indication of a serious drug reaction requiring specific immediate intervention. Where theoretical inquiry abstracts away from the particular and the contingent, practical inquiry seeks precisely to determine action in the presence of particularity and contingency. Rather than searching for principles and causes, the practitioner searches for particular actions in concrete, changing and contingent situations.

The Quest for Truth

As a result, the truth of a practical inquiry will be a truth of direction rather than a truth of fact.[15] What this means is that the nature of the goal of the action correctly identified and meticulously pursued will determine the truth of the action even where the actual outcome might end up not being the best. For example, a researcher studying the effects of a certain activity on the successful rehabilitation of patients with strokes identifies

[12] Simon, *Practical Knowledge*, 52.
[13] Id., 5, 54.
[14] Maritain, *The Degrees of Knowledge*, 334.
[15] Simon, *Practical Knowledge*, 17.

study participants, and carefully screens them for any indication that the proposed exercise might be detrimental before beginning the study. Unfortunately one patient accidently tips over a glass of water just as he begins the activity and falls, suffering a serious hip fracture. Here a chance occurrence has intervened to prevent achievement of the desired goal of successful rehabilitation following a stroke. The researcher, however, is not held responsible because of her conscientious development of the protocol and because of her attempts to assure the best outcome for the patients. The truth of her judgment was a truth of direction. Needless to say, as Simon points out, such a search for truth in these practical inquiries relies in important ways on the character of the investigator. She must be virtuous in the sense that she is conscientious to gather all pertinent information, meticulous in the design of the study and always determining her actions by the good of the patient rather than perhaps by the prestige she might enjoy as a result of a successful study.

The Quest for Certainty

It is worth noting that an important mark of practical wisdom is the reality that *all* pertinent information is *never* available to the agent. Thus, practical decisions are always clouded by a certain level of ignorance and uncertainty. As well, chance or the intersections of some unforeseen cause resulting from the action of a person exercising his or her freedom to make choices can also intervene and disrupt the situation. Further, the complexity of human biology in its particularity in each precise patient in time and space introduces myriad unknowns into the situation. For this reason general rules that obtain in many, even most cases simply cannot be expected to apply in all cases. The person of practical wisdom must accept this and makes good judgments about what information is necessary and when it is appropriate to stop searching for new information in order to act in a timely fashion. Finally, because contingency and unique differences are always a factor in particular situations the action achieved can only aspire to a level of probability rather than to certainty. The judgment that determines the action is certain by way of direction but the outcome remains only probable due to the reality of contingency and chance. Practical inquiry, imbedded as it is in the concrete, particular and often rapidly changing world is often a messy business.

Finally, there is an important way in which the practical judgment, the one that determines the action is radically incommunicable.[16] It is true that often we are able to explain our judgments in a manner that is persuasive to a listener. However, usually this ability arises not from the nature of the judgment but from the salient features of the situation that may be similar enough to allow the listener to understand. Simon calls this "a host of inconclusive considerations."[17] But these considerations are not the cause of the certainty of the judgment and will not be persuasive in the face of profound opposition. The certainty arises from the direction of the judgment, the inclination or goal to carry out an action that will be the best suited for this occasion. As noted, that certainty remains even where the outcome is not the best. In reality each practical judgment occurs in the context of a radically unique and unrepeatable situation such that the right or wrong of the judgment that determines the action is likely to resist complete justification. Every concrete action occurs in a specific time and place and under unique circumstances in the sense that this precise time, place, circumstance and connection of unique persons will never be repeated. Because of these particular realities the precise judgment about how to proceed must itself be unique in its nature. While principles and rules may guide us, each new situation raises differences that require a judgment about how, or to what extent a rule applies… if it applies at all. Given this radical singularity of the reality it is really more surprising that we often can explain our judgments to others.

In review, the hallmarks of practical knowledge are: (1) rather than being a search for knowledge as such, practical knowledge has for its goal the guidance of action that arises from the knowledge; (2) no longer an analysis of essences into principles and causes, it is a synthesis or union of both knowledge and action; (3) its judgment achieves certainty by its direction to a good end while its outcome remains only probable; finally, (4) its truth is a truth of direction rather than consonance with fact.

Given that nursing is essentially a practice discipline, nursing's knowledge would seem to be practical knowledge. But that is not the end of the problem. Clearly there is an important distinction between the kind of knowledge generated and used by the nurse theorist and the knowledge generated and used by the nurse scientist or nurse clinician. Nurse clinicians regularly complain that much of what is known as nursing theory has

[16] Id., 23–25, 71–76.
[17] Id.

little or no bearing on their daily practice. Others would argue that much, if not all, of nursing inquiry does not reach the level of "science."[18]

Simon and Maritain spent much energy investigating the nature of the practical sciences and their analysis is instructive. Maritain argues that there are four distinct kinds of knowledge, three of which can rightly be called "science."[19] Maritain's argument is that while inquiries that pursue knowledge for the sake of action are not strictly sciences, they share important similarities with scientific investigations and thus should be understood to be limited kinds of science. Simon examines these kinds of science in terms of their scientific character, paying particular attention to the two middle areas that Maritain called "speculatively practical science" and "practically practical science."[20]

Theoretically Practical Knowledge

The Goal

Maritain argues that political and ethical inquiries belong to what he calls "speculatively practical science." Simon uses the term "theoretically practical" knowledge due to his concern about the somewhat pejorative connotation that accrues to the term "speculative" in contemporary discourse.[21] In theoretically practical inquiry, the problem is not simply what to do but rather why we should act as we do. Thus, there is a clear direction to action which gives it its practical character while its explanatory function accounts for its theoretical character. Maritain argues that the mode of investigation here makes it truly a science.[22] That is, it is a function of our intellectual and cognitive abilities as we examine the world of practical action from the point of view of their "*raison d'être* and their intelligible structures."[23] We are interested to discover why action must be of a certain type to be true and good and what precisely accounts for such actions being right in particular situations.

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[18] Steven D. Edwards, "The Idea of Nursing Science," *Journal of Advanced Nursing* 29 (1999).
[19] Maritain, *The Degrees of Knowledge*, 330–338.
[20] Simon, *Practical Knowledge*, 41–87.
[21] In this paper the term "theoretical knowledge" will be used except where there is a direct reference to Maritain's account.
[22] Maritain, *The Degrees of Knowledge*, 331.
[23] Id., 331–332.

Simon agrees with Maritain, arguing that the goal of ethical or political theory is to explain the things that pertain to the particular area and to answer theoretical questions. Their primary goal is to understand ethical or political actions in their essences. Because nursing is an essentially practical endeavor even the most theoretical questions, like those of political and ethical theory, are ultimately directed to understanding the practice discipline itself. Thus, the questions about the nature of nursing itself or of issues like caring in nursing would more likely belong to this realm of theoretically practical inquiry.

The Methods

In this inquiry the theorist abstracts from the particular aspects of specific situations, for example hospital or clinic nursing in America or Africa, to identify the structures of nursing or of caring that would apply to all different nursing and caring situations. This level of thinking, Maritain and Simon argue, seeks to develop principles and rules and to direct action from afar.[24] It directs action apart from the particulars and contingencies that are a distinguishing characteristic of practical judgments. While students of ethics, politics and nursing regularly seek rules that will directly determine their particular actions in specific situations they are often, perhaps usually, frustrated in this desire. This is precisely because the principles and rules developed at the level of theoretically practical knowledge are abstracted away from many of the particulars of day to day situations.

Simon goes so far as to suggest that the distance between the last rule of moral action and the practical judgment in a specific situation may be almost infinite.[25] In fact, that moral, political or nursing rules and principles do guide action in particular situations is because the salient specifics of many particular situations are themselves similar while the differences of the particular situation do not significantly alter the best course of action. If we think about the situation of inserting a venous catheter, the usual principles of sterile technique and the like will certainly apply but the situation might be quite different if the situation were a life or death emergency where sterile supplies were unavailable such as in a chaotic war situation.

[24] Simon, *Practical Knowledge*, 101; Maritain, *The Degrees of Knowledge*, 332.
[25] See also Yves R. Simon, *A Critique of Moral Knowledge*, trans. Ralph McInerny (New York: Fordham University Press, 2002), 42; *Practical Knowledge*, 79.

Simon also argues that inquiry at this level is analytic in two important ways.[26] First, when we understand analysis to mean to explain something in terms of its principles and causes we see that theoretically practical inquiry is an analytic activity. Thus, nursing theory seeks to understand the essence of nursing to understand whether it is a unitary or a complex phenomenon.[27] It also seeks to identify and explain principles and causes of various nursing outcomes that are found in a variety but not all nursing practice situations. Thus, it searches for unique principles of community nursing that might differ from those of hospital based nursing or distinguish nursing practiced in developed countries from nursing in remote aboriginal situations. Further, when we understand analysis in its more contemporary meaning of decomposing a complex whole into its essential parts, this level of theorizing is understood as analytical again. That is, where we seek to understand the facets of nursing such as caring, ethics, and professional intimacy, for example, we examine nursing into its constituent aspects.

The Quest for Certainty and Truth

Finally, insofar as theoretically practical inquiry abstracts from the particulars and contingencies of specific situations and actions and insofar as it achieves an intelligible account of essences, principles, and causes its knowledge achieves a level of certainty that is a hallmark of science. The certainty of the theoretically practical judgment arises from the fact that the judgment follows necessarily from axiomatic principles. Simon notes that in any area of scientific inquiry the areas where such axiomatic certainty actually pertain are very limited.[28] This is because the knowledge needed to support such complete agreement is not yet available. Slowly over time such principles are identified and added to this small nucleus of knowledge from which new questions continue to be spawned and around which less certain principles continue to reside. The truth here is theoretical truth rather than truth in a more limited sense. It is either true or not, consonant

[26] Simon, *Practical Knowledge*, 53.
[27] P. G. Reed, "Nursing: the ontology of the discipline," *Nursing Science Quarterly* 10:2 (1997); B. Riegel et al., "Moving beyond: a generative philosophy of science," *Image J Nurs Sch* 24:2 (1992); M Rogers, "Science of Unitary Human Beings," in *Explorations on Martha Rogers' Science of Unitary Human Beings*, ed. V Malinski (Norwalk, CN: Appleton-Century-Crofts, 1986); C. Roy, H. Andrews, *The Roy Adaptation Model*, second ed. (Stamford, Connecticut: Appleton & Lange, 1999).
[28] Simon, *Practical Knowledge*, 70.

with a real state of affairs or not.[29] For example, nursing is either an ethical activity or not. If this is true, it is true of all nursing in all contexts and over all times when nursing is practiced.

To review, then, theoretically practical inquiry seeks knowledge for its own sake that is not necessarily directed to specific action when it searches for essences and intelligible structures. In addition, insofar as it is directed to areas of endeavor that are essentially practical its inquiries always carry something of this practical goal. It is analytic in that it analyzes complex situations into constitutive parts and insofar as it seeks an understanding of causes and principles while retaining something of its practical flavor as its knowledge is directed to a practice discipline. It abstracts away from contingent and particular circumstances in order to achieve an understanding of immanent principles and essences and thus achieves a level of certainty consistent with science. Finally, its truth is a truth of consonance with reality rather than a truth of direction.

Practically Practical Inquiry

Much ethical, political and nursing research is directed to rather strictly practical questions of the sort, "Will the intervention change the outcome or the ethical character of this kind of situation?" This level of inquiry is certainly predominant in nursing literature and due to funding issues is increasingly the focus of most biological and "scientific" research. It is this sort of inquiry that Maritain argues deserves the name of science, albeit a limited kind of science, and Simon argues is an important kind of inquiry between theoretically practical science and prudence itself but lacks the characteristics of scientific inquiry. For Maritain, the issue is largely about the vast universe of knowledge found in the various professions including medicine, banking, architecture, military strategy and the like. Such knowledge does not seem to fit comfortably into the traditional range of knowledge identified by Aristotle and Aquinas which speaks about science and prudence. Yet, such inquiry is abundant, important and worthy of our attention.[30] He argues that this knowledge has some characteristics of both science and prudence and thus calls for an analogical expansion of our account of science to address this reality.

[29] Id., 69.
[30] Maritain, *The Degrees of Knowledge*, 334–335.

To understand this debate I will review Maritain and Simon's discussion of practically practical inquiry with particular attention to the characteristics of science identified in the previous sections which include the goal, the methods, its certainty and its truth.

The Goal

Maritain and Simon agree that the goal of practically practical inquiry is primarily practical. That is, it is to guide and form action. Maritain points out, however, that this level of inquiry is not to determine concrete specific action. Its role is to guide the professional in his/her action and requires a prudential judgment about the "fit" of any particular rule or guide in a given situation. Maritain notes that the results of this inquiry does not issue an imperium "Do this," but rather issues a guide "This is what is to be done" [in these kinds of situations].[31] Simon points out that the goal here is not a theoretical one as in theoretically practical inquiry where we are searching for principles and axioms that account for why things are as they are or why certain actions are right or wrong.[32] The goal now is to identify what action to carry out and how to best achieve it. Because the goal is so crucial to the identity and character of the inquiry Simon sees the goal as the pivotal issue. It determines the methods, the certainty and the truth.

The Methods

In their discussion of the methods of practically practical inquiry both authors pay particular attention to the role of concepts and explanations as well as to the kind of synthesis found here. Maritain tells us that practically practical inquiry is synthetic in the sense that it gathers prior knowledge, experience and pertinent information together to organize it from a new point of view, that is to use it to guide action.[33] He argues that here the investigator uses scientific principles and rules as she inquires into the reasons and explanatory structures of the actions and goals in question.[34] In fact, practically practical science relies on the principles and causes identified by theoretically practical science as the basis for its investigations. He notes that the scientific nature of the practically practical inquiry is indicated by the "universality and cogency of the *raisons*

[31] Simon, *Practical Knowledge*, 108; Maritain, *The Degrees of Knowledge*, 334, n. 12.
[32] Simon, *Practical Knowledge*, 100–101.
[33] Maritain, *The Degrees of Knowledge*, 334.
[34] Id.

d'être."[35] That is, using universal principles from science as well as data from particular experience the investigator identifies specific actions that will effect specific results in particular kinds of situations. When this plan of action is systematically developed using its data well and following the rules of scientific investigation and logic, its rules of action will be persuasive and reasonable. While the focus is on specifics of both action and situation it nevertheless abstracts from many particulars of the concrete situation where it will be enacted. It is focused on particular actions and yet does not/cannot completely determine them. Maritain notes that this kind of inquiry is permeated by knowledge by connaturality or inclination.[36] The virtue of the investigator in terms of strict focus on the good goal at issue radically affects the way the investigator gathers the data, evaluates them and identifies appropriate action. Further, and at least equally important, this inclination also helps him recognize related useful universal principles and experiential data and then put them together in practically appropriate ways.[37] Maritain agrees with Simon that the kind of explanation that is found here is practical. It is about what works or what is to be done or avoided.

Methods: Synthesis

In his usual probing and enlightening way, Simon examines in some depth the types of synthesis, the kinds of concepts and the role of explanation in these various kinds of inquiry. The mark of prudential judgment is what he calls the "synthesis of realization." Here the judgment, "This is to be done in this concrete situation" is wedded to a particular action becoming the specific form of the action itself. This kind of synthesis is the mark of prudential judgments and is not found in other kinds of inquiry. A second type of synthesis that he sees as a qualified synthesis of realization brings together not a principle with action but rather the various conditions necessary for action.[38] A third type is a synthesis of connection bringing together various principles and experiential data in order to understand the nature of things. This would be one of the kinds of synthesis Simon suggests could be found in theoretical inquiry. Simon notes that practical judgments as such could use both the synthesis of realization and the quali-

[35] Simon, *Practical Knowledge*, 107.
[36] Id.
[37] Id., 107–108.
[38] Id., 54.

fied synthesis.[39] It makes sense to suggest that theoretically practical inquiry could use both the qualified synthesis of realization insofar as it is directed toward guiding action and synthesis of combination insofar as it seeks the nature of particular actions.

Methods: Concepts

Continuing in this attempt to clarify the issues associated with practically practical action Simon distinguishes three types of concepts that are used. In his earlier work *Critique of Moral Knowledge* originally published as *Critique de la Connaissance Morale*, Simon quotes Maritain noting that the way we conceptualize issues is determined by the kinds of questions we are trying to answer.[40] He goes on to point out that philosophical concepts are used to speak about the natures of things and the principles that define those natures. What he and Maritain call "emperiological" principles are used to speak about how one could identify a particular thing, what we would see or hear or measure in order to distinguish one kind of being from another. For example, Darwin's finches were identified by their various beaks which allow them to access food from very different kinds of plants or flowers. Practical concepts on the other hand are used to help one understand how to achieve a goal. Focus, for example, is the concept that is used to help athletes, musicians and dancers to achieve their various arts. Discussing the practically practical sciences, Maritain's account tells us that in the theoretical sciences including moral philosophy in its theoretical aspect, concepts are achieved as a result of abstraction in order to make intelligible the natures of things.[41] For example, the nursing account of caring is abstracted from the many kinds of caring that are found in life. Simon calls that answering the question, "What are the things? However, in the practical sciences concepts answer the practical question is, "What ought we to do?"[42]

Methods: Explanation

Simon also examines the role of explanation in the sciences.[43] Simon notes that one might wonder if there could even be a practical explanation. It might seem that explanations are essentially theoretical. However, if we examine the explanations sought in practical situations we find

[39] Id., 52.
[40] Simon, *A Critique of Moral Knowledge*, 50–51.
[41] Maritain, *The Degrees of Knowledge*, 346.
[42] Simon, *Practical Knowledge*, 82.
[43] Id., 83.

that they are practical rather than theoretical. When we are late for a meeting, for example, we aren't looking for a causal account which might include that my watch was slow because its battery was running low because batteries only last a limited period of time, etc. But that isn't really the issue. Rather, the problem is how not to be late the next time. Now the chain of reasoning includes identifying a low battery and ends with replace the battery soon. Explanations here are not about principles and causes but about how to act in the future.[44]

Simon follows Aristotle in the *Posterior Analytics* in his definition of science, where explanations are certain and certainties are explanatory.[45] He points out that the discipline that employs purely practical explanation enjoys a different intellectual *habitus* than that of a theoretical *habitus*.[46] Its goal of inquiry would be in search of right action rather than in search of certain knowledge. In such a case Simon tells us the science and its explanations would at best be understood to be "theoretical by priority and practical by posteriority."[47] That is to say, the theoretical principles that provide the basis for the science and its explanations would be prior to the explanation that guides the action.

As we saw, Maritain argues that practically practical inquiry depends on speculatively practical knowledge. For example in nursing, the principle that states that skin integrity is important to protect from infection can be seen as a theoretical principle expressing an important truth about the nature of human skin and its role in preventing infection. This principle serves as the basis for many standard nursing practices which include: turning patients from side to side, keeping their skin clean and dry and so on. The principle, then, is theoretically prior to the standards of nursing care both essentially as their theoretical foundation and temporally as the precursor of such standards.

In his reply to Simon's letters of February 11th and 15th, 1961, Maritain agrees that the kinds of explanations that are achieved in the practically practical sciences are practical in their nature. He also notes that

[44] Id., 83–84.
[45] Id., 85.
[46] Simon uses the term *habitus* to speak about a habit of the mind and of action that is thoughtfully directed to a goal. Thus a theoretical *habitus* would arise from a consistent use of intellectual actions in search of theoretical knowledge. Practical *habitus* would follow from a consistent use of intellectual and practical actions in search of right action. See *The Definition of Moral Virtue*, 55–61.
[47] Simon, *Practical Knowledge*, 85.

such practical explanations are not "totally individualized as [they are] in the case of prudence."[48] A certain level of abstraction is necessary for these rules to be developed, to function and to guide concrete action. Maritain goes on to say that "it suffices that the explanations be certain and proceed from *universal* and cogent *raisons d'être* for them to pertain to a science."[49] Thus our previous examples of the role skin integrity and preventing infection would arise as a result of theoretically practical inquiry and provide a universal guide and it is a reasonable and persuasive explanation of the particular standards of nursing care around mobility and cleanliness.

The Quest for Certainty

As we saw, Maritain's position is that it is sufficient to a practically practical science that the explanations are certain and arise from "*universal* and cogent *raisons d'être*."[50] Simon argues that the presence of both certainty and explanation alone are not enough to satisfy the requirements of a science.[51] Again he refers to his definition of science where explanations are certain and certainties are explanatory. He points out that the meaning of scientific certainty refers "not to the perfect establishment of any kind of truth, but definitely to the firmness of explanation."[52] Thus, it would not be enough that our principle of skin integrity be certain but also that the explanations about how and when to act arising from it must also be certain. Such certainty would be impossible in the world of contingency that is found in practical activities even those that are abstracted some distance from the practical action itself. That is, the explanation of the actions to be regularly taken to protect skin integrity can at best be generally likely to achieve their goal of preventing skin breakdown and subsequent infection. Other factors such as the presence of debilitating diseases or inadequate nutrition are also implicated in the issue.

Simon argues that certainty arises from only two sources, analysis into principles and causes or self-evident truths, which Maritain agrees cannot happen in practically practical inquiry, or "right inclination of the appetite" of the agent.[53] We noted above that Maritain agrees that the practically practical inquiry is permeated with the need for the good inclination

[48] Id., 107.
[49] Id.
[50] Id.
[51] Id., 101.
[52] Id., 86.
[53] Id., 102.

of the heart that he calls connatural knowledge. It functions both to assure the nature of the action toward the goal and to open or alert the mind of the investigator to principles and truths that would apply.[54]

It is worth noting that Maritain argues that perfect or complete virtue is not absolutely necessary for inquiries into science and art as it is in ethical action as such. That is, the goal of an art or a science is what forms and determines the *habitus* and the actions of the agent. There is a distinction between the goal of the art or practical science and the goal of human actions as such. The goal in nursing is the good of the patient. Every nursing intervention is directed to this end. The goal of human action as such is to achieve human happiness or a good life. This means that actions required of nurses acting for the good of their patients must also be good for the nurses as persons. In practically practical science the goal of good science must be to achieve a goal that is scientifically sound and which will then also be good for the researcher as a human person. So, for example, the medical research done in Nazi Germany on Jews might have been good science but it was destructive of the nature of the researchers themselves because it was destructive of the persons who were used as human subjects. While perfect virtue is not necessary in the practical sciences and the arts, significant virtue is nevertheless needed.[55] Insofar as the practical science is seeking rules for action abstracted from concrete situations the good of the science itself is the main issue. Insofar as the science is seeking rules for action to be carried out by human persons the virtue necessary to determine the person's good action is also required. What this means is that in terms of the science itself the investigator must be clear about the goal and committed to pursue that goal without interference by other competing goals. Further, the researcher must keep in mind her own human good and the good of the clinicians who will carry out these procedures. Thus, some strength of will and courage are often needed to stay true to the goal in difficult situations. For herself, she must be aware that where funding is an ever important factor, investigators might be pushed by their funding agency to alter or suppress some of their data and she must resist the temptation. For the clinicians she must develop policies that do not put them at risk of harm; for example, she must develop careful procedures to prevent exposure to toxic chemicals in carrying out cancer chemotherapy protocols.

[54] Id., 107–108.
[55] Maritain, *The Degrees of Knowledge*, 334.

Simon concludes, then, that it is not enough that inquiry have both explanation and certainty. The explanation must itself be the source of the certainty.[56] The goal is crucial in his account of the nature of the enterprise.[57] Because the goal of practical inquiry is to answer questions about how to act or refrain from acting the nature of the concepts, the synthesis and the explanation are also primarily practical. Because theoretically practical science is primarily theoretical with the goal of directing actions from afar it can qualify as a science. However, according to Simon since the primary goal of practically practical inquiry is to guide action with the resulting practical concepts, explanation and synthesis, it is not enough to count on its limited abstraction from concrete situations and its reliance on theoretically practical science for the principles to guide its explanation as adequate reasons to justify its designation of science.

The Quest for Truth

Beyond the goal and the methods of practically practical inquiry, Simon and Maritain examine the kind of truth that can be found here. Maritain points out that there is "no question here of resolving a truth, even a practical truth, into its reasons and principles."[58] Since we are talking about the truth of an action rather than the truth of a nature or an entity we must look to the direction of the action to assess its true nature. The issue is the way truth is achieved in this sort of inquiry. He reminds us that it is a synthetic procedure gathering everything that is already known, "all the explanations, principles and *raisons d'être*" to organize them for concrete action.[59] Causes and principles will be multiple and distinct and as such will not allow for a unified understanding of the essence of the thing. Thus the nature of any concrete action can only truly be assured by the inclination of the agent.

Simon gives a nice discussion of the problem of truth in the practically practical sciences in *A Critique of Moral Knowledge*.[60] He reminds us that theoretical truth expresses a consonance between the knowledge and the facts of reality where practical truth expresses a consonance between the direction of the will of the agent and the good goal or end to be achieved. He notes that in prudent judgments these two kinds of truth,

[56] Simon, *Practical Knowledge*, 101.
[57] Id., 103.
[58] Maritain, *The Degrees of Knowledge*, 334.
[59] Id.
[60] Simon, *A Critique of Moral Knowledge*, 56–57.

theoretical and practical may not always coincide. An example might be where a researcher is investigating the efficacy of a certain medication in helping patients tolerate higher levels of activity in the face of significant heart failure. After carefully testing the medicine in the laboratory with animals in heart failure she cautiously begins a clinical trial. She carries out all appropriate testing on the research participants prior to beginning the trial. Unknown to her or to the patient one of the participants has a rare genetic mutation such that the investigation drug causes a cardiac arrest. The facts of the reality were not consonant with the goal of the research or with the virtuous direction of the will of the researcher. Yet, no one knowing the facts would blame the researcher for the bad outcome. We all know that unforeseen circumstances can always interfere with our best intentions and actions.

Simon notes that in practically practical science, theoretical and practical truth should always coincide. However, problems arise. Speaking of moral philosophy which he understood to belong to theoretically practical science, he tells us that the practitioner "who aspires to *scientific* direction of conduct has no business formulating a maxim that may turn out to be disastrous."[61] There are two issues here. One is the goal of the science and the right direction of the investigator's actions to achieve accurate knowledge of the reality she is studying. The other is the goal of directing human action. Because the investigator is committed to good action and gives the direction for action from that good will, Simon says that where the protocol has carefully followed the rules of good science research while the end result turns out to be bad, the researcher would be innocent both as a scientist and as a person. But because we are talking about scientific knowledge and scientific direction of action, the investigation must be thorough and precise enough to prevent the promulgation of action guidelines that might cause harm to patients or the clinicians who carry them out.

Simon goes on to say that if we could permit any dissociation between theoretical and practical truth, it would be in a very limited sense.[62] "A practically true concept . . . can be speculatively false only in the sense in which a concept emperiologically true can be ontologically false."[63] An emperiological truth expresses knowledge about how we can know or

[61] Id.
[62] Id., 57.
[63] Id.

measure a thing. Ontological truth speaks about the nature of the thing. For example, a ray of light can be understood to be either a wave or a particle depending on the method one uses to measure it. Modern scientists tend now to believe light to have a dual character, both wave and particle, each evident in different situations.[64] Thus, the emperiological truth of the measurement is rather different from the reality of the light itself. An example in nursing might be that fairly rare instance where the patient's electrocardiographic tracing shows a normal sinus rhythm (emperiological truth), while the patient's heart is actually in cardiac arrest (ontological truth).

In a note to this discussion Simon points out that due to the nature of practically practical science and its goal of action there arise situations where the result of carrying out a rule of action may be disastrous and yet not be the fault of the investigator either as a person or scientist. What he indicates are rather frequent issues of interpretation. He suggests that it is the case that practical maxims can be taken as theoretical and thus mistakes can be made about the nature of the thing in question. Here he refers to the problems of Manichaeism and similar mistakes that arise from various misunderstandings of the nature of the writings of the mystics.[65] In *Practical Knowledge* Simon also suggests the opposite problem where a maxim of guidance is taken as a maxim of concrete direction requiring no further reflection.[66] As we know, rules of direction both in morality and in scientific knowledge are often seen as applying to all situations where they can rightly only apply in certain particular circumstances. Because the rules or guidelines set out by practically practical sciences are abstracted, at least to some extent, from concrete situations their use in concrete situations always requires a prudential judgment by the agent seeking to apply the guideline.

In conclusion, then, the goal for Maritain in positing practically practical inquiry as a kind of science was to identify a place in the range of human inquiries for this rational, systematic investigation into reality that is found in the many and varied professions and that is increasingly becoming the dominant kind of inquiry. There must be a place between science and prudence for this important work. Because it abstracts from the par-

[64] Kenneth R. Spring and Michael W. Davidson, "Physics of Light and Color," *Optical Microscopy Primer* (2003) [http://micro.magnet.fsu.edu/primer/lightandcolor/particleorwavehome.html, accessed on 05.08.2014].
[65] Simon, *A Critique of Moral Knowledge*, 57 n.
[66] Simon, *Practical Knowledge*, 54.

ticular and contingent reality, inquires into reasons and explanatory structures, and issues guidelines for practice that require prudence for their execution, according to Maritain, its distinction from prudence and its nature as a limited kind of science can be seen.

For Simon, on the other hand, the practical goal of practically practical inquiry rather strictly determines the kinds of synthesis it uses, the qualified synthesis of realization and the synthesis of connection, as well as determining its concepts and its explanations. They are all directed to the question, "What should be done" in the future and in rather concrete cases. He argues that there is not enough of the scientific nature to justify even an analogical relation to science. According to Simon, while he acknowledges that these inquiries are widespread, important and worthy, he is increasingly clear that they are not sciences.

This author is very sympathetic to Maritain's point that there is a real need to give a philosophic account of these inquiries and to identify their place and role in the search for human knowledge. They are systematic, they abstract from reality to a greater or lesser degree, thus they all allow a kind of certainty and for some predictions about future beings or situations, and perhaps most important, their overall goal is for understanding… true, understanding for action, but understanding nonetheless. On the other hand, Simon's careful examination of the differences between practical and theoretical science is very persuasive.

To think about this again I turned to an earlier writing by Simon, "On Order in Analogic Sets."[67] Here Simon tells us that beginners in logic always hope that there is, in an analogic set, some meaning, however small, that the analogates share in common.[68] But, he tells us, they are bound to be disappointed. He goes on to say that in proper proportionality there is one form that is "intrinsically present in all the analogates."[69] But, "this form is not the same in any two cases . . . when a feature is but analogically common, there is not in it anything that be common purely and simply."[70] Perhaps the search for understanding which is predicable of all the inquiries Maritain calls science is the common form in all these inquiries, theoretical, theoretically practical and practically practical. The significant differences in the way that each must be carried out to achieve their

[67] "On Order in Analogic Sets," *The New Scholasticism* 34:1 (1960).
[68] Id., 6.
[69] Id.
[70] Id.

differing goals would reflect the important differences that call for an analogical account of the relationship. Simon later points out that the sciences are qualities relative to objects.[71] They are qualities of the mind, a relation between the investigator and the object of this search for understanding. That is, they are a *habitus* of the mind that seeks understanding of their various objects. If this is correct it seems reasonable to suggest that the investigator searching for understanding of how to carry out specific actions to achieve the highest good would develop a scientific *habitus* of his mind that supports his searches. Thus, perhaps Maritain is correct to argue that practically practical inquiries can be analogically classified with the sciences. In any case we now have a much better account of the various kinds of inquiry that will be helpful as we investigate the search for understanding of the sciences and practices that are found in the nursing literature.

Nursing Theory/Sciences

In the late 1960s a series of conferences were held to explore the meaning and role of theory in nursing. Nursing education was moving away from training that was hospital-based, often largely physician taught, toward education in university settings taught by nurses. As a part of this transition there was a desire to identify nursing as an independent profession with its own knowledge base and research trajectory. These conferences, then, were the beginning of a serious and ongoing attempt to understand the different kinds of inquiries that would provide the knowledge base necessary to educate future nurses.

Two significant accounts of the kinds of theories appropriate and useful in nursing practice set the stage for the discussion that continues today. In the first account by James Dickoff, Patricia James and Ernestine Wiedenbach published in 1968 the goal of some kinds of theory is to quiet "the mind's demand for a conceptual grasp on reality."[72] Nonacademic theories were those that were "for a purpose beyond mere understanding."[73] Thus, in the nursing literature the term theory indicates the result of a search for understanding either in itself or for some practical goal. Alter-

[71] Id., 23.
[72] James Dickoff, Patricia James and Ernestine Wiedenback, "Readings from Nursing Research I: Theory in a Practice Discipline," in *Approaches to Nursing Research and Theory Development* (New York, NY: The American Journal of Nursing Company, 1969), 430.
[73] Id.

natively in general, the term "science" used in nursing literature is used in the more contemporary sense of empirical investigations using a hypothetical-deductive method. A second account was developed in 1983 by Lorraine Olszewski Walker and Kay Coalson Avant and updated in 1995. These two accounts of theory each identify four levels of theory that bear striking resemblance to the account of the sciences discussed by Maritain and Simon. Walker and Avant were certainly aware of the difficulties posed by theory that is directed specifically at practice.[74]

In the first theory of nursing theories, Dickoff, James and Wiedenbach identified four levels of nursing theory which include: factor isolating, factor relating, situation relating and situation producing.[75] They identified situation producing theory as the highest kind of nursing theory and suggested that this kind of theory depends on all the other levels. In a beautiful way this theory of theories emphasizes the ultimate goal of all nursing theory as in some way supportive of practice.

First, factor isolating theory, also known as naming theory, is conceived of as a way of classifying various realities, of articulating concepts and distinguishing one reality from another. In an early note to this discussion the authors point out that these various inquiries require philosophic skills or habits of the mind that allow the theorist to make distinctions and to keep distinct things that are separated while also seeing relationships between realities and situations that are important.[76] While they do not speak about the quest to understand the nature of things as such, it is clear that in order to achieve accuracy the process of making distinctions requires an understanding of the nature of the things involved. Clearly, abstraction from particular reality and analysis of the beings in question are also necessary.

According to Dickoff, James and Wiedenbach, factor relating theories are where concepts that have previously been isolated are identified in

[74] Lorraine Olszewski Walker, Kay Coalson Avant, *Strategies for Theory Construction and Nursing* (Norwalk Connecticut: Appleton and Lange, 1995; repr., Third), 12.

[75] Dickoff et al, "Readings from Nursing Research I: Theory in a Practice Discipline," 430–435. One point worth bearing in mind is that the language used by these authors to speak about the theories is often abstract and vague. They speak about inventing concepts and creating theories as if they are simply a product of the mind rather than an account of naming realities and understanding their natures. However, the authors do speak of their most abstract level, factor isolating theory, as a kind of naming and of distinguishing realities. Thus, it does not seem that this can be understood as a simply nominalist account.

[76] Id., 425.

their various static relationships to other concepts. The authors also use the term "situation depicting" to indicate their attention to the realities of the issue.[77] At the simplest level correlations are identified between factors though more complex relationships are also investigated. Simon and Maritain would likely see this as an investigation into the nature of certain relationships again abstracted from motion and particulars. The authors call this a kind of predictive theory and say little more about it as they suggest that is it well understood and thus does not require significant elaboration. Situation relating theory on the other hand examines dynamic relationships and is abstracted from some particulars and contingencies but is much closer to specific cases.[78] Here they seek to understand causal relationships and to identify catalytic or inhibitory factors that affect these dynamics.[79]

Most of Dickoff, James and Wiedenbach's attention is focused on situation producing theories which they call the highest level of theory and the level for which all the other kinds of theories are developed. They note that this level of inquiry is also known as prescriptive, normative or value theory as here the "goal content of the situation producing theory serves as a norm or standard by which to evaluate activity."[80] At this level the theorist brings together knowledge gained from the prior levels and uses it to identify specific goals and activities to be carried out by nurses in various situations. They argue that there are three important aspects of this kind of inquiry. First, it identifies a goal for specific activity, for example, to reduce pain or prevent infection. Second, they provide a prescription for the actions needed to achieve the goal. And finally, they argue that a survey list is necessary to assist the clinician to decide when and where this prescription might be helpful. Important about the survey list is that it emphasizes the gap between knowledge and practice and reminds the clinician that prudent judgment is necessary before enacting the prescription.[81]

It is not too difficult to suggest how this theory of theories can be understood in light of the kinds of science identified and discussed by Simon and Maritain. Because factor isolating and factor relating theories and their inquiries abstract away from particular reality and seek to understand factors such as pain or caring or fear, it would seem that they would belong to the category of science as such; however, because they are spe-

[77] Id., 431.
[78] Id.
[79] Id., 433.
[80] Id.
[81] Id., 434.

cifically and intentionally directed to the practice of nursing itself it is clear that they must belong to the category of theoretically practical science. Here as in moral philosophy and other similar inquiries the gap between understanding and practice is often seen to be great. Nurse clinicians regularly complain that nursing inquiries of this sort have no real meaning for them.

Situation relating theories would also likely fit into the category of theoretically practical science. Like moral philosophy they examine the issue of human use. How does a good nurse act to achieve the goal of good patient care? Here the analysis is for the sake of understanding various relationships in order to predict which actions are likely to achieve the more general goal of good care. As in moral philosophy, the areas where certainty can be achieved remain rather limited but increase as more investigations are carried out. The truth, where it is found, will be a truth of fact consonant with reality. For example, actions designed to reduce or prevent infection are always an aspect of nursing care.

Situation producing theory seems clearly to fit into the category of practically practical inquiry. Like Maritain, they stress that there remains a gap between prescriptive action and the specific action necessary in particular concrete situations. Here a qualified synthesis of realization is achieved as the theorist brings together the knowledge from other levels of theory with knowledge from other disciplines and data from experience to identify goals for care and specific actions to achieve these goals. Truth here will depend rather completely on the goodwill of the theorist whose commitment to both the good of the patient and the good of the nurse who will enact these protocols is always kept clearly in focus. The theorist must always allow the goal to completely determine the specifics of the actions envisioned.

The second theory by Walker and Avant also posits four levels of theory with a slightly different emphasis.[82] They point out that if the relation between factor isolating theory and practice theory in Dickoff, James and Wiedenbach's theory is not kept clearly in focus, the term "theory" in practice theory would be a "rather generous extension of the usual meaning of theory."[83] They also suggest that it is helpful to clarify the links between the levels of theory. In this theory the most abstract kind of theory is called meta-theory and is followed by grand, mid-range and practice theories.

[82] Walker et al, *Strategies for Theory Construction and Nursing*.
[83] Id., 12.

According to Walker and Avant, each level interacts with other levels, often those adjacent, by informing and being informed. Thus, meta-theory clarifies the methods and roles of the other levels and is provided material for analysis and clarification by each.[84] Grand theory guides and suggests heuristic methods for addressing the phenomena that are at issue in mid-range theory. In return it is provided material for refinement and clarification. Mid-range theory identifies goals and provides rules and guidelines for practice theories which indirectly evaluate them.

In a recent article drawing very heavily from the work of Walker and Avant, Patricia Higgins and Shirley Moore review and discuss the theory.[85] They point out that the goals of these inquiries are usually either explanatory or predictive.[86] They suggest that meta-theory, the most abstract and universal, is a philosophical inquiry rather like philosophy of science. It uses logic and analytic reasoning and produces knowledge about knowledge rather than identifying theoretical frameworks that describe or explain the world itself.[87] Here also is found theories about issues that cannot be explained by empirical science such as those around death and dying. They also suggest that Barbara Carper's *Fundamental Patterns of Knowing in Nursing* would be understood to be meta-theory.

The next level, grand theory includes "global paradigms of nursing science" such as the account of the nature of nursing by Florence Nightingale.[88] Here the goal is to distinguish nursing from other healthcare professions. As such they abstract from all particular reality and speak about the universal features of nursing. Because of this degree of abstraction they are seen as rather useless to practicing nurses. The authors note that there has been some significant debate about how to classify various theories citing specifically Jean Watson's *Philosophy and Science of Caring*. Is it philosophy as such or grand theory?[89]

Perhaps a way to clarify this debate is to recall that the goal of philosophy and science as such is the search for knowledge for its own sake. Insofar as an inquiry such as Carper's *Fundamental Patterns of Knowing…* is abstracted away from all particularity including that of nursing, it would

[84] Id., 13.
[85] Patricia A. Higgins, Shirley M. Moore, "Levels of theoretical thinking in nursing," *Nursing outlook* 48:4 (2000).
[86] Id., 56.
[87] Id., 57.
[88] Id., 58.
[89] Id., 59.

be a philosophical essay. But insofar as it uses information from nursing and speaks specifically about nursing as its title suggests, *Fundamental Patterns of Knowing in Nursing*, it is, in important ways, determined by its goal of understanding how nurses know. It is quite abstract but it is not universal. This suggests that both meta-theory and grand theory which are clearly directed to nursing issues would belong to theoretically practical inquiry rather than to philosophy of such.

The final two levels, midrange theory and micro range theory are distinguished largely by their scope and level of abstraction. Midrange theory is designed to explain the empirical world of nursing and its relation to philosophical theories is indirect.[90] Its goal is to guide practice rather generally such that the rules for action would function across many particular kinds or places of nursing practice. Examples might include theories and resulting guides for infection control or nutrition support or support of the patient who is dying. Because situations make a difference in practices such as infection control or nutrition support, these theories would be applicable in some but not all situations. The principles that ground these theories, they note, would come from a different kind of theory, perhaps from grand theory or from theories arising in other disciplines such as biology or psychology. These theories would be verifiable. Their goal is to "define or refine the substantive content of nursing science and practice."[91]

Micro range theory, then, is the most limited kind of inquiry and is composed of two levels. The higher-level is much like midrange theory but examines a more limited field, perhaps one or two concepts, and examines a limited area or kind of situation.[92] The authors suggest that theories related to care of decubitus ulcers might be an example. While Walker and Avant among others would call this "practice theory," Higgins and Moore disagree. They point out that all nursing theory is relative to nursing practice. Thus, to use the term "practice theory" to speak of this limited kind of theory would be too restrictive. They also speak about a second level of micro theory that would happen at the level of the individual nurse patient interaction. Here a nurse might assess a patient using all empirical data available and make a working hypothesis that the situation is X. For example, a nurse might notice that a patient with a perineal burn has begun to develop epithelial buds indicating healing. He hypothesizes that a particu-

[90] Id.
[91] Id., 59.
[92] Id., 59–60.

lar nursing procedure will enhance the healing process and initiates such a procedure.

By using Maritain and Simon's accounts of knowledge we can clarify some of the difficulties encountered in this account. In terms of metatheory and its inquiry, where the questions are truly universal rather than restricted to nursing, such as the question Higgins and Moore posit around issues of death and dying, "Is death best understood as a process or a product?," the inquiry and resulting theory would be philosophical. Where the questions are related to nursing but abstracted away from particular patients and situations, use an analytic method, develop concepts for the sake of understanding the nature of the issue, and seek truth as an accurate and adequate account of reality as in grand theory, the inquiry would be theoretically practical. Where the search is for guides to specific behavior in rather specific situations it would be practically practical as in midrange and the higher level of micro range theory. Finally, the second level of micro range theory, the more immediately practical inquiry that uses all available information for the identification of action in a specific situation, would be called prudence or good clinical judgment.

In conclusion it seems reasonable to suggest that in nursing literature one might find all levels of science identified by Maritain and Simon, though perhaps not all would be called "nursing inquiries" as such. The level of theory identified by Walker and Avant as meta theory seems very much like the traditional account of theoretical science in that it is highly abstract and uses the traditional scientific methods of conceptualization and explanation. However, its relation to nursing as a practice discipline suggests that it is as Dickoff, James and Wiedenbach argue ultimately for the sake of nursing practice. It seems reasonable to suggest, however, that some investigations found in nursing literature might be by nurses and useful in certain ways to nurse theorists without being directed to nursing itself. For example, Carper's account of the ways of knowing, which bears some interesting similarities to Maritain's account of knowledge, were it not so directly tied to how nurses know, might be of this sort. Or this author's "A Comprehensive Theory of the Human Person from Philosophy and Nursing," which attempts to give a coherent account of the human person that was inspired in part by nursing theories but speaks about persons generically might be classified as such a theoretical endeavor.

At the level of theoretically practical inquiry would be found factor isolating and factor relating theories of Dickoff, James and Wiedenbach and grand theory of Walker and Avant where issues such as the nature of

nursing and its important aspects such as caring, and other factors of nursing and situations are examined and clarified. Practically practical inquiry would, then, include the higher level of micro range theory of Walker and Avant as well and situation producing theory of Dickoff, James and Wiedenbach. Here the goal is to investigate and understand rather specific issues and practices in nursing care in order to give significant direction to the actions of clinicians. Finally, the lower level of micro range theory identified by Walker and Avant seems clearly to fit into the realm of prudential action, that kind of action that makes up the bulk of nursing practice.

By keeping in mind the goal of the inquiry and the way it uses abstraction, concepts and explanations, we are able to see more clearly how these various kinds of nursing inquiry function in our quest to understand nursing. We are thus able to understand more about the nature of nursing itself, the meaning and role of its various aspects and practices, to provide guidelines for nurses as they study nursing and to develop sound policies and procedures to assist clinicians to achieve their goal of good patient care.

DISTINGUISHING THE SCIENCES: FOR NURSING

SUMMARY

The article explores the problem of nursing as a practical discipline and suggests that there are several kinds of nursing science. Following the lead of Jacques Maritain and Yves R. Simon, the authoress begins with an account of the distinguishing characteristics of theoretical knowledge, to which the term "science" has historically been applied, and distinguishes it from practical knowledge or prudence. Next she reviews Maritain and Simon's discussion of two intermediate levels of inquiry that share some characteristics of both science and practical knowledge. Finally, using the writings of several nurse theorists whose seminal ideas in this area have established a basis for nurse theorist's discussion of these issues, she distinguishes four kinds of nursing inquiry which range from the very theoretical to the very practical.

KEYWORDS: nursing, science, Maritain, Simon.